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ALAMEDA/NAS

20 SEP 1983

California Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6040
Oakland, California 94607

Attention: Mr. Robert Samaniego

Subj: Preliminary Report of Confirmation Study for the West Beach Sanitary Landfill, Alameda Naval Air Station

Gentlemen:

Enclosed please find a copy of the subject preliminary confirmation study report for the West Beach Landfill, Alameda Naval Air Station. The confirmation study is based upon the meeting of 19 July 1983 between representatives from the California Regional Water Quality Control Board and the Navy. The purpose of the study is to conduct additional groundwater sampling and analysis to determine if hazardous materials are present in the subsurface water at the landfill.

Data contained in the subject report demonstrates that the subsurface water at the landfill is essentially void of hazardous contaminants. Accordingly, this Command believes that the closure of the landfill as a Class II disposal site is most appropriate.

Please refer any questions to Alex Dong of this Command at (415) 877-7400.

Sincerely,

VICTOR I. CRAWFORD, P.E.
Head, Environmental Management Section

Encl:
(1) Preliminary Report, Confirmation Study, Sanitary Landfill, Alameda Naval Air Station

Copy to:
NAS ALAMEDA

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Harding Lawson Associates

September 20, 1983

2176,059.01

Commanding Officer
Western Division
Naval Facilities Engineering Command
P. O. Box 727
San Bruno, California 94066

Attention: Mr. Alex Dong
Code 114

Gentlemen:

Progress Report
Confirmation Study
Sanitary Landfill
Alameda Naval Air Station, California

INTRODUCTION

This report presents the bulk of the results of our studies performed in response to the confirmation study that was recommended in the final IAS report. The purpose of tis confirmation study is to determine if hazardous materials are present at the Alameda Naval Air Station landfill. The scope of work is based upon our meetings of July 8, 1983, with Mr. Dong and Mr. Shanks of WESDIV, our meeting at the California Regional Water Quality Control Board (CRWQCB) on July 19, 1983, and our proposal dated July 21, 1983.

This progress report was prepared to provide information to the CRWQCB in time for their September 21, 1983, board meeting. Additional information will be supplied to the CRWQCB staff in our final report including:

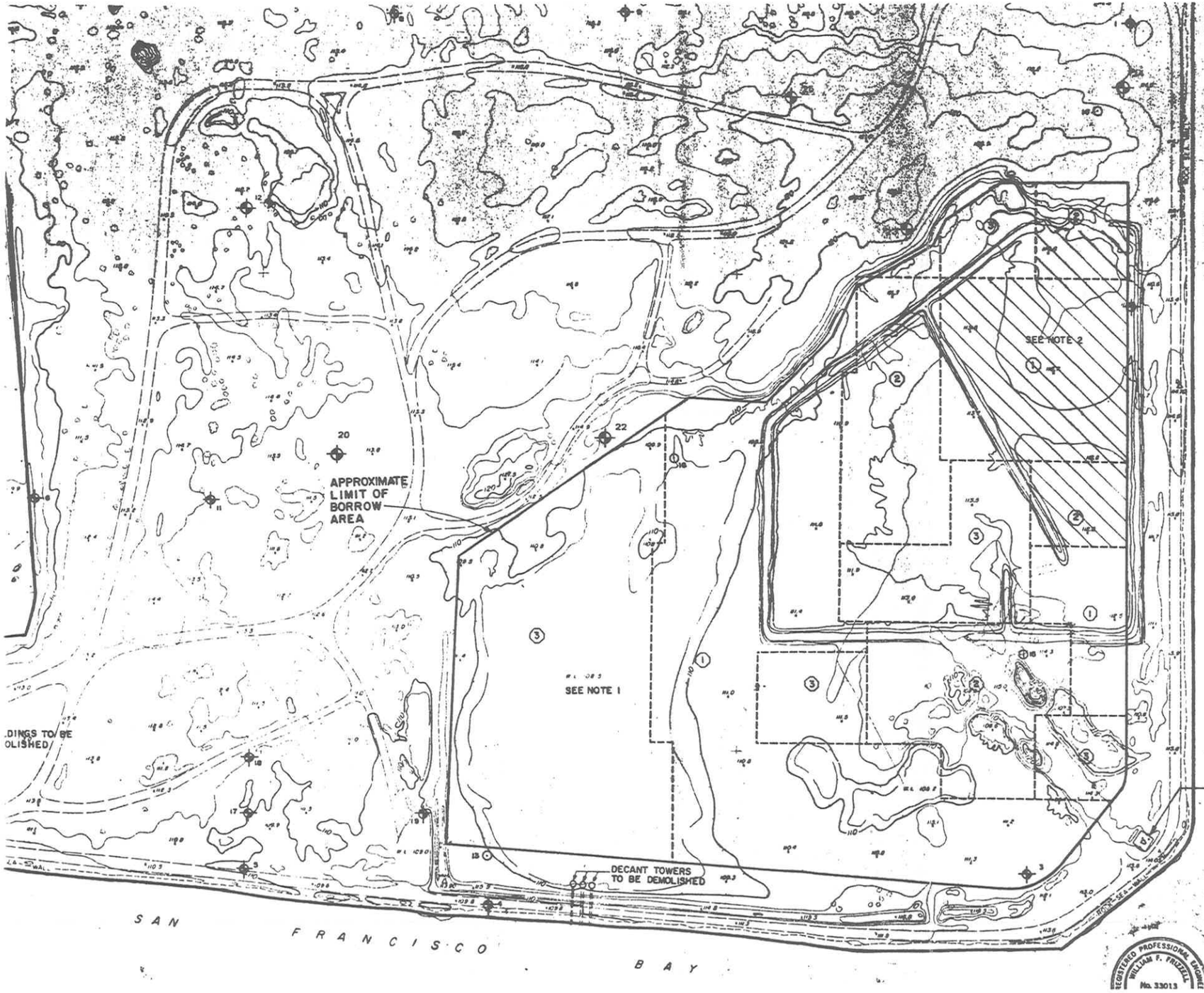
1. Boring logs of the existing and new monitoring wells, including construction data.

