



July 7, 1989

Mr. Stuart Solomon
Principal
Geo-Environmental Technology
260 Cristich Lane
Campbell, CA 95008

Subject: Stockpiled Soil
De Salvo Trucking
Oakland, CA

Dear Mr. Solomon:

In accordance with Task 1 of the Aqua Terra Technologies, Inc. (ATT) June 2, 1989 proposal addressed to you, this letter presents a summary of activities completed to date regarding the disposition of contaminated soil currently stockpiled at the De Salvo Trucking Facility located in Oakland, California. To facilitate management of the stockpiled soil, this letter provides supporting data for the preliminary self-certification, in accordance with 22 CCR 66305, of the stockpiled soil as non-hazardous.

Nine samples were collected by ATT on May 26, 1989. These samples were composited into four samples and analyzed for volatile and semi-volatile organic compounds (EPA Methods 8240 and 8270), ignitability, 22 CCR metals, and total petroleum hydrocarbons (TPH) as diesel and oil and grease. Copies of the data are provided in Attachment A.

The analytical data indicate concentrations of petroleum constituents ranging from 650 mg/Kg to 18,000 mg/Kg for TPH as diesel and from 210 mg/Kg to 2,000 mg/Kg for TPH as oil and grease (TOG). Currently, no formal regulatory standard, guideline, or policy exists regarding hazardous waste classification based on TPH as diesel or TOG (waste oil) concentrations in soil. A memorandum prepared by the California Department of Health Services (DHS) addresses the hazardous character of soil containing greater than 1,000 mg/Kg TPH as gasoline, identifying the hazardous property of the gasoline containing soil to be ignitability. The stockpiled soil is not expected to exhibit characteristics of ignitability. Analytical results indicate that the soil is not ignitable at less than 186° F. This value is above that of 140° F (22 CCR 66702) required to be considered as a hazardous waste based on ignitability characteristics.

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596
415 934-4884

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Memoranda and correspondence prepared by the DHS regarding the issue of petroleum constituents in soil are provided in Attachment B. The attached DHS documents indicate data from the analysis of soil samples for TPH and TOG are not sufficient to characterize a material as hazardous. TPH and TOG data provide a general indication of the occurrence of petroleum products in soil, and are properly used to evaluate the presence of these materials. It is accurately concluded that solely on the basis of TPH and TOG concentrations, the stockpiled soil cannot be characterized as hazardous waste.

The volatile and semi-volatile organics chemical analytical data were generated to evaluate the potential for the stockpiled soil to be classified as hazardous on the basis of toxicity. The only detected organic chemicals which is included on the list of persistent or bioaccumulative toxic substances (22 CCR 66699). Xylene does appear in 22 CCR 66680 (#776) as a possible hazardous material or waste based on toxicity and ignitability. ATT determined the calculated oral LD50 for the stockpiled soil in accordance with 22 CCR 66696. This value was found to be 860,000 mg/Kg. Applying the highest concentration of xylene detected, (660 ug/Kg), indicates that the stockpiled soil is approximately seven orders of magnitude less toxic than the calculated LD50, and five orders of magnitude less than allowed by the criteria value of 5.0×10^3 mg/Kg (22 CCR 66696). The soil does not appear to exhibit characteristics of toxicity sufficient to render it a hazardous waste.

The concentrations of metals for which analyses were performed in the stockpiled soil were below the soluble threshold limit concentration (STLC) values defined in 22 CCR 66699 and, consequently, would not impart hazardous waste characteristics to the soil. The only exceptions to this data were the concentrations of lead, copper, and nickel as provided below:

Metal	Maximum Concentration (mg/Kg)	STLC (mg/L)	TTL (mg/Kg)
Lead	49	5	1,000
Copper	48	25	2,500
Nickel	45	20	2,000

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A waste extraction test (WET) as defined in 22 CCR 66700 is required to analytically complete the evaluation of the lead, copper, and nickel detected in the soil. However, the WET protocol, which allows a 10:1 dilution of the sample, would result in maximum soluble lead, copper, and nickel concentrations of 4.9, 4.8, and 4.5 mg/L, respectively, if 100 percent of the total metals were extractable. Each of these potential maximum soluble metal concentrations is below the corresponding STLC. In addition, the DHS will allow a variance for hazardous waste classification in cases where the hazardous characteristic is based on lead concentration. Consequently, it appears unlikely that the stockpiled soil would be classified as hazardous based on the metals concentrations detected.

The evaluation of the stockpiled soil presented above supports classification of the soil as non-hazardous under 22 CCR 66305. Inasmuch as the soil is non-hazardous by the criteria of 22 CCR Article 11, the 90-day restriction for stockpiling the soil on-site does not apply.

A copy of this report should be forwarded to the appropriate regulatory agency(s) prior to commencing with bioremediation treatment.


Please contact me if you have any questions regarding the matters discussed herein.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.



