ATT

July 11, 1988

Mr. Walter Kaczmarek
The Martin Company
6425 Christie Street #406
Emeryville, CA

Subject: Classification of an Asphalt-Like Waste Material Found on the Marketplace and Nielson Site in Emeryville, CA

Dear Mr. Kaczmarek:

At the request of The Martin Company, Aqua Terra Technologies, Inc. (ATT) has evaluated the hazardous waste characteristics of the asphalt-like material found in soil and a floating material on groundwater at the Marketplace and Nielson sites in Emeryville, California. The hazardous criteria used in this evaluation are those described in the California Code of Regulations (CCR), Title 22, Section 66680 et. seq.

Aqua Terra Technologies
Consulting Engineers
& Scientists

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

BACKGROUND

The Marketplace and Nielsen sites are contiguous sites in Emeryville. The Marketplace site has been a site of historic industrial use since the 1800s. Site conditions left from the historic use by a floor and roof covering manufacturer (The Parrafine Companies/PABCO) are well documented in two previous reports on file with Alameda County. A Woodward-Clyde report, "Assessment of Subsurface Contaminants Marketplace Property, Emeryville California" was filed in 1982. An Earth Metrics report, "Draft Work Plan for Soils Contamination Characterization of Marketplace Site in Emeryville California" was filed in 1987 and updated again in 1988. The Nielson Truck Terminal site also has been the subject of previous investigations (Woodward-Clyde report, "Environmental Assessment Former Nielsen Freight Line Site and Adjacent Parcel, Emeryville California"). All historic underground fuel and waste oil tanks have been removed, as of 1987. A report was filed by Woodward-Clyde at the time of tank closure. A subsequent report by Earth Metrics, "Soil and Groundwater Contaminant Investigation for the Former Nielson Freight Lines Site in Emeryville, California" and Final Tank Closure Permit Application were filed in 1988.

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These reports address three separate contaminant issues: gasoline in site soil, diesel fuel in site soil, and an asphalt-like material in site soil. The asphalt-like material has been identified in two deposits, the larger of which is located in the northeast corner of the Marketplace site. All contamination investigation reports on file with the Alameda County, from 1982 on, have acknowledged the presence of this asphalt-like material. Recently, on May 2, 1988, the Alameda County Hazardous Materials Unit suggested that this asphalt-like material may be a potential hazard.

On May 20, 1988, ATT submitted to the Alameda County Hazardous Waste Unit a plan to evaluate the hazardous waste characteristics of this asphalt-like material. Sample collections, analysis, results, and conclusions of the hazardous waste characterization are presented below.

SAMPLE COLLECTION AND ANALYSIS

Four representative sampling locations were identified in the plan to evaluate hazardous waste characteristics (Attachment A, Plate 1). Samples were collected from each of these locations. Soil samples containing the asphalt-like material were collected from the area adjacent to Test Pit 7 (this sample was designated E1 (TP6) (#7) on the chain of custody and E1 on the laboratory reports) and soil boring EM4 (EM4). A sample of floating material (WS) was collected from Well 5. B-5? The third suggested soil sampling location adjacent to soil boring EM2 was not sampled because construction materials stacked at this location obstructed excavation. The three samples collected represent various concentrated forms of the asphalt-like substance. The three sampling locations are also representative of the apparent distribution of this substance on the Marketplace and Nielsen sites.

At the test Pit 7 and EM4 locations, a backhoe was used to uncover the asphalt-like material in soil. Soil samples were collected by hand with a Teflon coated spatula. A floating product sample from Well 5 was collected with a Teflon bailer. Sufficient sample volume from each site was collected to fill two eight-ounce prewashed glass sample containers with Teflon lined closures. One container of each sample was submitted to Sequoia Analytical Laboratory for chemical and physical analyses and the second was submitted to ATT for bioassay testing. Samples were transported and stored chilled and were accompanied during all steps of the process with the appropriate chain of custody documentation.

Each of the these samples was analyzed for hazardous waste characteristics listed in Title 22 of the CCR Sections 66680 et seq. Specific analyses included:

- o Volatile organic chemicals with library search (EPA Method 8240)
- o Semivolatile organic chemicals with library search (EPA Method 8240)
- o CCR 17 heavy metals by inductively coupled argon plasma spectrometry (EPA Method 6010) and atomic absorption graphite furnace (EPA 7000 series)
- o Ignitability (according to the method described in CCR Title 22, Section 666702)
- o Corrosivity (according to the method described in CCR Title 22, Section 66708)
- o Aquatic bioassay (according to the method described in CCR Title 22, Section 66696)

The asphalt-like material is not unstable and does not react violently with water, or form explosive mixtures with water or appear to generate toxic gases, vapors, or fumes, when mixed with water. The material is also not explosive. Therefore, in our opinion the asphalt-like material is not reactive because the material does not meet any of the criteria listed in Section 66705 of Title 22.

The chemical analyses and bioassay testing were conducted by Sequoia Analytical Laboratory and ATT, respectively. The laboratories are certified by the State of California Department of Health Services for the hazardous waste analyses performed.

RESULTS AND DISCUSSION

The analytical results for samples of the asphalt-like material are presented in Attachment 2. The bioassay results are presented in Attachment 3. A discussion of the results and an evaluation of hazardous waste characteristics of the samples are presented below.

A waste may be classified as hazardous or nonhazardous as authorized in Section 66305 of Article 11, Title 22 of the CCR. If a waste meets any of the criteria of Article 11, it may be classified as hazardous. Any waste which is hazardous pursuant to any of the criteria must be managed in accordance with the provisions of Subchapter 30. However, an exception to this requirement is that any waste classified as a special waste under Section 66746 may be managed as a Special Waste under Section 66746.

Ignitability

The results of the ignitability test showed that the three samples of the asphalt-like materials which were tested had flashpoints greater than 60°C. These samples do not cause fire through friction and are not classified oxidizers according to CFR 173.151. The results indicate that samples E1, EM4, and W5 do not meet the criteria for ignitability according to Section 66702 of Title 22.

Reactivity

The asphalt-like material is not unstable, does not react violently with water, or generate toxic fumes when mixed with water. This material also is not explosive. Therefore, samples E1, EM4 and W5 do not meet the criteria for reactivity according to Section 66705 of Title 22.

Corrosivity

The corrosivity test based on pH showed that all samples were within the neutral range (7 to 8.8). Therefore, samples E1, EM4, and W5 do not meet the pH criteria of less than or equal to 2 or greater than or equal to 12.5 for corrosivity according to Section 66708 of Title 22.

Toxicity Criteria

The results of the Nitric Acid digestion for the Total Threshold Limit concentration (TTLC) showed that concentrations of metals extracted from the three samples were substantially less than the TTLC for these metals. To evaluate the Soluble Threshold Limit Concentration (STLC) criteria, the measured concentrations were divided by 10 and compared to STLC values. This approach assumes that 100 percent of the metals extracted with nitric acid will also be extracted with the STLC procedure and that concentrations will be diluted 10:1 as described in the Waste Extraction Test (Section 66700). This interpretation is conservative. The adjusted concentrations for all samples are well below the STLC values.

Volatile organic chemicals were detected only in soil sample EM4. Acetone was measured at 2500 micrograms/kilogram (ug/Kg) and methylene chloride at 800 ug/Kg. Acetone and methylene chloride have not previously been identified in site samples. These chemicals are used in various extraction procedures and are common contaminants resulting from laboratory exposures. There is, however, no conclusive evidence that measured concentrations of acetone and methylene chloride are an artifact of laboratory contamination.

