

RCRA FACILITY INVESTIGATION REPORT SAFETY-KLEEN CORP. 400 MARKET STREET OAKLAND, CALIFORNIA EPA I.D. No. CAD053044053

SECOR Job No. 70005-009-10

Prepared For: Safety-Kleen Corp. 16540 S.E. 130th Avenue Clackamas, Oregon 97015

3-27-96

Submitted By:

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March 27, 1996

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March 27, 1996

Via Certified Mail No. P273444477

Mr. Robert Senga
California Environmental Protection Agency
Department of Toxic Substances Control
Facility Permitting Branch
245 W. Broadway
Suite 425
Long Beach, California 90802-4444

RE:

RCRA Facility Investigation Report Safety-Kleen Corp. 400 Market Street Oakland, California EPA ID No. CAD053044053

Dear Mr. Senga:

Safety-Kleen Corp. (Safety-Kleen) has prepared the enclosed Resource Conservation and Recovery Act (RCRA) Facility Investigation Report (Report) for the above-referenced facility. The Report has been prepared to satisfy the requirements of the facility's hazardous waste facility permit (Part B Permit). This RCRA Facility Investigation (RFI) Report has been compiled to summarize the data acquired by Safety-Kleen during the investigation of the extent of potential releases to the subsurface from solid waste management units (SWMUs), and an area of concern (AOC) identified in the RCRA Facility Assessment (RFA) and as discussed in the RCRA Facility Investigation Work Plan dated. As requested by the Department of Toxic Substances Control (DTSC), this RFI Report addresses the comments in the DTSC correspondence dated February 23, 1996.

Included in the RFI Report is a discussion of an upgradient source for a trichloroethene (TCE) plume identified at the Site. No further work is planned as Safety-Kleen is not responsible to pursue the responsible party. Groundwater data provided from monitoring wells MW-10 (abandoned) and MW-4 have consistently shown TCE migrating onto the Safety-Kleen property and surrounding area from the upgradient direction. Historical groundwater elevation data and laboratory analytical data presented in the Report and previous reports from the Site adequately defines that the TCE in monitoring wells MW-4 and MW-10 is not a Safety-Kleen related release.

OAKLND10.L03 March 27, 1996 SECOR Job No. 70005-009-10 Mr. Robert Senga Department of Toxic Substances Control March 27, 1996 Page 2

The submittal of this RFI Report should adequately fulfill the facilities RFI requirements without conducting additional field investigations. Please feel free to contact me regarding any questions or comments related to the RFI Report or the status of the Oakland facility at (503) 655-2769.

Sincerely,

Senior Project Manager - Remediation

Safety-Kleen Corp.

Enclosure - (3 copies)

Keith Marcott, Safety-Kleen Corp. cc:

Scott Davies, Safety-Kleen Corp. Jennifer Eberle, Alameda County

Sum Arigala, Regional Water Quality Control Board - S.F. Bay Region

Branch Environmental File

Greg Hoehn, SECOR

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1.0 INTRODUCTION

Safety-Kleen Corp. (Safety-Kleen) has prepared this Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for the Safety-Kleen facility located at 400 Market Street in Oakland, Alameda County, California. The Site location and Site plan are shown on Figures 1 and 2. This RFI Report was prepared in accordance with Safety-Kleen's Hazardous Waste Facility Permit (ID No. CAD053044053) (Part B Permit) which became effective on March 29, 1992. A RCRA Facility Assessment (RFA) identified three solid waste management units (SWMUs) and one area of concern (AOC) at the facility. The results of the RFA were transmitted in the RFA Report dated June 1993. The location of the SWMUs and AOC are shown on Figure 3. The Corrective Action Module of the Part B Permit (Section V) specified the need to submit a RCRA Facility Investigation (RFI) Work Plan to assess impacts related to the three SWMUs (SWMU No. 1, SWMU No. 2, and SWMU No. 3) and the AOC (AOC No. 1). The RFI Work Plan was submitted on February 1, 1996. The California U.S. Environmental Protection Agency (EPA) - Department of Toxic Substances Control (DTSC) approved the RFI Work Plan in a correspondence dated February 23, 1996.

The RFI Work Plan summarized site characterization work conducted at the Site through February 1996 for the AOC and SWMUs identified in the RFA. As specified in the Work Plan, the definition of soil and groundwater impacts related to the operations at the Safety-Kleen facility is complete for AOC No. 1, SWMU No. 2, and SWMU No. 3. Assessment of the extent of Safety-Kleen related impacts in the soil with respect to SWMU No. 1, if any, will be conducted as part of the facility closure activities in accordance with the Safety-Kleen Oakland Closure Plan.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS

Safety-Kleen has conducted extensive site characterization activities, replacement of the underground storage tank (UST) systems, interim remedial measures in the vicinity of the former, and existing USTs. Preliminary assessment activities were conducted in May 1986 in the vicinity of the former USTs by drilling three soil borings and converting two of the borings to groundwater monitoring wells (CWC-HDR Consulting Engineers, 1986).

