

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

BOARD ORDER NO. 00-010

**REVISED SITE CLEANUP REQUIREMENTS AND RESCISSION OF ORDER NO. 90-120
FOR:**

SAFETY-KLEEN (SAN JOSE) INC.

for the property located at

1021 BERRYESSA ROAD
SAN JOSE
SANTA CLARA COUNTY

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

1. **Site Location:** Safety-Kleen (San Jose), Inc. (hereinafter referred to as the discharger) operates a storage, treatment, and recycling facility for waste chemicals at 1021 Berryessa Road in San Jose. The site occupies approximately 3 acres just north of Highway 101 near Oakland Road as shown in Figure 1. The confluence of Upper Penitencia Creek and Coyote Creek is approximately 1/3 mile to the northeast and the Guadalupe River is about 1 mile to the west. San Francisco Bay is approximately 10 miles to the north. The local area is used primarily for commercial and industrial purposes. The property is bounded to the west, the north, and northeast by the Commercial Street Business Park as shown in Figure 2. The Chevron fuel distribution terminal is across the street from Berryessa Road to the southeast.
2. **Site History:** In 1975, Solvent Services Company, a partnership, opened a facility at the site to store, treat, and recycle industrial waste chemicals. Solvent Service Company incorporated in about 1980 and continued to operate the facility. In 1990, Solvent Service Company, Inc. was acquired by USPCI, a subsidiary of Union Pacific Corporation. Union Pacific sold the operations of USPCI to Laidlaw Environmental Services in about 1994. In 1998, Laidlaw Environmental Services acquired Safety-Kleen Corporation and assumed the name Safety-Kleen Corporation. At the same time, the name of the Berryessa Road facility was changed to Safety-Kleen (San Jose), Inc. Safety-Kleen (San Jose), Inc. continues to operate the facility today. A large variety of wastes generated by industrial and commercial activities in the South San Francisco Bay area are brought to this facility for treatment and disposal. Therefore, a large variety of treatment processes are used including distillation, separation, blending, acid and corrosive neutralization, heavy metal precipitation, oxidation, and filtration. About 99% of the recoverable solvents are recycled and reused by industry. The property is also owned by Safety-Kleen (San Jose), Inc.

3. **Named Dischargers:** Safety-Kleen (San Jose), Inc. is named as a discharger because of substantial evidence that it, or its predecessor companies, discharged pollutants to soil and groundwater at the site. Safety-Kleen (San Jose), Inc. has accepted responsibility for the investigation and remediation of solvent based groundwater contamination at this site.

No other responsible parties have been identified for this site. If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the state, the Board will consider adding those parties to this Order.

4. **Regulatory Status:** The Regional Board has been acting as the lead regulatory agency for this site pursuant to the South Bay Multi-Site Cooperative Agreement (MSCA) and the South Bay Groundwater Enforcement Agreement, entered into on May 2, 1985 (and as subsequently amended) by the Regional Board, U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Health Services. The site had been proposed for the National Priorities List (NPL) by the U.S. EPA in June 1988. In August 1990, the U.S. EPA determined that the site should be removed from the NPL because the site is subject to Subtitle C corrective action authorities of the Resource Conservation and Recovery Act (RCRA). Even so, the U.S. EPA has issued a Record of Decision for this site, dated September 27, 1990, and provided that a review of the remedial action will be conducted every five years after commencement to ensure that the remedy continues to provide protection to human health and the environment.

Beginning in 1986, the Regional Board adopted a series of Orders, which required site investigations, implementation of interim remedial measures, submittal of a Remedial Investigation/Feasibility Study report, and a Remedial Action Plan. On August 15, 1990, the Regional Board adopted Site Cleanup Requirements (Order No. 90-120), which includes Final Cleanup Standards for VOC pollutants in the soil and groundwater.

5. **Site Hydrogeology:** The site is located in the approximate center of Santa Clara Valley, about 75 feet above mean sea level. Santa Clara Valley is a sedimentary basin filled with unconsolidated heterogeneous alluvial material, interspersed with layers of marine clay. The alluvium is a mixture of permeable, water bearing sands and gravels, interbedded with less permeable silts and clays. Soils in the Santa Clara Valley can be extremely variable over short distances, both vertically and horizontally. Three hydrologic units have been identified at this site: Zone A, Zone B/C, and Aquifer D/E. Figure 3 shows the typical hydrogeological structure of the site.

Zone A is an unconfined, low-permeability water-bearing zone that occurs from the ground surface to a depth of 20 to 25 feet. It consists primarily of fine-grained sandy silts and silty clay. The saturated thickness of Zone A varies significantly across the site from several inches to approximately 7 feet. In the past, large areas of Zone A have become de-watered during periods of drought. Zone A is underlain by a clay layer, which is typically 6-16 feet

thick. Some soil boring logs show the clay layer extending as much as 60 feet beneath Zone A. The clay layer may impede vertical downward migration of groundwater. Ancestral stream channel deposits have also been identified along the southwest margin of the site in Zone A. The groundwater in Zone A flows toward the west. However, on-site groundwater pumping for remediation purposes has altered the local groundwater flow patterns.

Zone B/C is underneath Zone A and consists of silts and sandy silts with lenses of sands and clays. It is approximately 50 feet thick and is laterally continuous across the site. Zone B/C exhibits low permeability and is believed to act as an aquitard between Zone A and Aquifer D/E. A laterally continuous clay layer 2-10 feet thick defines the base of Zone B/C. In recent years (since 1993), water levels in Zone B/C have been slightly higher than those in Zone A over most of the site indicating an upward vertical gradient. The groundwater in Zone B/C flows toward the southwest.

Aquifer D/E is a 75-foot thick layer of permeable sands and silts located beneath the clay layer and Zone B/C aquitards, and is separated from Zone B/C by a laterally continuous clay layer, which defines the base of Zone B/C. Aquifer D/E is comprised of two layers separated by a relatively thin continuous clay layer. The upper layer is a thick sequence of silts and sands. The lower layer is comprised of two sandy layers separated by a 2 to 5 foot thick layer of silt. Aquifer D/E is very permeable and has been used historically for domestic water supply.

