CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 90-130
RESCINDING ORDER: 86-34

SITE CLEANUP REQUIREMENTS FOR:

GREAT WESTERN CHEMICAL COMPANY AND
STINNES-WESTERN CHEMICAL CORPORATION
MILPITAS, SANTA CLARA COUNTY

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

1. SITE LOCATION AND DESCRIPTION Great Western Chemical Company owns and operates a chemical packaging and distribution facility (Site) at 945 Ames Avenue in the City of Milpitas, Santa Clara County (see site location map Figure 1).

2. SITE HISTORY The previous property owner, Western Chemical and Manufacturing Company, bought the undeveloped land in 1969 and constructed a chemical repackaging facility on the site. Great Western purchased the facility from Western Chemical Company in December 1978. Western Chemical Company was acquired by Stinnes-Western Chemical Corporation on February 5, 1980 pursuant to a stock purchase agreement.

   Chemicals stored onsite in eight 7500 gallon underground tanks included butyl cellosolve, acetone, methanol, ethylene glycol, and isopropanol. Since 1970 these tanks have also been used to store methyl ethyl ketone (MEK), cyclohexanone, and toluene (for six months in 1982). The underground tanks were removed in 1989. Chlorinated hydrocarbon solvents were stored in four above ground 6000 gallon tanks located directly adjacent to the underground tank farm location. The above ground tanks were removed, one in 1984 and the remaining three in late 1985 by Great Western. A former employee of Western Chemical has reported to Stinnes-Western that Western Chemical stored a chlorinated solvent in one of the underground tanks for a one or two month period in 1971 until the above ground tanks were ready for use.

3. REGULATORY STATUS Great Western Chemical Company and Stinnes-Western Chemical Corporation are hereinafter called dischargers because of their past or present ownership and operation of the site where large volumes of organic solvents (now found in soils onsite and in groundwater both onsite and offsite) were and are still being received, repackaged, distributed, and otherwise handled.

Site Cleanup Requirements, Order 86-34 adopted on May 21, 1986, required the dischargers to evaluate interim cleanup alternatives and implement the preferred alternative.

4. SITE GEOLOGY AND HYDROLOGY The site is underlain by alluvial material containing three water bearing zones: a shallow, intermediate and deeper zones. The upper zone is composed of sand, silty sand and gravel between depths of 15 and 27 feet below ground surface. An intermediate zone of smaller lenses of sand and gravel interspersed in silty clay and sandy clay underlies the shallow zone at depths less than 50 feet below ground surface. A deeper water bearing zone consisting of silty sand, sandy silts and gravelly sands is situated at 65 to 95 feet below ground surface. The geologic boundary separating the intermediate zone and the deeper zone consists of approximately 15 to 35 feet of clayey sediments which appear to act as a confining layer. Potential uses of these aquifers include domestic and municipal drinking water supply, agricultural water supply and industrial process water supply.

5. SOIL AND GROUNDWATER INVESTIGATION In response to the Board's May 1982 Underground Leak Detection Program, Great Western implemented an investigation in December 1982 to determine if solvent had leaked from the underground tanks or their piping. Initial soil boring samples from the tank farm area contained 11,000 ppb trichloroethene (TCE), 6,800 ppb 1,1,1-trichloroethane (TCA), 2,100 ppb tetrachloroethylene (PCE), and other organic solvents. Maximum initial concentrations detected in shallow groundwater onsite include 300 ppm TCE, 260 ppm TCA, 22 ppm PCE, and other EPA priority pollutants.

   The groundwater pollution plume in the near and onsite areas appears to be contained within the shallow and intermediate zones to about 60 feet in depth. Downgradient the plume is restricted to the shallow zone at depths less than 30 to 35 feet, but small amounts of TCE have been detected in the intermediate zone in well G10A 1800 feet downgradient at levels of about .0013 ppm. The plume in the shallow zone has been detected downgradient to the northwest about 3,400 feet and is about 1,000 feet in width.