Acetone and methylene chloride are listed in Title 22, Section 66680 as hazardous for their potential ignitability. The ignitibility test results previously described demonstrate that sample EM4 is not hazardous according to ignitability criteria. Methylene chloride is also listed in Section 66680 as hazardous according to its potential toxicity. The calculated oral LD50 for methylene chloride was calculated according to the equation provided in Section 66696. The RAT LD50 was 2000 milligrams/kilogram (mg/Kg) (Health Assessment Document for Dichloromethane (methylene chloride) EPA 600/87-004F). The calculated oral RAT LD50 value is 2.5×10^{11} mg/Kg. The calculated acute oral LD50 for methylene chloride is greater than 5000 mg/Kg critical value therefore, methylene chloride in the waste sample does not meet the toxic and hazardous waste criteria according to Section 66696 (a) (1) of Title 22. Methylene chloride was the only halogenated volatile organic compound detected. The concentration of methylene chloride (800 ug/Kg) measured in sample EM4 is far less then the criteria concentration of 1000 mg/Kg for total halogenated organic compounds according to Section 66900 (e) of Title 22.

The only priority pollutant organic compound detected in the mass spectrometry scan for semivolatile organic compounds in the asphalt-like material samples was 2-methylnaphthalene (220 mg/Kg). This compound was detected only in the sample W5. Five additional petroleum constituents associated with asphalt were also identified in the library scan of this sample. The identified compounds are trimethyldodecane, dimethylnaphthalene, trimethylnaphthalene, tetramethylpentadecane, and tetra-methylhexadecane. None of the six semivolatile chemicals identified is included in the list of chemical names in Section 66680 of Title 22.

The results of the bioassay tests on samples E1, EM4 and W5 indicated that the 96-hour LC50 for fathead minnows was greater than 500 mg/L. Therefore, samples E1, EM4 and W5 do not meet the criteria for toxicity under Section 66696 (a) (4).

CONCLUSION

Based upon the analysis of the soil and floating material samples of the asphalt-like substance from the Marketplace and Nielson sites, this material can not be classified as hazardous according to the criteria set forth in CCR, Title 22, Article 11. Therefore, this material can be managed as a nonhazardous waste according to California CCR.

If you have any questions or comment or require any additional information, please do not hesitate to contact us.

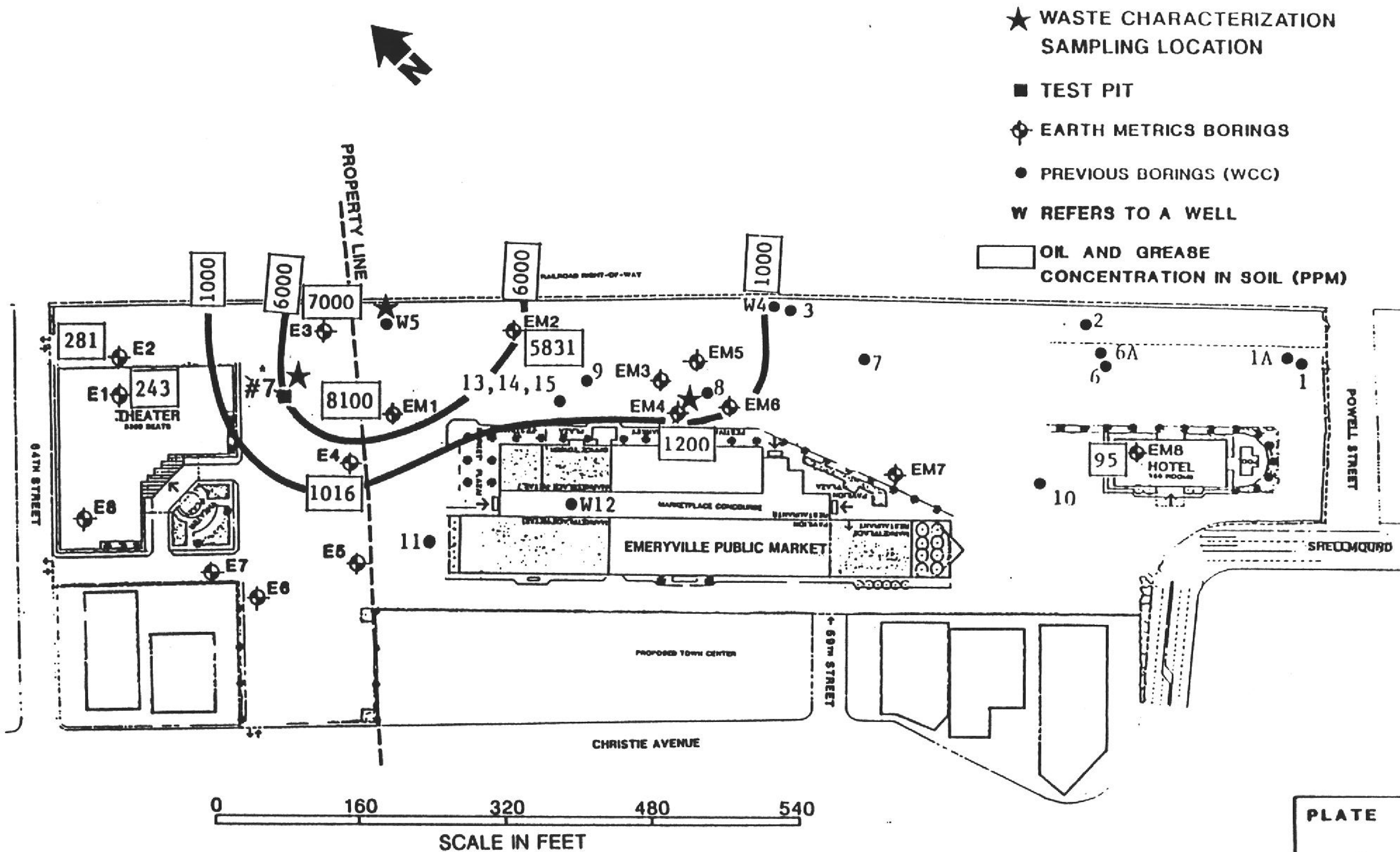
Very truly yours,

AQUA TERRA TECHNOLOGIES, INC.

Patrick Sheehan

Patrick Sheehan, Ph.D.
Environmental Toxicologist

PJS/pd
Attachments



PLATE

1

* Sample identified as E1(TP6)(#7) on the chain of custody and E1 on the laboratory reports.

Source: Earth Metrics March 11, 1988

ATT Aqua Terra Technologies Consulting Engineers & Scientists	WASTE CHARACTERIZATION SAMPLING LOCATION	THE MARTIN COMPANY
		JOB NUMBER 834
		DATE 7-8-88

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Reported: 07/05/88

Sample Number	Sample Description	Ignitability Flashpoint, °C
8061961	Liquid, W5	90
8061962	Soil, Em4	> 110
8061963	Soil, E1	> 110

SEQUOIA ANALYTICAL LABORATORY

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Laboratory Director

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2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Reported: 07/05/88

Sample Number	Sample Description	pH (Corositivity)
8061961	Liquid, W5	7.0
8061962	Soil, Em4	8.8
8061963	Soil, E1	7.0

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Aqua Terra Technologies
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Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/28-30/88
Date Reported: 07/05/88

Sample Number: 8061961
Sample Description: Liquid, W5

WASTE EXTRACTION TEST
INORGANIC SUBSTANCES

Analysis	STLC, mg/L Limit	STLC, mg/L Result	TTLC, mg/kg-wet wt. Limit	TTLC, mg/kg-wet wt. Result
Antimony	15	-	500	< 5
Arsenic	5	-	500	1.3
Asbestos	-	-	10,000	-
Barium	100	-	10,000	1.7
Beryllium	0.75	-	75	< 0.1
Cadmium	1	-	100	0.13
Chromium (VI)	5	-	500	< 0.05
Chromium (III)	560	-	2,500	0.75
Cobalt	80	-	8,000	< 0.1
Copper	25	-	2,500	0.35
Fluoride	180	-	18,000	-
Lead	5	-	1,000	2.9
Mercury	0.2	-	20	< 0.01
Molybdenum	350	-	3,500	< 5
Nickel	20	-	2,000	3.5
Selenium	1	-	100	0.26
Silver	5	-	500	< 0.1
Thallium	7	-	700	< 5
Vanadium	24	-	2,400	5.1
Zinc	250	-	5,000	1.4