6. **Groundwater Contamination:** Volatile Organic Compounds (VOCs) were first discovered at the site in 1983. Frequently detected VOCs (detected in more than 10 percent of samples analyzed) include acetone, 2-butanone (MEK), cis-1,2-dichloroethene (cis-1,2-DCE), xylenes, methylene chloride, trichloroethene (TCE), vinyl chloride, 1,1-dichloroethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE). Figure 4 shows the approximate lateral extent of VOCs in the groundwater in January 1999.

In January 1998, the analytical laboratory inadvertently analyzed for an extended list of chemicals which were not historically part of the analytical program. Five new compounds were discovered, including 1,4-dioxane, tetrahydrofuran, methyl tertiary butyl ether (MTBE), naphthalene, and 1,2,4-trichlorobenzene. Of these compounds, 1,4-dioxane and tetrahydrofuran were detected frequently and at elevated concentrations. The maximum detected concentration for 1,4-dioxane was 250,000 $\mu\text{g/l}$ and the maximum concentration for tetrahydrofuran was 13,000 $\mu\text{g/l}$. 1,4-dioxane is completely miscible in water, has a low vapor pressure (30 mm Hg), a high Henry's Law constant ($4.88\text{E-}06$), and a low estimated soil-sorption coefficient ($\log K_{oc} = 1.23$). These characteristics indicate that 1,4-dioxane will not readily volatilize from moist soil or water and will readily leach to groundwater once introduced to the soil column. Furthermore, it is more mobile and degrades less rapidly than most VOCs. As a result, 1,4-dioxane has migrated much further than the standard VOCs, and beyond all of Safety-Kleen's existing monitoring wells. An investigation was performed in January 1999 in order to determine the extent of the 1,4-dioxane migration. This investigation failed to define the lateral

extent of the 1,4-dioxane plume because it had migrated further than anticipated. Figure 5 shows the approximate extent of the 1,4-dioxane plume as estimated from the January 1999 investigation. A follow-up investigation was performed in the fall of 1999 to complete the determination of the extent of the plume. This investigation also failed to completely define lateral extent of the contamination, and the discharger has proposed further investigation. Tetrahydrofuran is also very soluble in water and is not considered to be readily degradable. The lateral extent of the tetrahydrofuran plume has not been defined.

7. **Adjacent Sites:** Chevron Products Company owns and operates a fuel distribution terminal to the south of the Safety-Kleen site at 1020 Berryessa Road. The Chevron site has petroleum hydrocarbons in the soil and groundwater including benzene, toluene, ethylbenzene, and xylene (BTEX) and MTBE. BTEX constituents, as well as MTBE, are believed to have migrated from the Chevron site to the Safety-Kleen site, forming a long narrow plume to the west of the solvent plume. The Chevron site is regulated under Regional Board Site Cleanup Requirements (Order No. 95-083).
8. **Soil Remedial Measures:** All underground tanks and associated soils were removed prior to 1983. Between 1985 and 1987, additional contaminated soil was removed in conjunction with the construction of three groundwater collection/extraction trenches. A full-scale steam injection and vacuum extraction system was installed and began operating in 1989. Early results showed the project was very successful, but by 1992, the systems' effectiveness had decreased substantially, and the system was converted to a more cost effective soil vapor extraction system with eight dual (groundwater and vapor) extraction wells. The site has been completely paved over with asphalt or cement. Since 1989, the combined soil vapor extraction systems have removed approximately 71,200 pounds of VOCs.
9. **Groundwater Remedial Measures:** Three groundwater extraction trenches and 13 groundwater recovery wells are currently operated at the site to contain and treat contaminated groundwater. Figure 6 shows the locations of these trenches and wells. Groundwater Extraction Trench #1 began operation in 1985, Trench #2 in 1986, and Trench #3 in 1987. These trenches surround the area with the highest VOC concentrations, and are operated primarily to prevent contaminated groundwater from migrating off site. Eight dual-phase (groundwater and vapor) recovery wells (R2, R6, R7, R8, I7, I8, I14, and I15) are located in the source area (the area with the highest VOC concentrations), and are operated to reduce contaminant levels. In May 1996, five additional dual-phase recovery wells (RW6A, RW7A, RW8A, RW9A, RW10A) were installed to capture contaminated groundwater down gradient of the primary source area. While the existing groundwater extraction system is effective in capturing VOCs from the source area, the system is inadequate for containing 1,4-dioxane and tetrahydrofuran, which have already migrated beyond the capture area.

While the remedation system described above has resulted in a significant reduction of VOC concentrations, very high levels still exist in the source area. A comparison of historic (1987-1997) maximum concentrations to recent maximum concentrations (1998) is presented

below. From 1985 through 1998, approximately 120,000 pounds of VOCs have been extracted from soil and groundwater.

VOC	Maximum Concentration 1987-1997 (µg/l)	Maximum Concentration 1998 (µg/l)
Acetone	19,000,000	1,760,000
MEK	2,000,000	148,000
Cis-1,2-DCE	70,000	2,480
Xylenes	570,000	2,000
Methylene chloride	360,000	1,600
TCE	150,000	1,500
Vinyl chloride	5,500	970
1,1-DCA	5,700	730
1,1-DCE	2,400	190
Source: 1998 Annual Summary Report, Table 1		

For the on-site system, groundwater pumping rates have varied dramatically from year to year, particularly during the first seven years of operation. The total volume of water recovered from the on-site systems ranged from 1,840,000 gallons per year (gal/yr) in 1986 to 41,000 gal/yr in 1991. Since 1992, the on-site system pumping rates have varied less dramatically, ranging from 197,000 gal/yr in 1994 to 499,000 gal/yr in 1996, averaging 318,000 gal/yr. Since 1992, the discharger has been pumping groundwater about 40 hours per week.

Groundwater recovered from the on-site soil vapor extraction system and Extraction Trench 1 is sent off-site for treatment and disposal. Groundwater recovered from the other two extraction trenches and from the off-site recovery wells is generally less contaminated, and is disposed to the San Jose Publicly Owned Treatment Works (POTW). All extracted groundwater sent to the POTW is reused in the on-site chiller processes prior to disposal.