6. INTERIM REMEDIAL ACTION The interim actions taken by the dischargers have included the installation of 11 extraction and 34 monitoring wells. Actions taken in the near and onsite areas have included the installation of two shallow and two intermediate zone extraction wells and an onsite air stripper with a carbon filter. The wells are located along the downgradient edge of the site. This extraction treatment system was installed in 1986.

   The offsite treatment system is comprised of seven shallow

extraction wells extending downgradient 2600 feet from the site and an offsite air stripper which, because of the low concentrations is not fitted with a carbon filter. This system was made fully operational in April 1988.

Additional interim action has been the removal of the eight underground storage tanks in 1989. The tanks themselves were tested and found to be free from leaks, but the piping associated with them appeared to have leaked and affected soil and groundwater. The polluted soils were excavated and aerated onsite and a portion used to backfill the sump. The excavation was filled with clean imported fill.

7. PROPOSED FINAL REMEDIAL ACTION The dischargers submitted on May 26, 1989 a report evaluating interim measures and proposing final cleanup alternatives as required in Provision C.4. of Order 86-34. Board staff have reviewed all of the alternatives and concur with the alternative recommended by the dischargers (Alternative 4) with some modification as the most appropriate for the site.

The recommended final remedial plan calls for the removal of the underground tank farm and sump. the underground tank farm was removed in 1989. During the removal the tanks were tested for leaks and found to be sound, but the piping leading from the tanks appeared to have a leak which discharged solvents to the soil and groundwater. Accessible polluted soils were excavated and aerated onsite. Pollutant concentrations in soils directly beneath the sump were relatively low and did not appear to be a source area for pollutants released into the subsurface and therefore, the sump was not removed. The only relatively high concentration of polluted soils in the sump area were found adjacent to the former sump inlet. Presently there are still polluted soil in the periphery of the tank farm area which the discharger has proposed to remediate if vapor extraction proves feasible and if soil concentrations exceed required cleanup goals.

The remaining final remedial action as proposed and modified by Board staff includes the following (Figure 2):

a) destruction of existing wells G-7 and G-8 in order to prevent cross contamination between the shallow and intermediate water bearing zones, replacing them with a single intermediate zone monitoring well,

b) cease extraction from wells E-5, E-10 and E-11 and use for monitoring only,

c) install two shallow zone monitoring wells in the area of proposed extraction well X-5

d) install proposed shallow zone extraction wells X-2, X-4, X-5, and possibly X-6 which shall be installed if concentrations in the proposed monitoring wells near proposed well X-5 determine the necessity for an additional extraction (X-6) well downgradient from this area,

e) install proposed intermediate zone extraction wells X-2A, X-3A and X-4A,

f) install nine intermediate zone water level monitoring wells and one, or, depending if X-6 is installed, five shallow zone water level monitoring wells, and

g) test the soils and the feasibility of a vapor extraction system (Figure 3) in the former location of the eight underground tanks. If feasible, design and install a vapor extraction and treatment system.

8. SCOPE OF THIS ORDER This Order Contains tasks for implementation of final remedial measures as proposed and approved by the Board, evaluation of the effectiveness of the installed final remedial action and a five year status report on progress of overall site cleanup.

9. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives and beneficial uses for south San Francisco Bay, and contiguous surface and groundwaters.

10. The existing and potential beneficial uses of the groundwater underlying the facility include:

a. municipal water supply
b. domestic water supply
c. agricultural water supply
d. industrial service and process water supply

11. The dischargers have caused or permitted, and threaten to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

12. The Board has notified the dischargers and interested agencies and persons of its intent to prescribe site cleanup requirements and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

13. The action is an order to enforce the laws and regulations

administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

14. The Board, in a public meeting, heard and considered all comments pertaining to these requirements.

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

A. PROHIBITION

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

2. Further migration of pollutants through surface runoff or subsurface transport to groundwaters or surface waters of the State is prohibited.

3. Methods employed to investigate, contain, and/or clean up polluted soil and groundwater which will cause further significant migration of pollution are prohibited.

B. SPECIFICATIONS

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

2. The dischargers shall conduct site investigation and monitoring activities as needed to define the current local hydrogeologic conditions, and the lateral and vertical extent of 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.