2. A more complete description of the laboratory testing procedures, recovery rates, blanks, etc.

3. A more detailed description of ground-water gradient and its fluctuation in the perimeter monitoring wells.

MONITORING WELLS

The 19 existing monitoring wells in the landfill were installed by HLA during a site investigation in 1976. On March 16 and 17, 1983, Monitoring Wells 3, 6, 8, 9, 12, and 17 through 19 were sampled by HLA for an initial



Boring converted to observation well - remove paving and backfill hole with bentonite pellets.

Boring abandoned.

Approximate location of special zones designation within borrow area (see specification section 02200 for description).

BORING INFORMATION

BORING NO.	DEPTH BELOW GROUND SURFACE (FEET)	SUBSURFACE DESCRIPTION
1.	0-12	Rubble Fill
2.	0-6	Bay Mud Fill
	6-12	Sand Fill
3.	0-9	Bay Mud Fill
	9-11	Clay and Sand
4.	0-4	Sand and Debris Fill
	4-16	Sand Fill
	16-27+	Bay Mud
5.	0-13	Sand, Rubble and Wood Fill
	13-26	Sand Fill
	26-30+	Bay Mud
6.	0-7	Sand and Clay Fill
	7-27	Sand Fill
7.	0-4	Sand and Debris Fill
	4-16	Sand Fill
8.	0-15	Sand and Debris Fill
9.	0-20	Sand and Debris Fill
11.	0-21	Sand and Debris Fill
12.	0-20	Sand and Debris Fill
13.	0-7	Bay Mud Fill
	7-9	Sand Fill
14.	0-3	Sand and Bay Mud
	3-9	Sand Fill
15.	0-2	Bay Mud Fill
	2-9+	Sand Fill
16.	0-10	Bay Mud Fill
17.	0-12	Sand and Refuse Fill
	12-24	Sand Fill
18.	0-12	Sand and Refuse Fill
19.	0-12	Sand and Debris Fill
	12-25	Sand Fill

FAA OUTER FACILITY MARKER
DO NOT DISTURB

100 0 100 200 300 400
SCALE IN FEET

IF SHEET IS LESS THAN 20" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

REGISTERED PROFESSIONAL ENGINEER WILLIAM F. FRIZELL No. 33013

MARDING LAWSON ASSOCIATES
Consulting Engineers and Geologists
DRGN. WFF DR. CHK. WFF
SUPV. JLW CH. ENGR. JCD
SUBMITTED BY Marding Lawson Associates 2/15/82

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
WESTERN DIVISION
SAN BRUNO, CALIFORNIA

ALAMEDA NAS ALAMEDA, CALIFORNIA
P183
SOLID WASTE DISPOSAL SYSTEM

evaluation for hazardous materials (in response to the Draft IAS report). These test results were transmitted to you in our report dated April 13, 1983; the results are attached at the end of this report.

Six new monitoring wells (Nos. 20 through 25) were installed in late July, 1983. The locations of the existing and new monitoring wells are shown on the attached plate. The borings were excavated using a hollow-stem auger drill rig. Our hydrogeologist located the monitoring wells at the site; logged the soils and refuse encountered, and obtained representative samples of the materials encountered for visual classification and possible laboratory analysis.

After drilling, 2-inch-diameter well casing was installed through the hollow-auger stem. The casing was flush-jointed PVC with 0.02-inch factory slots, fastened together with stainless steel screws. The monitoring wells were screened from a few feet below the ground surface to at least a few feet below the refuse layer. Solid casing extended to the bottom of the boring. A 6-inch-thick bentonite seal was placed in the bottom of each hole. The annulus between the casing and the hole was then backfilled with sand to within about 2 to 3 feet of the surface where a 1-foot-thick bentonite seal was installed. A cement bentonite grout was used to fill the annulus above the bentonite to the surface. About 2 feet of casing was left protruding above the ground surface. A PVC cap was then placed on top of the casing. Data for the new wells is shown below in Table 1 including the ground-water levels recorded prior to sampling. Table 2 presents the ground-water levels for the existing observation wells.