10. **Cleanup Plan:** Safety-Kleen (San Jose), Inc. will continue to operate the existing soil and groundwater remediation systems in accordance with requirements set forth in this Board Order. The existing methods and/or strategies currently used may change with Regional Board concurrence in order to expedite remediation. The existing cleanup plan will be revised to incorporate cleanup strategies for 1,4-dioxane and tetrahydrofuran.
11. **Risk Assessment:** A baseline Public Health Evaluation (PHE) was performed for on-site exposure scenarios in 1989. Off-site receptors were not considered since exposures to nearby populations under the existing conditions in 1989 were not considered to present a high likelihood of occurrence. The PHE was performed to determine the potential health risks associated with the site and as a basis for establishing chemicals of concern and setting cleanup goals. The PHE considered potential future risks if the site were used for residential purposes. A significant cancer risk was found for scenarios involving use of groundwater and inhalation from soils. A significant risk was also found for non-carcinogenic toxic effects.

Based on the PHE, potential risk will be present at the site pending remediation and therefore institutional constraints have been implemented to limit on-site exposure to acceptable levels. A deed restriction which bars the future use of the property for residential use and other permanent occupied non-residential habitation such as hospitals, day-care centers, and schools was recorded in August 1992. The deed restriction also bars the completion of wells into the affected Zone A except as part of the investigation and remedial effort or into deeper aquifers unless the Board is notified prior to installation.

Another risk-based evaluation of groundwater concentration goals specifically for vinyl chloride was performed in 1995 to help determine if any health risk was posed by migration of vinyl chloride from groundwater into the off-site 1040 Commercial Street Building located northeast of the site. The evaluation concluded that vinyl chloride did not present a significant cancer health risk.

12. **Basis for Cleanup Standards**

- a. **General:** State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously cited cleanup plan confirms the Board's initial conclusion that background levels of water quality cannot be restored. Many site characteristics limit the effectiveness of currently available remedial options including the wide range of physical and chemical properties of chemicals detected at the site, the fine-grained nature of the vadose zone where soil contamination is trapped, and the limited saturated

thickness and low permeability of Zone A. There is currently no remedial technology available that is capable of site cleanup to background levels in a timely and cost effective manner. This order and its requirements are consistent with Resolution No. 68-16.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

- b. **Beneficial Uses:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23, California Code of Regulations, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Based on current yields and water quality from some wells, groundwater underlying and adjacent to the site qualifies as a potential source of drinking water. However, wells in some areas of the site have yields below those that define potential drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

- Municipal and domestic water supply
- Industrial process water supply
- Industrial service water supply
- Agricultural water supply

At present, there is no known use of shallow groundwater (Zones A, and B/C) underlying the site for the above purposes. Deeper groundwater (Zone D/E) is part of the Santa Clara Valley aquifer, which is currently used for domestic supply.

- c. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standards for the site are based on applicable water quality objectives and are the more stringent of EPA and California primary maximum contaminant levels (MCLs), or risk-based values calculated to be protective to human health and the environment at this site. Since the last Order (90-120) was issued in 1990, MCLs for some VOCs have been established

and others have been modified. Cleanup standards presented in Section B.2 reflect current MCLs, or are risk-based values calculated in the RWQCB Internal Memorandum dated August 6, 1990. For VOCs with no established MCLs, cleanup standards are set at other established regulatory guideline levels such as State Action Levels (SALs), U.S. EPA Drinking Water Health Advisory, Suggested No-Adverse-Response Levels (SNARLs), U.S. Preliminary Remediation Goals (PRGs), or the U.S. EPA Integrated Risk Information System (IRIS) Reference Dose. Cleanup to these levels will result in acceptable residual risk to humans.

- d. **Basis for Soil Cleanup Standards:** The soil cleanup standards for the site are 1 mg/kg total VOCs and 10 mg/kg total semi-volatile organic compounds (SVOCs). Cleanup to these levels is intended to prevent leaching of contaminants to groundwater and will result in acceptable residual risk to humans.
13. **Future Changes to Cleanup Standards:** The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this site may not be possible. If full restoration of beneficial uses is not technologically nor economically achievable within a reasonable period of time, then the discharger may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Board may decide that further cleanup actions should be taken.
14. **Reuse or Disposal of Extracted Groundwater:** Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.
15. **Basis for 13304 Order:** The discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
16. **Cost Recovery:** Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.
17. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

18. **Notification:** The Board has notified the discharger and all 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 an opportunity to submit their written comments.
19. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

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

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances 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 wastes or hazardous substances 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 wastes or hazardous substances are prohibited.

B. CLEANUP PLAN AND CLEANUP STANDARDS

1. **Implement Cleanup Plan:** The discharger shall continue to operate the remedial systems described in Findings 8 and 9.
2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Program:

Constituent	Standard (ug/l)	Basis
Acetone	400	Risk Based ¹
MEK	20	Risk Based
1,2-DCB	5	Risk Based
Cis-1,2-DCE	6	State Primary MCL ²
Trans-1,2-DCE	10	State Primary MCL
Ethylbenzene	400	Risk Based
Freon-113	1200	State Primary MCL
4-meth.-2-pent.	10	Risk Based
Naphthalene*	20	SNARL ³
Phenol	2000	Risk Based
Toluene*	150	State Primary MCL
Xylenes	1750	State Primary MCL
Benzene	1	State Primary MCL
Chloroform	6	Risk Based
1,4-DCB	0.5	Risk Based
1,1-DCA	5	State Primary MCL
Methylene chloride*	5	State Primary MCL
1,1-DCE	1	Risk Based
PCE	5	State Primary MCL
TCE	5	State Primary MCL
Vinyl chloride	0.5	State Primary MCL
1,1,1-TCA	200	State Primary MCL
1,4-dioxane**	3	California Action Level
Tetrahydrofuran**	8.8	EPA PRG ⁴
1,2,4-trichlorobenzene**	70	State MCL

* - Cleanup Standard changed from previous Board Order (No. 90-120)

** - New Cleanup Standard

¹Risk Based- calculated in RWQCB memorandum dated August 6, 1990 (see attachment)

²MCL - Maximum Contaminant Level

³SNARL - USEPA Suggested No Adverse Response Level

⁴PRG - Preliminary Remediation Goal

3. **Soil Cleanup Standards:** Soil cleanup standards of 1 mg/kg for total VOCs and 10 mg/kg for SVOCs shall be met in all on-site vadose-zone soils.

C. TASKS

1. **ADDITIONAL INVESTIGATION OF EXTENT OF 1,4-DIOXANE**

Due date: June 1, 2000

Submit a technical report acceptable to the Executive Officer documenting the completion of additional investigation activities required to determine the extent of 1,4-dioxane and tetrahydrofuran in groundwater. The report shall characterize the limits of 1,4-dioxane in groundwater to the California Action Level of 3 µg/l.

