CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 86-22

WASTE DISCHARGE REQUIREMENTS
(SITE CLEANUP REQUIREMENTS) FOR:

HEWLETT PACKARD
1501 PAGE MILL RD.
PALO ALTO
SANTA CLARA COUNTY

STANFORD UNIVERSITY
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. Hewlett Packard, hereinafter called a discharger, by application submitted February 18, 1986 applied for issuance of Waste Discharge Requirements for their facility located at 1501 Page Mill Road in Palo Alto. The land is owned by Stanford University, also considered a discharger.

2. The site consists of seven buildings constructed in a checkerboard design, as shown on Attachment 1, SitePlan, hereinafter a part of this order. The complex houses researchand production facilities and is involved in the development and manufacture of electronic equipment.

3. The site is located along the border between the foothills of the Santa Cruz Mountains and the Santa Clara Valley between Page Mill Road and Hanover Street. The land has been leased by Hewlett Packard since 1957.

4. Surface drainage is by overland flow to storm sewers which flow into Matadero Creek, an intermittent stream that has its headwaters in the Santa Cruz Mountains and flowstoward the north-northeast through the city of Palo Alto in theMatadero Canal to Mayfield Slough, an extension of South SanFrancisco Bay. The closest distance Matadero Creek comes to thesite is about 1800 feet to the southeast.

5. Several subsurface chemical storage tanks were installed in the period 1965 to 1978. These tanks, formerly containing waste and industrial-grade solvents and oils including: trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), benzene, and toluene, were located in two general areas: (1) adjacent and south of buildings 6 and 6A, and (2)northeast of building 4. Use of these tanks was discontinued in 1982and 1983 and the tanks have been removed from the site.

6. Studies conducted by Dames and Moore (1981), Faraday Mechanical

(1982), and Applied Earth Consultants (1982, 1983, 1984) indicated the presence of chlorinated solvents (TCE, TCA, dichloroethanes and dichloroethylenes) in shallow onsite groundwater at concentrations as high as 32,000 ppb TCA. Additionally, elevated concentrations of chlorinated and aromatic solvents were detected in soils at several of the locations where chemicals had been used or stored.

7. Investigations performed by Levine-Fricke consultants, appear to have defined the extent of the pollutant plume in the shallowest water-yielding sediments. Chemical analyses of samples collected from shallow well no.'s 13 and 16 through 19, showed no volatile organic solvents were present. Low levels of solvents (18 ppb TCE, 9.3 ppb DCE) were detected in one sample from well no. 14.

8. The site is believed to be underlain by the Santa Clara Formation, a sequence of interbedded layers of sand, silt and clay. USGS geologic maps of the area suggest that the formation dips 30 degrees to the north in this area leading to the possibility that pollutants have moved vertically at this slope and are migrating further downgradient in a deeper saturated zone. The direction of groundwater flow in this area is to the northeast toward the San Francisco Bay.

9. There are four reserve backup municipal wells and several private wells downgradient from this site. The closest of these is a municipal well approximately 1 mile to the northeast.

10. Hewlett Packard submitted a proposed groundwater investigation plan to the Regional Board staff on November 20, 1985. The plan, which has been approved by the Executive Officer, proposes an additional 3 monitoring wells designed to determine the vertical extent of pollution and the nature of the geologic beds underlying this site.

11. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on July 21, 1982. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.

12. The beneficial uses of South San Francisco Bay and tributary water bodies are:

water contact recreation
non-contact water recreation
wildlife habitat
warm and cold fresh water habitat
fish migration
industrial service and process supply
navigation
agricultural water supply

13. The beneficial uses of the groundwaters are:

municipal and domesticwater supply
industrial service and process supply
agricultural water supply

14. The Board has notified all interested agencies and persons of its intent to prescribe waste discharge requirements for these dischargers.

15. The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

16. This project constitutes a minor modification to land and such activity is thereby exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Section 15304 of the Resources Agency Guidelines.