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Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/28-30/88
Date Reported: 07/05/88

Sample Number: 8061962
Sample Description: Soil, Em4

WASTE EXTRACTION TEST
INORGANIC SUBSTANCES

Analysis	STLC, mg/L Limit	STLC, mg/L Result	TTLC, mg/kg-wet wt. Limit	TTLC, mg/kg-wet wt. Result
Antimony	15	--	500	< 5
Arsenic	5	-	500	6.1
Asbestos	-	-	10,000	-
Barium	100	-	10,000	66
Beryllium	0.75	-	75	0.38
Cadmium	1	-	100	0.22
Chromium (VI)	5	-	500	< 0.05
Chromium (III)	560	-	2,500	17
Cobalt	80	-	8,000	5.9
Copper	25	-	2,500	49
Fluoride	180	-	18,000	-
Lead	5	-	1,000	9.5
Mercury	0.2	-	20	0.058
Molybdenum	350	-	3,500	< 5
Nickel	20	-	2,000	31
Selenium	1	-	100	0.51
Silver	5	-	500	0.47
Thallium	7	-	700	< 5
Vanadium	24	-	2,400	42
Zinc	250	-	5,000	200

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Aqua Terra Technologies
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Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/28-30/88
Date Reported: 07/05/88

Sample Number: 8061963
Sample Description: Soil, E1

WASTE EXTRACTION TEST
INORGANIC SUBSTANCES

Analysis	STLC, mg/L Limit	STLC, mg/L Result	TTLC, mg/kg-wet wt. Limit	TTLC, mg/kg-wet wt. Result
Antimony	15	-	500	< 5
Arsenic	5	-	500	10
Asbestos	-	-	10,000	-
Barium	100	-	10,000	130
Beryllium	0.75	-	75	0.30
Cadmium	1	-	100	0.30
Chromium (VI)	5	-	500	< 0.05
Chromium (III)	560	-	2,500	30
Cobalt	80	-	8,000	6.3
Copper	25	-	2,500	16
Fluoride	180	-	18,000	-
Lead	5	-	1,000	0.95
Mercury	0.2	-	20	0.038
Molybdenum	350	-	3,500	< 5
Nickel	20	-	2,000	28
Selenium	1	-	100	0.51
Silver	5	-	500	0.28
Thallium	7	-	700	< 5
Vanadium	24	-	2,400	27
Zinc	250	-	5,000	110

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Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Analyzed: 07/05/88
Date Reported: 07/05/88

Sample Number: 8061961

Sample Description: Liquid, W5

VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit, ug/kg	Sample Results, ug/kg
Acetone	~~50000~~	N.D.
Benzene	10000	N.D.
Bromodichloromethane	10000	N.D.
Bromoform	10000	N.D.
Bromomethane	10000	N.D.
2-Butanone	50000	N.D.
Carbon disulfide	10000	N.D.
Carbon tetrachloride	10000	N.D.
Chlorobenzene	10000	N.D.
Chlorodibromomethane	10000	N.D.
Chloroethane	10000	N.D.
2-Chloroethyl vinyl ether	50000	N.D.
Chloroform	50000	N.D.
Chloromethane	10000	N.D.
1,1-Dichloroethane	10000	N.D.
1,2-Dichloroethane	10000	N.D.
1,1-Dichloroethene	10000	N.D.
Total-1,2-Dichloroethene	10000	N.D.
1,2-Dichloropropane	10000	N.D.
cis-1,3-Dichloropropene	10000	N.D.
trans-1,3-Dichloropropene	10000	N.D.
Ethylbenzene	10000	N.D.
2-Hexanone	50000	N.D.
Methylene chloride	50000	N.D.
4-Methyl-2-pentanone	50000	N.D.
Styrene	10000	N.D.
1,1,2,2-Tetrachloroethane	10000	N.D.
Tetrachloroethene	10000	N.D.
Toluene	10000	N.D.
1,1,1-Trichloroethane	10000	N.D.
1,1,2-Trichloroethane	10000	N.D.
Trichloroethene	10000	N.D.
Trichlorofluoromethane	10000	N.D.
Vinyl acetate	10000	N.D.
Vinyl chloride	10000	N.D.
Total Xylenes	10000	N.D.

Method of Analysis: EPA 5030/8240
Analytes reported as N.D. were not present above the stated limit of detection.

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Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Analyzed: 07/05/88
Date Reported: 07/05/88

Sample Number: 8061962

Sample Description: Soil, EM4

VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit, µg/kg	Sample Results, µg/kg
Acetone	500	2500
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chlorodibromomethane	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	500	N.D.
Chloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
Total-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	500	800
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Method of Analysis: EPA 5030/8240
Analytes reported as N.D. were not present above the stated limit of detection.

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Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Analyzed: 07/05/88
Date Reported: 07/05/88

Sample Number: 8061963

Sample Description: Soil, E1

VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit, µg/kg	Sample Results, µg/kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chlorodibromomethane	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	500	N.D.
Chloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
Total-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	500	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Method of Analysis: EPA 5030/8240
Analytes reported as N.D. were not present above the stated limit of detection.

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Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/30/88
Date Analyzed: 06/30/88
Date Reported: 07/05/88

Sample Number: 8061961

Sample Description: Liquid, W5

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	200000	N.D.
Acenaphthylene	200000	N.D.
Anthracene	200000	N.D.
Benzidine	5000000	N.D.
Benzoic acid	200000	N.D.
Benzo(a)anthracene	200000	N.D.
Benzo(b)fluoranthene	200000	N.D.
Benzo(k)fluoranthene	200000	N.D.
Benzo(g,h,i)perylene	200000	N.D.
Benzo(a)pyrene	200000	N.D.
Benzyl alcohol	200000	N.D.
Bis(2-chloroethoxy)methane	200000	N.D.
Bis(2-chloroethyl)ether	200000	N.D.
Bis(2-chloroisopropyl)ether	200000	N.D.
Bis(2-ethylhexyl)phthalate	1000000	N.D.
4-Bromophenyl phenyl ether	200000	N.D.
Butyl benzyl phthalate	200000	N.D.
4-Chloroaniline	200000	N.D.
2-Chloronaphthalene	200000	N.D.
4-Chloro-3-methylphenol	200000	N.D.
2-Chlorophenol	200000	N.D.
4-Chlorophenyl phenyl ether	200000	N.D.
Chrysene	200000	N.D.
Dibenz(a,h)anthracene	200000	N.D.
Dibenzofuran	200000	N.D.
Di-N-butyl phthalate	1000000	N.D.
1,3-Dichlorobenzene	200000	N.D.
1,4-Dichlorobenzene	200000	N.D.
1,2-Dichlorobenzene	200000	N.D.
3,3-Dichlorobenzidine	1000000	N.D.
2,4-Dichlorophenol	200000	N.D.
Diethyl phthalate	200000	N.D.
2,4-Dimethylphenol	200000	N.D.
Dimethyl phthalate	200000	N.D.
4,6-Dinitro-2-methylphenol	1000000	N.D.
2,4-Dinitrophenol	1000000	N.D.
2,4-Dinitrotoluene	200000	N.D.
2,6-Dinitrotoluene	200000	N.D.