2. **WORKPLAN FOR DETERMINING OPTIMUM PUMPING RATES**

Due date: April 1, 2000

Submit a workplan acceptable to the Executive Office for determining the optimum pumping rates for the existing treatment system in order to maximize VOC removal from groundwater. This report should evaluate historical pumping rates and maximum pumping rates possible from the existing shallow aquifer. The report should propose a strategy for evaluating VOC removal efficiencies using different pumping strategies in order to develop the most effective pumping strategy for this site. The workplan should include as an option, the continuous operation of the groundwater extraction system. The workplan should also identify the current flow capacity of the existing extraction and treatment system, and should document full utilization of the existing capacity pending completion of the Task 4 report. Considerations for limitations regarding the disposal of the extracted groundwater (e.g... permit requirements and reuse system capacity) may be considered for determining the full utilization of the existing capacity.

3. **FEASIBILITY STUDY FOR 1,4-DIOXANE AND TETRAHYDROFURAN**

Due date: October 1, 2000

Submit a technical report acceptable to the Executive Officer evaluating additional remedial measures to address 1,4-dioxane and tetrahydrofuran contamination. The report shall consider effectiveness, implementability, and costs of any proposed remediation. The report should propose remedial measures to be implemented at this site.

4. **RESULTS OF OPTIMUM PUMPING RATE INVESTIGATION**

Due date: August 1, 2000

Submit a report acceptable to the Executive Officer presenting the results of the investigation performed in Task 2. The report should propose a pumping strategy for this site. The proposed pumping strategy shall demonstrate optimum pumping rates that will effectively maximize VOC removal and minimize migration of VOC impacted groundwater. Cost effectiveness may be considered when proposing the pumping strategy.

5. **REVISED CLEANUP PLAN**

Due date: December 1, 2000

Submit a revised Cleanup Plan acceptable to the Executive Officer incorporating the measures identified in the Tasks 3 and 4. The plan should describe all significant implementation steps and should include an implementation schedule.

6. **IMPLEMENT REVISED CLEANUP PLAN**

Due date: July 1, 2001

Submit a report acceptable to the Executive Officer documenting the implementation of the Revised Cleanup Plan. For ongoing actions, such as soil vapor extraction or groundwater extraction, the report should document system start-up (as opposed to completion) and should present initial results on system effectiveness (e.g. capture zone or area of influence). Proposals for further system expansion or modification may be included in annual reports (see Self-Monitoring Program).

7. **TEN-YEAR STATUS REPORT**

Due date: August 21, 2000

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report should include:

- a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
- b. Comparison of contaminant concentration trends with cleanup standards
- c. Comparison of anticipated versus actual costs of cleanup activities
- d. Performance data (e.g. groundwater volume extracted, chemical mass removed, mass removed per million gallons extracted)
- e. Cost effectiveness data (e.g. cost per pound of contaminant removed)
- f. Summary of additional investigations (including results) and significant modifications to remediation systems

- g. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy. New technical information which bears on the approved cleanup plan and cleanup standards for this site shall be evaluated. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

8. **FIFTEEN-YEAR STATUS REPORT**

Due date: August 21, 2005

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report should include:

- a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
- b. Comparison of contaminant concentration trends with cleanup standards
- c. Comparison of anticipated versus actual costs of cleanup activities
- d. Performance data (e.g. groundwater volume extracted, chemical mass removed, mass removed per million gallons extracted)
- e. Cost effectiveness data (e.g. cost per pound of contaminant removed)
- f. Summary of additional investigations (including results) and significant modifications to remediation systems
- g. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy. New technical information which bears on the approved cleanup plan and cleanup standards for this site shall be evaluated. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

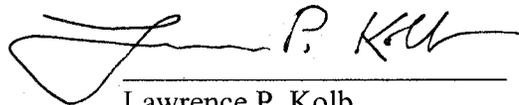
9. **Delayed Compliance:** If the discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

D. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good O&M:** The discharger shall maintain in good working order any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The discharger shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the discharger shall permit the Board or its authorized representative:
 - a. Entry upon premises in which any pollution source exists, 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 requirements of this Order.
 - c. Inspection of any monitoring or remediation facilities installed 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.
5. **Self-Monitoring Program:** The discharger shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved U.S. EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the Santa Clara Valley Water District and Commercial Street Business Park. In addition, the USEPA, Santa Clara County Health Department, and the California Department of Toxic Substances Control shall receive a copy of the five-year report. The Executive Officer may modify this distribution list as needed.
9. **Reporting of Changed Owner or Operator:** The discharger shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.
10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the discharger shall report such discharge to the Regional Board by calling (510) 286-1255 during regular office hours (Monday through Friday, 8:00 to 5:00). A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified. This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.
12. **Rescission of Existing Order:** This Order supersedes and rescinds Order No. 90-120.
13. **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary.

I, Lawrence P. Kolb, Acting 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 February 16, 2000.



Lawrence P. Kolb
Acting Executive Officer

FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

Attachments: Self-Monitoring Program

- Figure 1. Site Location Map
- Figure 2. Site Map
- Figure 3. Site Hydrogeology
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- Figure 5. 1,4-Dioxane in Groundwater
- Figure 6. Groundwater Extraction Trenches and Recovery Wells

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

SAFETY-KLEEN (SAN JOSE) INC.

for the property located at

1021 Berryessa Road
San Jose
SANTA CLARA COUNTY

1. **Authority and Purpose:** The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. 00-010 (Site Cleanup Requirements).

