

21. The Board has notified the discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.
22. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of chemicals 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 chemicals are prohibited.

B. SPECIFICATIONS

1. The storage, handling, treatment or disposal of soil or groundwater containing chemicals shall not create a nuisance as defined in Section 13050 (m) of the California Water Code.
2. The discharger shall conduct monitoring activities as needed to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater containing chemicals. Should monitoring results show evidence of continuing pollutant migration, additional plume characterization may be required.
3. Final cleanup levels for VOC concentrations shall be determined for each well identified herein and all other onsite wells that may be installed for monitoring or extraction, unless otherwise determined by the Executive Officer:

<u>Extraction Wells</u>	<u>Monitoring Wells</u>	<u>Piezometers</u>
AM1-1	AM1-2	P-1
AM1-5E	AM1-3	P-2
AM1-EP	AM1-4	P-3
	AM1-5 & AM1-5B	
	AM1-6	
	AM1-7	
	AM1-8	
	AM1-9	

These cleanup levels shall also apply to two offsite monitoring wells immediately north of the Building 1 site, identified as HP-1 and HP-6.

4. Final cleanup levels and goals for all onsite and offsite wells shall be background water quality if feasible, and shall be not greater than the levels as provided in Finding 11. The numerical final cleanup levels/goals, therefore, shall not exceed the following in any instantaneous measurement:

<u>Chemical</u>	<u>Level (ppb or ug/l)</u>
1,1-dichloroethane (1,1-DCA)*	5
1,2-dichloroethane (1,2-DCA)*	0.5
1,1-dichloroethylene (1,1-DCE)*	5
1,2-dichloroethylene (1,2-DCE)	
cis	5
trans	10
1,2-dichloropropane (1,2-DCP)	5
tetrachloroethylene (PCE)*	5
1,1,1-trichloroethane (1,1,1-TCA)	200
1,1,2-trichloroethane (1,1,2-TCA)*	5
trichloroethylene (TCE)*	3
freon 113	1,200
freon 11	150
chloroform*	5
methylene chloride*	5
vinyl chloride*	0.5
acetone	3,000

*The combined total concentration of all carcinogens, shall not exceed 5.0 ppb or ug/l, based upon an aggregate excess cancer risk of 1×10^{-4} through ingestion of drinking water. At the same time, the total HI calculated for non-carcinogens shall not exceed one.

5. Groundwater cleanup objectives are: (1) restore the quality of a polluted water source to its potential suitability as a drinking water supply, (2) prevent

exposure to polluted water, and (3) prevent pollution of the deeper aquifers (C zone) which presently supply water for domestic (drinking) and other beneficial uses.

6. The cleanup goal for source-area soils is 1 ppm for total VOCs. This goal may be modified by the Executive Officer if the discharger demonstrates with site specific data that higher levels of VOCs in the soil will not threaten the quality of waters of the State or that cleanup to this level is infeasible and human health and the environment are protected.
7. The discharger shall optimize, with a goal of 100%, the reclamation or reuse of groundwater extracted as a result of cleanup activities. The discharger shall not be found in violation of this Order if documented factors beyond the discharger's control prevent the discharger from attaining this goal, provided the discharger has made a good faith effort to attain this goal.
8. The discharger shall implement the final cleanup plan described in Finding 9 and as may be modified by this Order.

C. PROVISIONS

1. The discharger shall submit to the Regional Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Regional Board's Executive Officer.
2. The discharger shall comply with this Order immediately upon adoption and the discharger shall further comply with the PROHIBITIONS and SPECIFICATIONS above, in accordance with the following tasks and compliance time schedule:

a. GROUNDWATER CONSERVATION

- 1) COMPLETION DATE: October 31, 1989

TASK 1: FINAL PLAN FOR DISPOSAL OF EXTRACTED GROUNDWATER. Submit a technical report acceptable to the Executive Officer describing the groundwater disposal plan associated with the final cleanup plan. This report shall include documentation of efforts to comply with the Regional Board Resolution No. 88-160, "Regional Board Position on the disposal of Extracted Groundwater from Groundwater Cleanup Projects", and reasons, if applicable, why potential users would not accept the water and

justification for reasons why the water, with or without onsite treatment, cannot be used for beneficial purposes or be returned to the aquifer.

- 2) COMPLETION DATE: October 31, 1989

TASK 2: PROPOSAL FOR GROUNDWATER RECLAMATION. Submit a technical report acceptable to the Executive Officer which includes alternative proposals for reclamation of extracted groundwater, including the feasibility of onsite treatment to make the water suitable for beneficial uses. This report shall evaluate the feasibility, including cost estimates, of reusing the water and/or returning it to the source-aquifer, and shall include an implementation schedule for reclamation measures. This report shall include documentation that groundwater reclamation is infeasible, or a proposal for active groundwater reclamation.