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Aqua Terra Technologies

Sample Number	Sample Description
8061961	Liquid, W5

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Di-N-octyl phthalate	200000	N.D.
Fluoranthene	200000	N.D.
Fluorene	200000	N.D.
Hexachlorobenzene	200000	N.D.
Hexachlorobutadiene	200000	N.D.
Hexachlorocyclopentadiene	200000	N.D.
Hexachloroethane	200000	N.D.
Indeno(1,2,3-cd)pyrene	200000	N.D.
Isophorone	200000	N.D.
2-Methylnaphthalene	200000	220000
2-Methylphenol	200000	N.D.
4-Methylphenol	200000	N.D.
Naphthalene	200000	N.D.
2-Nitroaniline	200000	N.D.
3-Nitroaniline	200000	N.D.
4-Nitroaniline	200000	N.D.
Nitrobenzene	200000	N.D.
2-Nitrophenol	200000	N.D.
4-Nitrophenol	1000000	N.D.
N-Nitrosodiphenylamine	200000	N.D.
N-Nitroso-di-N-propylamine	200000	N.D.
Pentachlorophenol	1000000	N.D.
Phenanthrene	200000	N.D.
Phenol	200000	N.D.
Pyrene	200000	N.D.
1,2,4-Trichlorobenzene	200000	N.D.
2,4,5-Trichlorophenol	200000	N.D.
2,4,6-Trichlorophenol	200000	N.D.

Method of Extraction: EPA 3580 Method of Analysis: EPA 8270

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled:	06/06/88
Date Received:	06/24/88
Date Extracted:	06/29/88
Date Analyzed:	06/30/88
Date Reported:	07/05/88

Sample Number

8061961

Sample Description

Liquid, W5

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY
Non-Calibrated Compounds

Analyte	Concentration µg/kg
Trimethyl Dodecane	1100000
Dimethyl Naphthalene	500000
Trimethyl Naphathalene	2000000
Tetramethyl Pentadecane	1400000
Tetramethyl Hexadecane	2700000

Method of Analysis: EPA 8270 & "Open Scan"

NOTE: All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library. Positive identification or specification between isomers cannot be made without retention time standards.

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Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/29/88
Date Analyzed: 06/30/88
Date Reported: 07/05/88

Sample Number

8061962

Sample Description

Soil, EM4

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	20000	N.D.
Acenaphthylene	20000	N.D.
Anthracene	20000	N.D.
Benzidine	500000	N.D.
Benzoic acid	20000	N.D.
Benzo(a)anthracene	20000	N.D.
Benzo(b)fluoranthene	20000	N.D.
Benzo(k)fluoranthene	20000	N.D.
Benzo(g,h,i)perylene	20000	N.D.
Benzo(a)pyrene	20000	N.D.
Benzyl alcohol	20000	N.D.
Bis(2-chloroethoxy)methane	20000	N.D.
Bis(2-chloroethyl)ether	20000	N.D.
Bis(2-chloroisopropyl)ether	20000	N.D.
Bis(2-ethylhexyl)phthalate	100000	N.D.
4-Bromophenyl phenyl ether	20000	N.D.
Butyl benzyl phthalate	20000	N.D.
4-Chloroaniline	20000	N.D.
2-Chloronaphthalene	20000	N.D.
4-Chloro-3-methylphenol	20000	N.D.
2-Chlorophenol	20000	N.D.
4-Chlorophenyl phenyl ether	20000	N.D.
Chrysene	20000	N.D.
Dibenz(a,h)anthracene	20000	N.D.
Dibenzofuran	20000	N.D.
Di-N-butyl phthalate	100000	N.D.
1,3-Dichlorobenzene	20000	N.D.
1,4-Dichlorobenzene	20000	N.D.
1,2-Dichlorobenzene	20000	N.D.
3,3-Dichlorobenzidine	100000	N.D.
2,4-Dichlorophenol	20000	N.D.
Diethyl phthalate	20000	N.D.
2,4-Dimethylphenol	20000	N.D.
Dimethyl phthalate	20000	N.D.
4,6-Dinitro-2-methylphenol	100000	N.D.
2,4-Dinitrophenol	100000	N.D.
2,4-Dinitrotoluene	20000	N.D.
2,6-Dinitrotoluene	20000	N.D.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies

Sample Number	Sample Description
8061962	Soil, EM4

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Di-N-octyl phthalate	20000	N.D.
Fluoranthene	20000	N.D.
Fluorene	20000	N.D.
Hexachlorobenzene	20000	N.D.
Hexachlorobutadiene	20000	N.D.
Hexachlorocyclopentadiene	20000	N.D.
Hexachloroethane	20000	N.D.
Indeno(1,2,3-cd)pyrene	20000	N.D.
Isophorone	20000	N.D.
2-Methylnaphthalene	20000	N.D.
2-Methylphenol	20000	N.D.
4-Methylphenol	20000	N.D.
Naphthalene	20000	N.D.
2-Nitroaniline	20000	N.D.
3-Nitroaniline	20000	N.D.
4-Nitroaniline	20000	N.D.
Nitrobenzene	20000	N.D.
2-Nitrophenol	20000	N.D.
4-Nitrophenol	20000	N.D.
N-Nitrosodiphenylamine	20000	N.D.
N-Nitroso-di-N-propylamine	20000	N.D.
Pentachlorophenol	20000	N.D.
Phenanthrene	20000	N.D.
Phenol	20000	N.D.
Pyrene	20000	N.D.
1,2,4-Trichlorobenzene	20000	N.D.
2,4,5-Trichlorophenol	20000	N.D.
2,4,6-Trichlorophenol	20000	N.D.

Method of Extraction: EPA 3550 Method of Analysis: EPA 8270
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/29/88
Date Analyzed: 06/30/88
Date Reported: 07/05/88

Sample Number	Sample Description
8061962	Soil, EM4

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY
Non-Calibrated Compounds

Analyte	Concentration µg/kg

No additional peaks > 500 µg/kg were identified by the Mass Spectral library.

Method of Analysis: EPA 8270 & "Open Scan"

NOTE: All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library. Positive identification or specification between isomers cannot be made without retention time standards.

SEQUOIA ANALYTICAL LABORATORY

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Laboratory Director

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Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/29/88
Date Analyzed: 06/30/88
Date Reported: 07/05/88

Sample Number	Sample Description
8061963	Soil, E1

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	10000	N.D.
Acenaphthylene	10000	N.D.
Anthracene	10000	N.D.
Benzidine	250000	N.D.
Benzoic acid	10000	N.D.
Benzo(a)anthracene	10000	N.D.
Benzo(b)fluoranthene	10000	N.D.
Benzo(k)fluoranthene	10000	N.D.
Benzo(g,h,i)perylene	10000	N.D.
Benzo(a)pyrene	10000	N.D.
Benzyl alcohol	10000	N.D.
Bis(2-chloroethoxy)methane	10000	N.D.
Bis(2-chloroethyl)ether	10000	N.D.
Bis(2-chloroisopropyl)ether	10000	N.D.
Bis(2-ethylhexyl)phthalate	50000	N.D.
4-Bromophenyl phenyl ether	10000	N.D.
Butyl benzyl phthalate	10000	N.D.
4-Chloroaniline	10000	N.D.
2-Chloronaphthalene	10000	N.D.
4-Chloro-3-methylphenol	10000	N.D.
2-Chlorophenol	10000	N.D.
4-Chlorophenyl phenyl ether	10000	N.D.
Chrysene	10000	N.D.
Dibenz(a,h)anthracene	10000	N.D.
Dibenzofuran	10000	N.D.
Di-N-butyl phthalate	50000	N.D.
1,3-Dichlorobenzene	10000	N.D.
1,4-Dichlorobenzene	10000	N.D.
1,2-Dichlorobenzene	10000	N.D.
3,3-Dichlorobenzidine	50000	N.D.
2,4-Dichlorophenol	10000	N.D.
Diethyl phthalate	10000	N.D.
2,4-Dimethylphenol	10000	N.D.
Dimethyl phthalate	10000	N.D.
4,6-Dinitro-2-methylphenol	50000	N.D.
2,4-Dinitrophenol	50000	N.D.
2,4-Dinitrotoluene	10000	N.D.
2,6-Dinitrotoluene	10000	N.D.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies

Sample Number	Sample Description
8061963	Soil, E1

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Di-N-octyl phthalate	10000	N.D.
Fluoranthene	10000	N.D.
Fluorene	10000	N.D.
Hexachlorobenzene	10000	N.D.
Hexachlorobutadiene	10000	N.D.
Hexachlorocyclopentadiene	10000	N.D.
Hexachloroethane	10000	N.D.
Indeno(1,2,3-cd)pyrene	10000	N.D.
Isophorone	10000	N.D.
2-Methylnaphthalene	10000	N.D.
2-Methylphenol	10000	N.D.
4-Methylphenol	10000	N.D.
Naphthalene	10000	N.D.
2-Nitroaniline	10000	N.D.
3-Nitroaniline	10000	N.D.
4-Nitroaniline	10000	N.D.
Nitrobenzene	10000	N.D.
2-Nitrophenol	10000	N.D.
4-Nitrophenol	50000	N.D.
N-Nitrosodiphenylamine	10000	N.D.
N-Nitroso-di-N-propylamine	10000	N.D.
Pentachlorophenol	50000	N.D.
Phenanthrene	10000	N.D.
Phenol	10000	N.D.
Pyrene	10000	N.D.
1,2,4-Trichlorobenzene	10000	N.D.
2,4,5-Trichlorophenol	10000	N.D.
2,4,6-Trichlorophenol	10000	N.D.

