CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 83-12

NPDES NO. CA0028720

REVISION OF WASTE DISCHARGE REQUIREMENTS FOR:

SIGNETICS CORPORATION
ARQUES AVENUE, SUNNYVALE
SANTA CLARA COUNTY

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

1. Signetics Corporation (hereinafter called the discharger), a manufacturer of printed circuits, located at 811 East Arques Avenue, Sunnyvale, submitted an application dated June 24, 1982 for renewal of waste discharge requirements and a permit to discharge wastes under the National Pollutant Discharge Elimination System.

2. The discharge presently consists of 400,000 gallons per day (gpd) of reject water from a reverse osmosis water purification system (Waste 001) which is governed by Order No. 80-6 adopted by the Board on February 19, 1980. This waste is discharged to Calabazas Creek via a storm drain.

3. In the future the discharge will also consist of up to 300,000 gpd of water pumped from the ground and treated for solvent contamination (Waste 002). The combined wastes will be discharged through a common outfall to the Sunnyvale East Channel which is tributary to the lower reach of Calabazas Creek. The combined discharge is expected to commence in June, 1983 when a permanent treatment system is completed.

4. The ground water contamination was apparently the result of leaks at two sites within the facility which contaminated the soil immediately around these sites and adjacent ground water. Solvent materials detected in the local ground water include 1,1,1 trichloroethane, trichloroethylene, and tetrachloroethylene. The discharger has investigated the lateral and vertical extent of soil and ground water contamination and is proceeding with clean up operations. Ground water is extracted in three locations and treated by passing it through carbon towers. Long term clean up plans include extraction from locations yet to be determined and treatment at a single location.

5. In June 1982 the discharger proposed to begin discharging extracted ground water after treatment in order to immediately begin a clean-up program and minimize the migration of contaminants. This proposal included a specific level of treatment (sand filtration and activated carbon) together with a schedule for frequent effluent monitoring. The discharge, as proposed, would be to Calabazas Creek via a storm drain.

6. By letter dated July 27, 1982 the Executive Officer informed the discharger that he would not recommend that the Board institute enforcement action against the discharger if the discharger chose to begin discharging treated ground water pursuant to the proposal described in Finding 4 above without first receiving an NPDES permit. The discharger has been discharging the waste at contaminant concentrations below the effluent limitations stated in this permit. The waste is from a building dewatering sump and the flow is less than 50,000 gpd.

7. A Water Quality Control Plan for the San Francisco Bay Basin was adopted by the Board on July 21, 1982. The Basin Plan contains water quality objectives for San Franciso Bay.

8. The beneficial uses of Sunnyvale East Channel, Lower Calabazas Creek, and South San Francisco Bay include:

   a. Navigation
   b. Recreation
   c. Warm fresh water habitat
   d. Cold fresh water habitat
   e. Wildlife habitat
   f. Fish migration
   g. Estuarine habitat

9. The Board has considered the currently available water quality objectives for organic constituents necessary to protect the beneficial uses listed in Finding 8. The discharge limits contained in this permit are based on the most restrictive guidelines available and are as follows: 1,1,1, trichloroethane based on acute fish toxicity; monocyclic compounds (1,2 dichlorobenzene, ethylbenzene, trichlorobenzene, xylene) based on chronic fish toxicity (bioaccumulation); trichloroethylene and tetrachloroethylene based on best available treatment. Due to the lack of guidelines available the Board has not considered limits based on precluding nuisance conditions as a result of volatilization of materials upon discharge. More stringent limits may be considered when additional information or guideline values are available.

10. This NPDES Permit is for reject water from a reverse osmosis water purification system and for ground water extraction and treatment which are non-guideline categories for industry. The prohibitions, specifications and provisions of this Permit are based on best professional judgement in order to implement the Federal Water Pollution Control Act and the Water Quality Control Plan for the San Francisco Bay Basin. Some effluent limitations contained in this order are derived from guidelines set by State and Federal Resource agencies to provide protection for acute and chronic aquatic toxicity. They are considered the best available technology in the judgement of the Board. Limits are subject to reconsideration when more extensive or refined guidelines are established.

11. Effluent limitation and toxic effluent standards established pursuant to Sections 208(b), 301, 304 and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.

12. The Board has notified the discharger 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 an opportunity to submit their written views and recommendations.

13. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21000) of Division 13 of the Public Resources Code (CEQA) in accordance with Water Code Section 13389.

14. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendment thereto, and shall take effect at the end of ten days from date of hearing provided the Regional Administrator, U. S. Environmental Protection Agency, has no objections.

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

IT IS HEREBY ORDRED that Signetics Corporation, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. Effluent Limitations Applicable to Both Wastes 001 and 002

a. The effluent shall not have a pH of less than 6.5 nor greater than 8.5.

b. The effluent shall not have a chlorine residual greater than 0.0 mg/l.

c. The survival of Rainbow Trout test fishes in 96 hour bioassays of the effluent shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 consecutive samples.