- 3) COMPLETION DATE: December 15, 1989

TASK 3: GROUNDWATER RECLAMATION. Submit a technical report acceptable to the Executive Officer documenting completion of tasks necessary to implement groundwater reclamation. If the Executive Officer has determined that groundwater reclamation is infeasible, this report shall include all information required for the reapplication for or renewal of the NPDES permit.

b. SOIL REMEDIATION

- 1) COMPLETION DATE: October 1, 1989

TASK 4: SUBMITTAL OF SOIL AND GROUNDWATER POLLUTION DATA. Submit a technical report acceptable to the Executive Officer which includes the results of chemical analyses for VOCs (1) in soil samples collected in the source area from locations under and exterior to Building 1, and (2) in groundwater samples collected from under the building and the three piezometers in the source area, after the submittal of the RI/FS Report incorporating RWQCB comments through June 14, 1989.

The report shall include a map(s) showing the locations of all sampling points and shall indicate the depth from which each sample was collected.

- 2) COMPLETION DATE: November 10, 1989

TASK 5: ASSESSMENT OF VOC POLLUTION IN SOIL. Submit a technical report acceptable to the Executive Officer which assesses the extent of VOC pollution in soil at the source area. This report shall include illustrations which show the horizontal and vertical extent of VOCs in soil including the concentrations of total VOCs which are equal to and greater than one part per million (ppm). This report shall also include (a) an evaluation of the adequacy of the available data for depicting the distribution and concentrations of VOCs in soil, and (b) a proposal for obtaining additional data in a timely manner, if the available data are considered inadequate.

- 3) COMPLETION DATE: February 28, 1990

TASK 6: SOIL CLEANUP EVALUATION. Submit a technical report acceptable to the Executive Officer describing a soil remediation plan associated with the final cleanup plan. This report shall contain a narrative and illustrations which describe the VOCs remaining in the source-area soils, quantification of the amount of polluted soil remaining onsite, and a determination of the feasibility of remediating polluted soils. This report shall include a determination of what residual levels of soil pollutants could remain onsite without being a health hazard or polluting groundwater above health-based levels, and shall evaluate the effect on the time required to reach groundwater cleanup goals if soil pollution is removed wholly or in part. This report shall also include an analysis of the anticipated transformation of onsite VOCs into degradation or other products and chemicals which could occur during the time period of the final RAP, and which could result in potential increased toxicity and resultant health effects due to exposure.

4) COMPLETION DATE: March 16, 1990

TASK 7: SOIL CLEANUP PROPOSAL. Submit a technical report acceptable to the Executive Officer proposing soil remediation, or documenting that it is not feasible to attempt to reach a soil cleanup goal of 1 ppm total VOCs. If the latter documentation is provided, it should be accompanied by documentation to support another soil cleanup goal proposed by the discharger. This report shall include design information based on soil boring logs, the results of chemical analyses of soil samples, information obtained from other field and laboratory tests of onsite soils, and relevant air and water monitoring data.

5) COMPLETION DATE: May 11, 1990

TASK 8: SOIL REMEDIATION SYSTEM. Submit a technical report acceptable to the Executive Officer documenting construction and implementation of a soil remediation system approved by the Regional Board.

6) COMPLETION DATE: July 31, 1990

TASK 9: MODIFICATIONS TO THE SOIL REMEDIATION SYSTEM. Submit a technical report acceptable to the Executive Officer which evaluates the effectiveness of the system constructed and implemented in Task 8. The report should propose any modifications necessary to accomplish the site cleanup goal of not more than 1 ppm total VOCs, or another goal acceptable to the Executive Officer.

7) COMPLETION DATE: September 14, 1990

TASK 10: SOIL CLEANUP FINAL DESIGN REPORT. Submit a technical report acceptable to the Executive Officer which documents completion of any modifications identified in Task 9.

8) COMPLETION DATE: 30 days prior to expected termination of soil cleanup

TASK 11: PROPOSAL TO TERMINATE OPERATION OF THE SOIL CLEANUP SYSTEM. Submit a technical report acceptable to the Executive Officer containing a proposal for terminating operation of the soil remediation system and criteria

used to justify this action. This report shall include a proposal indicating the locations of borings and sampling intervals to determine concentrations of VOCs remaining in the soil.

- 9) COMPLETION DATE: Due date for quarterly status report for the quarter in which operation of the soil remediation system is terminated.