Bradley J. Bennett
Project Manager



R. Wane Schuster, Ph.D.
Civil Engineer No. 38735 (Expires 3/31/93)

BJB/RWS:dh
Attachments

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

3440 Vincent Road Pleasant Hill, CA 94523 • (415) 930-9090 • FAX# (415) 930-0256

LABORATORY ANALYSIS REPORT

AQUA TERRA TECHNOLOGIES
2950 BUSKIRK AVENUE
SUITE 120
WALNUT CREEK, CA 94596

REPORT DATE: 06/24/89

DATE SAMPLED: 05/26/89

DATE RECEIVED: 05/31/89

ATTN: BRAD BENNETT

DATE EXTRACTED: 06/08/89

DATE ANALYZED: 06/02-11/89

CLIENT PROJECT NO: 9045

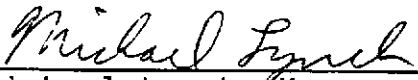
MED-TOX JOB NO: 8905186/187

ANALYSIS OF: NINE SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS;
FOUR SOIL SAMPLE COMPOSITES FOR FLASH POINT,
VOLATILE ORGANICS, BASE/NEUTRAL & ACID EXTRACTABLES,
AND PRIORITY POLLUTANT METALS

EPA Method 8015 (Extraction)

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons as Diesel (mg/kg)	Total Petroleum Hydrocarbons as Waste Oil (mg/kg)
SS-1	01A	1,300	ND
SS-8	02A	3,900	ND
SS-12	03A	8,300	ND(200)
SS-16	04A	1,800	ND(200)
SS-20	05A	650	280
SS-23	06A	1,400	210
SS-28	07A	790	240
SS-31	08A	18,000	1,200
SS-36	09A	9,700	2,000
Detection Limit		50	100

ND = Not detectable at or above indicated method detection limit
(Unless otherwise indicated in parentheses)


Michael Lynch, Manager
Organic Laboratory

AQUA TERRA TECHNOLOGIES
CLIENT PROJECT NO: 9045

REPORT DATE: 06/24/89
MED-TOX JOB NO: 8905187

Sample Identification Client Id.	Lab No.	Ignitability* at <186°F
SS-1 SS-8(Comp)	01A	NI
SS-12 SS-16(Comp)	02A	NI
SS-20 SS-23 SS-28(Comp)	03A	NI
SS-31 SS-36(Comp)	04A	NI

EPA Method 1010

* Subcontracted to a DOHS certified laboratory

NI: Not ignitable at <186°F

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-1 & SS-8 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-01A
 MED-TOX JOB NO: 8905187
 DATE ANALYZED: 06/08/89
 REPORT DATE: 06/24/89

EPA METHOD 8240
 GC/MS VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acetone	67-64-1	ND	5,000
Benzene	71-43-2	ND	300
Bromodichloromethane	75-27-4	ND	300
Bromoform	75-25-2	ND	300
Bromomethane	74-83-9	ND	500
2-Butanone	78-93-3	ND	5,000
Carbon Disulfide	75-15-0	ND	500
Carbon Tetrachloride	56-23-5	ND	300
Chlorobenzene	108-90-7	ND	300
Chloroethane	75-00-3	ND	500
2-Chloroethyl Vinyl Ether	110-75-8	ND	500
Chloroform	67-66-3	ND	300
Chloromethane	74-87-3	ND	500
Dibromochloromethane	124-48-1	ND	300
1,1-Dichloroethane	75-34-3	ND	300
1,2-Dichloroethane	107-06-2	ND	300
1,1-Dichloroethene	75-35-4	ND	300
1,2-Dichloroethene, total	540-59-0	ND	300
1,2-Dichloropropane	78-87-5	ND	300
cis-1,3-Dichloropropene	10061-01-5	ND	300
trans-1,3-Dichloropropene	10061-02-6	ND	300
Ethylbenzene	100-41-4	ND	300
2-Hexanone	591-78-6	ND	2,500
Methylene Chloride	75-09-2	ND	1,000
4-Methyl-2-pentanone	108-10-1	ND	2,500
Styrene	100-42-5	ND	500
1,1,2,2-Tetrachloroethane	79-34-5	ND	300
Tetrachloroethene	127-18-4	ND	300
Toluene	108-88-3	ND	300
1,1,1-Trichloroethane	71-55-6	ND	300
1,1,2-Trichloroethane	79-00-5	ND	300
Trichloroethene	79-01-6	ND	300
Vinyl Acetate	108-05-4	ND	2,500
Vinyl Chloride	75-01-4	ND	500
Xylenes, total	1330-20-7	660	500

ND = Not Detected at or above indicated method detection limit
 Sample was diluted 50 x due to significant hydrocarbon content.
 Detection limits have been adjusted accordingly.