Table 1

New Monitoring Well Data

	Well Number					
	20	21	22	23	24	25
Top of Casing Elevation (ft)*	114.5	115.5	114.5	125.1	117.8	120.7
Water Level Elevation (ft)**	107.1	107.1	106.7	107.7	106.4	108.3
Total Depth of Hole (ft)	33	33	41.5	38.5	41.5	35
Depth to Bottom of Debris (ft)	23	22.5	21.5	22.5	20.±	19
Depth to Bottom of Casing (ft)	32.5	30.5	41.5	37.5	41.5	35
Screened Interval (ft)	2.5-27.5	3-28	5-38	3-27.5	6.5-26.5	2.5-32.5

* Alameda Naval Air Station Datum
** 15 or 16 August, 1983

Table 2

Existing Monitoring Well Data

	Well Number				
	3	8	9	18	19
Top of Casing Elevation (ft)*	112.1	114.7	114.1	111.4	109.7
Water Level Elevations (ft)**	105.4	107.7	108.3	107.0	107.1

SAMPLING AND TESTING

The new and existing monitoring wells were developed using a centrifugal pump to evacuate a minimum of 10 well volumes of ground water. The following day, the six new wells plus existing Wells 3, 8, 9, and 19 were sampled. The sampling procedure consisted of evacuating a minimum of at least 3 well volumes using the centrifugal pump. Water levels and temperatures were collected prior to sampling each monitoring well.

The water sample was collected using a clean, stainless steel bailer with a Teflon check valve. To avoid cross contamination when sampling, the stainless steel bailer was washed with soapy water and rinsed thoroughly with clean water between sampling. The water was carefully transferred into laboratory supplied bottles. Once collected, the samples were placed on ice for delivery to the testing laboratories using chain of custody procedures. EAL Laboratories of Richmond, California, conducted the GC/MS analysis and Analytical Science Associates (ASA) of Emeryville, California, conducted the GC analysis. Initially, three of the monitoring wells were tested for the EPA priority pollutants using GC/MS testing procedures. The remainder of the samples were tested using GC/EC testing procedures and equipment.

Two weeks later, on August 15 and 16, 1983, another set of water samples were collected; Monitoring Well 18 had been located and was added to this set. Sampling of the wells was done as previously described. All samples was taken to ASA for GC/EC testing. The laboratory test results for both sampling periods are presented on the attached laboratory test reports.

WATER LEVEL MONITORING

Water level measurements were made on Monitoring Wells 3, 19, and 24, which are closest to the bay, to record water level fluctuations which might be the result of tidal influence. These level measurements are presented in Table 3.

Table 3

Water Level Data

Date and Time	Well Number 3	19	24
15 August 1983			
1200	105.3	107.1	106.3
1318	105.3	106.7	106.4
1413	105.3	106.8	106.0
1500	105.5	106.9	106.2
High tides about 0645 and 1830		Low tide about 1145	
16 August 1983			
0930	105.5	106.9	106.2
1130	105.5	106.9	106.2
1215	105.6	106.9	106.3
1330	105.4	106.9	106.2
1410	105.4	106.9	106.3
1500	105.4	106.9	106.3
High tides about 0830 and 1930		Low tides about 0130 and 1300	

PRELIMINARY CONCLUSIONS

We have reviewed the test data and compared it to the previous test data from the monitoring wells at the landfill plus published state and federal guidelines for hazardous materials in the ground water. We believe that the results of the samples taken from the monitoring wells confirm our earlier test results and conclusion that:

1. The heavy metal concentrations are about the same as they were in 1977 (all less than one part per million) and are not of significant concern.

2. Only a very small amount of volatile base neutral and acid fractions were detected and do not appear to be of significant concern.

3. The total identifiable chlorinated hydrocarbon (TICH) fraction indicated a slight trace of PCB.

Based on this analysis, it does not appear that significant amounts of materials are present in the landfill at hazardous levels and that the landfill should be closed as a Class II-2 landfill.

The data on the landfill gradient and water level measurements require additional analysis. Our conclusions will be presented in our final report.

If you have questions concerning our work or wish us to discuss the results with you, please call.

Yours very truly,

HARDING LAWSON ASSOCIATES

Lyle E. Lewis,
Civil Engineer - 16360

LEL/bt

6 copies submitted

Enclosures

ANALYTICAL SCIENCE ASSOCIATES, Inc.