3. The cleanup goal for soil pollution is 1 ppm for total VOCs. Alternate cleanup goals may be proposed based on site specific data. If higher goals are proposed, the dischargers must demonstrate that cleanup to 1 ppm total VOCs is infeasible, that the alternate levels will not threaten quality of the waters of the state, and that human health and the environment are protected. Additionally, if chemicals are left in the soil at any level, a program of continued groundwater monitoring will be required until the Executive Officer determines that the cleanup goals have been reached or that monitoring is

no longer required. Final cleanup goals for soil shall be approved by the Executive Officer.

4. Final cleanup levels and goals for polluted groundwater, onsite and offsite, shall be background water quality if feasible, but shall not be greater than the DHS drinking water Action Level (AL) or Maximum Contaminant Level (MCL), whichever is more stringent. If an AL or MCL has not been established, the level shall be in accordance with the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California", based on an evaluation of the cost, effectiveness and a risk assessment to determine affect on human health and the environment. Final cleanup levels for groundwater shall be approved by the Board. These levels shall have a goal of reducing the mobility, toxicity, and volume of pollutants.

5. If groundwater extraction and treatment is considered as an alternative, the feasibility of water reuse, reinjection, and disposal to the sanitary sewer must be evaluated. Based on the Regional Board Resolution 88-160, the dischargers shall optimize, with a goal of 100%, the reclamation or reuse of groundwater extracted as a result of cleanup activities. The dischargers shall not be found in violation of this Order if documented factors beyond the dischargers' control prevent the dischargers from attaining this goal, provided the dischargers have made a good faith effort to attain this goal. If reuse or reinjection is part of a proposed alternative, an application for Waste Discharge Requirements may be required. If discharge to waters of the State is part of a proposed alternative, an application for an NPDES permit must be completed and submitted, and must include the evaluation of the feasibility of water reuse, reinjection, and disposal to the sanitary sewer.

C. PROVISIONS

1. The dischargers shall comply with Prohibitions and Specifications listed above, in accordance with the following task and time schedule:

TASKS AND COMPLETION DATES

a. TASK: WORKPLAN AND SCHEDULE FOR IMPLEMENTATION OF FINAL REMEDIAL ACTION PLAN
DUE DATE: November 15, 1990

Description: Submit a technical report acceptable

to the Executive Officer proposing a workplan and schedule for implementation of the proposed final remedial measures as accepted by the Executive Officer. The actions may be broken down into phases with each assigned an individual time schedule.

b. TASK: PROPOSE FINAL CLEANUP LEVELS FOR SOIL AND GROUNDWATER
DUE DATE: December 15, 1990

Description: Submit a technical report acceptable to the Executive Officer that proposes final cleanup levels for onsite soil and groundwater and offsite groundwater pollution. The report shall include the rationale used to select the proposed levels for each of the pollutants and the feasibility of achieving them.

c. TASK: DOCUMENT IMPLEMENTATION OF FINAL REMEDIAL MEASURES AND PROPOSE MONITORING REQUIREMENTS NECESSARY TO EVALUATE SYSTEM
DUE DATE: 60 days after implementation as proposed in task 1.a. and approved by the Executive Officer. Should the implementation be multi-phased, documentation shall be due 60 days after implementation of each specific phase.

Description: Submit a report acceptable to the Executive Officer Documenting the implementation of final remedial measures. Should several rounds of sampling be required to evaluate the effectiveness of the implemented final remedial actions as required in task 1.c., this monitoring program shall be proposed herein.

d. TASK: EVALUATE EFFECTIVENESS OF FINAL REMEDIAL MEASURES
DUE DATE: January 31, 1992

Description: Submit a report acceptable to the Executive Officer evaluating the effectiveness of the implemented final remedial action.

e. TASK: FIVE-YEAR STATUS REPORT
DUE DATE: September 19, 1995

Description: Submit a technical report acceptable to the Executive Officer containing: 1) results of any investigative work completed; 2) an evaluation of the effectiveness of installed final cleanup measures to include total pounds of chemicals

removed from soil and groundwater; 3) additional recommended measures to achieve final cleanup levels, if necessary; 4) a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup objectives and goals; 5) tasks and time schedule necessary to implement any additional final cleanup measures, 6) an evaluation of the feasibility of achieving final cleanup levels for polluted groundwater, and 7) recommended measures for reducing Board oversight.