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-12 & SS-16 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-02A
 MED-TOX JOB NO: 8905187
 DATE ANALYZED: 06/01/89
 REPORT DATE: 06/24/89

EPA METHOD 8240
 GC/MS VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acetone	67-64-1	ND	100
Benzene	71-43-2	ND	5
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	10
2-Butanone	78-93-3	ND	100
Carbon Disulfide	75-15-0	ND	10
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	10
2-Chloroethyl Vinyl Ether	110-75-8	ND	10
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	10
Dibromochloromethane	124-48-1	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
1,2-Dichloroethene, total	540-59-0	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Ethylbenzene	100-41-4	ND	5
2-Hexanone	591-78-6	ND	50
Methylene Chloride	75-09-2	ND	5
4-Methyl-2-pentanone	108-10-1	ND	50
Styrene	100-42-5	ND	10
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
Toluene	108-88-3	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Vinyl Acetate	108-05-4	ND	50
Vinyl Chloride	75-01-4	ND	10
Xylenes, total	1330-20-7	ND	10

ND = Not Detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-20 SS-23 & SS-28 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-03A
 MED-TOX JOB NO: 8905187
 DATE ANALYZED: 06/01/89
 REPORT DATE: 06/24/89

EPA METHOD 8240
 GC/MS VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acetone	67-64-1	ND	100
Benzene	71-43-2	ND	5
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	10
2-Butanone	78-93-3	ND	100
Carbon Disulfide	75-15-0	ND	10
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	10
2-Chloroethyl Vinyl Ether	110-75-8	ND	10
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	10
Dibromochloromethane	124-48-1	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
1,2-Dichloroethene, total	540-59-0	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Ethylbenzene	100-41-4	ND	5
2-Hexanone	591-78-6	ND	50
Methylene Chloride	75-09-2	ND	5
4-Methyl-2-pentanone	108-10-1	ND	50
Styrene	100-42-5	ND	10
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
Toluene	108-88-3	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Vinyl Acetate	108-05-4	ND	50
Vinyl Chloride	75-01-4	ND	10
Xylenes, total	1330-20-7	ND	10

ND = Not Detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-31 & SS-36 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-04A
 MED-TOX JOB NO: 8905187
 DATE ANALYZED: 06/01/89
 REPORT DATE: 06/24/89

EPA METHOD 8240
 GC/MS VOLATILE ORGANICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acetone	67-64-1	ND	100
Benzene	71-43-2	ND	5
Bromodichloromethane	75-27-4	ND	5
Bromoform	75-25-2	ND	5
Bromomethane	74-83-9	ND	10
2-Butanone	78-93-3	ND	100
Carbon Disulfide	75-15-0	ND	10
Carbon Tetrachloride	56-23-5	ND	5
Chlorobenzene	108-90-7	ND	5
Chloroethane	75-00-3	ND	10
2-Chloroethyl Vinyl Ether	110-75-8	ND	10
Chloroform	67-66-3	ND	5
Chloromethane	74-87-3	ND	10
Dibromochloromethane	124-48-1	ND	5
1,1-Dichloroethane	75-34-3	ND	5
1,2-Dichloroethane	107-06-2	ND	5
1,1-Dichloroethene	75-35-4	ND	5
1,2-Dichloroethene, total	540-59-0	ND	5
1,2-Dichloropropane	78-87-5	ND	5
cis-1,3-Dichloropropene	10061-01-5	ND	5
trans-1,3-Dichloropropene	10061-02-6	ND	5
Ethylbenzene	100-41-4	ND	5
2-Hexanone	591-78-6	ND	50
Methylene Chloride	75-09-2	ND	5
4-Methyl-2-pentanone	108-10-1	ND	50
Styrene	100-42-5	ND	10
1,1,2,2-Tetrachloroethane	79-34-5	ND	5
Tetrachloroethene	127-18-4	ND	5
Toluene	108-88-3	ND	5
1,1,1-Trichloroethane	71-55-6	ND	5
1,1,2-Trichloroethane	79-00-5	ND	5
Trichloroethene	79-01-6	ND	5
Vinyl Acetate	108-05-4	ND	50
Vinyl Chloride	75-01-4	ND	10
Xylenes, total	1330-20-7	ND	10

ND = Not Detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-1 & SS-8 (comp)
CLIENT JOB NO: 9045
DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-01A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12/89
REPORT DATE: 06/24/89

