safety-kleen®

September 29, 1999 Via Certified Mail No. Z 264 569 949

Mr. Robert M. Senga, Unit Chief
California Environmental Protection Agency
Department of Toxic Substances Control
Southern California Region
5796 Corporate Avenue
Cypress, California 90630

Re: **Quarterly Progress Report**
June through August 1999
Safety-Kleen Systems, Inc., Service Center
400 Market Street
Oakland, California

Dear Mr. Senga:

Enclosed are three copies of the Quarterly Progress Report which summarizes the groundwater monitoring and vapor extraction activities conducted at the above-referenced facility. This report covers the period from June through August 1999. Safety-Kleen Systems, Inc. (Safety-Kleen) is following the modified groundwater sampling schedule as described in the letter submitted on October 8, 1998, and as modified and approved by Alameda County Environmental Health Services in a response letter dated November 17, 1998, with the exception that monitoring well MW-9 continue to be sampled quarterly. As requested by Alameda County, Safety-Kleen will sample monitoring well MW-9 quarterly as long as no sheen or measurable product is present in the well.

If you have any questions or require any additional information, please contact me at (505) 888-3952.

Sincerely,

Sara C. Brothers, CPG
Senior Project Manager - Remediation
Safety-Kleen Systems, Inc.

Enclosure

cc: Steven LuQuire, Safety-Kleen
Heather Collins, Safety-Kleen
Branch Environmental File (999)
Larry Seto, Alameda County Environmental Health Services
Loretta Barsamian, California Regional Water Quality Control Board
Greg Hoehn, SECOR International Incorporated

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September 29, 1999
SECOR Job No. 007.03788

5219 Guadalupe Trail, NW Albuquerque, New Mexico 87107 Phone 505/888-3952 FAX 505/883-4890

SECOR
International Incorporated

QUARTERLY PROGRESS REPORT
JUNE 1999 - AUGUST 1999
SAFETY-KLEEN SYSTEMS, INC. SERVICE CENTER
400 MARKET STREET
OAKLAND, CALIFORNIA
EPA ID No. CAD053044053

SECOR Job No. 007.03788

Prepared For:
Sara Brothers 3-29-99
Safety-Kleen Systems, Inc.
2720 Girard Boulevard NE
Albuquerque, New Mexico 87107
505/888-3952

Submitted By:
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1390 Willow Pass Road
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September 29, 1999

Prepared By:

Nyree Melancon
Assistant Geologist

REGISTERED GEOLOGIST
THOMAS W. CROSBY
NO. HG 257
CERTIFIED HYDROGEOLOGIST
Expires 5/31/01
CALIFORNIA

Reviewed By:

Greg D. Hoehn
Principal Geologist

Thomas W. Crosby, C.Hg. #257
Principal Engineering Geologist

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

This Quarterly Progress Report has been prepared in accordance with the Safety-Kleen Systems, Inc. (Safety-Kleen) Hazardous Waste Facility Permit's reporting requirements. This report presents the results of groundwater monitoring and soil vapor extraction (SVE) system monitoring and sampling for the quarter of June 1999 through August 1999 at the Safety-Kleen Service Center located at 400 Market Street in Oakland, California (Figures 1 and 2).

2.0 PROJECT BACKGROUND INFORMATION

The Safety-Kleen Oakland Service Center is a local distribution center for Safety-Kleen products. Three single-walled underground storage tanks (USTs) were removed and replaced with two new 12,000-gallon double-walled tanks in June and July of 1990. Product and waste mineral spirits are currently stored in the two double-walled USTs at the site. One UST is used to consolidate waste mineral spirits prior to shipment to a Safety-Kleen Recycle Center and one UST is used for storage of product mineral spirits prior to distribution to Safety-Kleen customers.

During the single-walled tank removal, mineral spirits-impacted soil was excavated from the tank pit as allowable by site conditions. Additionally, a product recovery well and a vapor extraction system withdrawal network were installed in the tank pit area. Tank removal and excavation activities are documented in the Report of Underground Storage Tank Replacement Activities dated September 1990.