1. **Monitoring:** The discharger shall measure groundwater elevations according the approved Sampling and Analysis Plan, and shall collect and analyze representative samples of groundwater according to the following table:

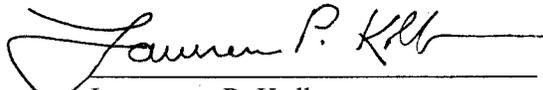
Wells	Frequency
Monitoring Wells (Aquifer A) – 4A (RW4A), 8A, 19A, 20A, 32A, 68A, 69A, 79A, 80A, 82A, 85A, 87A, 98A, T-2	Annually
Monitoring Wells (Aquifer A) – 9A, 35A, 38A, 66A, 70A, 84A, 86A, 88A, 89A, 90A, 91A, 92A, 93A, 97A, 99A, 102A, 103A, 104A, 105A, 106A, 108A	Semi-annually
Monitoring Wells (Aquifers B/C/D) – 15C, 26B, 76B, 78B, 109B/C, 110B/C, 111B/C, 112B/C, 48D	Annually
Chevron Monitoring Wells – 21, 22, 23, 24, 25, C-34, C-40	Semi-annually
Groundwater Recovery Wells – RW1A, RW2A, RW3A, RW5A	Annually
Groundwater and Vapor Recovery Wells – R2, R6, R7, R8, I7, I8, I14, I15	Annually
Groundwater and Vapor Recovery Wells – RW6A, RW7A, RW8A, RW9A, RW10A	Quarterly

Groundwater samples shall be analyzed for volatile organic compounds using EPA Method 8260. EPA Method 8270 (modified) shall be used for analyses of 1,4-dioxane samples in monitoring wells that have concentrations less than the detection limit for EPA Method 8260. It is expected that new wells will be installed off site in the direction of groundwater flow in order monitor the behavior of the newly discovered 1,4-dioxane plume. These wells shall be monitored for 1,4-dioxane and tetrahydrofuran (if present) on a quarterly basis. The discharger may propose changes in the above table, which will become effective upon approval by the Executive Officer.

3. **Quarterly Status Reports:** The discharger shall submit quarterly status reports to the Board no later than 30 days following the end of the quarter. The reports shall include a brief description of remedial system operation including quantity of contaminants and volume of groundwater removed, a description of O&M for remedial systems, and a description of encountered operational problems and corrective actions taken. In addition, quarterly reports will present the status and/or a summary of results of any investigation or remedial activities including soil and water sample analyses, soil boring and monitoring well completion, any tests or evaluations conducted and any future planned activity.
4. **Annual Reports.** The discharger will submit annual monitoring reports to the Board by May 1 of each year. The first quarterly report of each year may be combined with the annual report. Annual reports will include the following:
 - a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge..
 - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included each year.
 - c. **Groundwater Analyses:** Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included each year presenting the previous five years of groundwater data. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

- d. **Groundwater Extraction:** The report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume per quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass per quarter. Historical mass removal results shall be included each annual report..
5. **Violation Reports:** If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.
6. **Other Reports:** The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.
7. **Record Keeping:** The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.
8. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Lawrence P. Kolb, Acting Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on February 16, 2000.



Lawrence P. Kolb
Acting Executive Officer

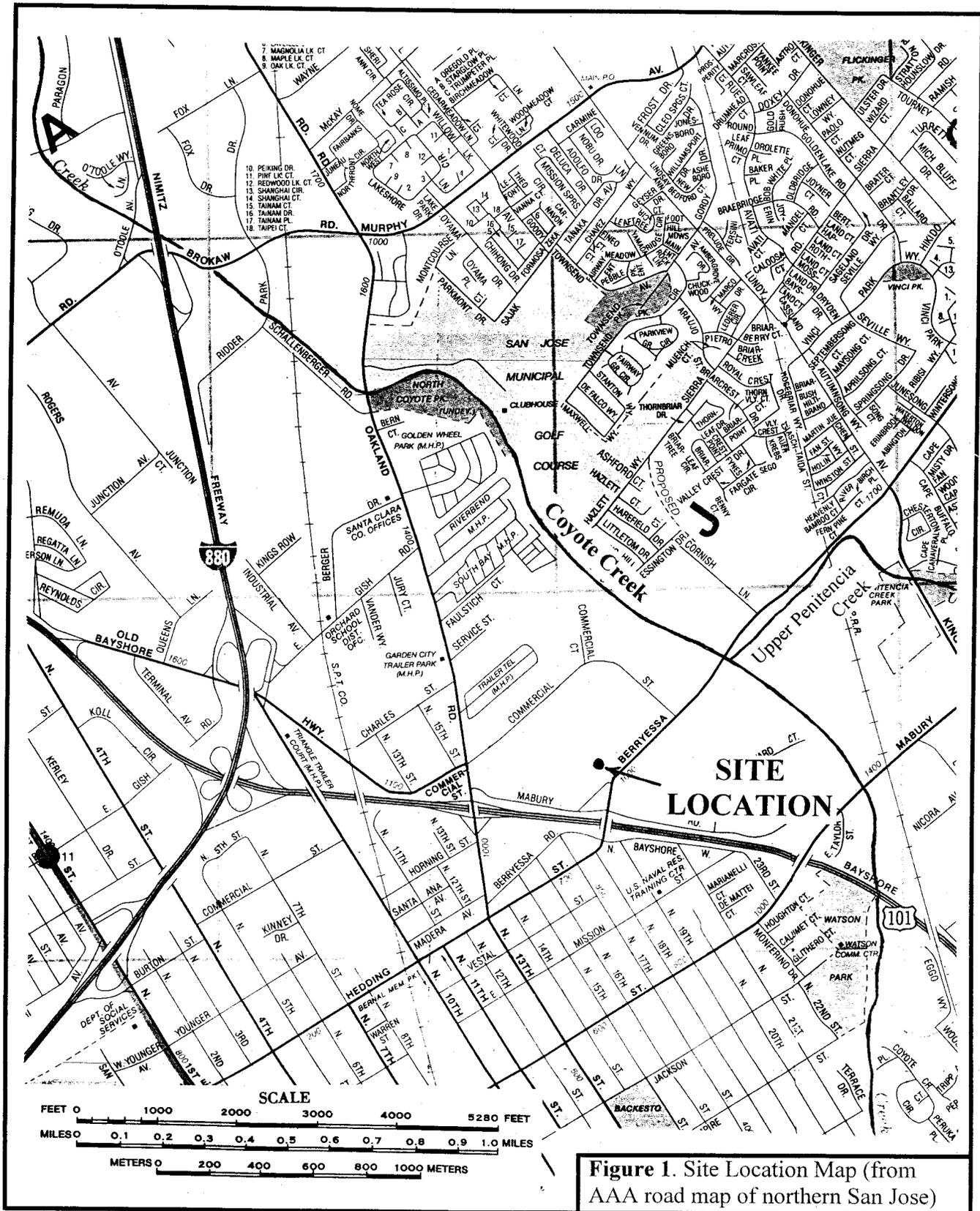


Figure 1. Site Location Map (from AAA road map of northern San Jose)

