

discussed w/ Hugh 11/20/90



1365 VANDER WAY SAN JOSE, CALIFORNIA 95112 (408) 297-6969 FAX (408) 297-7716

November 7, 1990
Project 4454/3

Mr. Hugh Murphy
Hayward Fire Department
22300 Hayward Boulevard
Hayward, California 94541

Subject: Work Plan for Exploring Lateral Extent of
Ground Water Impact from Pesticides
Sunnyside Commons II
Hayward, California

Dear Mr. Murphy:

The following Work Plan is presented to further investigate the lateral extent of pesticide impact to the shallow ground water beneath Sunnyside Commons II in Hayward (see Figure 1). Although the pesticide levels measured have been below "safe" drinking water concentrations as determined by Environmental Risk Services using accepted state and federal procedures, further investigation is being required by the pertinent agencies to bound the plume and verify the absence of perimeter hot spots. Also included herein are a table providing a cumulative summary of ground water test results to date and the laboratory report for our sampling event of October 17, 1990.

SCOPE OF WORK

Based on our knowledge of the subject area, experience with similar studies and the general opinions expressed by Rich Hiatt of the Regional Water Quality Control Board (RWQCB), Ariu Levy of the Alameda County Health Agency (ACHA) and yourself, we plan to complete the following investigation:

1. Advance four exploratory borings to a depth of about five feet into first ground water (~18 feet below grade) in the locations indicated on Figure 1 - Site Plan and Proposed Sampling Locations. A limited amount of greenhouse demolition work will be required to reach locations WS-1 and WS-3. Drilling will be performed by a C-57 licensed drilling contractor with onsite professional guidance by an experienced environmental geologist from our staff.

Soil samples will be collected for classification purposes at five-foot interval using an 18-inch split-spoon sampler. Our geologist will log the soil conditions encountered using the Unified Soil Classification System with visual-manual procedures (ASTM 2488-84) and prepare exploration drill hole logs.

2. Collect one ground water grab sample from each opened hole. The samples will be collected with discreet Teflon bailers lowered into the borings after the augers are raised. Purging of two "hole volumes" is planned to assure the samples are as representative as possible to aquifer conditions. This purge water will be placed in labelled drums pending the outcome of test results.

Samples will be transferred from the bailer tops into two one-liter amber jars supplied by the testing laboratory. Immediately upon collection the samples will be labelled and iced. The samples will remain iced or refrigerated at 4°C from the time of collection to the time of testing. Standard chain-of-custody records will be kept to document sample collection, handling and analytical requests.

Following the collection of ground water samples, the four holes will be sealed with a cement/bentonite slurry.

3. Submit the four ground water samples to a State certified laboratory for analysis of organochlorine pesticides by EPA Method 8080.
4. Prepare a written report presenting the findings and our opinions. The report will include a site plan, an area detail showing sampling locations and test results for the four "boundary" points, a tabular summary of all ground water data, the exploration drill hole logs and the analytical laboratory report.

DECONTAMINATION AND QA/QC PROCEDURES

Before travelling to the site, the drill rig and all drilling and sampling equipment will be thoroughly steam cleaned at either our office or the drillers' yard. The rig will be inspected upon arrival at the site to verify that there are no significant fluid leaks.

A 12+ inch diameter auger will be used to start each hole and remove the upper 2+ feet of surface soil. Smaller diameter, pre-cleaned augers will then be used to open the holes to their final depth. The split spoon soil sampler and drill bit will be thoroughly washed onsite in an AlconoxTM solution then rinsed by potable water before each use.

Field personnel will use proper sample handling procedures to ensure sample validity. The geologist will wear a new pair of disposable gloves for each sampling location to minimize the risk of cross-contamination between sampling locations. A "blank" sample of distilled water will be collected from each bailer prior to sampling. These four blanks will be refrigerated for possible future testing depending on the findings in their corresponding ground water samples.



Project 4454/3

November 7, 1990

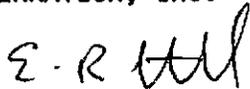
SCHEDULE

We estimate that the work described herein will be completed within two to three of receiving regulatory approval and obtaining access into the two greenhouses. This timing assumes a two- to five-day laboratory turnaround.

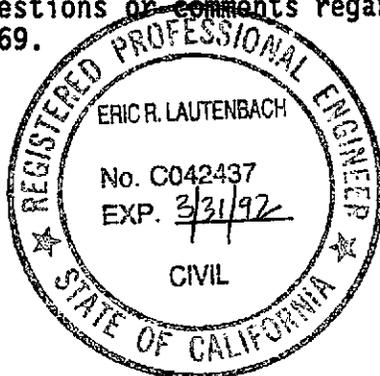
If you have any questions or comments regarding this Work Plan please call us at (408) 297-6969.

Sincerely,

TERRATECH, INC.