A product pumping system was installed in recovery well RW-1 to remove separate-phase product from the water table and began operation on January 19, 1993. The product pumping system was removed on November 20, 1995, and replaced with a passive hydrocarbon skimming device which is capable of removing product thickness within the well to a sheen. On August 5, 1998, the passive recovery skimmer was removed and oxygen releasing compound was suspended in RW-1 in an effort to enhance site remediation by oxidizing residual impacts in the vicinity of the USTS.

The SVE system consists of seven horizontal vapor extraction perforated pipelines and a vapor extraction and treatment system. A system to extract and treat soil vapor utilizing regenerative polymer adsorption began full-scale operation on June 1, 1993. The SVE system was modified and restarted on November 28, 1995, utilizing the current granular activated carbon (GAC) treatment system. Figure 3 depicts the layout of the vapor extraction pipelines and the vapor treatment system.

2.1 Regulatory Status

The Safety-Kleen Oakland facility operates under a Hazardous Waste Facility Permit (Part B Permit; ID No. CAD053044053) which became effective on March 29, 1992. A RCRA Facility Assessment (RFA) performed by the Department of Toxic Substances Control (DTSC) 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 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 and the AOC. The RFI Work Plan was submitted on February 1, 1996. The DTSC approved the RFI Work Plan in correspondence dated February 23, 1996. The RFI Work Plan summarized site characterization work conducted at the site to February 1996 for the AOC and SWMUs identified in the RFA.

Subsequent to approval of the RFI Work Plan, an RFI Report was submitted to the DTSC on March 27, 1996, and was approved by that agency in correspondence dated May 20, 1996. The RFI Report states that the extent of total petroleum hydrocarbons as mineral spirits (TPHms) and volatile organic compound (VOC) impact at the facility is well defined and that the site characterization activities have adequately assessed the subsurface in the vicinity of the USTs and the return and fill shelter. The investigations have determined that soil impact is present immediately adjacent to the UST pit and has migrated along the capillary fringe as far as monitoring well MW-8 (see Figure 2).

In a letter dated September 20, 1996, the California Environmental Protection Agency (Cal-EPA) - DTSC requested that Safety-Kleen prepare a Corrective Measures (CM) Report for the Oakland facility. Safety-Kleen submitted the CM Report on December 2, 1996. The purpose of the CM Report is to: (1) document the corrective measures which have been taken at the site to date, (2) evaluate the effectiveness of the corrective measures currently in use, and (3) provide an assessment of potential alternative methods. The CM Report is pending agency review.

Safety-Kleen is following the modified groundwater sampling schedule as described in the letter submitted on October 8, 1998, and as modified and approved by Alameda County Environmental Health Services in a response letter dated November 17, 1998. With the exception that monitoring well MW-9 continue to be sampled quarterly if no sheet or product is present in the well, the modified groundwater sampling schedule is to sample six wells semi-annually, all wells annually, and continue to collect depth-to-groundwater data quarterly.

On March 8, 1999, an "*In Situ* Chemical Oxidation Work Plan (Work Plan)" was submitted to the California Regional Water Quality Control Board - San Francisco Bay Region (RWQCB) and to Alameda County. The Work Plan will be implemented within one month of receiving approval from the RWQCB and/or Alameda County.

3.0 SCOPE-OF-WORK

SVE activities conducted during this quarter consisted of the pulsed operation and maintenance of the SVE system. Groundwater monitoring conducted during this quarter consisted of measuring depth-to-water in 11 groundwater monitoring wells as specified in the modified quarterly sampling schedule, approved by Alameda County Health Care Services in a correspondence dated November 17, 1998. As detailed in Safety-Kleen's correspondence dated December 18, 1998, monitoring well MW-9 was not sampled due to the presence of a hydrocarbon sheen on the water. The following sections provide a description of the activities conducted.

