

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 86-93

WASTE DISCHARGE REQUIREMENTS
(SITE CLEANUP REQUIREMENTS) FOR:

FAIRCHILD SEMICONDUCTOR CORPORATION AND
STANFORD UNIVERSITY
4001 MIRANDA AVENUE SITE
PALO ALTO
SANTA CLARA COUNTY

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

1. Fairchild Semiconductor Corporation conducts research and design activities related to the Semiconductor industry on a nine acre site in the City of Palo Alto, Santa Clara County (See Site Map, Attachment 1). The land is owned by Stanford University. Fairchild Semiconductor Corporation and Stanford University are hereinafter referred to as dischargers.
2. Fairchild has occupied the site since 1963. The hazardous materials used onsite, either currently or historically, include trichloroethene (TCE), 1,1,1,-trichloroethane (TCA), tetrachloroethene (PCE), xylene, isopropyl alcohol (IPA), and other organic solvents.
3. Subsurface investigations were initiated by Fairchild in January 1982. The investigations revealed volatile organic chemical (VOC) pollution (primarily TCE, PCE, and TCA) in both soil and groundwater.
4. In September 1983, Fairchild commenced investigation of a dry well located in the vicinity of the chemical mix area. This investigation revealed that a drain pipe, which originated in the chemical mix area, led to the dry well. The floor drains in the chemical mix area were subsequently plugged to prevent further flow to the dry well. Subsequent investigations in the vicinity of the dry well detected significant levels of VOC pollution in both soil and groundwater. The dry well is believed to be the source of pollution onsite, based on the high levels of pollution found in the adjacent soil and groundwater.
5. During March and April 1984, Fairchild totally removed the Veterans Administration Hospital's 530 feet deep standby water supply well adjacent to the site to eliminate any potential for pollution to migrate into deeper aquifers.

6. The discharger commenced continuous operation of two onsite extraction wells on September 27, 1985.
7. The discharger has reviewed subsequent monitoring data and concluded, in a letter report dated October 2, 1986, that additional extraction wells downgradient of the dry well are needed to contain and cleanup the groundwater pollution both on and offsite. These additional wells were installed in October 1986.
8. Regional Board staff has requested the discharger, by letter dated October 17, 1986, to file a complete Report of Waste Discharge for this site by November 14, 1986.
9. 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.
10. The existing and potential beneficial uses of the groundwater underlying the site include:
 - a. Municipal and domestic supply
 - b. Industrial process supply
 - c. Industrial service supply
 - d. Agricultural supply
11. The Board has notified the dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and opportunity to submit their written views and recommendations.
12. This project constitutes a minor modification to land and as such is exempt from the provisions of the California Environmental Quality Act, (CEQA), in accordance with Section 15304 of the Resources Agency Guidelines.
13. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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 waters 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 or adversely spread pollutants from other sites is prohibited.

B. SPECIFICATIONS

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. The dischargers shall conduct monitoring activities as needed to define the local hydrogeological 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 dischargers shall submit to the Board technical reports on self-monitoring work performed according to a program approved by the Board's Executive Officer.
2. The dischargers shall comply with Prohibitions A.1, A.2, and A.3 and Specifications B.1 and B.2 in accordance with the following tasks and time schedule:

<u>TASK</u>	<u>COMPLETION DATE</u>
a. Submit a technical report satisfactory to the Executive Officer defining the vertical and lateral extent of groundwater pollution in shallow aquifers less than 100 feet below the ground surface in onsite and offsite areas.	May 1, 1987
b. Submit a technical report satisfactory to the Executive Officer which summarizes the results of an investigation to identify, locate, and evaluate private and public wells which may act as vertical conduits for the migration of pollutants from shallow to deep aquifers.	July 1, 1987
c. Submit a technical report satisfactory to the Executive Officer which evaluates the effectiveness of the hydraulic	September 1, 1987

TASK

COMPLETION DATE

containment system. Such an evaluation shall include, but need not be limited to, an estimation of the flow capture zone of the extraction wells, establishment of the cones of depression by field measurements and presentation of chemical monitoring data. Specific modifications to the hydraulic containment system and an implementation time schedule shall be proposed in the event that the hydraulic control system is demonstrated not to be effective in containing and cleaning up the pollution plume.

- d. Submit a technical report satisfactory to the Executive Officer defining the vertical and lateral extent of groundwater pollution in aquifers greater than 100 feet below the ground surface in onsite and offsite areas. October 1, 1987

- e. Submit a technical report satisfactory to the Executive Officer containing the remedial investigation, an evaluation of alternative final remedial measures and a recommendation on which additional measures, if any, should be implemented. February 1, 1988

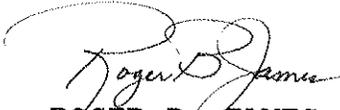
The technical report's evaluation of final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each measure and shall consider the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), Section 25356.1 (c) of the California Health and Safety Code, and CERCLA guidance documents.

3. Quarterly technical progress reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted to the Board. The first progress report shall cover the period from January 1, 1987 to March 31, 1987, and shall be submitted on April 30, 1987. Subsequent progress reports shall be submitted within 30 days following the end of each calendar quarter. These reports shall include, but need not be limited to, updated water table and piezometric surface contour maps, pollution concentration contour maps for all affected water bearing zones, and appropriately scaled and detailed base maps showing the location of all monitoring wells, borings, extraction wells, and identification of adjacent facilities and structures. Cross-sectional geological maps describing the hydrogeological setting of the site shall be included in the first quarterly technical progress report submitted to the Board for each year the Order is in effect. In the event that five boring logs are completed in any quarterly period, cross-sectional maps will be updated and included in the next quarterly report.
4. Brief letter reports summarizing progress and assessing ability to meet future compliance dates shall be submitted on a monthly basis.
5. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order by reason of circumstances or failure which could not have been reasonably foreseen or controlled by the dischargers, the dischargers shall promptly notify the Executive Officer. In the event of such delays, the Board intends to consider modification of the task completion dates established in this Order.
6. All hydrogeological plans, specifications, reports, and documents shall be signed or stamped with the seal of a registered geologist, engineering geologist, or professional engineer.
7. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this order, shall be provided to the following agencies:
 - a. Santa Clara Valley Water District (Attn: Tom Iwamura)
 - b. Santa Clara County Health Dept. (Attn: Lee Esquibel)
 - c. City of Palo Alto (Attn: Dan Heiser)
 - d. Department of Health Services/TSCD (Attn: H. Hatayama)
 - e. State Water Resources Control Board (Attn: Gil Torres)
8. In the event of non-compliance with Provisions C.2 and C.3 of this Order, the dischargers shall submit written

notification to the Regional Board office within two weeks which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on compliance with the remaining requirements of this Order.

9. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
10. 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 in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.
 - c. Inspection of any monitoring equipment or methodology implemented in response to 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 undertaken by the discharger.
11. The dischargers shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.
12. 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.
13. The Board will review this Order periodically and may revise the requirements when necessary.

I, Roger B. James, Executive Officer, do hereby certify that 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



ROGER B. JAMES
Executive Officer

Attachment 1 - Site Map



SCALE
1 INCH = 300 FEET



STATE OF CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION		
ATTACHMENT 1 - SITE MAP FAIRCHILD SEMICONDUCTOR CORP./STANFORD UNIV. PALO ALTO, SANTA CLARA COUNTY		
DRAWN BY: TJB	DATE: 10-31-86	DRWG. NO. 001