EPA METHOD 8270
BASE NEUTRAL EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acenaphthene	83-32-9	ND	6,600
Acenaphthylene	208-96-8	ND	6,600
Anthracene	120-12-7	ND	6,600
Benzidine	92-87-5	ND	32,000
Benzoic Acid	65-85-0	ND	32,000
Benzo(a)anthracene	56-55-3	ND	6,600
Benzo(b)fluoranthene	205-99-2	ND	6,600
Benzo(k)fluoranthene	207-08-9	ND	6,600
Benzo(g,h,i)perylene	191-24-2	ND	6,600
Benzo(a)pyrene	50-32-8	ND	6,600
Benzyl Alcohol	100-51-6	ND	13,000
Bis(2-chloroethoxy) methane	111-91-1	ND	6,600
Bis(2-chloroethyl)ether	111-44-4	ND	6,600
Bis(2-chloroisopropyl) ether	39638-32-9	ND	6,600
Bis(2-ethylhexyl) phthalate	117-81-7	ND	6,600
4-Bromophenyl phenyl ether	101-55-3	ND	6,600
Butylbenzyl phthalate	85-68-7	ND	6,600
4-Chloroaniline	106-47-8	ND	13,000
2-Chloronaphthalene	91-58-7	ND	6,600
4-Chlorophenyl phenyl ether	7005-72-3	ND	6,600
Chrysene	218-01-9	ND	6,600
Dibenzo(a,h)anthracene	53-70-3	ND	6,600
Dibenzofuran	132-64-9	ND	6,600
Di-n-butylphthalate	84-74-2	ND	6,600
1,2-Dichlorobenzene	95-50-1	ND	6,600

ND = Not detected at or above indicated method detection limit
Sample was diluted 20 x due to significant hydrocarbon content.
Detection limits have been adjusted accordingly.

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-1 & SS-8 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-01A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12/89
 REPORT DATE: 06/24/89

EPA METHOD 8270
 BASE NEUTRAL EXTRACTABLES (cont.)

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
1,3-Dichlorobenzene	541-73-1	ND	6,600
1,4-Dichlorobenzene	106-46-7	ND	6,600
3,3'-Dichlorobenzidine	91-94-1	ND	13,000
Diethylphthalate	84-66-2	ND	6,600
Dimethylphthalate	131-11-3	ND	6,600
2,4-Dinitrotoluene	121-14-2	ND	6,600
2,6-Dinitrotoluene	606-20-2	ND	6,600
Di-n-octylphthalate	117-84-0	ND	6,600
1,2-Diphenylhydrazine	122-66-7	ND	6,600
Fluoranthene	206-44-0	ND	6,600
Fluorene	86-73-7	ND	6,600
Hexachlorobenzene	118-74-1	ND	6,600
Hexachlorobutadiene	87-68-3	ND	6,600
Hexachlorocyclopentadiene	77-47-4	ND	6,600
Hexachloroethane	67-72-1	ND	6,600
Indeno(1,2,3-cd)pyrene	193-39-5	ND	6,600
Isophorone	78-59-1	ND	6,600
2-Methylnaphthalene	91-57-6	ND	6,600
Naphthalene	91-20-3	ND	6,600
2-Nitroaniline	88-74-4	ND	32,000
3-Nitroaniline	99-09-2	ND	32,000
4-Nitroaniline	100-01-6	ND	32,000
Nitrobenzene	98-95-3	ND	6,600
N-nitrosodimethylamine	62-75-9	ND	6,600
N-nitrosodiphenylamine	86-30-6	ND	6,600
N-nitroso-di-n-propylamine	621-64-7	ND	6,600
Phenanthrene	85-01-8	ND	6,600
Pyrene	129-00-0	ND	6,600
1,2,4-Trichlorobenzene	120-82-1	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-1 & SS-8 (comp)
CLIENT JOB NO: 9045

DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-01A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12/89
REPORT DATE: 06/24/89

EPA METHOD 8270

ACID EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
4-Chloro-3-methylphenol	59-50-7	ND	6,600
2-Chlorophenol	95-57-8	ND	6,600
2,4-Dichlorophenol	120-83-2	ND	6,600
2,4-Dimethylphenol	105-67-9	ND	6,600
4,6-Dinitro-2-methylphenol	534-52-1	ND	32,000
2,4-Dinitrophenol	51-28-5	ND	32,000
2-Methylphenol	95-48-7	ND	6,600
4-Methylphenol	106-44-5	ND	6,600
2-Nitrophenol	88-75-5	ND	6,600
4-Nitrophenol	100-02-7	ND	32,000
Pentachlorophenol	87-86-5	ND	32,000
Phenol	108-95-2	ND	6,600
2,4,5-Trichlorophenol	95-95-4	ND	6,600
2,4,6-Trichlorophenol	88-06-2	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-12 & SS-16 (comp)
CLIENT JOB NO: 9045
DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-02A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12/89
REPORT DATE: 06/24/89