Eric R. Lautenbach
CE 42437



cc: Laura Rice, The Plymouth Group
Rich Hiatt, Regional Water Quality Control Board
Pam Evans, Alameda County Health Agency



TABLE I
 CUMULATIVE SUMMARY OF GROUND WATER SAMPLE ANALYSIS RESULTS
 SUNNYSIDE COMMONS II
 Hayward, California

SAMPLE LOCATION	DATE COLLECTED (1990)	DDD (ppb)	ENDOSULFAN I (ppb)	ENDOSULFAN II (ppb)	ENDOSULFAN SULFATE (ppb)	OTHERS * (ppb)
SW-1	1/25	< 0.5	5.0	4.5	5.1	N.D.
MW-2	7/17	< 0.1	< 0.05	< 0.1	< 0.1	N.D.
MW-3	5/18	< 0.1	0.37	0.17	0.16	N.D.
	7/17	< 0.1	0.15	0.50	< 0.1	N.D.
	10/17	< 0.1	0.11	< 0.1	< 0.1	N.D.
MW-4	6/11	0.14	< 0.1	< 0.1	< 0.1	N.D.
	7/17	< 0.1	< 0.1	< 0.1	< 0.1	N.D.
	10/17	< 0.1	< 0.1	< 0.1	< 0.1	N.D.

NOTES: * - EPA Method 8080 compounds.

N.D. - Not detected; see laboratory reports for detection limits.



ANAMETRIX INC

Environmental & Analytical Chemistry
 1961 Concourse Drive, Suite E, San Jose, CA 95131
 (408) 432-8192 • Fax (408) 432-8198

TERRATECH**OCT 23 1990****REPORT****RECEIVED**

MR. ERIC LAUTENBACH
 TERRATECH, INC. - SAN JOSE
 1365 VANDER WAY
 SAN JOSE, CA 95112

Workorder # : 9010225
 Date Received : 10/17/90
 Project ID : 4454/3
 Purchase Order: 9442

The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9010225- 1	MW-3
9010225- 2	MW-4

This report is paginated for your convenience and ease of review. It contains 5 pages excluding the cover letter. The report is organized into sections. Each section contains all analytical results and quality assurance data related to a specific group or section within Anamatrix. The Report Summary that precedes each section will help you determine which group at Anamatrix generated the data. The Report Summary will contain the signatures of the department supervisor and a chemist, both of whom reviewed the analytical data. Please refer all questions to the department supervisor that signed the form.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

Burt Sutherland

 Burt Sutherland
 Laboratory Director

10-22-90

 Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ERIC LAUTENBACH
TERRATECH, INC. - SAN JOSE
1365 VANDER WAY
SAN JOSE, CA 95112

Workorder # : 9010225
Date Received : 10/17/90
Project ID : 4454/3
Purchase Order: 9442
Department : GC
Sub-Department: PEST

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9010225- 1	MW-3	H2O	10/17/90	8080
9010225- 2	MW-4	H2O	10/17/90	8080

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ERIC LAUTENBACH
TERRATECH, INC. - SAN JOSE
1365 VANDER WAY
SAN JOSE, CA 95112

Workorder # : 9010225
Date Received : 10/17/90
Project ID : 4454/3
Purchase Order: 9442
Department : GC
Sub-Department: PEST

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Stanley Dimas 10-22-90
Department Supervisor Date

Stephanie N Tran 10-22-90
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4454/3 MW-3
 Matrix : WATER
 Date sampled : 10/17/90
 Date ext. : 10/18/90
 Date analyzed: 10/18/90
 Dilution : NONE

Anamatrix I.D. : 9010225-01
 Analyst : ST
 Supervisor : SD
 Date released : 10/22/90
 Volume ext. : 880 ml
 Instrument ID : HP16

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
319-84-6	alpha-BHC	0.05	ND
319-85-7	beta-BHC	0.05	ND
58-89-9	gamma-BHC (Lindane)	0.05	ND
319-86-8	delta-BHC	0.05	ND
76-44-8	Heptachlor	0.05	ND
309-00-2	Aldrin	0.05	ND
1024-57-3	Heptachlor epoxide	0.05	ND
959-98-8	Endosulfan I	0.05	0.11
72-55-9	p,p'-DDE	0.1	ND
60-57-1	Dieldrin	0.1	ND
72-20-8	Endrin	0.1	ND
72-54-8	p,p'-DDD	0.1	ND
33212-65-9	Endosulfan II	0.1	ND
50-29-3	p,p'-DDT	0.1	ND
7421-93-4	Endrin aldehyde	0.1	ND
1031-07-8	Endosulfan sulfate	0.1	ND
72-43-5	p,p'-Methoxychlor	0.5	ND
53494-70-5	Endrin ketone	0.1	ND
12789-03-6	Technical chlordane	0.5	ND
8001-35-2	Toxaphene	1	ND
1104-28-2	Aroclor 1221	0.5	ND
11141-16-5	Aroclor 1232	0.5	ND
53469-21-9	Aroclor 1242	0.5	ND
12672-29-6	Aroclor 1248	0.5	ND
11097-69-1	Aroclor 1254	1	ND
11096-82-5	Aroclor 1260	1	ND
12674-11-2	Aroclor 1016	0.5	ND
	Dibutylchlorendate	24-154%	92%

ND : Not detected at or above the practical quantitation limit for the method.