2. All technical reports submitted must be acceptable to the Executive Officer. Technical reports evaluating interim and final remedial measures shall include a projection of the cost, effectiveness, benefits, and impact on public health and the environment. Remedial investigation and feasibility studies shall consider the guidance provided by Subpart E 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 guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".

3. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in the Order, the discharges shall notify the Executive Officer prior to the completion date.

4. The dischargers shall regularly submit to the Board acceptable status reports on compliance with the requirements of this Order and quarterly groundwater monitoring. The first report shall be for the fourth calendar quarter of 1990, due on January 31, 1991, and submitted quarterly thereafter. Each quarterly report shall contain at least the following:

   a. summary of work completed since the previous status report,
   b. summary tabulation of all well construction data, and quarterly groundwater level measurements,
   c. cumulative tabulation for all extraction wells of volume of extracted groundwater, chemical analysis results, and pounds of chemicals removed,
   d. updated piezometric maps for shallow and intermediate water bearing zones and water quality and annual pollutant isoconcentration map, as applicable,
   e. a cumulative tabulation for all soil vapor

extraction wells of chemical analysis results and pounds of chemicals removed,

f. identification of any obstacles which may threaten compliance with this Order and what actions are being, or will be, taken to overcome these obstacles, and

g. discussion of events of noncompliance with this Order, including proposed tasks and time schedule to achieve compliance, identified incomplete work that was projected to be complete, and impact of noncompliance on complying with the remainder of this Order.

The dischargers shall submit on an annual basis summary status reports on the progress of compliance with all requirements of this Order and propose modifications which could increase the effectiveness of final cleanup actions. The first report would be due on January 31, 1991, and would cover the previous calendar year. The reports shall include, at least, progress on site investigation and remediation, operation and effectiveness of remediation actions and systems, and an evaluation of the feasibility of meeting groundwater and soil cleanup goals.

5. All samples shall be analyzed by State certified 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.

6. All plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist or professional engineer, or certified engineering geologist.

7. 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.

8. Copies of all correspondence, reports, and documents pertaining to compliance with this Order, shall be provided to the following agencies:

   a. Santa Clara Valley Water District
   b. Santa Clara County Health Department
   c. City of Milpitas
   d. State Department of Health Services/TSCD

9. 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 where any pollution source exists, or may potentially exist, or in which any required records are kept;
b. Access at reasonable times 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.

10. The dischargers shall file a report on any material changes in the nature, quantity, or transport of polluted groundwater associated with the pollution described in the Order.