Method of Extraction: EPA 3550 Method of Analysis: EPA 8270
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222 • FAX (415) 364-9233

Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Extracted: 06/29/88
Date Analyzed: 06/30/88
Date Reported: 07/05/88

Sample Number	Sample Description
8061963	Soil, E1

SEMI-VOLATILE ORGANICS by MASS SPECTROMETRY
Non-Calibrated Compounds

Analyte	Concentration µg/kg

No additional peaks > 500 µg/kg were identified by the Mass Spectral library.

Method of Analysis: EPA 8270 & "Open Scan"

NOTE: All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library. Positive identification or specification between isomers cannot be made without retention time standards.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

SEQUOIA Analytical Laboratory

2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Aqua Terra Technologies
2950 Buskirk Ave., Suite 120
Walnut Creek, CA 94596
Attn: Patrick Sheehan

Date Sampled: 06/06/88
Date Received: 06/24/88
Date Analyzed: 07/01/88
Date Reported: 07/07/88

POLYCHLORINATED BIPHENYLS

Sample Number	Sample Description	Detection Limit µg/kg	Sample Result µg/kg	PCB Species (If Present)
8061961	Liquid, W5	100,000	N.D.	-
8061962	Soil, Em4	20,000	N.D.	-
8061963	Soil, E1	10,000	N.D.	-

Method of Analysis: EPA 8270

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

TTR-4

Aqua Terra Technologies
Consulting Engineers & Scientists

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

ATT

CHAIN OF SAMPLE CUSTODY RECORD

Collector: Todd Miller Date Sampled: 6-6-88 Time: 17:00
Location of Sampling: Emeryville location - W-5

Project Number: Survey Number:
Sample Type: Floating product
Container Type and Condition: 1 pt. wide mouth jars
Contract Laboratory Record/Name:

Sample ID	Field Information
~~[illegible]~~	~~[illegible]~~
EM 4	SOIL
W5	LIQUID
(E1) 7 (TPk)	SOIL

Analysis Requested: EPA 8240, 8270, 6010, 7000 SERIES
IGNITABILITY
CORROSIVITY

Results Needed By:

Contact and results to be sent to: PATRICK SHEEHAN

Travel Blank: ☐ Yes ☐ No Travel Blank to be Analyzed Separately: ☐ Yes ☐

Duplicate Samples: ☐ Yes ☐ No Duplicates to be Analyzed Separately: ☐ Yes ☐

Cleaning Blank: ☐ Yes ☐ No Cleaning Blank to be Analyzed Separately: ☐ Yes ☐

Background Soil Sample: ☐ Yes ☐ No Background Soil Sample to be Analyzed Separately: ☐ Yes ☐

Chain of Custody:

1. Todd Miller — Field Personnel — 6/6/88 Date
2. Gregory Jukes — Courier — 6/6/88 Date
3. Lab — Date

ATT

July 11, 1988

Mr. Walter Kaczmarek
The Martin Company
6425 Christie Street #406
Emeryville, CA 94608

Subject: Toxicity Test Results of Sample 864(E1), 865(EM1), and 866(W5).

Dear Mr. Kaczmarek:

This letter report presents the toxicity test results for fathead minnow (Pimephales promelas) exposed to concentrations of samples of asphalt-like substance in soil and viscous asphalt-like liquid collected from the Marketplace and Nielsen sites in Emeryville, California.

Aqua Terra Technologies
Consulting Engineers
& Scientists

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

METHODS

All tests were conducted according to Aqua Terra Technologies (ATT) hazardous waste aquatic toxicity test protocol based on Standard Methods for the Examination of Water and Wastewater, 16th Edition, American Public Health Association, 1986, and certified by the State of California Department of Health Services (copy of certificate attached). The asphalt-like substance in soil and viscous asphalt-like liquid samples were tested at three concentrations, 250 mg/L, 500 mg/L, and 750 mg/L. The soil samples were thoroughly mixed into dechlorinated tap water using a wrist-action shaker. The liquid sample was mechanically mixed directly with dechlorinated tap water. All treatments were run in duplicate with 10 fish per three liter tank and a total of 20 fish per treatment. Tests for soil sample 864(E1) and 865(EM1) were conducted June 6 through June 10, 1988. Test for the liquid sample 866(W5) were conducted June 20 through June 24, 1988. Fish were acclimated in the test laboratory for 6 to 7 days prior to their use in these tests. Temperature was controlled at 20 $\pm$ 2^{o}C and photoperiod regulated at approximately 16-hours light and 8-hours dark.

Fish mortality and the following physical and chemical variables were monitored during the 96-hours test: temperature, pH, dissolved oxygen concentration, water hardness and alkalinity.

Mr. Walter Kaczmarek
The Martin Company
July 11, 1988
Page Two

TEST RESULTS

No fish mortality occurred in the dilution water control or in sample treatments of samples 864(E1) and 865(EM4). Fish mortality did occur in all sample treatments of Sample 866(W5). Twenty five percent fish mortality occurred in the 250 mg/L treatment, five percent in the 500 mg/L treatment, and 40 percent in the 750 mg/L treatment of Sample 866. The raw data from tests are summarized in the attached data sheets.

Test results indicate that the 96-hour LC50 values for the asphalt-like soil and liquid samples are greater than 500 mg/L The soil samples 864(E1) and 865(EM4) and liquid sample 866(W5) therefore, do not meet the acute aquatic toxicity test criteria (96-hour LC50 $\leq$ 500 mg/L) for identification of a material as hazardous according to the specification in the California Code of Regulation (CCR), Title 22, Section 66696.

Should any questions arise as to test procedures or results, do not hesitate to call.

Very truly yours,

AQUA TERRA TECHNOLOGIES, INC.

Patrick Sheehan

Patrick J. Sheehan, Ph.D.
Laboratory Director

PJS/pc

Enclosures: Bioassay Data Sheets
Temperature Traces
Chain of Custody
Invoice
Certificate

STATIC ACUTE BIOASSAY

Aqua Terra Technologies
2950 Buskirk Avenue
Walnut Creek, CA 94596
415 934-4884

CLIENT: The Martin Company ATTENTION: Mr. Walter Kaczmarek

SAMPLE ID#: control SAMPLE DESCRIPTION: dilution water TESTING DATES: 06/06/88 to 06/10/88

	Monday INITIAL						Tuesday 24-HOUR				Wednesday 48-HOUR				Thursday 72-HOUR				Friday 96-HOUR			
TEST CONC mg/L	Alk mg/L	Hard mg/L	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC
control	70	45	10	7.72	9.2	22	10	7.73	9.2	*	10	7.76	8.5	*	10	7.78	8.6	*	10	7.87	8.6	*
control			10	7.76	8.9	22	10	7.52	8.9	*	10	7.50	8.7	*	10	7.55	8.3	*	10	7.50	8.3	*

Test Species fathead minnow Avg Length 3.8 cm Max Length 4.5 cm Min Length 3.3 cm

Source of Test Species Thomas Fish Company Avg Wt 0.70 gm Max Wt 1.25 gm Min Wt 0.44 gm

Species Density 10/tank 20/treatment Dilution Water dechlorinated tap Test Soln Vol 3L Depth 17cm Aeration bubble

Acclimation Tank % Dead 0 Accl. Tank Water dechlorinated tap Accl. Period 7 days Accl. Temp. 20 (+/-2) deg C

REMARKS: *continuous temperature recording on disc.