IT IS HEREBY ORDERED, that the dischargers, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the groundwaters of the State is prohibited.

2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants from other sites is prohibited.

B. SPECIFICATIONS:

1. The treatment or disposal of waste shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The dischargers shall conduct monitoring activities as needed to define the local hydrogeolocical conditions, and the lateral and vertical extent of the soil and groundwater pollution in and contiguous to the zone of known pollution. Should monitoring results show evidence of plume migration additional plume characterization shall be required.

C. PROVISIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050 (m) of the California Water Code.

2. In order to comply with Specification B.1, the dischargers shall meet the following compliance time schedule:

TASKS	COMPLETION DATE
a. Submit a report to the Board on the results (e.g. well logs, chemical analyses) and conclusions, of the construction and sampling of the three additional monitoring wells referred to in Finding 10 to define the pollutant plume. Two of these wells will be located in the general vicinity of the source and will be designed to intercept and assess the dip of the underlying beds of the Santa Clara formation as well as gain information on the vertical extent of pollutant migration. One well will be drilled to the "intermediate" saturated zone (140 to 170 feet deep) and the other well will penetrate the "deeper" saturated zone. A third well will be completed in the "deeper" zone in the area of well 20 to determine if pollutants detected in the intermediate zone screened in well 20 have migrated to the deeper zone.	March 21, 1986
b. If the extent of the pollutant plume remains undefined as detailed in the report in 2.a. above, submit a proposal for the construction of additional monitoring wells tocomplete the plume definition.	April 18, 1986
c. Complete the work outlined in the proposal described in item (b) above and submit a report on the findings of this investigation. The report shall include complete definition of the pollutant plume.	August 8, 1986

3. In order to comply with Prohibition A.2, the dischargers shall meet the following compliance time schedule:

TASKS	COMPLETION DATE
a. Review existing data to determine if the extent of soil contamination has been defined and the necessary soil excavation completed. Submit a report to the Executive Officer evaluating the data and including, if necessary, a proposal to determine the extent	July 25, 1986

of soil pollution and to begin interim remedial action evaluation for the soil.

b. If the Executive Officer agrees with the conclusions reached in the report submitted in 1.a and/or additional soil cleanup is necessary, submit a recommendation acceptable to the Executive Officer for a remedial action plan for the soil. — September 22, 1986

c. Submit a report evaluating cleanup alternatives and recommending an interim cleanup strategy for the site acceptable to the Executive Officer. This report should evaluate the potential for migration of pollutants to surface waters and/or public and private wells.
If plume definition is completed after Task 2.a. - July 25, 1986
If plume definition is completed after Task 2.c. - December 5, 1986

d. Complete construction and implement the approved cleanup alternative.
If plume definition is completed after Task 2.a. - January 23, 1987
If plume definition is completed after Task 2.c. - June 5, 1987

4. The above actions should provide the dischargers with the information necessary for projection of the time requirements and ultimate concentrations of pollutants remaining in the groundwater under the cleanup program, and estimates of the cost and effectivenessand impactts on public health, welfare, and the environment, of a range of pending final cleanup alternatives. This information will be presented for Board consideration no later than one year following completion of Task 3.b. Final cleanup limits shall be considered by the Board once compliance with prohibitions A.2 and A.3 and this provision are achieved.

5. The dischargers shall submit to the Board brief quarterly letter reports on the status of the investigation within 45 days of of the end of each calendar quarter with the first report due by May 15, 1986. These quarterly reports will also contain the information specified in the attached self-monitoring program.

6. All samples shall be analyzed by State-approved laboratories using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review. The national contingency plan requires submittal of a Quality Assurance Project Plan and a Sampling Plan.