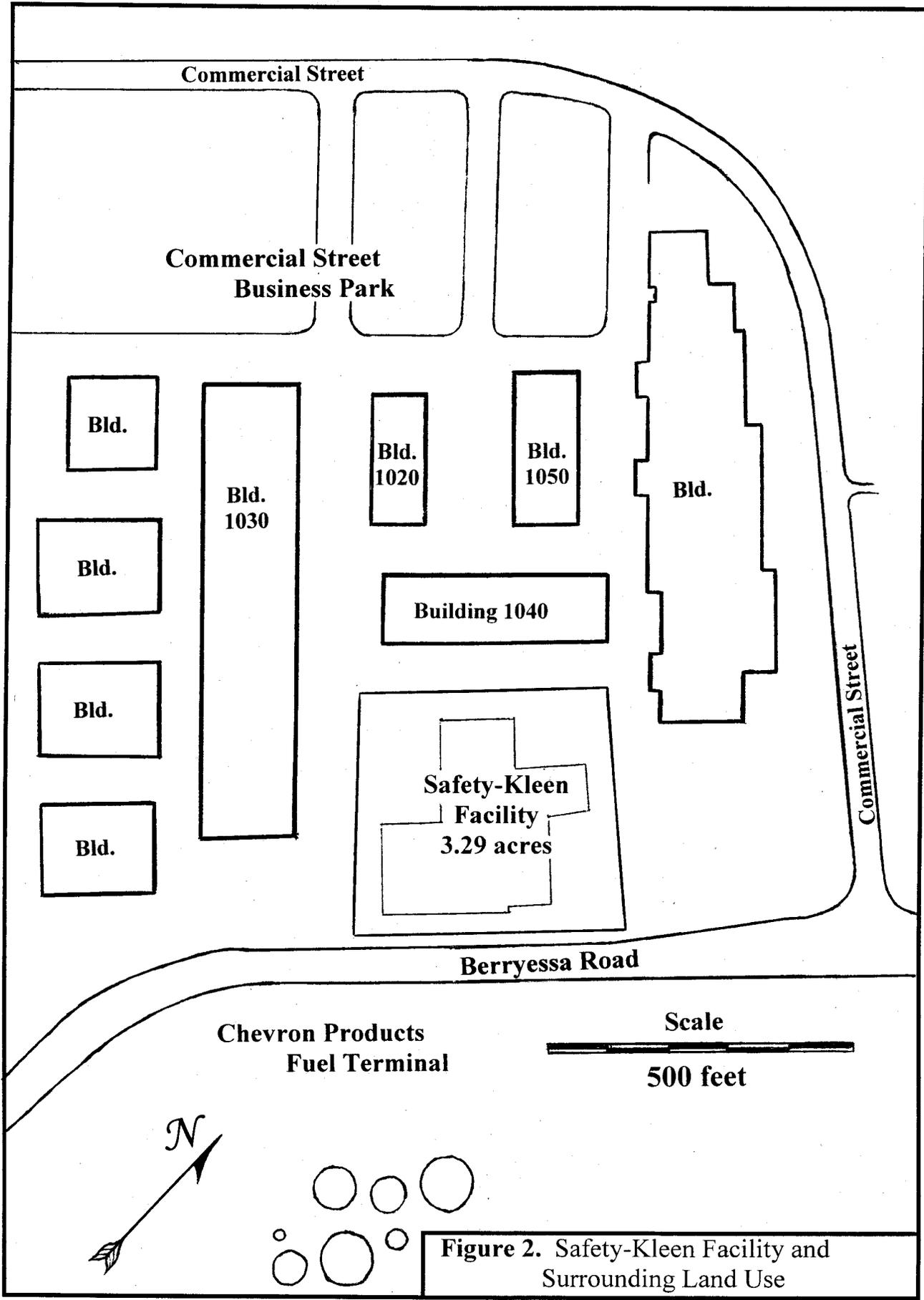
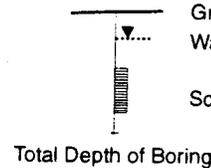


Figure 2. Safety-Kleen Facility and Surrounding Land Use

LEGEND

-  Gravelly
 -  Sand
 -  Sand
 -  Sandy Silt
 -  Silt
- 

Ground Surface
Water Level Aquifer A
(January 1987)
Screened Portion
Total Depth of Boring