EPA METHOD 8270
BASE NEUTRAL EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acenaphthene	83-32-9	ND	3,300
Acenaphthylene	208-96-8	ND	3,300
Anthracene	120-12-7	ND	3,300
Benidine	92-87-5	ND	16,000
Benzoic Acid	65-85-0	ND	16,000
Benzo(a)anthracene	56-55-3	ND	3,300
Benzo(b)fluoranthene	205-99-2	ND	3,300
Benzo(k)fluoranthene	207-08-9	ND	3,300
Benzo(g,h,i)perylene	191-24-2	ND	3,300
Benzo(a)pyrene	50-32-8	ND	3,300
Benzyl Alcohol	100-51-6	ND	6,600
Bis(2-chloroethoxy) methane	111-91-1	ND	3,300
Bis(2-chloroethyl)ether	111-44-4	ND	3,300
Bis(2-chloroisopropyl) ether	39638-32-9	ND	3,300
Bis(2-ethylhexyl) phthalate	117-81-7	ND	3,300
4-Bromophenyl phenyl ether	101-55-3	ND	3,300
Butylbenzyl phthalate	85-68-7	ND	3,300
4-Chloroaniline	106-47-8	ND	6,600
2-Chloronaphthalene	91-58-7	ND	3,300
4-Chlorophenyl phenyl ether	7005-72-3	ND	3,300
Chrysene	218-01-9	ND	3,300
Dibenzo(a,h)anthracene	53-70-3	ND	3,300
Dibenzofuran	132-64-9	ND	3,300
Di-n-butylphthalate	84-74-2	ND	3,300
1,2-Dichlorobenzene	95-50-1	ND	3,300

ND = Not detected at or above indicated method detection limit
Sample was diluted 10 x due to significant hydrocarbon content.
Detection limits have been adjusted accordingly.

AQUA TERRA TECHNOLOGIES

 CLIENT ID: SS-12 & SS-16 (comp)
 CLIENT JOB NO: 9045

 MED-TOX LAB NO: 8905187-02A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12/89
 REPORT DATE: 06/24/89

 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

 EPA METHOD 8270
 BASE NEUTRAL EXTRACTABLES (cont.)

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
1,3-Dichlorobenzene	541-73-1	ND	3,300
1,4-Dichlorobenzene	106-46-7	ND	3,300
3,3'-Dichlorobenzidine	91-94-1	ND	6,600
Diethylphthalate	84-66-2	ND	3,300
Dimethylphthalate	131-11-3	ND	3,300
2,4-Dinitrotoluene	121-14-2	ND	3,300
2,6-Dinitrotoluene	606-20-2	ND	3,300
Di-n-octylphthalate	117-84-0	ND	3,300
1,2-Diphenylhydrazine	122-66-7	ND	3,300
Fluoranthene	206-44-0	ND	3,300
Fluorene	86-73-7	ND	3,300
Hexachlorobenzene	118-74-1	ND	3,300
Hexachlorobutadiene	87-68-3	ND	3,300
Hexachlorocyclopentadiene	77-47-4	ND	3,300
Hexachloroethane	67-72-1	ND	3,300
Indeno(1,2,3-cd)pyrene	193-39-5	ND	3,300
Isophorone	78-59-1	ND	3,300
2-Methylnaphthalene	91-57-6	ND	3,300
Naphthalene	91-20-3	ND	3,300
2-Nitroaniline	88-74-4	ND	16,000
3-Nitroaniline	99-09-2	ND	16,000
4-Nitroaniline	100-01-6	ND	16,000
Nitrobenzene	98-95-3	ND	3,300
N-nitrosodimethylamine	62-75-9	ND	3,300
N-nitrosodiphenylamine	86-30-6	ND	3,300
N-nitroso-di-n-propylamine	621-64-7	ND	3,300
Phenanthrene	85-01-8	ND	3,300
Pyrene	129-00-0	ND	3,300
1,2,4-Trichlorobenzene	120-82-1	ND	3,300

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-12 & SS-16 (comp)
 CLIENT JOB NO: 9045
 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-02A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12/89
 REPORT DATE: 06/24/89

EPA METHOD 8270
 ACID EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
4-Chloro-3-methylphenol	59-50-7	ND	3,300
2-Chlorophenol	95-57-8	ND	3,300
2,4-Dichlorophenol	120-83-2	ND	3,300
2,4-Dimethylphenol	105-67-9	ND	3,300
4,6-Dinitro-2-methylphenol	534-52-1	ND	16,000
2,4-Dinitrophenol	51-28-5	ND	16,000
2-Methylphenol	95-48-7	ND	3,300
4-Methylphenol	106-44-5	ND	3,300
2-Nitrophenol	88-75-5	ND	3,300
4-Nitrophenol	100-02-7	ND	16,000
Pentachlorophenol	87-86-5	ND	16,000
Phenol	108-95-2	ND	3,300
2,4,5-Trichlorophenol	95-95-4	ND	3,300
2,4,6-Trichlorophenol	88-06-2	ND	3,300

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

 CLIENT ID: SS-20 SS-23 & SS-28 (comp)
 CLIENT JOB NO: 9045

 MED-TOX LAB NO: 8905187-03A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12-16/89
 REPORT DATE: 06/24/89