Safety-Kleen conducted a soil-gas survey in June 1988 to assess the areal extent of subsurface impact and to aid in locating the installation of additional groundwater monitoring wells. In July 1988 nine monitoring wells were installed on and around the Site. After the installation, Safety-Kleen initiated a quarterly groundwater monitoring and sampling program and implemented interim measures to recover separate-phase product from the water table (Groundwater Technology, Inc. (GTI), September 1988).

In August and September 1989 four additional groundwater monitoring wells were installed. Three wells were installed off-site and one deep monitoring well (70 feet) was installed on-site. A soil-vent feasibility test was conducted in January 1990 to evaluate the applicability of using soil-venting as a soil remediation technique. Additionally, a one-half mile radius well survey was conducted. No private, municipal, or industrial wells were located within a one-half mile radius (GTI, June 1990).

From May through July 1990 the former single walled USTs (two 6,000-gallon waste mineral spirits and one 10,000-gallon mineral spirits UST) were replaced with the two existing double-walled 12,000-gallon USTs. The new waste mineral spirits UST has been designated as SWMU No. 2 and the new mineral spirits UST has been designated as AOC No. 1. During the UST replacement, a total of 984 tons of soil were excavated and transported to a rotary kiln for thermal destruction of volatile hydrocarbons. In conjunction with the tank installations, soil vapor extraction (SVE) system piping, and a product recovery well were installed (GTI, September 1990).

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3.0 RESULTS OF PREVIOUS INVESTIGATIONS

Existing operations information for the facility is primarily contained in the facility's RFA Report and Part B Permit. The information contained in these two documents is essentially a review of facility records and the results of a visual site inspection (VSI) conducted in conjunction with the RFA. Site characterization data has been collected through a series of investigation events.

The existing investigation information obtained at the facility was collected during the various assessment events and during the UST replacement program. A summary of the investigation, tank replacement, and interim corrective measures are presented in the Description of Current Conditions (DOCC) included as Appendix C of the RFI Work Plan. Copies of the RFA Report, assessment reports, and the tank replacement report are included as Appendix G and Appendix H of the RFI Work Plan.

The existing field measurements and laboratory analyses were used to document the Site conditions for the RFI process. A summary of the existing Site conditions is presented below.

3.1 Contaminant Sources

Based on the previous investigation events, the possible sources of contamination at the facility include the former USTs and the former return and fill shelter. These units were replaced in 1990, greatly reducing the likelihood for additional sources of subsurface impact. The new USTs and return and fill shelter were placed in the same locations as the previous units. Additionally, a volatile organic compound (VOC) plume has migrated from upgradient (north) of the Site. Evidence for an off-site source for VOCs at the Site was presented in the Update Report - Additional Assessment dated June 1990. See Appendix H of the RFI Work Plan for copies of the reports which document the presence of subsurface impacts and the corrective measures which have been implemented.

Table 1 presents a summary of trichloroethene (TCE) concentrations detected in groundwater at the Site since August 1988. As shown in Table 1, TCE concentrations in upgradient monitoring wells MW-10 and MW-4 consistently exceed the concentrations detected in monitoring well MW-8, immediately downgradient from the Safety-Kleen USTs. Figures 3, 4, 5, 6 and 7 present TCE concentration contours and groundwater contours for four representative sampling events.

The August 1988 map (Figure 4) shows data collected prior to the installation of monitoring wells MW-10 through MW-13. Subsequent monitoring confirmed the existence of elevated VOC concentrations in upgradient wells. Based on these data, monitoring wells MW-10 through MW-13 were installed in August and September of 1989. Figures 5, 6, and 7 present the TCE concentrations and groundwater elevation contours for three events after these wells were installed. The maps clearly show a TCE plume migrating onto the Safety-Kleen facility from a source located somewhere north of monitoring well MW-10. These facts, combined with the consistent groundwater gradient direction and magnitude indicate that an upgradient off-site source for VOCs has migrated on to the Safety-Kleen facility.

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3.2 Migration Pathways

Figures 8, 9, and 10 present generalized geologic cross sections based on soil boring data collected during the Site investigations. Included on the cross sections are the analytical results for soil samples collected from the borings. Mineral spirits and associated VOC impacts appear to have impacted the shallow soil in the vicinity of the USTs and return and fill shelter. Additionally, impacts have either directly impacted groundwater from the former USTs or have migrated from the vadose zone to the groundwater. Separate-phase product on the groundwater appears to be relatively static in the vicinity of the USTs and is present only in monitoring well MW-9 and extraction well RW-1. Dissolved VOC impacts from the Safety-Kleen facility are present in monitoring well MW-8 located in the entrance on Fourth Street. VOC impacts are present in monitoring wells MW-3 and MW-12 located downgradient from the Safety-Kleen facility; however, these impacts may be associated with the upgradient VOC plume detected in monitoring wells MW-4, MW-5, MW-6, MW-10 (prior to abandonment), and MW-11.