11. Order 86-34 is hereby rescinded upon adoption of this Order.

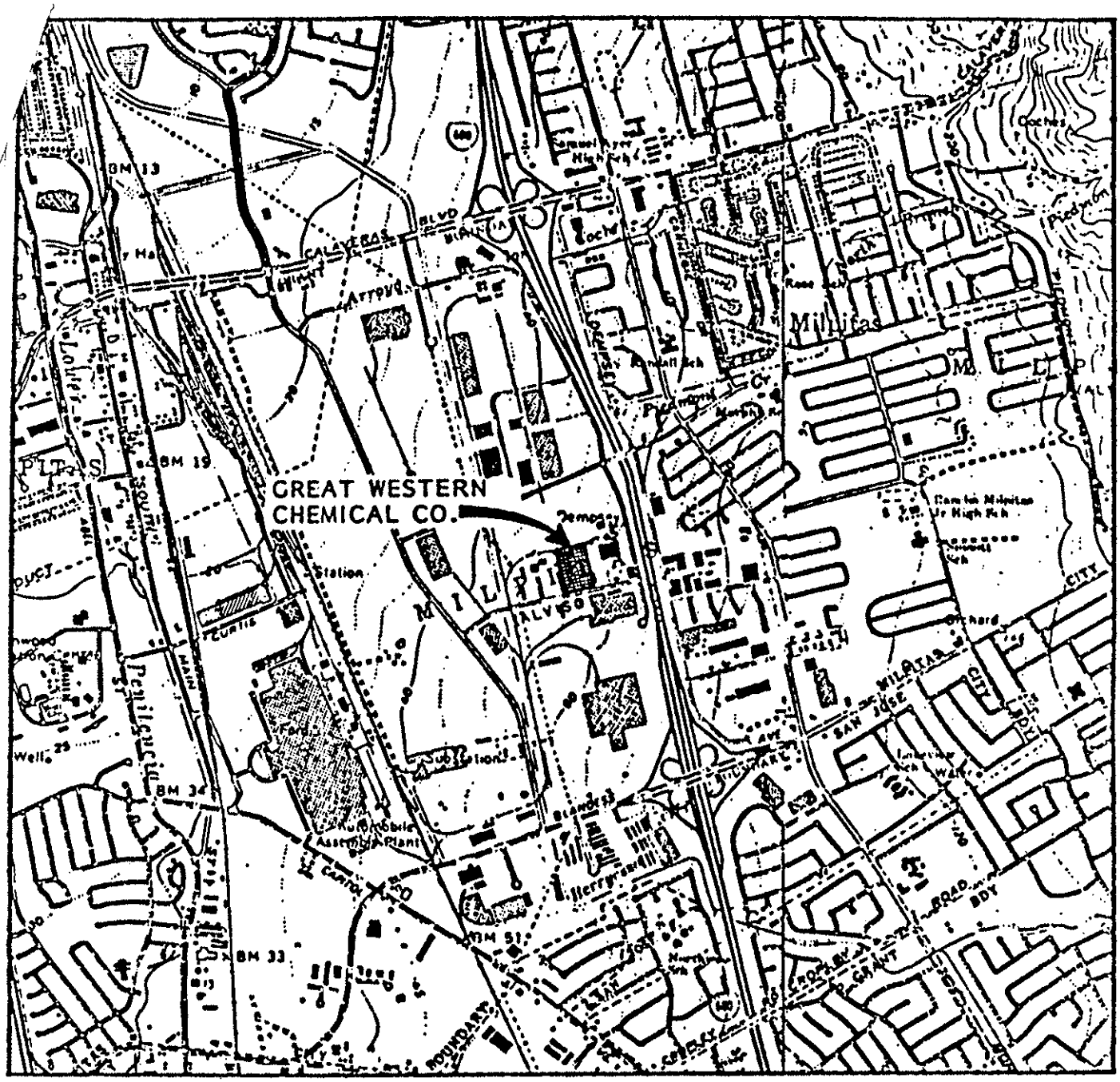
12. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, 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 September 19, 1990.

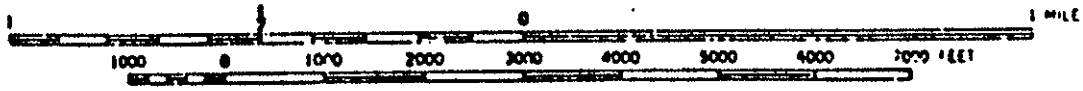
Steven R. Ritchie

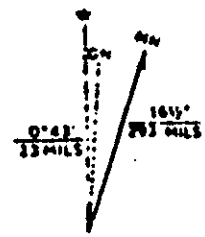
Executive Officer

Attachments: Figure 1, Site Map
Figure 2, Final Remedial Action
Figure 3, Former Underground Tank Farm



