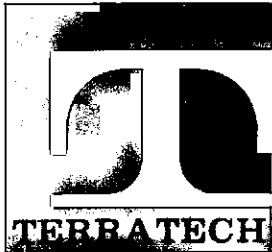


Reviewed 11/16- discussed w/ H. Murphy -OK



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November 13, 1990  
Project 4454/5

Ms. Pamela Evans  
Alameda County Health Agency  
80 Swan Way, Room 200  
Oakland, California 94621

Subject: Statistical Characterization of Pesticide Concentrations  
Sunnyside Nursery Site and  
Soil Stockpile from Laguna Park  
Hayward, California

Dear Ms. Evans:

Pursuant to recent project discussions, we have prepared this letter presenting our plans for characterization testing of residual pesticide concentrations on the Sunnyside Nursery site, including the soil stockpile from Laguna Park. Technical assistance on statistical computations was provided by Scott Wolff of ERS, the project risk assessor. This work is needed to be able to intelligently review and revise the Closure Plan on the project.

#### SUNNYSIDE NURSERY SITE

The maximum east-west and north-south dimensions of the Sunnyside Nursery property are approximately 720 and 1360 feet, respectively. Using this gross area, we created an imaginary 10 by 10 grid of equal-area cells, numbered sequentially from 1 to 100, south to north, west to east, corresponding to the orientation of our Site Plan (see Figure 1).

As agreed, the entire property is included in the planned characterization work, not just portions recently covered by greenhouses. Since the subject property is irregularly shaped, some of the cells fall outside the property boundaries. Cells with over 75% of their area outside the property limits have been shaded and were skipped over in the random selection procedure.

The random number generator in our IBM PC's BASIC programming language was utilized, with 4454 (our project number) as the "seed" number, to generate a list of random numbers. We worked down this list retaining the first 35 numbers which corresponded to onsite cells; duplicates were skipped over. The need for 35 data points was calculated by Mr. Wolff using the existing pesticide results and a 95% confidence level.

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The cell numbers, assigned sample numbers and cell center location notes are summarized in Table 1. Twenty-nine of the cell center points fall within greenhouses, three fall in paved areas, two lie just outside of a greenhouse, and one falls within the large warehouse building.

At this time we plan to collect a soil sample from each of the 35 listed cell center locations. The samples will be collected from a depth interval of 6-12 inches using pre-cleaned hand equipment. Coring of pavements or slabs will be performed as needed. Immediately upon collection each liner of soil will be packaged, labeled and iced. Chain of custody records will be completed to document sampling, handling and analytical requests. Each sample will be individually analyzed by a state certified laboratory for EPA 8080 pesticides. Procedures will comply with EPA Manual SW-846.

#### LAGUNA PARK STOCKPILE

The 2,500± cubic yards of soil subexcavated from the Laguna Park site is presently stockpiled on the northern portion of Sunnyside II. The pile is approximately 250 feet long, 50 feet wide and 6 feet high. Using this gross volume, we created an imaginary 10 by 10 by 10 grid of equal-volume cells, numbered sequentially from 1 to 1000, south to north, west to east, top to bottom.

Mr. Wolff calculates that approximately nine discreet samples are needed to statistically characterize the residual pesticide levels in this stockpile. Accordingly, we used the BASIC random number generator, with a seed number of 2500 (volume of stockpile), to generate a list of nine 3-digit cell numbers (971, 737, 640, 520, 548, 145, 255, 406 and 942). Soil samples will be collected from the centers of these cells (see Figure 2) and analyzed by a state certified laboratory for EPA 8080 pesticides. Procedures will as described previously for the Sunnyside Nursey.

We look forward to the Agency's prompt response to the plan described. Once the data is collected and evaluated, we will be preparing a report, including our proposed modifications to the project Closure Plan.

Sincerely,

TERRATECH, INC.

*E. R. Lautenbach*  
Eric R. Lautenbach  
CE 42437



cc: Hugh Murphy, Hayward Fire Department  
Laura Rice, The Plymouth Group



TABLE 1  
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SUMMARY OF RANDOM SAMPLE LOCATIONS  
SUNNYSIDE NURSERY, HAYWARD

CELL #	SAMPLE #	CELL CENTER LOCATION
77	RS-1	Greenhouse
68	RS-2	Greenhouse
93	RS-3	Greenhouse
72	RS-4	Greenhouse
40	RS-5	Greenhouse
82	RS-6	Greenhouse
59	RS-7	Greenhouse
39	RS-8	Greenhouse
64	RS-9	Greenhouse
38	RS-10	Greenhouse
9	RS-11	Adjacent to Greenhouse
63	RS-12	Greenhouse
55	RS-13	Warehouse
28	RS-14	Adjacent to Greenhouse
62	RS-15	Greenhouse
29	RS-16	Greenhouse
25	RS-17	Asphalt pavement
42	RS-18	Greenhouse
70	RS-19	Greenhouse
71	RS-20	Greenhouse
22	RS-21	Greenhouse
52	RS-22	Greenhouse
49	RS-23	Greenhouse
92	RS-24	Greenhouse
96	RS-25	Greenhouse
48	RS-26	Greenhouse
76	RS-27	Greenhouse
95	RS-28	Greenhouse
60	RS-29	Greenhouse
79	RS-30	Asphalt pavement
54	RS-31	Asphalt pavement
61	RS-32	Greenhouse
94	RS-33	Greenhouse
73	RS-34	Greenhouse
41	RS-35	Greenhouse

NOTE: Sampling locations shown on Site Plan, Figure 1.