3.3 Facility Contamination

The extent of total petroleum hydrocarbons as mineral spirits (TPHms) and VOC impact at the facility are well defined. Soil samples collected in 1990 during the UST replacement and during the drilling of soil borings for monitoring well installations determined the soil impact is present immediately adjacent to the UST pit and has migrated along the capillary fringe as far as monitoring well MW-8. Groundwater impacts related to past Safety-Kleen operations appear to extend to monitoring well MW-8 with peripheral impacts present due to migration of an upgradient VOC plume. The results of previous facility investigations are presented in the reports included in Appendix H of the RFI Work Plan.

4.0 IMPLEMENTATION OF INTERIM CORRECTIVE MEASURES

4.1 Summary of Response Actions

In January 1993 a product skimming pump was placed in the recovery well (RW-1). Mineral spirits recovered from recovery well RW-1 was pumped directly to the waste mineral spirits UST. In November 1995 the skimming pump in recovery well RW-1 was replaced with passive recovery skimmers in recovery well RW-1 and monitoring well MW-9. Product is also hand bailed during monitoring events. Through January 1996, approximately 142.85 gallons of mineral spirits has been recovered at the Site. Product recovery data since January 1993 is presented in Table 2.

In June 1993 the SVE system operation was initiated. The SVE system consists of seven horizontal vapor extraction lines and a vapor treatment system. Initially the vapor treatment system consisted of a Padre™ regenerative polymer adsorption system followed by a carbon polish. A detailed description of the Padre™ SVE system is provided in the <u>Quarterly Groundwater Monitoring and Soil Vapor Extraction Report</u> dated October 1993. The Padre™ system was replaced with a carbon adsorption system in November 1995. The system uses the same vapor extraction lines as the previous system. The SVE system has removed approximately 2183.3 pounds of mineral spirits from June 1, 1993 through February 6, 1996. A summary of the mineral spirits removal via the SVE system is included as Table 3.

No groundwater treatment has been initiated at the Site to date due to the encroaching off-site VOC plume. Groundwater pumping at the Site would accelerate the movement of the off-site plume onto the Safety-Kleen facility.

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5.0 CONCLUSIONS

The focus of the RFI activities was to define the presence and extent of potential impacts associated with SWMUs and AOC and on collecting data to evaluate potential corrective measures. Safety-Kleen believes that the site characterization activities which have been completed adequately assess the subsurface in the vicinity of SWMU No. 2, SWMU No. 3, and AOC No. 1. Investigation of SWMU No. 1 will be conducted as part of facility closure or a partial closure activity.

Safety-Kleen does not propose to conduct additional site characterization work at this time. Safety-Kleen requests that the SVE system be considered the final interim corrective measure. The operation of the SVE system and the product recovery system is continuing. Safety-Kleen will not initiate groundwater extraction and treatment at this time due to the encroaching VOC plume. Groundwater extraction will only be considered when mitigation of the upgradient source of the VOCs has been performed by the responsible parties.