TECHNICIAN: Patricia Chiang
Patricia Chiang

96 hr LC50 N/A

95% Confidence Limits N/A

LABORATORY DIRECTOR: Patrick Sheehan
Patrick Sheehan, PhD

STATIC ACUTE BIOASSAY

Aqua Terra Technologies
2950 Buskirk Avenue
Walnut Creek, CA 94596
415 934-4884

CLIENT: The Martin Company ATTENTION: Mr. Walter Kaczmarek

SAMPLE ID#: 864 (E1) SAMPLE DESCRIPTION: asphalt-like substance in soil TESTING DATES: 06/06/88 to 06/10/88

			Monday INITIAL				Tuesday 24-HOUR				Wednesday 48-HOUR				Thursday 72-HOUR				Friday 96-HOUR			
TEST CONC mg/L	Alk mg/L	Hard mg/L	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC
250 #3			10	7.55	8.5	22	10	7.54	8.5	*	10	7.68	8.9	*	10	7.75	8.8	*	10	7.77	8.0	*
250 #4			10	7.40	7.9	22	10	7.20	7.6	*	10	7.38	7.6	*	10	7.45	8.0	*	10	7.44	8.0	*
500 #5			10	7.49	7.9	22	10	7.37	7.6	*	10	7.53	8.2	*	10	7.45	8.1	*	10	7.47	7.5	*
500 #6			10	7.46	8.1	22	10	7.19	7.5	*	10	7.36	7.6	*	10	7.63	6.5	*	10	7.65	7.8	*
750 #7			10	7.46	8.4	22	10	7.42	8.2	*	10	7.34	8.2	*	10	7.75	8.1	*	10	7.50	7.7	*
750 #8			10	7.61	8.5	22	10	7.77	8.2	*	10	7.55	9.2	*	10	7.92	8.9	*	10	7.95	7.8	*

Test Species fathead minnow Avg Length 3.8 cm Max Length 4.5 cm Min Length 3.3 cm

Source of Test Species Thomas Fish Company Avg Wt 0.70 gm Max Wt 1.25 gm Min Wt 0.44 gm

Species Density 10/tank 20/treatment Dilution Water dechlorinated tap Test Soln Vol 3L Depth 17cm Aeration bubble

Acclimation Tank % Dead 0 Accl. Tank Water dechlorinated tap Accl. Period 7 days Accl. Temp. 20 (+/-2) deg C

REMARKS: *continuous temperature recording on disc.

TECHNICIAN: Patricia Chiang
Patricia Chiang

96 hr LC50 greater than 500 mg/L

95% Confidence Limits N/A

LABORATORY DIRECTOR: Patrick Sheehan
Patrick Sheehan, PhD

STATIC ACUTE BIOASSAY

Aqua Terra Technologies
2950 Buskirk Avenue
Walnut Creek, CA 94596
415 934-4884

CLIENT: The Martin Company ATTENTION: Mr. Walter Kaczmarek

SAMPLE ID#: 865(EM4) SAMPLE DESCRIPTION: asphalt-like substance in soil TESTING DATES: 06/06/88 to 06/10/88

	Monday INITIAL						Tuesday 24-HOUR				Wednesday 48-HOUR				Thursday 72-HOUR				Friday 96-HOUR			
TEST CONC mg/L	Alk mg/L	Hard mg/L	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC
250 #9			10	7.51	8.3	22	10	7.67	8.3	*	10	7.70	9.0	*	10	7.75	9.2	*	10	7.78	8.8	*
250 #10			10	7.62	8.5	22	10	7.72	8.5	*	10	7.80	9.2	*	10	7.90	9.1	*	10	7.93	8.4	*
500 #11			10	7.38	8.9	22	10	7.65	8.8	*	10	7.71	9.2	*	10	7.76	9.1	*	10	7.80	8.9	*
500 #12			10	7.38	8.0	22	10	7.67	7.9	*	10	7.71	9.1	*	10	7.77	9.0	*	10	7.80	9.0	*
750 #13			10	7.38	7.7	22	10	7.65	7.6	*	10	7.70	9.1	*	10	7.76	9.0	*	10	7.75	8.5	*
750 #14			10	7.55	8.5	22	10	7.73	8.2	*	10	7.78	9.0	*	10	7.84	8.9	*	10	7.84	8.5	*

Test Species fathead minnow Avg Length 3.8 cm Max Length 4.5 cm Min Length 3.3 cm

Source of Test Species Thomas Fish Company Avg Wt 0.70 gm Max Wt 1.25 gm Min Wt 0.44 gm

Species Density 10/tank 20/treatment Dilution Water dechlorinated tap Test Soln Vol 3L Depth 17cm Aeration bubble

Acclimation Tank % Dead 0 Accl. Tank Water dechlorinated tap Accl. Period 7 days Accl. Temp. 20 (+/-2) deg C

REMARKS: *continuous temperature recording on disc.

TECHNICIAN: Patricia Chiang
Patricia Chiang

96 hr LC50 greater than 500 mg/L

95% Confidence Limits N/A

LABORATORY DIRECTOR: Patrick Sheehan
Patrick Sheehan PhD

STATIC ACUTE BIOASSAY

Aqua Terra Technologies
2950 Buskirk Avenue
Walnut Creek, CA 94596
415 934-4884

CLIENT: The Martin Company ATTENTION: Mr. Walter Kaczmarek

SAMPLE ID#: control SAMPLE DESCRIPTION: dilution water TESTING DATES: 06/20/88 to 06/24/88

	Monday INITIAL						Tuesday 24-HOUR				Wednesday 48-HOUR				Thursday 72-HOUR				Friday 96-HOUR			
TEST CONC mg/L	Alk mg/L	Hard mg/L	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC
control	70	45	10	7.84	8.1	20	10	7.64	8.7	*	10	7.49	8.2	*	10	7.56	7.8	*	10	7.47	8.5	*
control			10	7.70	8.2	20	10	7.57	8.4	*	10	7.49	7.9	*	10	7.56	8.0	*	10	7.52	8.0	*

Test Species fathead minnow Avg Length 3.5 cm Max Length 4.4 cm Min Length 3.0 cm

Source of Test Species Thomas Fish Company Avg Wt 0.51 gm Max Wt 1.06 gm Min Wt 0.31 gm

Species Density 10/tank 20/treatment Dilution Water dechlorinated tap Test Soln Vol 3L Depth 17cm Aeration bubble

Acclimation Tank % Dead 0 Accl. Tank Water dechlorinated tap Accl. Period 6 days Accl. Temp. 20 (+/-2) deg C

REMARKS: *continuous temperature recording on disc.