 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

 EPA METHOD 8270
 BASE NEUTRAL EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acenaphthene	83-32-9	ND	6,600
Acenaphthylene	208-96-8	ND	6,600
Anthracene	120-12-7	ND	6,600
Benzidine	92-87-5	ND	32,000
Benzoic Acid	65-85-0	ND	32,000
Benzo(a)anthracene	56-55-3	ND	6,600
Benzo(b)fluoranthene	205-99-2	ND	6,600
Benzo(k)fluoranthene	207-08-9	ND	6,600
Benzo(g,h,i)perylene	191-24-2	ND	6,600
Benzo(a)pyrene	50-32-8	ND	6,600
Benzyl Alcohol	100-51-6	ND	13,000
Bis(2-chloroethoxy) methane	111-91-1	ND	6,600
Bis(2-chloroethyl)ether	111-44-4	ND	6,600
Bis(2-chloroisopropyl) ether	39638-32-9	ND	6,600
Bis(2-ethylhexyl) phthalate	117-81-7	ND	6,600
4-Bromophenyl phenyl ether	101-55-3	ND	6,600
Butylbenzyl phthalate	85-68-7	ND	6,600
4-Chloroaniline	106-47-8	ND	13,000
2-Chloronaphthalene	91-58-7	ND	6,600
4-Chlorophenyl phenyl ether	7005-72-3	ND	6,600
Chrysene	218-01-9	ND	6,600
Dibenzo(a,h)anthracene	53-70-3	ND	6,600
Dibenzofuran	132-64-9	ND	6,600
Di-n-butylphthalate	84-74-2	ND	6,600
1,2-Dichlorobenzene	95-50-1	ND	6,600

ND = Not detected at or above indicated method detection limit

 Sample was diluted 20 x due to significant hydrocarbon content.
 Detection limits have been adjusted accordingly.

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-20 SS-23 & SS-28 (comp)
 CLIENT JOB NO: 9045

MED-TOX LAB NO: 8905187-03A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12-16/89
 REPORT DATE: 06/24/89

DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

EPA METHOD 8270
 BASE NEUTRAL EXTRACTABLES (cont.)

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
1,3-Dichlorobenzene	541-73-1	ND	6,600
1,4-Dichlorobenzene	106-46-7	ND	6,600
3,3'-Dichlorobenzidine	91-94-1	ND	13,000
Diethylphthalate	84-66-2	ND	6,600
Dimethylphthalate	131-11-3	ND	6,600
2,4-Dinitrotoluene	121-14-2	ND	6,600
2,6-Dinitrotoluene	606-20-2	ND	6,600
Di-n-octylphthalate	117-84-0	ND	6,600
1,2-Diphenylhydrazine	122-66-7	ND	6,600
Fluoranthene	206-44-0	ND	6,600
Fluorene	86-73-7	ND	6,600
Hexachlorobenzene	118-74-1	ND	6,600
Hexachlorobutadiene	87-68-3	ND	6,600
Hexachlorocyclopentadiene	77-47-4	ND	6,600
Hexachloroethane	67-72-1	ND	6,600
Indeno(1,2,3-cd)pyrene	193-39-5	ND	6,600
Isophorone	78-59-1	ND	6,600
2-Methylnaphthalene	91-57-6	ND	6,600
Naphthalene	91-20-3	ND	6,600
2-Nitroaniline	88-74-4	ND	32,000
3-Nitroaniline	99-09-2	ND	32,000
4-Nitroaniline	100-01-6	ND	32,000
Nitrobenzene	98-95-3	ND	6,600
N-nitrosodimethylamine	62-75-9	ND	6,600
N-nitrosodiphenylamine	86-30-6	ND	6,600
N-nitroso-di-n-propylamine	621-64-7	ND	6,600
Phenanthrene	85-01-8	ND	6,600
Pyrene	129-00-0	ND	6,600
1,2,4-Trichlorobenzene	120-82-1	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-20 SS-23 & SS-28 (comp)
CLIENT JOB NO: 9045

MED-TOX LAB NO: 8905187-03A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12-16/89
REPORT DATE: 06/24/89

DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

EPA METHOD 8270
ACID EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
4-Chloro-3-methylphenol	59-50-7	ND	6,600
2-Chlorophenol	95-57-8	ND	6,600
2,4-Dichlorophenol	120-83-2	ND	6,600
2,4-Dimethylphenol	105-67-9	ND	6,600
4,6-Dinitro-2-methylphenol	534-52-1	ND	32,000
2,4-Dinitrophenol	51-28-5	ND	32,000
2-Methylphenol	95-48-7	ND	6,600
4-Methylphenol	106-44-5	ND	6,600
2-Nitrophenol	88-75-5	ND	6,600
4-Nitrophenol	100-02-7	ND	32,000
Pentachlorophenol	87-86-5	ND	32,000
Phenol	108-95-2	ND	6,600
2,4,5-Trichlorophenol	95-95-4	ND	6,600
2,4,6-Trichlorophenol	88-06-2	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-31 & SS-36 (comp)
CLIENT JOB NO: 9045