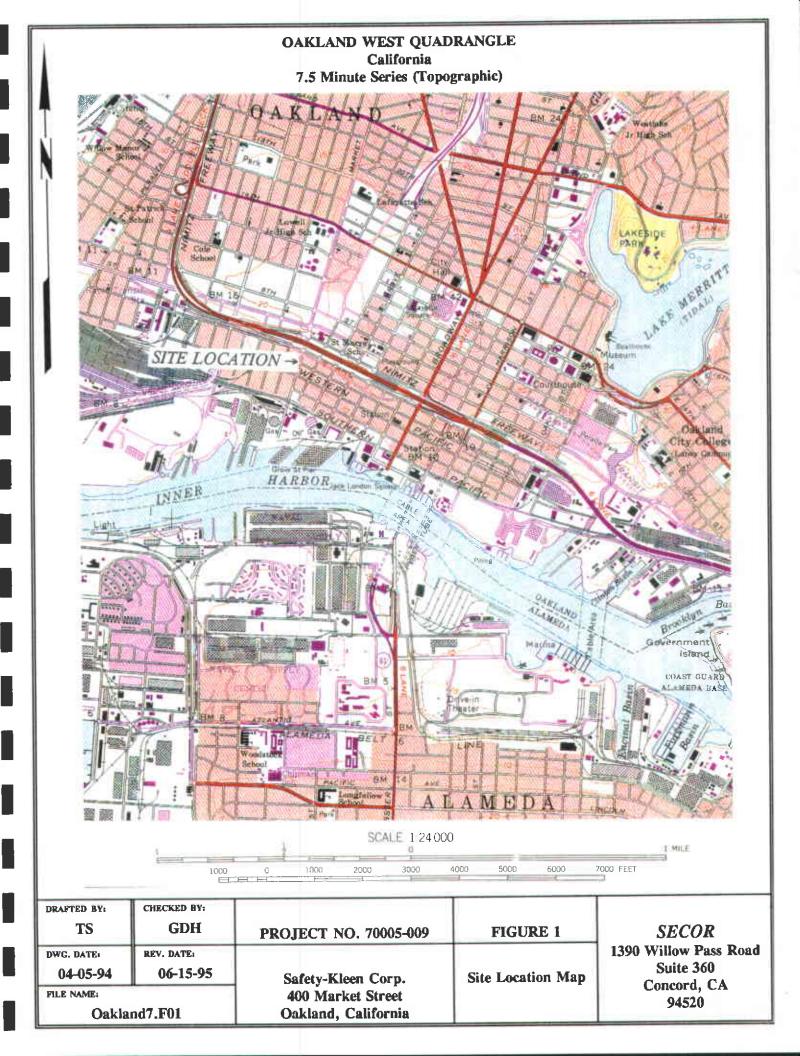
6.0 REFERENCES

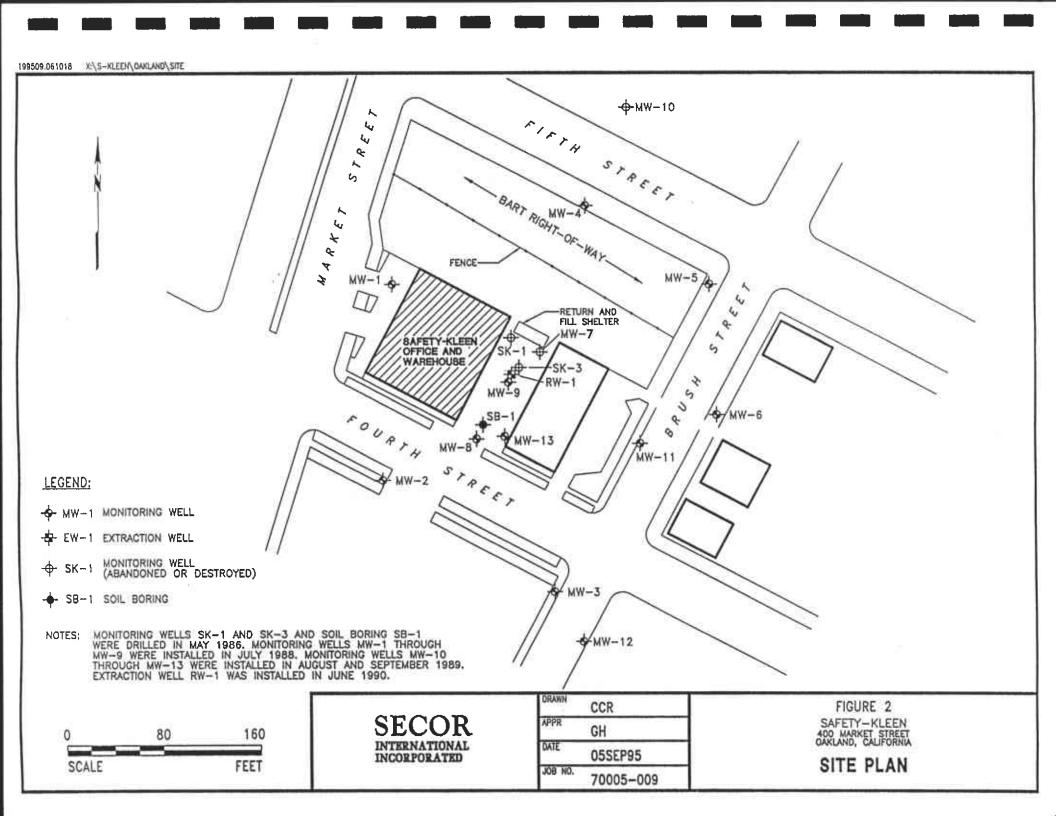
- California Environmental Protection Agency, Department of Toxic Substances Control, June 1993.