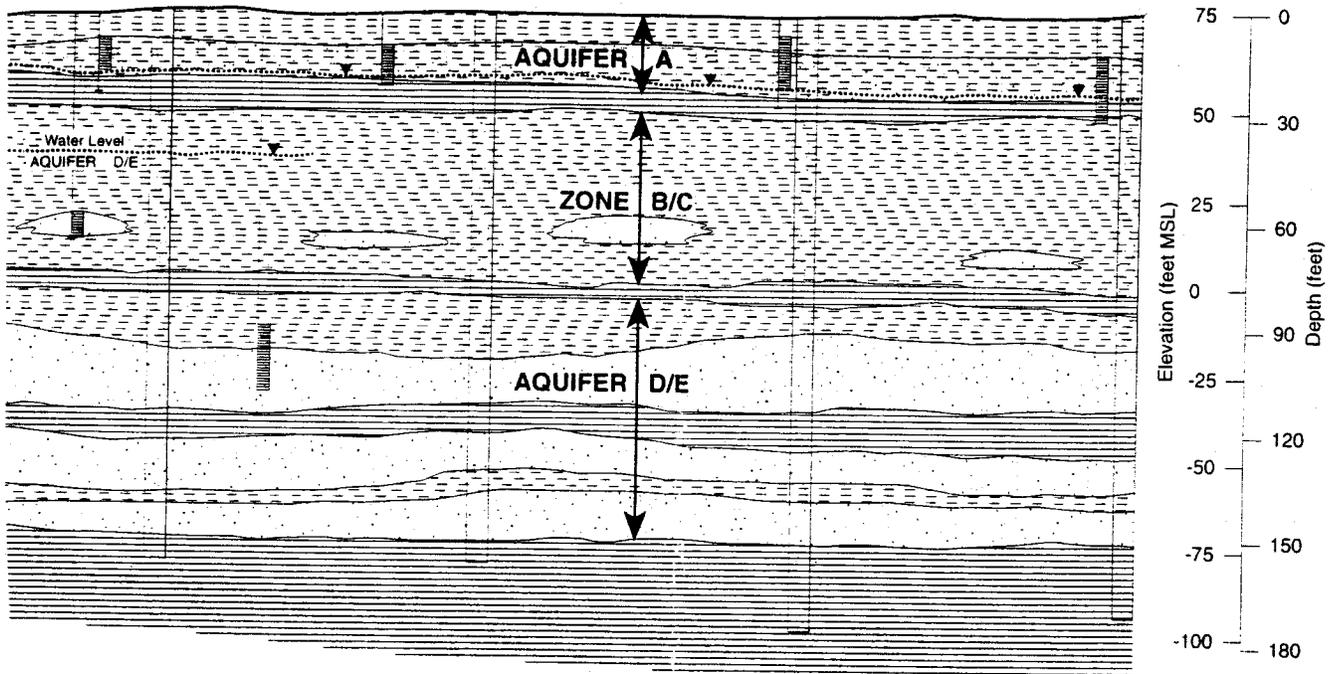
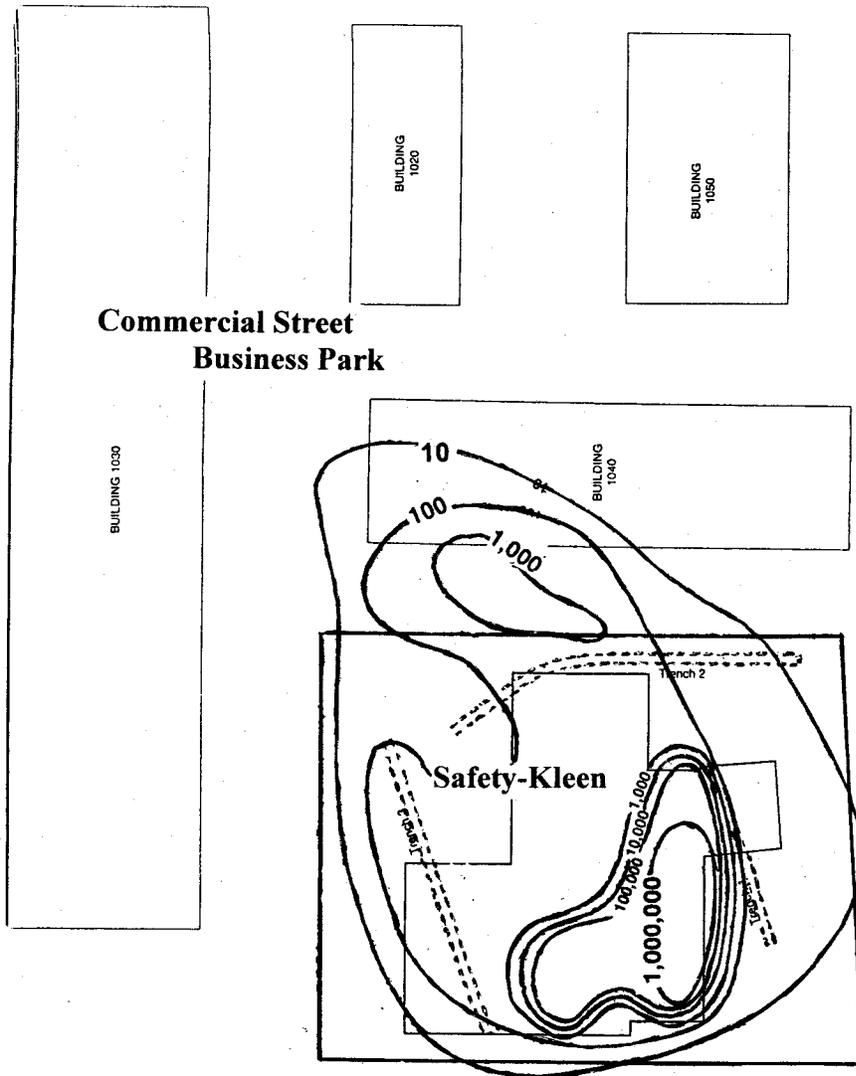


Figure 3. Geological Cross Section of Safety-Kleen Property (from 1998 Annual Report)

Legend

— 10 — Total VOC (Standard List) concentration contour in ug/L

--- Extraction trench



**Commercial Street
Business Park**

Berryessa Road

**Chevron Products
Fuel Terminal**



Figure 4. Total Volatile Organic Compounds (standard list) in Zone A Groundwater. (from October 1999 Quarterly Report)

Legend

- 100 — 1,4-Dioxane concentration contour in $\mu\text{g/l}$, dashed where uncertain
- Extraction Trench