4560 HORTON ST. • EMERYVILLE, CA 94608 • (41

HLA Project No. 2176,059.01
April 1, 1983

ABSTRACT

Samples were received from the Alameda Naval Air Station on March 16 and 17 for the screening of Priority Pollutants. No contaminants were detected in the volatile or Base-Neutral fraction. The acid and pesticide fractions contained traces of phenol and polychlorinated biphenyls. No metals were detected above 1 ppm.

METHODS

I Volatile Fraction

Samples were analyzed by gas-chromatography[1,2] for the volatile priority pollutants using GCFID and GCHSD under the following analytical conditions:

Instrument	:	Perkin Elmer 3B
Column	:	SP 1000/Carbopack B
Program	:	50^{o}-200^{o} @ 8^{o}/minute

II Base Neutral/Acid Fraction

Samples were analyzed by GCFID under the following analytical conditions:

Instrument	:	Perkin Elmer 3920
Column	:	1% SP2150 DB; Tenax 60/8(
Program	:	50^{o}-270^{o} @ 8^{o}/minute; 180^{o}-300^{o}

Methods (continued)

III Pesticide Fraction

The 6, 15 and 50 percent Florisil fractions were analyzed[3] by GCHSD under the following conditions:

Instrument	:	Perkin Elmer 3B
Column	:	3% OV1
Temperature	:	180°C

IV Metals

Samples were filtered (0.45 um) and analyzed by Atomic Absorption spectroscopy.

RESULTS

Data are presented in Table I. Only the actual organic components found have been reported.

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1. 40 CFR, part 141 app. C
2. Sampling and Analysis Procedures for the Screening of Industrial Effluents. EPA 1979
3. Methods for the Organic Analysis of Water and Wastes. EPA 1980.

TABLE I

LANDFILL WELL NO.	17	18	3	19	9	8	near 6	near 12
Sample ID	9001	9002	9003	9004	9005	9006	9007	9008
Cadmium	0.053	0.03	0.024	0.024	0.018	0.011	0.012	0.009
Copper	0.72	0.06	0.06	0.04	0.04	0.03	0.06	0.08
Lead	0.17	0.09	0.07	0.05	0.06	0.06	0.07	0.06
Selenium	0.08	0.04	0.03	0.04	0.04	0.04	0.03	0.04
Silver	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05
Zinc	0.48	0.13	0.038	0.032	0.16	0.013	0.044	0.076
Oil & Grease	30	20	15	50	80	40	20	15
Phenol (ppb)	26	11	k10	k10	11	10	11	10
TICH (ppb, as arochlor 1248)	0.52	0.08	0.05	0.60	0.40	k0.05	0.20	0.10
Arsenic	0.09	0.06	0.05	0.06	0.04	0.04	0.05	0.05
Beryllium	0.012	k0.01	k0.01	k0.01	k0.01	k0.01	k0.01	k0.01
pH	7.4	7.0	7.3	7.1	7.2	7.2	7.5	7.7
Conductivity	6400	19,000	13,000	16,000	2700	3500	1500	1300
Nickel	0.11	0.11	0.10	0.13	0.12	0.07	0.06	0.07

All values in ppm unless otherwise noted.

ADDENDUM

LANDFILL WELL NO.	17	18	3	19	9	8	near 6	near 12
Sample ID	9001	9002	9003	9004	9005	9006	9007	9008
Chromium	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05	k0.05
Mercury	0.0008	k0.0001	k0.0001	k0.0001	0.0002	k0.0001	k0.0001	k0.0001
Magnesium	120	420	420	420	57	68	33	35

All values in ppm unless otherwise noted.

k = less than value

EAL Corporation

Thermo Electron CORPORATION

2030 Wright Avenue
Richmond, California 94804
(415) 235-2633
(TWX) 910-382-8132

ANALYSIS REPORT

HARDING LAWSON ASSOCIATES
P O BOX 578
NOVATO CA 94947
Attention: Lyle Lewis

DATE: 9-7-83
Samples Received: 8-8-83
EAL W.O. No. 45-5300
Harding Lawson Job #: 2176.059.01
Samples Collected: 8-2-83

Well No.		23	21
Analysis	Units	ANLW-16 255-84-7	ANLW-31 255-84-8
Antimony	MG/L	0.70	<0.01
Arsenic	MG/L	0.044	0.006
Beryllium	MG/L	<0.01	<0.01
Cadmium	MG/L	0.057	0.005
Chromium	MG/L	0.057	<0.01
Copper	MG/L	0.09	0.020
Lead	MG/L	0.33	0.04
Mercury	MG/L	<0.0005	<0.0005
Nickel	MG/L	0.40	0.08
Selenium	MG/L	0.06	<0.006
Silver	MG/L	0.053	<0.01
Thallium	MG/L	0.2	<0.01
Zinc	MG/L	0.087	0.043

EAL Corporation

Thermo Electron CORPORATION

2030 Wright Avenue
Richmond, California 94804
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Report to HARDING LAWSON ASSOCIATES