MED-TOX LAB NO: 8905187-04A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12/89
REPORT DATE: 06/24/89

DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

EPA METHOD 8270
BASE NEUTRAL EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Acenaphthene	83-32-9	ND	6,600
Acenaphthylene	208-96-8	ND	6,600
Anthracene	120-12-7	ND	6,600
Benzidine	92-87-5	ND	32,000
Benzoic Acid	65-85-0	ND	32,000
Benzo(a)anthracene	56-55-3	ND	6,600
Benzo(b)fluoranthene	205-99-2	ND	6,600
Benzo(k)fluoranthene	207-08-9	ND	6,600
Benzo(g,h,i)perylene	191-24-2	ND	6,600
Benzo(a)pyrene	50-32-8	ND	6,600
Benzyl Alcohol	100-51-6	ND	13,000
Bis(2-chloroethoxy) methane	111-91-1	ND	6,600
Bis(2-chloroethyl)ether	111-44-4	ND	6,600
Bis(2-chloroisopropyl) ether	39638-32-9	ND	6,600
Bis(2-ethylhexyl) phthalate	117-81-7	ND	6,600
4-Bromophenyl phenyl ether	101-55-3	ND	6,600
Butylbenzyl phthalate	85-68-7	ND	6,600
4-Chloroaniline	106-47-8	ND	13,000
2-Chloronaphthalene	91-58-7	ND	6,600
4-Chlorophenyl phenyl ether	7005-72-3	ND	6,600
Chrysene	218-01-9	ND	6,600
Dibenzo(a,h)anthracene	53-70-3	ND	6,600
Dibenzofuran	132-64-9	ND	6,600
Di-n-butylphthalate	84-74-2	ND	6,600
1,2-Dichlorobenzene	95-50-1	ND	6,600

ND = Not detected at or above indicated method detection limit
Sample was diluted 20 x due to significant hydrocarbon content.
Detection limits have been adjusted accordingly.

AQUA TERRA TECHNOLOGIES

 CLIENT ID: SS-31 & SS-36 (comp)
 CLIENT JOB NO: 9045

 MED-TOX LAB NO: 8905187-04A
 MED-TOX JOB NO: 8905187
 DATE EXTRACTED: 06/08/89
 DATE ANALYZED: 06/12/89
 REPORT DATE: 06/24/89

 DATE SAMPLED: 05/26/89
 DATE RECEIVED: 05/31/89

 EPA METHOD 8270
 BASE NEUTRAL EXTRACTABLES (cont.)

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
1,3-Dichlorobenzene	541-73-1	ND	6,600
1,4-Dichlorobenzene	106-46-7	ND	6,600
3,3'-Dichlorobenzidine	91-94-1	ND	13,000
Diethylphthalate	84-66-2	ND	6,600
Dimethylphthalate	131-11-3	ND	6,600
2,4-Dinitrotoluene	121-14-2	ND	6,600
2,6-Dinitrotoluene	606-20-2	ND	6,600
Di-n-octylphthalate	117-84-0	ND	6,600
1,2-Diphenylhydrazine	122-66-7	ND	6,600
Fluoranthene	206-44-0	ND	6,600
Fluorene	86-73-7	ND	6,600
Hexachlorobenzene	118-74-1	ND	6,600
Hexachlorobutadiene	87-68-3	ND	6,600
Hexachlorocyclopentadiene	77-47-4	ND	6,600
Hexachloroethane	67-72-1	ND	6,600
Indeno(1,2,3-cd)pyrene	193-39-5	ND	6,600
Isophorone	78-59-1	ND	6,600
2-Methylnaphthalene	91-57-6	ND	6,600
Naphthalene	91-20-3	ND	6,600
2-Nitroaniline	88-74-4	ND	32,000
3-Nitroaniline	99-09-2	ND	32,000
4-Nitroaniline	100-01-6	ND	32,000
Nitrobenzene	98-95-3	ND	6,600
N-nitrosodimethylamine	62-75-9	ND	6,600
N-nitrosodiphenylamine	86-30-6	ND	6,600
N-nitroso-di-n-propylamine	621-64-7	ND	6,600
Phenanthrene	85-01-8	ND	6,600
Pyrene	129-00-0	ND	6,600
1,2,4-Trichlorobenzene	120-82-1	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-31 & SS-36 (comp)
CLIENT JOB NO: 9045

DATE SAMPLED: 05/26/89
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-04A
MED-TOX JOB NO: 8905187
DATE EXTRACTED: 06/08/89
DATE ANALYZED: 06/12/89
REPORT DATE: 06/24/89