TECHNICIAN: Patricia Chiang
Patricia Chiang

96 hr LC50 N/A

95% Confidence Limits N/A

LABORATORY DIRECTOR: Patrick Sheehan
Patrick Sheehan, PhD

STATIC ACUTE BIOASSAY

Aqua Terra Technologies
2950 Buskirk Avenue
Walnut Creek, CA 94596
415 934-4884

CLIENT: The Martin Company ATTENTION: Mr. Walter Kaczmarek

SAMPLE ID#: 866(W5) SAMPLE DESCRIPTION: viscous asphalt-like liquid TESTING DATES: 06/20/88 to 06/24/88

			Monday INITIAL				Tuesday 24-HOUR				Wednesday 48-HOUR				Thursday 72-HOUR				Friday 96-HOUR			
TEST CONC mg/L	Alk mg/L	Hard mg/L	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC	Live	pH	DO mg/L	Temp oC
250 #3			10	7.72	8.3	22	10	7.53	8.3	*	10	7.61	8.2	*	10	7.70	8.6	*	8	7.68	8.6	*
250 #4			10	7.75	8.2	22	9	7.54	8.4	*	9	7.51	8.3	*	7	7.62	8.1	*	7	7.67	8.1	*
500 #5			10	7.78	8.9	22	10	7.62	9.0	*	9	7.55	8.5	*	9	7.68	8.6	*	9	7.71	8.6	*
500 #6			10	7.78	8.8	22	10	7.65	9.1	*	10	7.58	8.6	*	10	7.65	8.6	*	10	7.69	8.5	*
750 #7			10	7.73	9.2	22	9	7.65	9.0	*	9	7.63	8.0	*	6	7.58	8.4	*	4	7.70	8.3	*
750 #8			10	7.70	8.3	22	10	7.54	8.6	*	10	7.50	8.6	*	9	7.50	8.2	*	8	7.58	8.2	*

Test Species fathead minnow Avg Length 3.5 cm Max Length 4.4 cm Min Length 3.0 cm

Source of Test Species Thomas Fish Company Avg Wt 0.51 gm Max Wt 1.06 gm Min Wt 0.31 gm

Species Density 10/tank 20/treatment Dilution Water dechlorinated tap Test Soln Vol 3L Depth 17cm Aeration bubble

Acclimation Tank % Dead 0 Accl. Tank Water dechlorinated tap Accl. Period 6 days Accl. Temp. 20 (+/-2) deg C

REMARKS: *continuous temperature recording on disc.

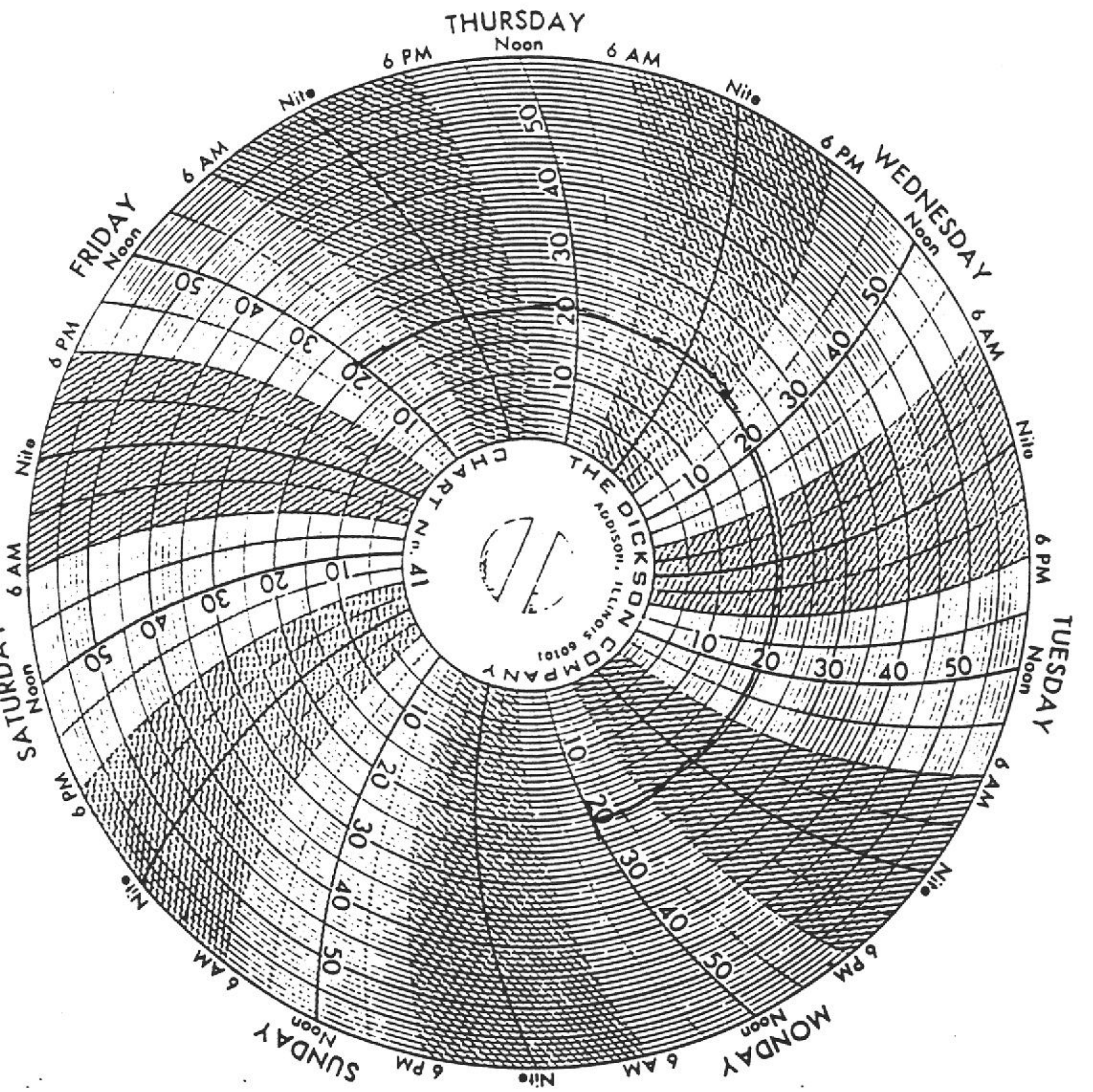
TECHNICIAN: Patricia Chiang
Patricia Chiang