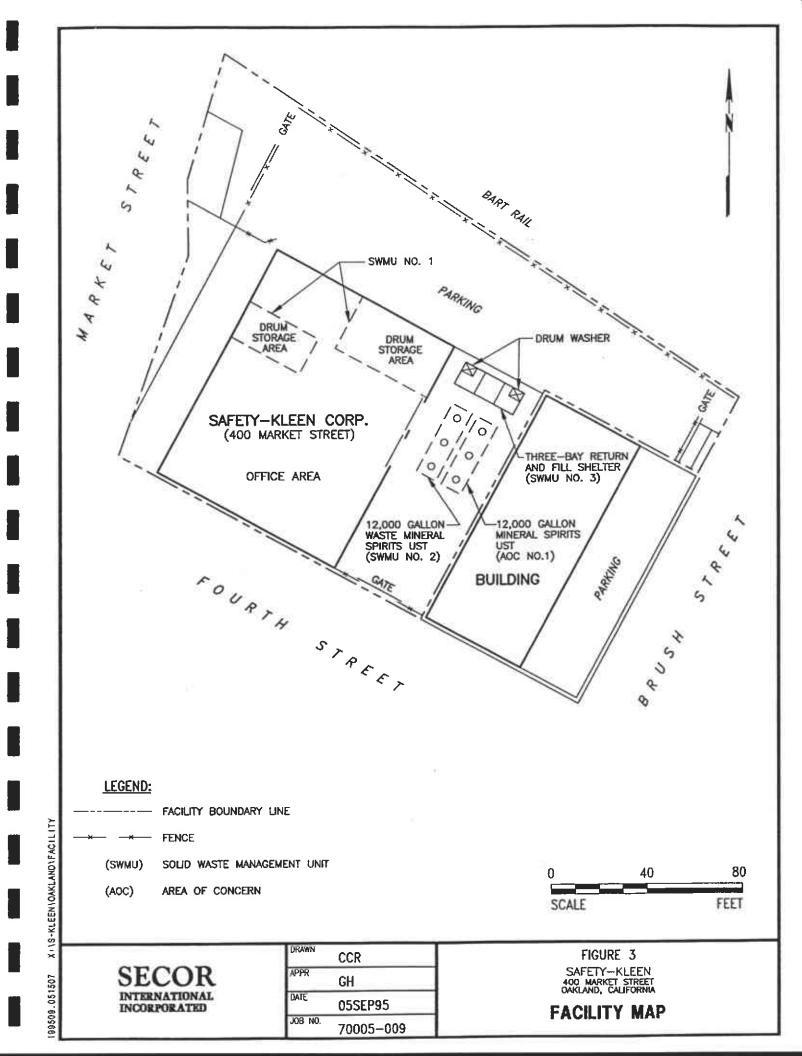
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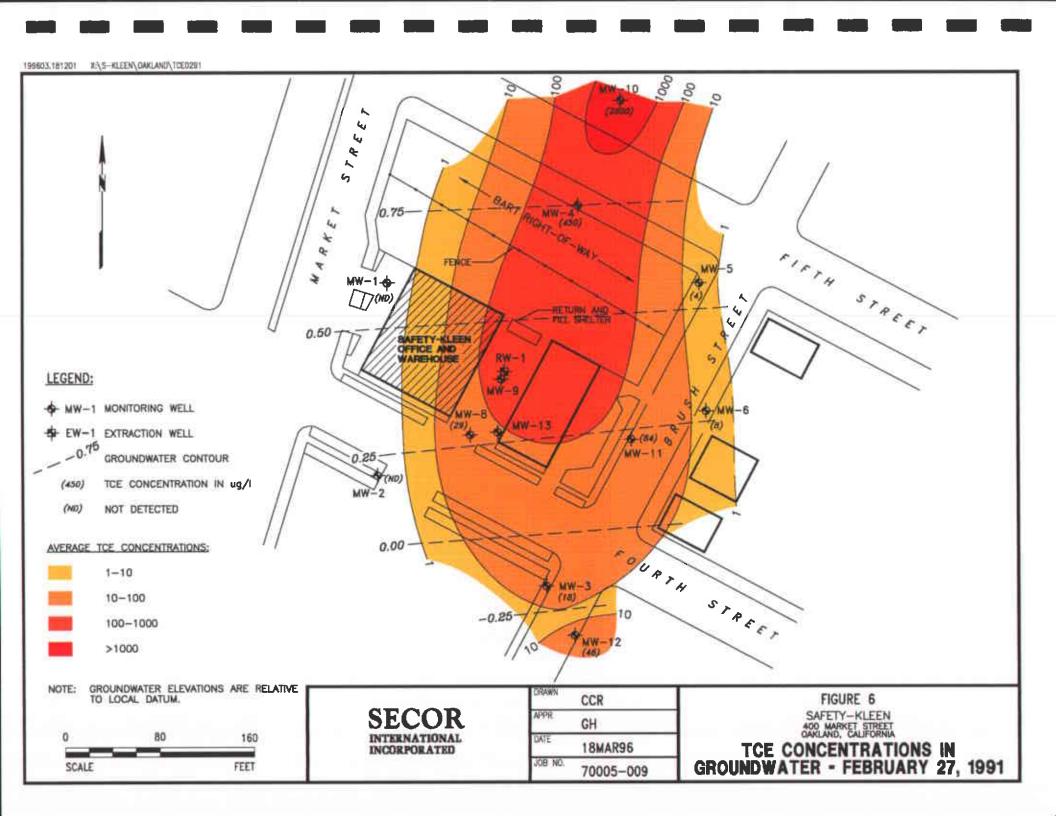
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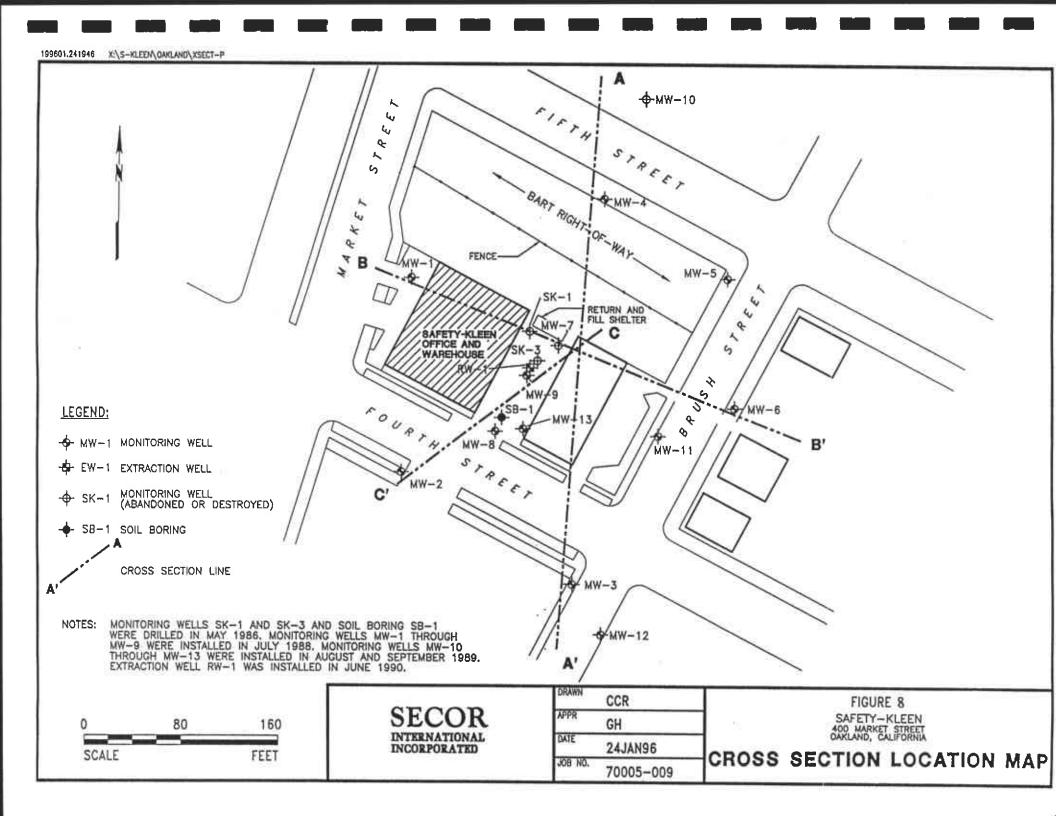
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- Groundwater Technology, Inc., June 1990, <u>Update Report, Additional Assessment, 404</u>
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- Groundwater Technology, Inc., June 15, 1990, Work Plan For Soil-Vent System and Recovery Well Installation.
- Groundwater Technology, Inc., September 1990, Report of Underground Storage Tank Replacement Activities at the Safety-Kleen Oakland Service Center, Oakland, California.
- SECOR (formerly Science and Engineering Analysis Corporation), October 1, 1993, Quarterly Groundwater Monitoring and Soil Vapor Extraction Report, 400 Market Street, Oakland, California.
- SECOR, February 1, 1996, RCRA Facility Investigation Work Plan, Safety-Kleen Corp., 400 Market Street, Oakland, California