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4454/3 MW-4
Matrix : WATER
Date sampled : 10/17/90
Date ext. : 10/18/90
Date analyzed: 10/18/90
Dilution : NONE

Anamatrix I.D. : 9010225-02
Analyst : ST
Supervisor : SD
Date released : 10/22/90
Volume ext. : 920 ml
Instrument ID : HP16

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
319-84-6	alpha-BHC	0.05	ND
319-85-7	beta-BHC	0.05	ND
58-89-9	gamma-BHC (Lindane)	0.05	ND
319-86-8	delta-BHC	0.05	ND
76-44-8	Heptachlor	0.05	ND
309-00-2	Aldrin	0.05	ND
1024-57-3	Heptachlor epoxide	0.05	ND
959-98-8	Endosulfan I	0.05	ND
72-55-9	p,p'-DDE	0.1	ND
60-57-1	Dieldrin	0.1	ND
72-20-8	Endrin	0.1	ND
72-54-8	p,p'-DDD	0.1	ND
33212-65-9	Endosulfan II	0.1	ND
50-29-3	p,p'-DDT	0.1	ND
7421-93-4	Endrin aldehyde	0.1	ND
1031-07-8	Endosulfan sulfate	0.1	ND
72-43-5	p,p'-Methoxychlor	0.5	ND
53494-70-5	Endrin ketone	0.1	ND
12789-03-6	Technical chlordane	0.5	ND
8001-35-2	Toxaphene	1	ND
1104-28-2	Aroclor 1221	0.5	ND
11141-16-5	Aroclor 1232	0.5	ND
53469-21-9	Aroclor 1242	0.5	ND
12672-29-6	Aroclor 1248	0.5	ND
11097-69-1	Aroclor 1254	1	ND
11096-82-5	Aroclor 1260	1	ND
12674-11-2	Aroclor 1016	0.5	ND
	Dibutylchlorendate	24-154%	99%

ND : Not detected at or above the practical quantitation limit for the method.

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 608/8080
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD BLANK
 Matrix : WATER
 Date sampled : N/A
 Date ext. : 10/18/90
 Date analyzed: 10/18/90
 Dilution : NONE

Anamatrix I.D. : PWBL101890
 Analyst : *SK*
 Supervisor : *SD*
 Date released : 10/22/90
 Volume ext. : 1000 ml
 Instrument ID : HP16

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
319-84-6	alpha-BHC	0.05	ND
319-85-7	beta-BHC	0.05	ND
58-89-9	gamma-BHC (Lindane)	0.05	ND
319-86-8	delta-BHC	0.05	ND
76-44-8	Heptachlor	0.05	ND
309-00-2	Aldrin	0.05	ND
1024-57-3	Heptachlor epoxide	0.05	ND
959-98-8	Endosulfan I	0.05	ND
72-55-9	p,p'-DDE	0.1	ND
60-57-1	Dieldrin	0.1	ND
72-20-8	Endrin	0.1	ND
72-54-8	p,p'-DDD	0.1	ND
33212-65-9	Endosulfan II	0.1	ND
50-29-3	p,p'-DDT	0.1	ND
7421-93-4	Endrin aldehyde	0.1	ND
1031-07-8	Endosulfan sulfate	0.1	ND
72-43-5	p,p'-Methoxychlor	0.5	ND
53494-70-5	Endrin ketone	0.1	ND
12789-03-6	Technical chlordane	0.5	ND
8001-35-2	Toxaphene	1	ND
1104-28-2	Aroclor 1221	0.5	ND
11141-16-5	Aroclor 1232	0.5	ND
53469-21-9	Aroclor 1242	0.5	ND
12672-29-6	Aroclor 1248	0.5	ND
11097-69-1	Aroclor 1254	1	ND
11096-82-5	Aroclor 1260	1	ND
12674-11-2	Aroclor 1016	0.5	ND
	Dibutylchloroendate	24-154%	104%

ND : Not detected at or above the practical quantitation limit for the method.



TERRATECH

10/17 10/19 9010225
2 712 16:30

P.O. NO. 9442
TURNAROUND: 48-hr

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 4454/3					Number of Containers	Analysis Required EPA 608/8080	REMARKS					SAMPLE DEPTH
SAMPLERS (signature):												
Station Number	Date 1990	Time	Comp.	Grab								
MW-3	10/17			X	NW OF FORMER WELL	2 AMBERS	X					OK
MW-4	10/17			X	WSW OF FORMER WELL	2 AMBERS	X					OK
Relinquished by(signature):		Date / Time	Received by (signature):		Relinquished by(signature):		Date / Time	Received by (signature):				
Company or Agency:			Company or Agency:		Company or Agency:			Company or Agency:				
Relinquished by(signature):		Date / Time	Received by (signature):		Relinquished by:		Date / Time	Received by (signature):				
Company or Agency:			Company or Agency:		Company or Agency:			Company or Agency:				
Relinquished by(signature):		Date / Time	Received for Laboratory by:		Date / Time	Remarks/Shipping Information Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112						
Company or Agency: TERRATECH, INC.		10-17-90 3:45pm	(signature) Colin Palmer		10-17-90 3:45							