Well No.		22	23	21	22
Analysis	Units	ANLW-35 255-84-9	ANLW-16 255-84-10	ANLW-31 255-84-11	ANLW-35 255-84-12
Antimony	MG/L	0.62	---	---	---
Arsenic	MG/L	0.056	---	---	---
Beryllium	MG/L	<0.01	---	---	---
Cadmium	MG/L	0.055	---	---	---
Chromium	MG/L	0.057	---	---	---
Copper	MG/L	0.06	---	---	---
Lead	MG/L	0.28	---	---	---
Mercury	MG/L	<0.001	---	---	---
Nickel	MG/L	0.41	---	---	---
Selenium	MG/L	0.04	---	---	---
Silver	MG/L	0.052	---	---	---
Thallium	MG/L	0.2	---	---	---
Zinc	MG/L	0.036	---	---	---
Cyanide	MG/L	---	<0.02	<0.02	<0.02

EAL Corporation

Thermo Electron CORPORATION

2030 Wright Avenue
Richmond, California 94804
(415) 235-2633
(TWX) 910-382-8132

Report to HARDING LAWSON ASSOCIATES

Well No.		23	21	22
		ANLW-16	ANLW-31	ANLW-35
Analysis	Units	255-84-13	255-84-14	255-84-15
Phenol, Total	MG/L	<0.1	<0.1	<0.1

Results for pesticides, volatile organics, and acid & base/neutrals attached.

Laurence E. Penfold

Laurence E. Penfold
Program Manager
Environmental Science Dept.

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-1
Client I.D.: ANLW-15 8-2-83
Well No. 23

PRIORITY POLLUTANT DATA SHEET

ACID COMPOUNDS	ug/L(ppb)
2,4,6-trichlorophenol	< 10
p-chloro-m-cresol	< 10
2-chlorophenol	< 10
2,4-dichlorophenol	< 10
2,4-dimethylphenol	38
2-nitrophenol	< 10
4-nitrophenol	< 10
2,4-dinitrophenol	< 10
4,6-dinitro-2-methylphenol	< 10
pentachlorophenol	< 10
phenol	< 10

BASE/NEUTRAL COMPOUNDS	ug/L(ppb)
acenaphthene	< 2
benzidine	<10
1,2,4-trichlorobenzene	< 2
hexachlorobenzene	< 2
hexachloroethane	< 2
bis(2-chloroethyl)ether	< 2
2-chloronaphthalene	< 2
1,2-dichlorobenzene	< 2
1,3-dichlorobenzene	< 2
1,4-dichlorobenzene	< 2
3,3'-dichlorobenzidine	<10
2,4-dinitrotoluene	< 2
2,6-dinitrotoluene	< 2
2,2-diphenylhydrazine	< 2
(as azobenzene)	< 2
fluoroanthene	< 2
4-chlorophenyl phenyl ether	< 2

BASE/NEUTRAL COMPOUNDS	ug/L(ppb)
4-bromophenyl phenyl ether	< 2
bis(2-chloroisopropyl) ether	< 2
bis(2-chlorethoxy)methane	< 2
hexachlorobutadiene	< 2
hexachlorocyclopentadiene	< 2
isophorone	< 2
napthalene	80
nitrobenzene	< 2
N-nitrosodimethylamine	< 2
N-nitrosodiphenylamine	< 2
N-nitrosodi-n-propylamine	< 2
bis(2-ethylhexyl)phthalate	6
butyl benzyl phthalate	< 2
di-n-butyl phthalate	< 2
di-n-octyl phthalate	< 2
diethyl phthalate	< 2
dimethyl phthalate	< 2
benzo(a)anthracene	< 2
benzo(a)pyrene	< 2
benzo(b)fluoranthene	< 2
benzo(k)fluoranthene	< 2
chrysene	< 2
acenaphthylene	< 2
anthracene	< 2
benzo(ghi)perylene	< 2
fluorene	< 2
phenanthrene	< 2
dibenzo(a,h)anthracene	< 2
indeno(1,2,3-cd)pyrene	< 2
pyrene	< 2