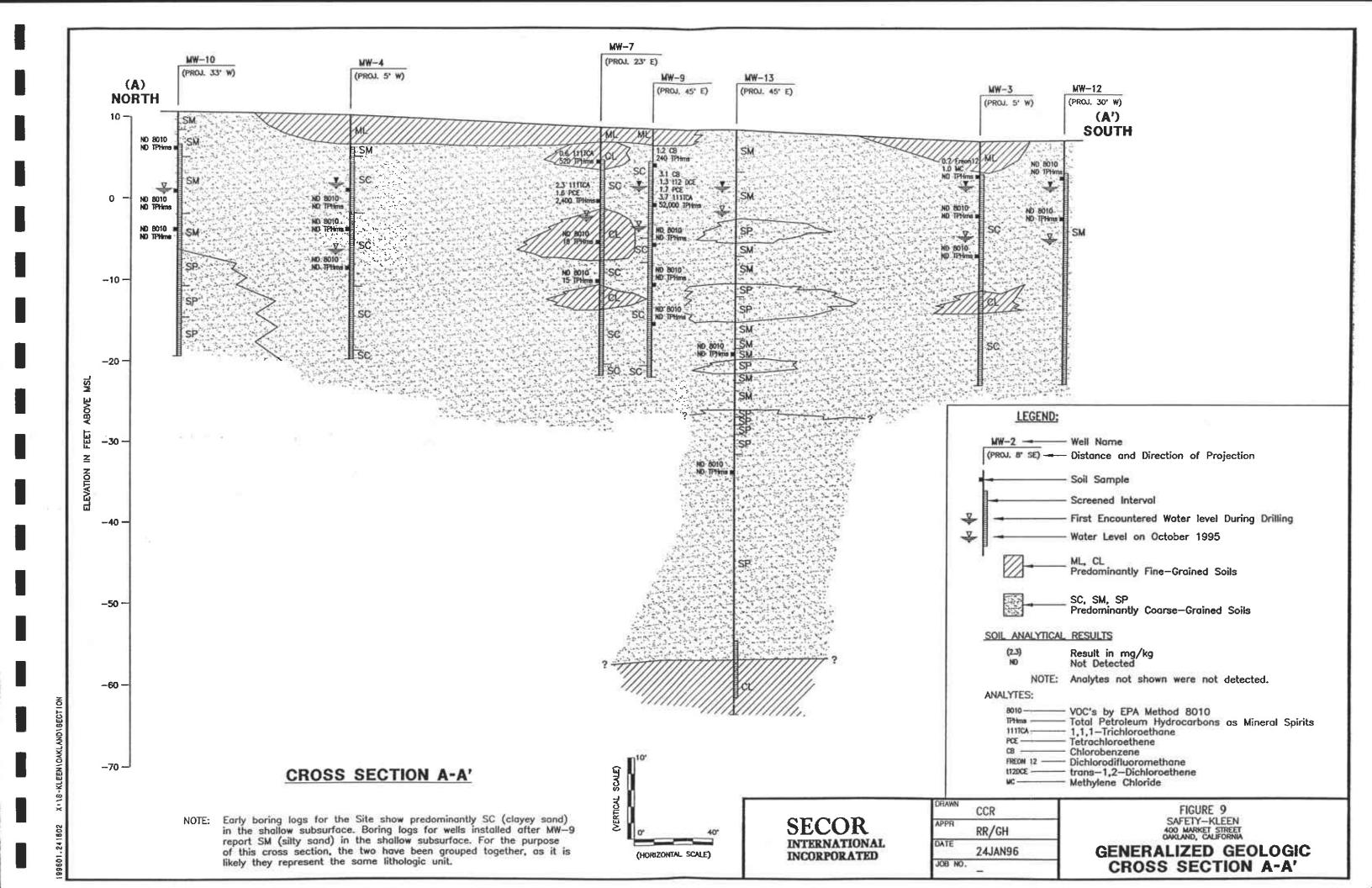












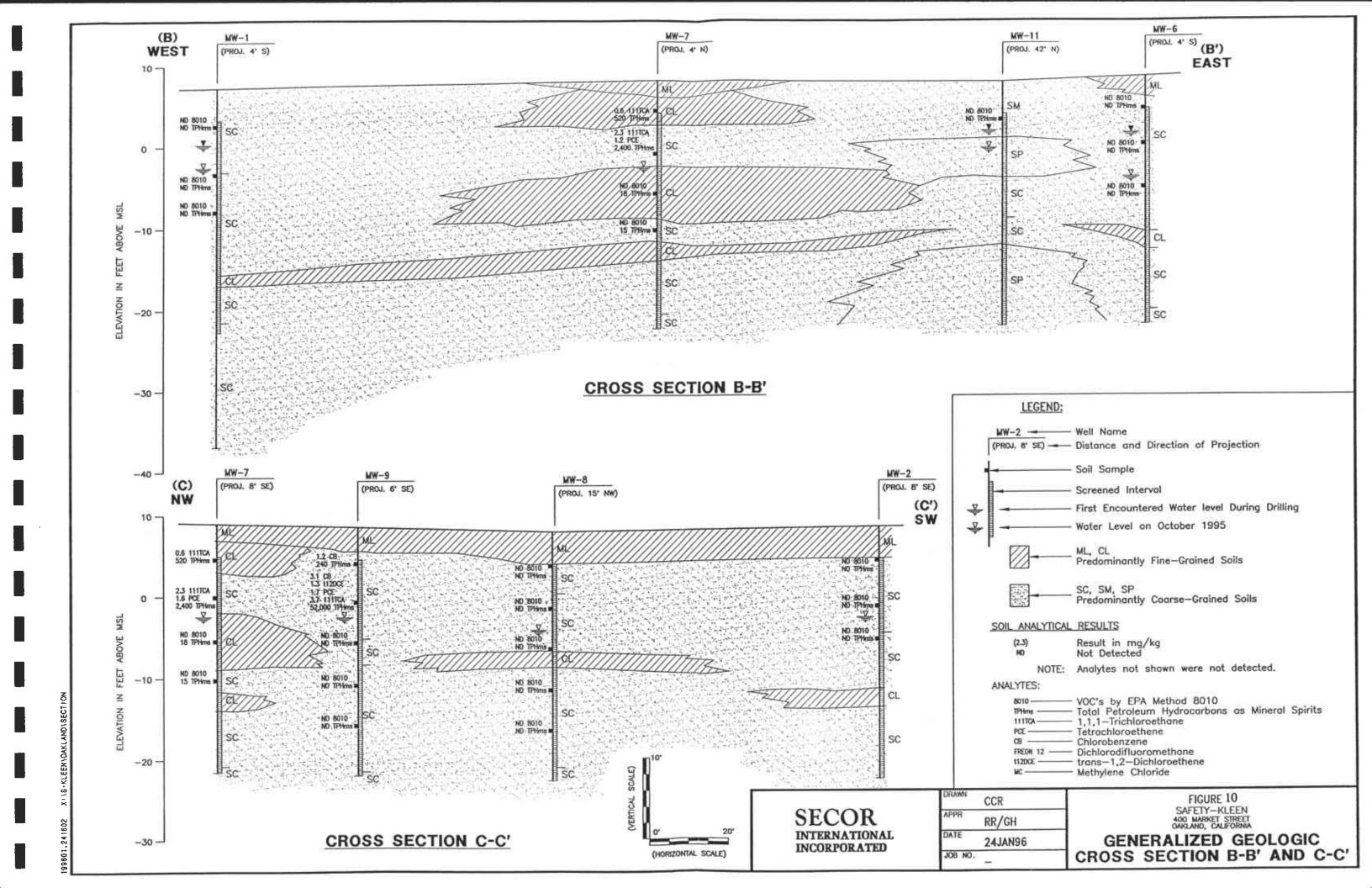


TABLE 1

TCE CONCENTRATIONS IN GROUNDWATER

Safety-Kleen Service Center 400 Market Street Oakland, California

Sample Well Name											
Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-8	MW-10	MW-11	MW-12	MW-13
	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
08/04/88	-	-	13	760	2.1	5	67				
09/06/88	-	-	6.5	540	3.7	5.3	52			l I	
10/13/88	-	-	8	470	6.2	8.2	45			 	
02/22/89	-	-	6.4	620	4	5.1	30				
03/22/89	-	-	8.5	440	3.1	2.6	31				
04/20/89	-	-	0.5	410	2.5	5.3	37				
05/22/89	<u>.</u>	-	7	470	3.4	.5.3	37				
06/30/89	-	-	7.4	380	2.9	6.6	41				
07/27/89	-	-	6.9	390	2.9	4.7	42				
08/30/89	- '	-	9.8	490	4.6	6.2	46	130	28	11	
09/29/89	-	-	7.3	420	2.1	5.3	31	290	69	20	
11/02/89	-	-	8.5	600	4.4	NS	39	470	74	40	
11/29/89	-	-	8.6	410	2.5	2	25	610	55	22	
01/03/90	•	-	14	430	5	8.3	31	710	67	31	
02/05/90	•		9.4	470	2.8	4.6	15	820	41	13	
03/14/90	-	-	8,9	490	1.5	1.7	14	1300	44	21	
04/11/90	-	-	8	340	0.8	2,8	16	600	39	26	
11/28/90	-	-	-	250		· -	16	2900	100	4.7	-
02/27/91	-	-	18	450	4	8	29	2800	84	46	-
04/30/91	-	-	8	340	<u> </u>	-	18	2300	40	23	· ·
07/22/91	-	-	9	320	3	0.9	18	1900	130	13	-
10/16/91	-	-	4	330	4	2	40	690	NS	51	-
02/14/92	-	-	7.9	660	7.5	3.6	20	230	NS	41	-
04/27/92	-	-	7.2	1300	10	1.2	23	190	NS	41	-
07/09/92	-	-	4.3	520	4.6	-	19	70	50	18	-
10/19/92	1.5	-	44	270	3.7	1.5	14	86	77	4	-
01/20/93	-	-	1.3	5500	11	1.8	1.4	53	47	22	-