TASK 12: COMPLETION OF ONSITE SOIL REMEDIATION. Document in the appropriate quarterly report the completion of the necessary tasks identified in the technical report submitted for Task 11 including the results of chemical analyses of samples from the soil borings.

c. INSTITUTIONAL CONSTRAINTS

- 1) COMPLETION DATE: October 31, 1989

TASK 13: PROPOSED CONSTRAINTS. Submit a technical report acceptable to the Executive Officer documenting procedures to be implemented by the discharger for assuring that the use of onsite groundwater for drinking water supply will be prohibited, and for prohibiting onsite activities that could endanger the public health or the environment due to exposure to VOCs. Constraints shall remain in effect until cleanup goals have been achieved and have stabilized in onsite aquifers.

- 2) COMPLETION DATE: January 5, 1990

TASK 14: CONSTRAINTS IMPLEMENTED. Submit a technical report acceptable to the Executive Officer documenting that the proposed and approved constraints have been implemented.

d. EXTRACTION SYSTEM AND MONITORING SYSTEM

- 1) COMPLETION DATE: 60 days prior to implementation by the discharger

TASK 15: MODIFYING EXISTING EXTRACTION AND TREATMENT SYSTEM OR MONITORING WELL SYSTEM. Submit a technical report acceptable to the Executive Officer which documents a proposal to modify, workover or replace any existing extraction well or pit, or install one or more

new extraction wells or pits associated with cleanup activities at this site; or a proposal to modify the monitoring well system by making major well-construction changes, abandoning an existing well(s) or installing a new well(s).

This report is required only if a change is proposed, and for all changes that are proposed.

- 2) COMPLETION DATE: 30 days following implementation by the discharger

TASK 16: IMPLEMENTATION OF CHANGE. Submit a technical report acceptable to the Executive Officer which documents any change made in the extraction/treatment system and any major change in the monitoring well system.

e. CURTAILING ONSITE GROUNDWATER EXTRACTION

- 1) COMPLETION DATE: 90 days prior to proposed implementation of onsite groundwater extraction curtailment

TASK 17: ONSITE WELL PUMPING CURTAILMENT CRITERIA AND PROPOSAL. Submit a technical report acceptable to the Executive Officer containing a proposal for curtailing pumping from onsite groundwater extraction well(s) and pit(s) and the criteria used to justify such curtailment. This report shall include data to show that cleanup goals for all VOCs have been achieved and have stabilized or are stabilizing, and that the potential for pollutant levels rising above cleanup goals is minimal. This report shall also include an evaluation of the potential for pollutants to migrate downwards to the C aquifer at this location.

If the discharger determines that it is not feasible to achieve cleanup goals, the report shall evaluate the alternate goals that can be achieved.

- 2) COMPLETION DATE; 30 days after the Regional Board approves onsite curtailment

TASK 18: IMPLEMENTATION OF ONSITE CURTAILMENT. Submit a technical report acceptable to the Executive Officer documenting completion of the

necessary tasks identified in the technical report submitted for Task 16.

f. STATUS REPORT

- 1) COMPLETION DATE: Five years from the date this Order is adopted

TASK 19: FIVE-YEAR STATUS REPORT AND EFFECTIVENESS EVALUATION. Submit a technical report acceptable to the Executive Officer containing the results of any additional investigation including the soil remediation study; an evaluation of the effectiveness of installed final cleanup measures and cleanup costs; additional recommended measures to achieve final cleanup objectives and goals, if necessary; a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup objectives and goals; and the tasks and time schedule necessary to implement any additional final cleanup measures. This report shall also describe the reuse of extracted groundwater, evaluate and document the cleanup of polluted groundwater, and evaluate and document the removal and/or cleanup of polluted soil. If safe drinking water levels have not been achieved onsite and are not expected to be achieved through continued groundwater extraction and/or soil remediation, this report shall also contain an evaluation addressing whether it is technically feasible to achieve drinking-water quality onsite, and if so, a proposal for procedures to do so.

g. NEW HEALTH CRITERIA

- 1) COMPLETION DATE: 60 days after request made by the Executive Officer

TASK 20: EVALUATION OF NEW HEALTH CRITERIA. Submit a technical report acceptable to the Executive Officer which contains an evaluation of how the final plan and cleanup goals would be affected, if the concentrations as listed in Specification B.4. change as a result of changes in source-document conclusions or promulgation of drinking water standards, maximum contaminant levels or action levels.

h. NEW TECHNICAL INFORMATION

- 1) COMPLETION DATE: 60 days after request made by the Executive Officer

TASK 21: EVALUATION OF NEW TECHNICAL INFORMATION. Submit a technical report acceptable to the Executive Officer which contains an evaluation of new technical and economic information which indicates that cleanup goals in some areas may be considered for revision. Such technical reports shall not be required unless the Executive Officer or Regional Board determines that such new information indicates a reasonable possibility that the Order may need to be changed under the criteria described in Finding 11.

i. FATE OF CHEMICALS

- 1) COMPLETION DATE: November 17, 1989

TASK 22: DETECTION OF VINYL CHLORIDE. Submit a technical report consisting of Part I and Part II, acceptable to the Executive Officer concerning the detection of vinyl chloride. Part I shall contain a review and evaluation of the existing sampling and analysis program directed at establishing procedures that will consistently utilize detection limits for vinyl chloride that will not exceed 1 ppb or ug/l. This may entail collecting split samples to be analyzed only for vinyl chloride. The report shall include a recommended procedure to be followed, beginning upon concurrence by the Executive Officer.