Source: U.S. Geological Survey





UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Figure 1: SITE LOCATION

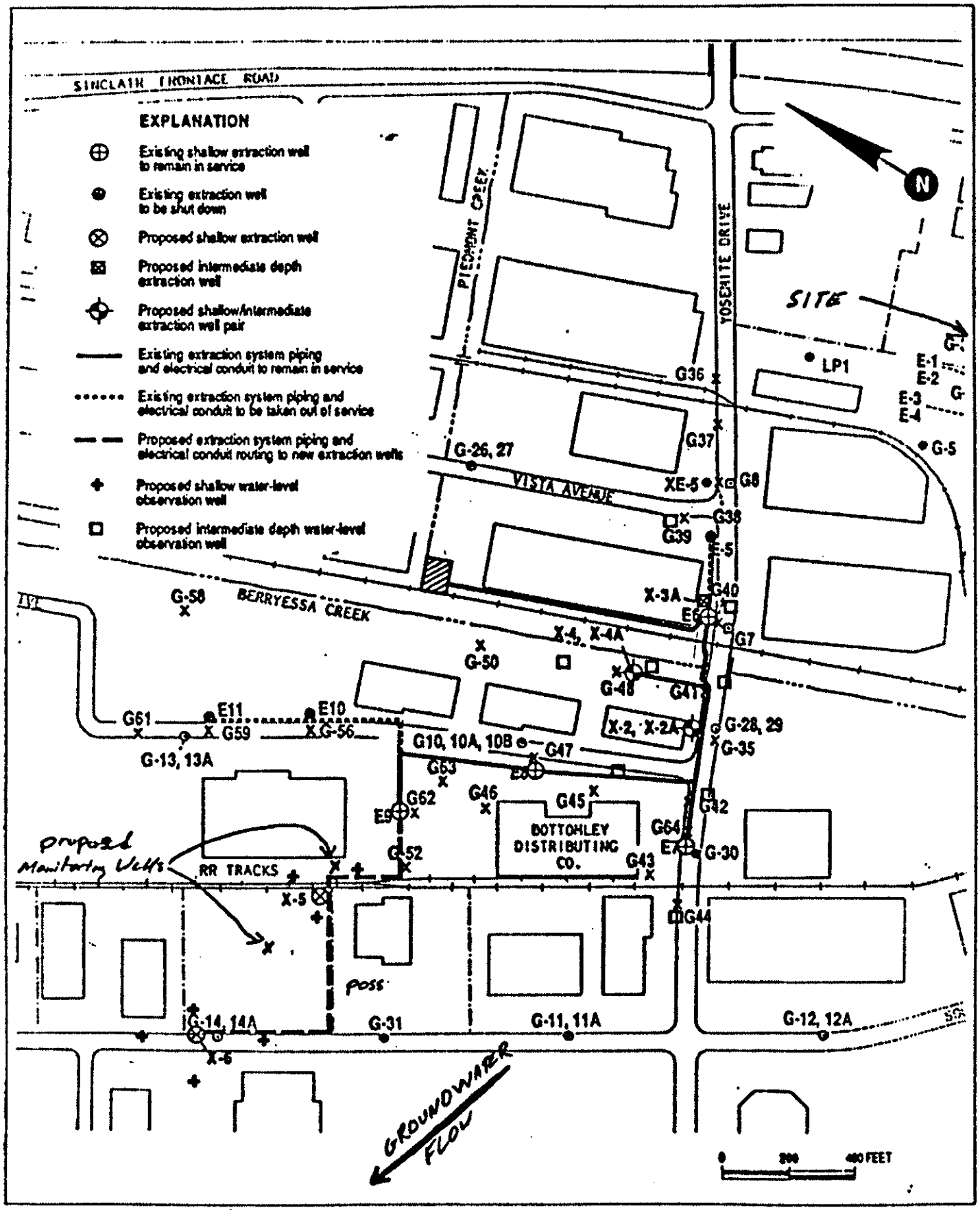


Figure 7.3 : ASSUMED OFF-SITE GROUND-WATER EXTRACTION SYSTEM LAYOUT FOR ALTERNATIVE 4

Project No.1050

FIGURE 2

LEVINE • FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

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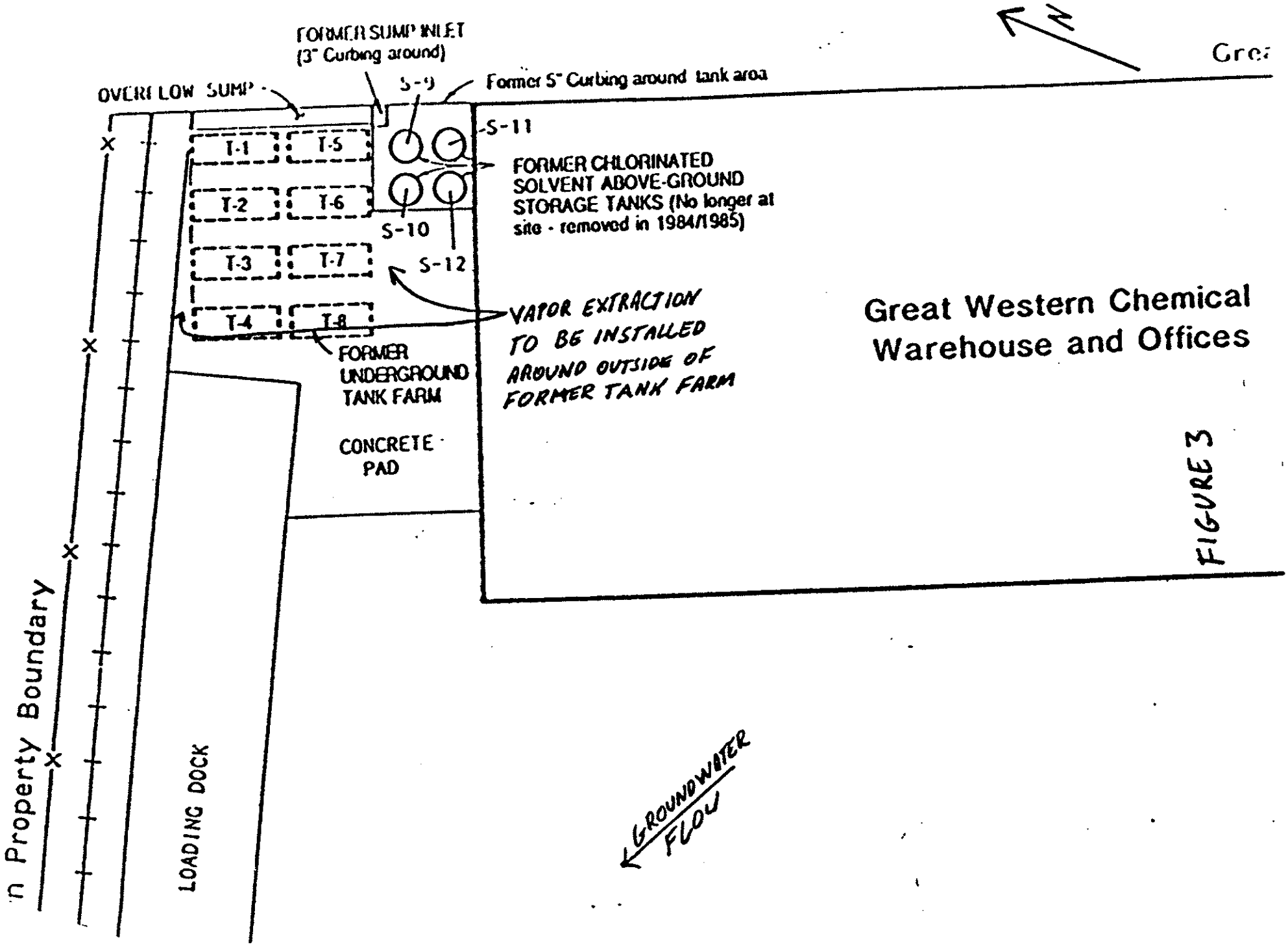
FORMER SUMP INLET
(3" Curbing around)
OVERFLOW SUMP
S-9
Former 5" Curbing around tank area
S-11
T-1
T-5
T-2
T-6
T-3
T-7
T-4
T-8
S-10
S-12
FORMER CHLORINATED SOLVENT ABOVE-GROUND STORAGE TANKS (No longer at site - removed in 1984/1985)
VAPOR EXTRACTION TO BE INSTALLED AROUND OUTSIDE OF FORMER TANK FARM
FORMER UNDERGROUND TANK FARM
CONCRETE PAD
Great Western Chemical Warehouse and Offices
FIGURE 3
n Property Boundary
LOADING DOCK
GROUNDWATER FLOW
N