96 hr LC50 greater than 500 mg/L

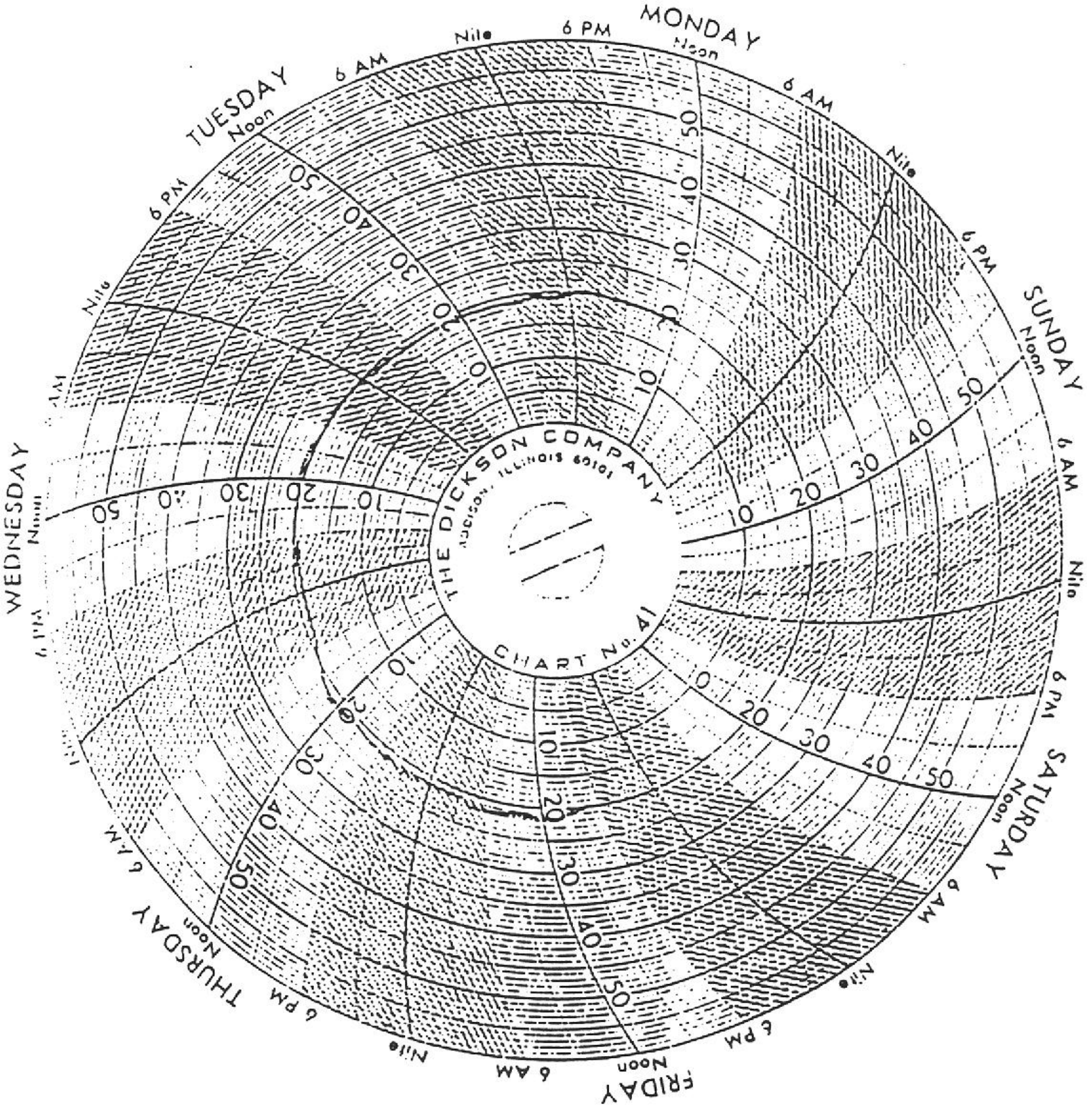
95% Confidence Limits N/A

LABORATORY DIRECTOR: Patrick Sheehan
Patrick Sheehan, PhD

Control
Sample 864, 865
June 6-10, 1983



Control
Sample 866
06/20 - 06/24



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES

HAZARDOUS WASTE TESTING LABORATORY CERTIFICATE

is hereby granted to

Aqua Terra Technologies, Inc.

to conduct analysis of hazardous waste in the following test categories:

Aquatic Toxicity Testing

This Certificate is granted in accordance with provisions of Article 8.5, Chapter 6.5, Division 20 of the Health and Safety Code.

Certificate No. 169
Expiration Date March 2, 1989

Issued at Berkeley, on March 3, 1987

by R Stephens
Chief, Hazardous Materials Laboratory Section

(415) 934-48

CHAIN OF SAMPLE CUSTODY RECORD

Collector: AQUA TERRA TECH Date Sampled: 6-6-88 Time: 1200
Location of Sampling: EMERYVILLE

Project Number: 843 Survey Number:
Sample Type: GROUNDWATER / SOIL
Container Type and Condition:
Contract Laboratory Record/Name: ATT

Sample ID	Field Information
EM4	SOIL
W5	GROUNDWATER
EJ (TP6)(#7)	SOIL

Analysis Requested: BIOASSAY

Results Needed By:

Contact and results to be sent to: PATRICK SHEEHAN

Travel Blank: /__/ Yes /__/ No Travel Blank to be Analyzed Separately: /__/ Yes /__/

Duplicate Samples: /__/ Yes /__/ No Duplicates to be Analyzed Separately: /__/ Yes /__/

Cleaning Blank: /__/ Yes /__/ No Cleaning Blank to be Analyzed Separately /__/ Yes /__/

Background Soil Sample: /__/ Yes /__/ No Background Soil Sample to be Analyzed Separately: /__/ Yes /__/

Chain of Custody:

Todd Mill — 6/6/88
Field Personnel — Date

Todd Mill — 6/6/88
Courier — Date

Lab — Date

(c) Copies of the determination shall be delivered or sent by certified mail to the owner of the property, the legislative body of the city or county in whose jurisdiction the land is located, and any other persons who were served pursuant to Section 25222 or who were permitted to intervene in the proceeding pursuant to Section 25226.

(d) Failure or refusal to comply with any order issued pursuant to this section shall be treated in the manner provided by Section 11525 of the Government Code.

(Amended by Stats. 1984, Ch. 1736.)

25230. (a) Upon a determination that land is hazardous waste property or border zone property pursuant to Section 25229, the director shall notify the owner of the property and the legislative body of the city or county in whose jurisdiction the land is located and any other persons who were permitted to intervene in the proceeding, and shall issue orders to every owner of the land requiring all of the following:

(1) The notarized execution and recordation of a written instrument which imposes an easement, covenant, restriction, or servitude, or combination thereof, as appropriate, upon the present and future uses of all or part of the land which has been designated a hazardous waste property or a border zone property as provided by Section 25232, and which provides that removal of the easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, shall be in accordance with Section 25234. The easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, shall be executed by all the owners of the land and by the director, shall particularly describe the real property affected by the instrument, and, if applicable, the location of the easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, on the real property. The easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, shall be recorded with the recorder of the county in which the land is located within 10 days after the instrument, as executed by the director, is received by the owner and shall be indexed by the county recorder in the grantor index in the name of the record title owner of the real property and in the grantee index in the name of the department. The easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, shall state that the land described in the instrument is subject to a hazardous waste easement, covenant, restriction, or servitude, or any combination thereof, as appropriate. Notwithstanding any other provision of law, an easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, executed pursuant to this section shall run with the land from the date of recordation and shall be binding upon all of the owners of the land, their heirs, successors, and assignees, and the agents, employees, or lessees of the owners, heirs, successors, and assignees, unless it is removed pursuant to Section 25234. The easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, shall be enforceable by the department pursuant to Article 8 (commencing with Section 25180).

(2) The execution and delivery of a written instrument to accompany all purchase, lease, or rental agreements relating to the land which has been designated a hazardous waste property or a border zone property. The instrument shall be prepared by the owner or lessor of the land and shall contain the following statement:

"The land described herein contains hazardous waste or is within 2,000 feet of land that contains hazardous waste. This condition renders the land and the owner, lessee, or other possessor of the land subject to the requirements, restrictions, provisions, and liabilities contained in Chapter 6.5 (commencing with Section 25100) of Division 20 of the Health and Safety Code. This statement is not a declaration that a hazard exists."

(b) In any case where the department has made reasonable efforts to obtain execution of the easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, and the owner or owners have failed or refused to execute it, the department may apply to the court for an order imposing the easement, covenant, restriction, or servitude, or any combination thereof, as appropriate. The issued order shall be recorded in the same manner as an executed instrument, as specified in paragraph (1) of subdivision (a).

(c) Any hazardous waste easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, executed pursuant to this section shall be exclusively for the purpose of protecting the public health and safety and shall convey no interest in real or other property to the state. Notwithstanding any other provision of law, any easement, covenant, restriction, or servitude, or any combination thereof, as appropriate, held by the department shall not be sold or otherwise transferred to another person.

(Amended by Stats. 1984, Ch. 1736.)

25231. A decision of the director made after a hearing pursuant to Section 25229 shall be reviewable pursuant to Section 1094.5 of the Code of Civil Procedure.

(Added by Stats. 1980, Ch. 1161.)

25232. (a) Except as provided in subdivision (c) of this section, after the director has provided notice in compliance with Section 25222 and a hearing or decision regarding specific land is pending, or after a hearing has been conducted and a decision has been made pursuant to Section 25229 that land is a hazardous waste property, then none of the following shall occur on the land without a specific variance approved in writing by the department for the land use and land in question:

(1) Any new use of the land, other than the use, modification, or expansion of an existing industrial or manufacturing facility or complex on land which is owned by, or held for the beneficial use of, such facility or complex as of January 1, 1981, and which is a hazardous waste property as defined in Section 25117.3.

(2) Subdivision of such land, as that term is used in Division 2 (commencing with Section 66410) of Title 7 of the Government Code, except that this paragraph shall not prevent the division of a parcel of land so as to divide that portion of the parcel which is designated a hazardous waste property from other portions of such parcel not so designated.