Part II shall contain a review of the presence or potential presence of vinyl chloride within the plume, including the suite of chemicals identified onsite which include VOCs that may degrade or transform into vinyl chloride. The review shall include a discussion of the various pathways that may be followed by antecedant VOCs in the degradation or transformation process and the time periods involved. The report shall be as specific as possible for the AMI Building 1 site. If the report concludes that vinyl chloride will not be formed at this site, documentation to support this conclusion shall be provided.

3. The submittal of technical reports evaluating additional final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative measure. If any additional remedial investigations or feasibility studies are found to be necessary, they shall be consistent with 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, CERCLA/SARA guidance documents, the State Board's Resolution No. 68-16, and this Order.
4. If the discharger is delayed, interrupted or prevented from complying with this Order or meeting one or more of the time schedules in this Order, the discharger shall promptly notify the Executive Officer. In the event of such delays or noncompliance, the Regional Board will consider modification of the time schedules established in this Order.
5. Monthly technical status letter reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted by the fifteenth of each month to the Regional Board commencing November 15, 1989 and covering the previous calendar month. On a monthly basis thereafter, or as required by the Executive Officer, these reports shall consist of a report that; (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles of which the discharger is aware that may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with any Specification or Provision of this Order, written notification 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 achieving compliance with the remaining requirements of this Order.
6. Every three months beginning on February 15, 1990 (subsequent due dates being May 15, August 15, November 15 and February 15 of each year) or as required by the Executive Officer, the discharger shall submit a quarterly report on the progress of the remedial program during the previous calendar-year quarter. Quarterly reports shall include, but need not be limited to, updated water table and piezometric surface maps for all

affected water-bearing zones, and appropriately scaled and detailed base maps showing the locations of all monitoring wells and extraction wells and piezometers, and identifying adjacent facilities and structures. Geological maps and/or cross-sections describing the hydrogeological setting of the site shall be provided in the first quarterly status report for each calendar year that this Order is in effect.

7. On an annual basis beginning on February 15, 1991 or as required by the Executive Officer, the discharger's February 15 progress reports shall include, but need not be limited to, an evaluation of the progress of cleanup measures and the feasibility of meeting groundwater and soil cleanup goals established in this Order. If the discharger determines that it is not feasible to meet the cleanup levels or goals established by this Order, the report shall also contain an evaluation of maximum cleanup levels that could be achieved.

If the discharger determines that it is not feasible to meet the soil cleanup goal, the report shall evaluate the potential for chemicals in soils to threaten the quality of the waters of the State and shall evaluate whether public health and the environment are protected.

8. All hydrogeological plans, specifications, reports and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.
9. All samples shall be analyzed by laboratories certified to perform analysis on Hazardous Materials or laboratories using approved EPA methods or an equivalent method acceptable to the Executive Officer. The discharger shall request laboratories to follow EPA guidance, "Documentation Requirements for Data Validation of Non-CLP Laboratory Data for Organic and Inorganic Analyses", dated May 1988, for preparation of data validation packages when required by the Executive Officer. The discharger shall request the laboratories to maintain quality assurance/quality control records for Regional Board review for six years and will inform the Regional Board of each laboratory's response.
10. The discharger shall maintain in good working order, and operate as efficiently as possible, any facility or control system or monitoring system installed to achieve compliance with this Order.
11. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions,

Specifications, and Provisions of this Order shall be provided to:

- a. Santa Clara Valley Water District
- b. Santa Clara County Health Department
- c. City of Santa Clara
- d. State Department of Health Services/Toxic Substances Control Division
- e. U.S. Environmental Protection Agency, Region IX (T-4-5)

Additional copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order shall be provided for public use when requested by the Executive Officer.

12. The discharger shall permit the Regional 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.
13. The discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.
14. If any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any waters of the State, the discharger shall immediately report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be filed with the Regional Board within five working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of

incident, cause of spill, Spill Prevention and Containment Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons notified.

15. The Regional Board will review this Order periodically and may revise the requirements when necessary under the criteria in Finding No. 12.
16. Regional Board Order No. 86-71 is hereby rescinded.

I, Steven R. Ritchie, 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 September 20, 1989.



STEVEN R. RITCHIE
Executive Officer