Harding Lawson

Date: September 7, 1983

EAL Lab No.: 255-84-2

Client I.D.: ANLW-30 8-2-83
Well No. 21

PRIORITY POLLUTANT DATA SHEET

ACID COMPOUNDS	ug/L(ppb)	BASE/NEUTRAL COMPOUNDS	ug/L(ppb)
2,4,6-trichlorophenol	< 10	4-bromophenyl phenyl ether	< 2
p-chloro-m-cresol	< 10	bis(2-chloroisopropyl) ether	< 2
2-chlorophenol	< 10	bis(2-chlorethoxy)methane	< 2
2,4-dichlorophenol	< 10	hexachlorobutadiene	< 2
2,4-dimethylphenol	< 10	hexachlorocyclopentadiene	< 2
2-nitrophenol	< 10	isophorone	< 2
4-nitrophenol	< 10	napthalene	104
2,4-dinitrophenol	< 10	nitrobenzene	< 2
4,6-dinitro-2-methylphenol	< 10	N-nitrosodimethylamine	< 2
pentachlorophenol	< 10	N-nitrosodiphenylamine	< 2
phenol	< 10	N-nitrosodi-n-propylamine	< 2
BASE/NEUTRAL COMPOUNDS	ug/L(ppb)	bis(2-ethylhexyl)phthalate	10
acenaphthene	< 2	butyl benzyl phthalate	< 2
benzidine	<10	di-n-butyl phthalate	< 2
1,2,4-trichlorobenzene	< 2	di-n-octyl phthalate	< 2
hexachlorobenzene	< 2	diethyl phthalate	< 2
hexachloroethane	< 2	dimethyl phthalate	< 2
bis(2-chloroethyl)ether	< 2	benzo(a)anthracene	< 2
2-chloronaphthalene	< 2	benzo(a)pyrene	< 2
1,2-dichlorobenzene	< 2	benzo(b)fluoranthene	< 2
1,3-dichlorobenzene	< 2	benzo(k)fluoranthene	< 2
1,4-dichlorobenzene	< 2	chrysene	< 2
3,3'-dichlorobenzidine	<10	acenaphthylene	< 2
2,4-dinitrotoluene	< 2	anthracene	< 2
2,6-dinitrotoluene	< 2	benzo(ghi)perylene	< 2
2,2-diphenylhydrazine	< 2	fluorene	< 2
(as azobenzene)	< 2	phenanthrene	< 2
fluoroanthene	< 2	dibenzo(a,h)anthracene	< 2
4-chlorophenyl phenyl ether	< 2	indeno(1,2,3-cd)pyrene	< 2
2-methylnaphthalene	16	pyrene	< 2

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-3
Client I.D.: ANLW-34 8-2-83
Well No. 22

PRIORITY POLLUTANT DATA SHEET

ACID COMPOUNDS	ug/L(ppb)	BASE/NEUTRAL COMPOUNDS	ug/L(ppb)
2,4,6-trichlorophenol	< 10	4-bromophenyl phenyl ether	< 2
p-chloro-m-cresol	< 10	bis(2-chloroisopropyl) ether	< 2
2-chlorophenol	< 10	bis(2-chlorethoxy)methane	< 2
2,4-dichlorophenol	< 10	hexachlorobutadiene	< 2
2,4-dimethylphenol	< 10	hexachlorocyclopentadiene	< 2
2-nitrophenol	< 10	isophorone	< 2
4-nitrophenol	< 10	napthalene	< 2
2,4-dinitrophenol	< 10	nitrobenzene	< 2
4,6-dinitro-2-methylphenol	< 10	N-nitrosodimethylamine	< 2
pentachlorophenol	< 10	N-nitrosodiphenylamine	< 2
phenol	< 10	N-nitrosodi-n-propylamine	< 2
BASE/NEUTRAL COMPOUNDS	ug/L(ppb)	bis(2-ethylhexyl)phthalate	< 2
acenaphthene	< 2	butyl benzyl phthalate	< 2
benzidine	< 10	di-n-butyl phthalate	< 2
1,2,4-trichlorobenzene	< 2	di-n-octyl phthalate	< 2
hexachlorobenzene	< 2	diethyl phthalate	< 2
hexachloroethane	< 2	dimethyl phthalate	< 2
bis(2-chloroethyl)ether	< 2	benzo(a)anthracene	< 2
2-chloronaphthalene	< 2	benzo(a)pyrene	< 2
1,2-dichlorobenzene	< 2	benzo(b)fluoranthene	< 2
1,3-dichlorobenzene	< 2	benzo(k)fluoranthene	< 2
1,4-dichlorobenzene	< 2	chrysene	< 2
3,3'-dichlorobenzidine	< 10	acenaphthylene	< 2
2,4-dinitrotoluene	< 2	anthracene	< 2
2,6-dinitrotoluene	< 2	benzo(ghi)perylene	< 2
2,2-diphenylhydrazine	< 2	fluorene	< 2
(as azobenzene)	< 2	phenanthrene	< 2
fluoroanthene	< 2	dibenzo(a,h)anthracene	< 2
4-chlorophenyl phenyl ether	< 2	indeno(1,2,3-cd)pyrene	< 2
		pyrene	< 2

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-4
Client I.D.: ANLW 13 & 14 8-2-83
Well No. 23