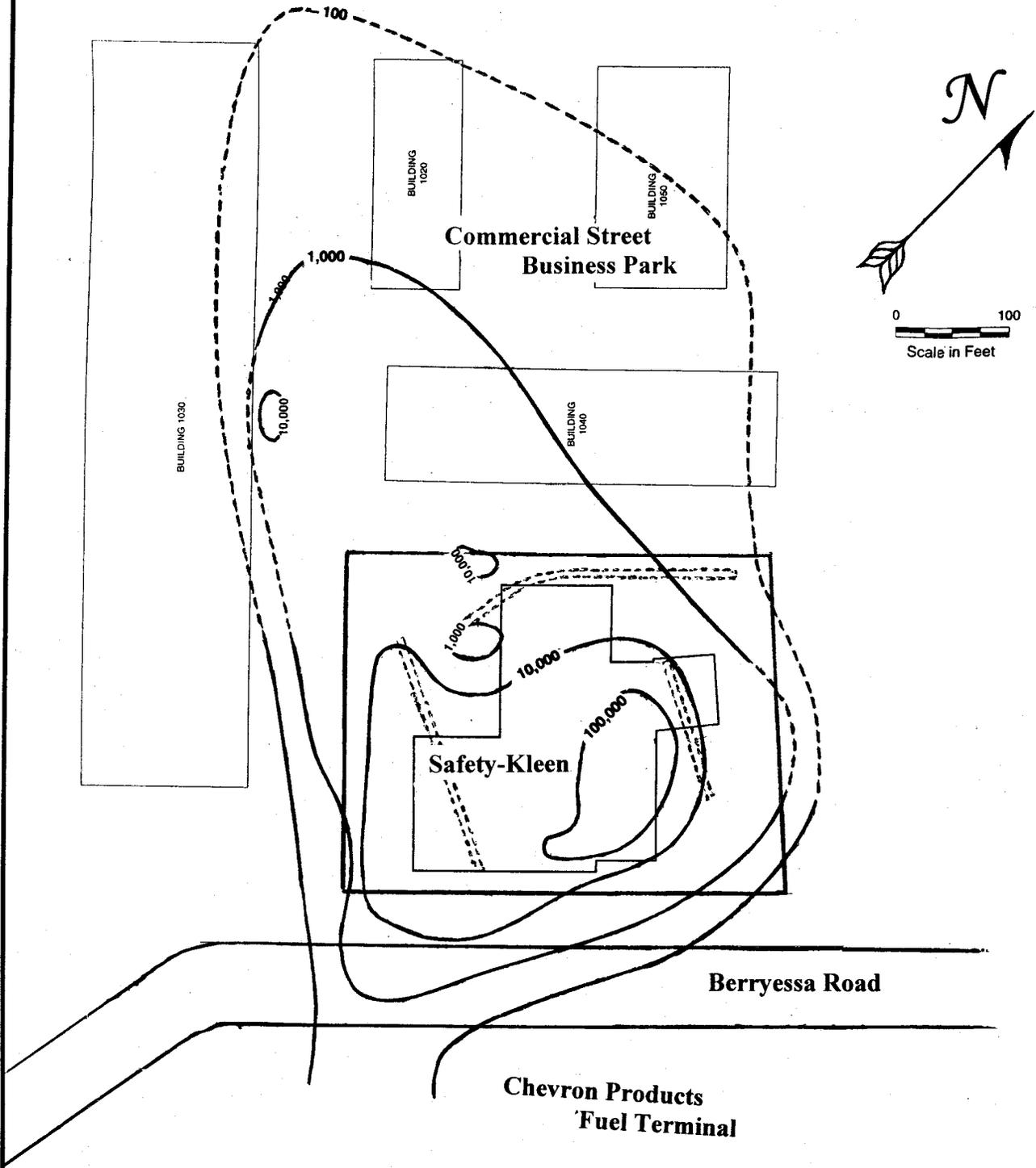
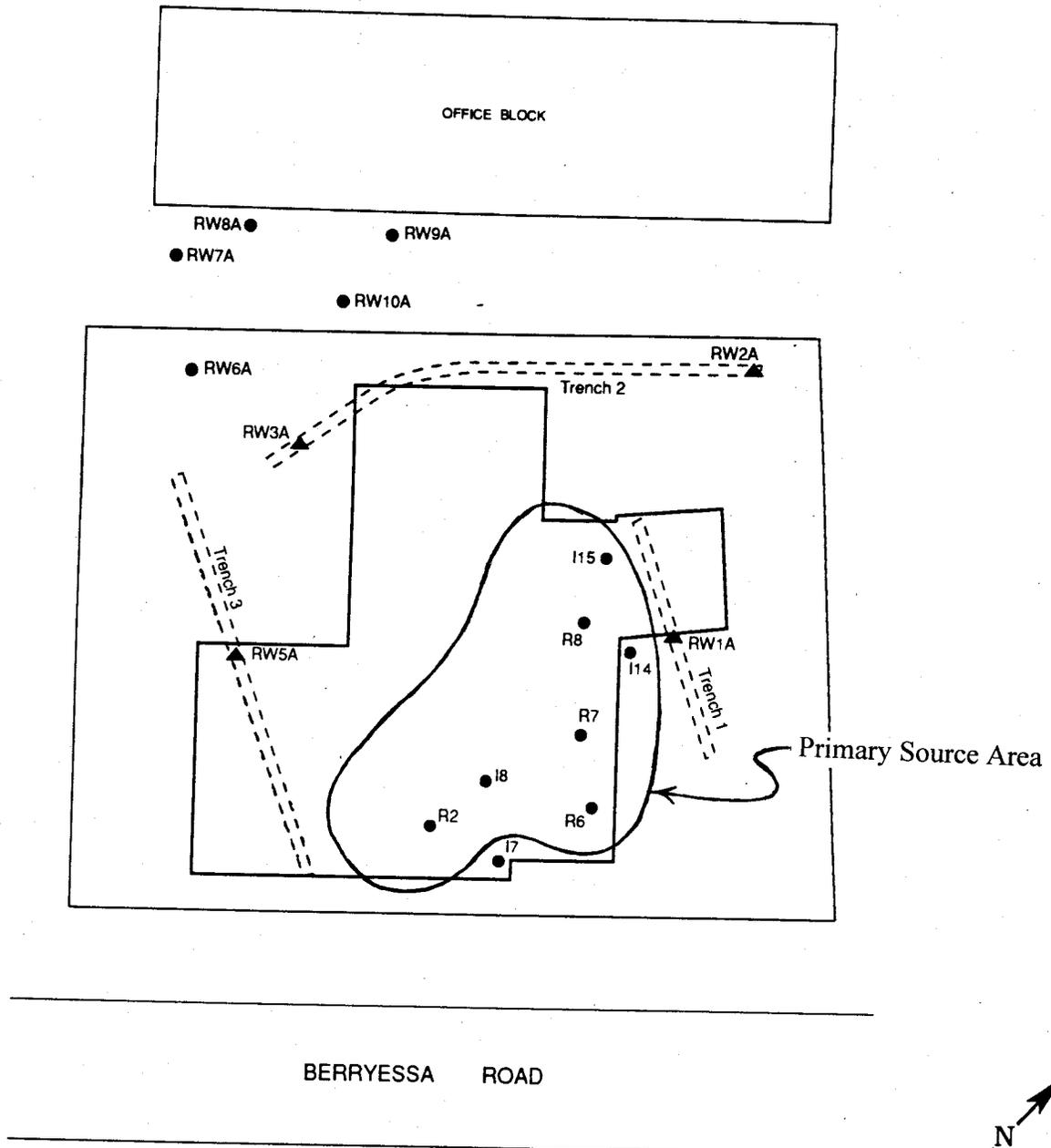


Figure 5. 1,4-Dioxane in Zone A Groundwater. (from October 1999 Quarterly Report)



Legend

- ▲ Trench Extraction Well
- Groundwater Recovery Well
- Extraction Trench

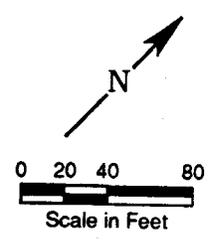


Figure 6. Groundwater Extraction Trenches and Recovery Wells (from 1998 Annual Report)