EPA METHOD 8270
ACID EXTRACTABLES

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
4-Chloro-3-methylphenol	59-50-7	ND	6,600
2-Chlorophenol	95-57-8	ND	6,600
2,4-Dichlorophenol	120-83-2	ND	6,600
2,4-Dimethylphenol	105-67-9	ND	6,600
4,6-Dinitro-2-methylphenol	534-52-1	ND	32,000
2,4-Dinitrophenol	51-28-5	ND	32,000
2-Methylphenol	95-48-7	ND	6,600
4-Methylphenol	106-44-5	ND	6,600
2-Nitrophenol	88-75-5	ND	6,600
4-Nitrophenol	100-02-7	ND	32,000
Pentachlorophenol	87-86-5	ND	32,000
Phenol	108-95-2	ND	6,600
2,4,5-Trichlorophenol	95-95-4	ND	6,600
2,4,6-Trichlorophenol	88-06-2	ND	6,600

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-1 & SS-8 (comp)
 CLIENT JOB NO: 9045
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-01A
 MED-TOX JOB NO: 8905187
 REPORT DATE: 06/24/89

PRIORITY POLLUTANT METALS

CODE	METAL	CONCENTRATION (mg/kg)	DETECTION LIMIT (mg/kg)	METHOD REFERENCE
Sb	Antimony	ND	5	7040
As	Arsenic	8.9	0.5	7060
Be	Beryllium	0.4	0.2	7090
Cd	Cadmium	0.5	0.2	7130
Cr	Chromium	38	1	7190
Cu	Copper	48	0.5	7210
Pb	Lead	49	1	7420
Hg	Mercury	ND	0.2	7471
Ni	Nickel	45	0.5	7520
Se	Selenium	ND	2	7740
Ag	Silver	ND	0.3	7760
Tl	Thallium	ND	3	7840
Zn	Zinc	160	2	7950

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-12 & SS-16 (comp)
CLIENT JOB NO: 9045
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-02A
MED-TOX JOB NO: 8905187
REPORT DATE: 06/24/89

PRIORITY POLLUTANT METALS

CODE	METAL	CONCENTRATION (mg/kg)	DETECTION LIMIT (mg/kg)	METHOD REFERENCE
Sb	Antimony	ND	5	7040
As	Arsenic	2.5	0.5	7060
Be	Beryllium	0.3	0.2	7090
Cd	Cadmium	ND	0.2	7130
Cr	Chromium	52	1	7190
Cu	Copper	42	0.5	7210
Pb	Lead	9	1	7420
Hg	Mercury	ND	0.2	7471
Ni	Nickel	7	0.5	7520
Se	Selenium	ND	2	7740
Ag	Silver	ND	0.3	7760
Tl	Thallium	ND	3	7840
Zn	Zinc	62	2	7950

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-20 SS-23 & SS-28 (comp)
 CLIENT JOB NO: 9045
 DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-03A
 MED-TOX JOB NO: 8905187
 REPORT DATE: 06/24/89

PRIORITY POLLUTANT METALS

CODE	METAL	CONCENTRATION (mg/kg)	DETECTION LIMIT (mg/kg)	METHOD REFERENCE
Sb	Antimony	ND	5	7040
As	Arsenic	3.9	0.5	7060
Be	Beryllium	0.3	0.2	7090
Cd	Cadmium	ND	0.2	7130
Cr	Chromium	39	1	7190
Cu	Copper	21	0.5	7210
Pb	Lead	38	1	7420
Hg	Mercury	ND	0.2	7471
Ni	Nickel	35	0.5	7520
Se	Selenium	ND	2	7740
Ag	Silver	ND	0.3	7760
Tl	Thallium	ND	3	7840
Zn	Zinc	120	2	7950

ND = Not detected at or above indicated method detection limit

AQUA TERRA TECHNOLOGIES

CLIENT ID: SS-31 & SS-36 (comp)
CLIENT JOB NO: 9045
DATE RECEIVED: 05/31/89

MED-TOX LAB NO: 8905187-04A
MED-TOX JOB NO: 8905187
REPORT DATE: 06/24/89

PRIORITY POLLUTANT METALS

CODE	METAL	CONCENTRATION (mg/kg)	DETECTION LIMIT (mg/kg)	METHOD REFERENCE
Sb	Antimony	ND	5	7040
As	Arsenic	1.8	0.5	7060
Be	Beryllium	0.3	0.2	7090
Cd	Cadmium	0.3	0.2	7130
Cr	Chromium	33	1	7190
Cu	Copper	22	0.5	7210
Pb	Lead	29	1	7420
Hg	Mercury	ND	0.2	7471
Ni	Nickel	44	0.5	7520
Se	Selenium	ND	2	7740
Ag	Silver	ND	0.3	7760
Tl	Thallium	ND	3	7840
Zn	Zinc	160	2	7950

ND = Not detected at or above indicated method detection limit

ATTACHMENT B

California Department of Health Services Correspondence