04/20/93	-	-	0.7	2400	4	-	14	45	9.1	17	-
07/29/93	-	-	-	1100	6	5	31	54	36	30	NS
10/20/93	-	-	-	-	12	1.3	15	42	11	34	NS
01/20/94	% -	-	-	-	-	-	22	67	2.6	11	NS
04/21/94	-	-	-	-	7.2	1	18	NA	3.1	44	-
07/19/94	NS	-	-	-	NS	NS	NS	NA	NS	NS	NS
10/19/94	-	-	-	-	NS	NS	23	NA	NS	24	NS
01/20/95	NS	-	-	-	NS	NS	2.6	NA	NS	NS	NS
04/10/95	-	-	-	-	-	-	15	NA	3.4	59	-
07/11/95	NS	-	-	247	NS	NS	163	AB	NS	NS	NS
10/12/95	-	-		207	NS	NS	557		NS	95	NS
01/09/96	_			157	NS	NS	486		NS	NS	NS

Notes:

ug/L = micrograms per liter

- = Not detected

NS = Well not sampled

NA = Well not accessible

AB = Well sbandonned

TABLE 2 Product Recovery Data

Date	Product Recovered This Period (gallons)	Cumulative Product Recovered (gallons)
01-19-93	-	-
02-25-93	6.5	6.5
05-20-93	4.3	10.8
08-27-93	-	10.8
10-24-93	10.3	21.1
02-28-94	22.6	43.7
05-31-94	16.6	60.3
08-31-94	16.4	76.7
11-30-94	16.2	92.9
02-28-95	16.0	108.9
05-31-95	16.6	125.5
08-31-95	16.6	142.1
11-30-95	-0-	142.1
01-09-96	0.75	142.85

Table 3
Vapor Extraction System
Mineral Spirits Removal Summary
Safety-Kleen Service Center
400 Market Street
Oakland, California

Sample Date	Elapsed Time	Run Time This Period	Exctraction Flow Rate	TPHms Influent	Removal Rate	TPHms Removed	Notes
1 [(hours)	(hours)	(CFM)	(ug/L)	(lbs./day)	(lbs.)	
						1419.6	TPHms removed by prior system.
12/21/95	677.2	677.2	109.1	822.50	8.07	1647.2	
01/09/96	1134.2	457	109.1	1116.25	10.95	1855.6	
02/06/96	1803.3	669.1	130.9	998.75	11.75	2183.3	