PRIORITY POLLUTANT DATA SHEET

VOLATILES	ng/mL(ppb)	VOLATILES	ng/mL(ppb)
acrolein	<25	trans-1,3-dichloropropene	< 5
acrylonitrile	<25	cis-1,3-dichloropropene	< 5
benzene	< 5	ethylbenzene	< 5
carbon tetrachloride	< 5	methylene chloride	<50
chlorobenzene	< 5	chloromethane	< 5
1,2-dichloroethane	< 5	bromomethane	< 5
1,1,1-trichloroethane	< 5	bromoform	< 5
1,1-dichloroethane	< 5	bromodichloromethane	< 5
1,1,2-trichloroethane	< 5	fluorotrichloromethane	< 5
1,1,2,2-tetrachloroethane	< 5	dichlorodifluoromethane	< 5
chloroethane	< 5	chlorodibromomethane	< 5
2-chloroethyl vinyl ether	< 5	tetrachloroethene	< 5
chloroform	< 5	toluene	235
1,1-dichloroethene	< 5	trichloroethene	< 5
trans-1,2-dichloroethene	< 5	vinyl chloride	< 5
1,2-dichloropropane	< 5		

NON-PRIORITY POLLUTANTS

tetrahydrofuran	25	diethylether	25
diethylacetate	25	1-ethyl-4-methylbenzene	22
azulene	22		

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-5
Client I.D.: ANLW 28 & 29
Well No. 21

PRIORITY POLLUTANT DATA SHEET

VOLATILES	ng/mL(ppb)	VOLATILES	ng/mL(ppb)
acrolein	< 5	trans-1,3-dichloropropene	< 1
acrylonitrile	< 5	cis-1,3-dichloropropene	< 1
benzene	6	ethylbenzene	5
carbon tetrachloride	< 1	methylene chloride	<10
chlorobenzene	31	chloromethane	< 1
1,2-dichloroethane	< 1	bromomethane	< 1
1,1,1-trichloroethane	< 1	bromoform	< 1
1,1-dichloroethane	< 1	bromodichloromethane	< 1
1,1,2-trichloroethane	< 1	fluorotrichloromethane	< 1
1,1,2,2-tetrachloroethane	< 1	dichlorodifluoromethane	< 1
chloroethane	< 1	chlorodibromomethane	< 1
2-chloroethylvinyl ether	< 1	tetrachloroethene	< 1
chloroform	< 1	toluene	7
1,1-dichloroethene	< 1	trichloroethene	< 1
trans-1,2-dichloroethene	< 1	vinyl chloride	< 1
1,2-dichloropropane	< 1	acetone	620
		o-xylene	11

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-6
Client I.D.: ANLW 32 & 33 8-2-83
Well No. 22

PRIORITY POLLUTANT DATA SHEET

VOLATILES	ng/mL(ppb)	VOLATILES	ng/mL(ppb)
acrolein	< 5	trans-1,3-dichloropropene	< 1
acrylonitrile	< 5	cis-1,3-dichloropropene	< 1
benzene	< 1	ethylbenzene	< 1
carbon tetrachloride	< 1	methylene chloride	<10
chlorobenzene	< 1	chloromethane	< 1
1,2-dichloroethane	< 1	bromomethane	< 1
1,1,1-trichloroethane	< 1	bromoform	< 1
1,1-dichloroethane	< 1	bromodichloromethane	< 1
1,1,2-trichloroethane	< 1	fluorotrichloromethane	< 1
1,1,2,2-tetrachloroethane	< 1	dichlorodifluoromethane	< 1
chloroethane	< 1	chlorodibromomethane	< 1
2-chloroethylvinyl ether	< 1	tetrachloroethene	< 1
chloroform	< 1	toluene	< 1
1,1-dichloroethene	< 1	trichloroethene	< 1
trans-1,2-dichloroethene	< 1	vinyl chloride	< 1
1,2-dichloropropane	< 1		

Harding Lawson

Date: September 7, 1983
EAL Lab No.: 255-84-1
Client I.D.: ANLW-15
Well No. 23

PRIORITY POLLUTANT DATA SHEET

PESTICIDES	ug/L (ppb)	PESTICIDES	ug/L (ppb)
a-BHC	<0.1	pp-DDT (4,4')	0.7
g-BHC (lindane)	<0.1	Endrin Aldehyde	0.1
B-BHC	<0.1	Endosulfan Sulfate	0.5
Heptachlor	<0.1	Chlordane	<0.1
D-BHC	0.2	Toxaphene	<3
Aldrin	<0.1	PCB's	
Heptachlor Epoxide	<0.1	PCB-1016	<0.2
a-Endosulfan	<0.1	PCB-1221	<0.2
p,p-DDE (4,4')	<0.1	PCB-1232	<0.2
Dieldrin	<0.1	PCB-1242	<0.2
Endrin	<0.1	PCB-1254	<0.2
p,p-DDD (4,4')	<0.1	PCB-1260	<0.2
B-Endosulfan	<0.1	PCB-1262	<0.2
1,2,3,4-TCDD	<0.1		