2. Reverse Osmosis Effluent Limitations - Waste 001

The discharge of an effluent containing constituents in excess of the following is prohibited:

Constituent	Units	Maximum Daily
a. Flow	gallons per day	400,000
b. Total Dissolved Solids	mg/l	1,300

3. Extracted Ground Water Effluent Limitations-Waste 002

The discharge of extracted ground water containing the following constituents in excess of the concentrations listed below is prohibited:

Constituent	Daily Maximum
a. Trichloroethylene	0.10 mg/l
b. Sum of Monocyclic compounds, includes 1,2 dichlorobenzene, ethylbenzene, trichlorobenzene, xylene	0.10 mg/l
c. 1,1,1, trichloroethane	5.00 mg/l
d. Tetrachloroethylene	0.10 mg/l

B. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place.

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within 1 foot of the water surface:

a.	Dissolved oxygen	5.0 mg/l minimum. Three month median - 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b.	Dissolved Sulfide	0.1 mg/l maximum.
c.	pH	Variation from natural ambient pH by more than 0.5 pH units.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Provisions

1. Neither the treatment nor the discharge of pollutants shall create a nuisance as defined in the California Water Code.

2. The discharger shall comply with all sections of this Order immediately upon adoption.

3. This Order includes all items except A.5, A.12, and B.5 of the attached "Standard Provisions, Reporting Requirements and Definitions", dated April 1977.

4. This Order expires on April 20, 1988, and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

5. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by a letter, a copy of which shall be forwarded to this Board.

6. The Board's Order No. 80-6 is hereby rescinded

I, Fred H. Dierker, 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 April 20, 1983.

FRED H. DIERKER
Executive Officer

Attachments:
Standard Provisions 4/77

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

SIGNETICS CORPORATION

811 E. Arques Avenue

Sunnyvale, Santa Clara County

NPDES NO. CA 0028720

ORDER NO. 83-12

CONSISTS OF

PART A, dated January 1978

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. EFFLUENT

Station	Description
E-001	At any point in the outfall where all of Waste 001 is present and prior to mixing with Waste 002.
E-002	At any point in the outfall where all of Waste 002 is present and prior to mixing with Waste 001.
E-001 and	At any point in the outfall between the point of discharge and the point at which both Wastes 001 and 002 are present.

B. RECEIVING WATERS

Station	Description
RW-1	At a point of easy access to Sunnyvale East Channel at least 100 yards but not more than 200 yards downstream from the point of discharge.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given as Table 1.

I, Fred H. Dierker, Executive Officer, 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. 83-12.

2. Does not include the following paragraphs of Part A:

   C.4., C.5.c., C.5.d., C.5.e., D.4., E.4., F.3.c., and F.3.e.

3. Is effective on the date shown below.

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

FRED H. DIERKER
Executive Officer

Effective Date_____

Attachment:
Table 1 (2 pages)

TABLE I

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001 & E-002		E-001		E-002		RW-2						
TYPE OF SAMPLE		G		G		G		G					
Flow Rate (mgd)		D		D		D							
BOD, 5-day, 20° C, or COD (mg/l & kg/day)													
Chlorine Residual & Dosage (mg/l & kg/day)		W											
Settleable Matter (ml/1-hr. & cu. ft./day)													
Total Suspended Matter (mg/l & kg/day)		Q											
Oil & Grease (mg/l & kg/day)													
Coliform (Total or Fecal) (MPN/100 ml) per req't													
Fish Toxicity, 96-hr. TL_{50} % Survival in undiluted waste		M(1)											
Ammonia Nitrogen (mg/l & kg/day)													
Nitrate Nitrogen (mg/l & kg/day)													
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity (Jackson Turbidity Units)													
pH (units)		D											
Dissolved Oxygen (mg/l and % Saturation)													
Temperature (°C)		Q											
Apparent Color (color units)													
Secchi Disc (inches)													
Sulfides (if DO ≤ 5.0 mg/l) Total & Dissolved (mg/l)													
Arsenic (mg/l & kg/day)													
Cadmium (mg/l & kg/day)													
Chromium, Total (mg/l & kg/day)													
Copper (mg/l & kg/day)													
Cyanide (mg/l & kg/day)													
Silver (mg/l & kg/day													
Lead (mg/l & kg/day)													

TABLE I (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001 & E-002		E-001		E-002		RW-2					
TYPE OF SAMPLE		O		G		G		G				
Mercury (mg/l & kg/day)												
Nickel (mg/l & kg/day)												
Zinc (mg/l & kg/day)												
PHENOLIC COMPOUNDS (mg/l & kg/day)						Q						
All Applicable Standard Observations		W										
Bottom Sediment Analyses and Observations												
Total Dissolved Solids (mg/l and kg/day)				3/W				W				
Trichloroethylene (mg/l)						3/W		W				
Tetrachloroethylene (mg/l)						3/W		W				
1,1,1, Trichloroethane (mg/l)						3/W		W				
Monocyclic Compounds (mg/l) (2)						M		M				
GC/MS Scan (BNA and VOA) (mg/l)						Q		Q				

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
O = observation

FREQUENCY OF SAMPLING

Y = once each year
Q = once each calendar quarter
M = once each month
W = once each week
D = once each day
3/W = three times each week

Footnotes:

(1) The discharger shall submit a proposal for the evaluation of any chronic and/or bioaccumalation effects due to this discharge within 90 days of the effective date of this Monitoring Program. This proposal shall consider the levels of constituents in the actual discharge and the need to consider the chronic and/or bioaccumulation potential.

(2) Sum of monocyclic compounds including 1, 2 dichlorobenzene, ethylbenzene, trichlorobenzene, and xylene.