7. The dischargers shall permit the Board or its authorized representative in accordance with Section 13267 (c) of the

California Water Code:

a. Entry upon premises on which any pollution sources exist, or may potentially exist, or on which any required records are kept;

b. Access to copy any records required to be kept under terms and conditions of this order.

c. Inspection of any monitoring equipment or methods required by this order.

d. Sampling of any groundwater or soil which is accessible, or may become accessible as part of any investigation or remedial action program, to the dischargers.

8. The dischargers shall file a report on any material changes in the nature, quantity or transport of polluted groundwater associated with the conditions described in this order.

9. The dischargers shall maintain in good working order and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this order.

10. The Board will review this order periodically and may revise the requirements when necessary. This may include further investigation and cleanup if warranted by monitoring results and other considerations.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on March 19, 1986 .

ROGER B. JAMES
Executive Officer

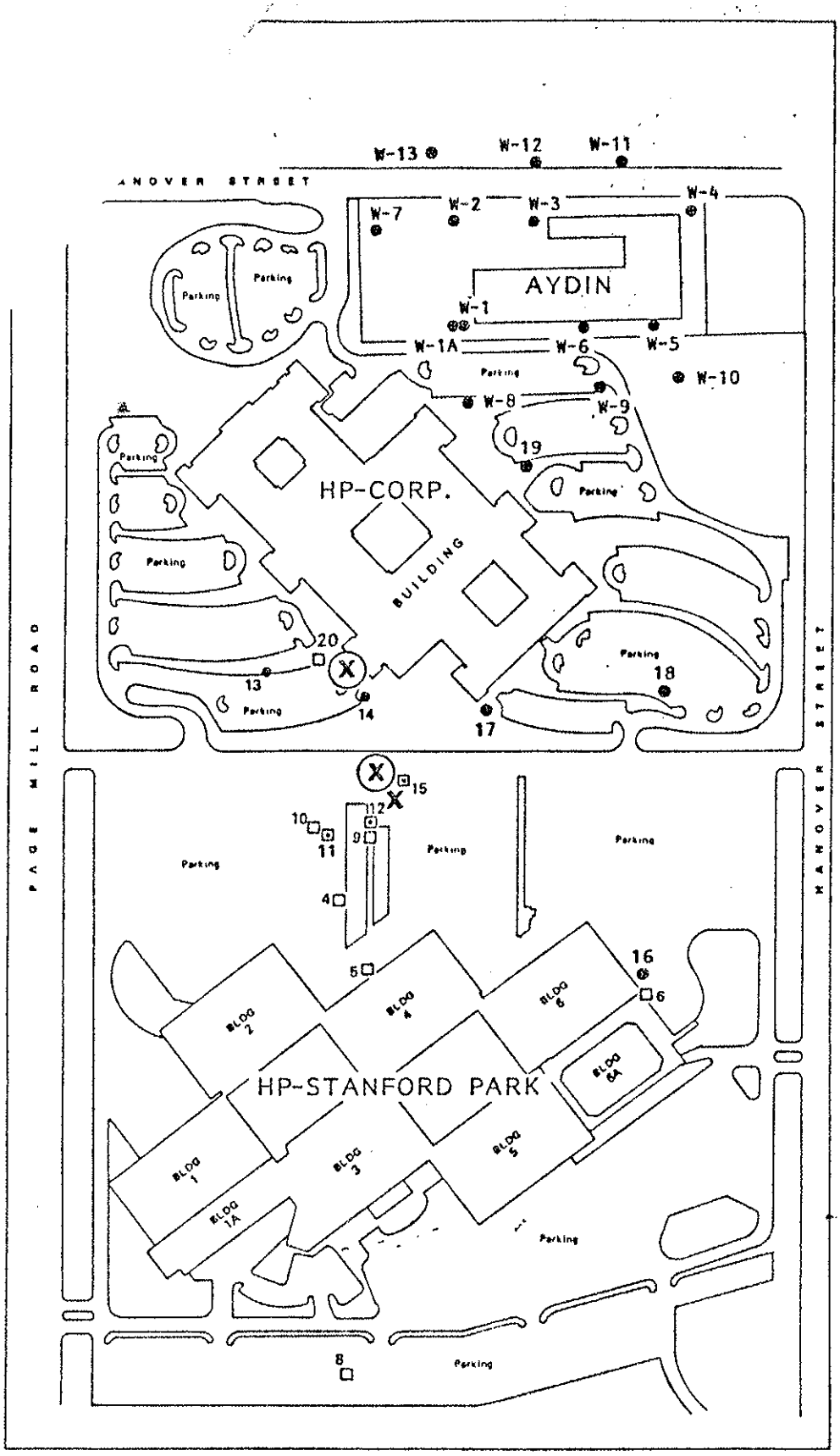

Figure P1 : EXISTING MONITORING WELL LOCATIONS AND PROPOSED NEW WELLS

Project No.1024

LEVINE·FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

T E N T A T I V E

SELF-MONITORING PROGRAM
FOR

Hewlett Packard, 1501 Page Mill Road

Stanford University

WDR NO. _____

ORDER NO. 86-22

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent of other limitations, discharge prohibitions, national standards or performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the latest edition of Standard Methods for the Examination of Water and Wastewater prepared and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, EPA "Test Methods" for organic chemical analysis, or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the waste discharge requirements and prohibitions due to:

(a) maintenance work, power failures, or breakdown of waste treatment equipment, or

(b) accidents caused by human error or negligence, or

(c) other causes such as acts of nature,

(d) poor operation or inadequate system design,

The discharge shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

The discharger shall file a written report at least 15 days prior to advertising for bid on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, costs, and scheduling of all action necessary to preclude such discharge.

In addition, if the noncompliance caused by items (a), (b), (c), or (d) above is with respect to any of the effluent limits, the waste discharger shall promptly accelerate this monitoring program as required by the Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the effluent limits have been attained, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Bypass Reports