Harding Lawson

Date: September 7, 1983

EAL Lab No.: 255-84-2

Client I.D.: ANLW-31
Well No. 21

PRIORITY POLLUTANT DATA SHEET

PESTICIDES	ug/L (ppb)	PESTICIDES	ug/L (ppb)
a-BHC	0.2	pp-DDT (4,4')	<0.1
g-BHC (lindane)	<0.1	Endrin Aldehyde	<0.1
B-BHC	<0.1	Endosulfan Sulfate	0.1
Heptachlor	0.4	Chlordane	<0.1
D-BHC	<0.1	Toxaphene	<3
Aldrin	<0.1	PCB's	
Heptachlor Epoxide	<0.1	PCB-1016	<0.2
a-Endosulfan	<0.1	PCB-1221	<0.2
p,p-DDE (4,4')	<0.1	PCB-1232	<0.2
Dieldrin	<0.1	PCB-1242	<0.2
Endrin	<0.1	PCB-1254	<0.2
p,p-DDD (4,4')	<0.1	PCB-1260	<0.2
B-Endosulfan	<0.1	PCB-1262	<0.2
1,2,3,4-TCDD	<0.1		

Harding Lawson

Date: September 7, 1983

EAL Lab No.: 255-84-3

Client I.D.: ANLW-34
Well No. 22

PRIORITY POLLUTANT DATA SHEET

PESTICIDES	ug/L (ppb)	PESTICIDES	ug/L (ppb)
a-BHC	<0.1	pp-DDT (4,4')	<0.1
g-BHC (lindane)	0.3	Endrin Aldehyde	<0.1
B-BHC	<0.1	Endosulfan Sulfate	<0.1
Heptachlor	0.2	Chlordane	<0.1
D-BHC	<0.1	Toxaphene	<0.6
Aldrin	0.1	PCB's	
Heptachlor Epoxide	<0.1	PCB-1016	<0.1
a-Endosulfan	<0.1	PCB-1221	<0.1
p,p-DDE (4,4')	<0.1	PCB-1232	<0.1
Dieldrin	<0.1	PCB-1242	<0.1
Endrin	<0.1	PCB-1254	<0.1
p,p-DDD (4,4')	<0.1	PCB-1260	<0.1
B-Endosulfan	<0.1	PCB-1262	<0.1
1,2,3,4-TCDD	<0.1		

ANALYTICAL SCIENCE ASSOCIATES, Inc.

4560 HORTON ST. • EMERYVILLE, CA 94608 • (415) 547-6390

7 September 1983

Lyle Lewis
HARDING LAWSON ASSOCIATES
P. O. Box 578
Novato, CA 94948

Dear Lyle:

Enclosed is the Alameda Naval Air Station Analytical Report. If you have any questions please call.

Sincerely,

Bill

William Prater

WP:la

Enclosure

ABSTRACT

Samples from Alameda Naval Air Station were screened for Priority Pollutants and pesticides using EPA 608/624/625 GCFID/EC methodology. The only parameters found were low-level (<10 ppb) PCB ontamination in two wells.

METHODS

(A) Volatile Fraction

Samples were analyzed for volatile components by GCEC/FID[1] using the following analytical conditions:

Instrument	:	Perkin-Elmer Sigma 3
Detector	:	EC/FID
Column	:	SP1000/Graphitized Carbon Black
Temperature	:	50^{o} - 210^{o} C.

(B) Base-Neutral/Acid Fraction

Samples were analyzed[2] under the following analytical conditions:

Instrument	:	Perkin-Elmer Sigma 3B
Detector	:	FID
Column	:	SP2100 DB; SP1240 DA
Temperature	:	50^{o} - 270^{o}; 50^{o} - 200^{o}
Internal Standard	:	D_{10}Anthracene; 2 Nitrophenol

(C) Pesticides/PCB's

Samples were analyzed[2] under the following analytical conditions:

Instrument	:	Perkin-Elmer 3B
Detector	:	EC
Column	:	3% OV1
Temperature	:	180^{o}C
Internal Standard	:	Aldrin

1. 40 CFR Part III, App. C.
2. 40 CFR Vol 44, #233.

TABLE I

All values in ppb

SAMPLE ID	Well No.	VOLATILE	ACID, B-N	PESTICIDES/PCB's(3)
W01	19	<1	<20	-
W04	3	<1	<20	-
W07	24	<1	<20	-
W10	Blank	<1	<20	-
W17	25	<1	<20	-
W20	9	<1	<20	-
W23	20	<1	<20	-
W36	8	<1	<20	-
W201	19	<1	<20	ND
W203	20	<1	<20	8
W205	~~8~~ 9	<1	<20	ND
W207	Blank	<1	<20	ND
W209	3	<1	<20	ND
W211	24	<1	<20	ND
W213	23	<1	<20	ND
W215	8	<1	<20	ND
W217	18	<1	<20	ND
W219	25	<1	<20	ND
W221	21	<1	<20	4
W223	22	<1	<20	ND

(3) Detection Limit 1 ppb.