Bypassing reporting shall be an integral part of regular montioring program reporting. A report on bypassing of untreated waste or bypassing of any treatment units shall be made which will include cause, time and date, duration and estimated volume bypassed, method used in estimating volume, and persons and agencies notified. Notification to the Regional Board shall be made immediately by telephone (415-464-1255), followed by a written account within 15 days.

3. Self-Monitoring Reports

a. Reporting Period:

Written reports shall be filed regularly for each calendar quarter by the fifteenth day of the following month.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed either by a principal executive officer or other duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

(1) Results from each required analysis and observation shall be submitted in the quarterly self-monitoring report. Results shall also be submitted for any additional analyses performed by the discharger for parameters for which effluent limits have been established by the Board.

(2) The report shall include a discussion of unexpected operational changes which could affect performance of the treatment system, such as flow fluctuations, maintenance shutdown, etc.

(3) The report shall also include a table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.

(4) Lab results should be copied and submitted as an appendix to the regular report.

(5) A map shall accompany the report, showing sampling locations and flow path to receiving waters.

(6) The report shall include an annual waste summary by month, for the current year showing the minimum, maximum, and average value for the month. The report for December shall include minimum, maximum and average for the year.

D. DESCRIPTION OF SAMPLING STATIONS

GROUNDWATER

Station	Description
W-13,14 & 17, thru 23	Points on the edge of the pollutant plume.

E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given as Table I.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 86-22 .

2. Was adopted by the Board on March 19, 1986.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

ROGER B. JAMES
Executive Officer

Attachments: Table I

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	W-13,14 & 17 thru 23											
TYPE OF SAMPLE												
EPA 601/602 (TCE, 1,1DCE, 1,2-DCA, TCA, 1,1 DCA, Ethylbenzene, Toluene, Benzene, Total Xylenes)	Q											
EPA 624	Y											

LEGEND FOR TABLE

G = grab sample
D = once each day
M = once each month
Q = quarterly, once in March, June, September and December
M/Q = monthly for three months at startup of operation; reduced to quarerly thereafter
Y = once each year