3.1 Soil Vapor Extraction System

The SVE system consists of two 1,500-pound GAC vessels connected in series to a manifold attached to seven horizontal vapor extraction perforated pipelines (see Figure 3). The SVE system operated in approximately two-week cycles this quarter in an attempt to improve removal efficiency. While the SVE system is operating, monitoring occurs biweekly and consists of measuring influent and effluent vapor concentrations using a photo-ionization detector (PID) or a flame-ionization detector (FID). The results of the SVE system operation is presented in Section 4.1 and the monitoring data are summarized in Table 1. The SVE system samples are collected for laboratory analysis at the influent and system effluent points; the results are discussed in Section 4.1 and presented on Table 2.

3.2 Groundwater Monitoring

On July 6, 1999, all accessible monitoring wells were monitored for depth-to-water using a water-level indicator calibrated to 0.01-foot. The depth-to-water measurements were used with well survey data to calculate potentiometric surface elevations which were used to prepare a groundwater surface map (Figure 4). Field data sheets that include depth-to-water measurements are included in Appendix A.

Prior to use and between each well, all non-single-use equipment was decontaminated by double-washing with a laboratory grade detergent in clean water and triple-rinsed using deionized water.

4.0 RESULTS

4.1 Soil Vapor Extraction System

The results of SVE system monitoring conducted on June 16, 1999 through August 30, 1999 are summarized on Table 1, including data on the system flow rate and PID measurements from the SVE system vapor influent, the vapor effluent after each carbon adsorption vessel, and the system final vapor effluent. Based on the system monitoring data, the SVE system has continued to meet the Bay Area Air Quality Management District (BAAQMD) permit limits of 10 parts per million per unit volume (ppmv) in the system effluent, based on PID or FID readings. For this quarter, SVE system influent and effluent vapor samples were collected on July 20,1999. The results of analytical testing are summarized on Table 2.

The analysis of the influent sample collected on July 20, 1999, detected TPHms at a concentration of 64 milligrams per cubic meter (mg/m^3) and detected tetrachloroethene (PCE) at a concentration of 16 mg/m^3. The system effluent detected TPHms at a concentration of 27 mg/m^3 and PCE at 2.5 mg/m^3 for the same date.

In an attempt to improve system efficiency, Safety-Kleen continued operating the SVE system this quarter in a pulsed (on/off) mode of approximately two-week cycles. Table 3 summarizes the estimated SVE system mineral spirits removal to date. Data collected from initial start-up through July 20, 1999, indicate a total of approximately 5485 pounds of mineral spirits have been removed from the subsurface by the SVE system. Copies of SVE system analytical reports are included as Appendix B.

4.2 Groundwater Elevations

Groundwater elevations and depth-to-water measurements for the July 6, 1999, event are presented in Table 4. The average water-table elevation on July 6, 1999 was 2.05 feet above mean sea level (amsl), a decrease of 0.14 feet since the April 1999 event. A groundwater potentiometric surface map prepared with this data is presented as Figure 4.

As shown in Figure 4, the on- and off-site groundwater flow direction remains to the southwest, consistent with historic site data. The hydraulic gradient was 0.0037 feet/foot (ft/ft) across the site as measured between monitoring wells MW-4 and MW-2. The hydraulic gradient is consistent with previous data for the site. A summary of groundwater elevations since January 1993 is provided as Table 5.

5.0 ACTIVITIES SCHEDULED FOR SEPTEMBER THROUGH NOVEMBER 1999

The following activities have been or are scheduled to be performed next quarter:

- Continue pulsed operation and maintenance of the soil vapor extraction system.
- In October 1999, perform the semi-annual groundwater sampling event in accordance with the modified sampling program.
- The *In Situ* Chemical Oxidation study will be implemented upon approval from the RWQCB and/or Alameda County.

6.0 CERTIFICATION STATEMENT

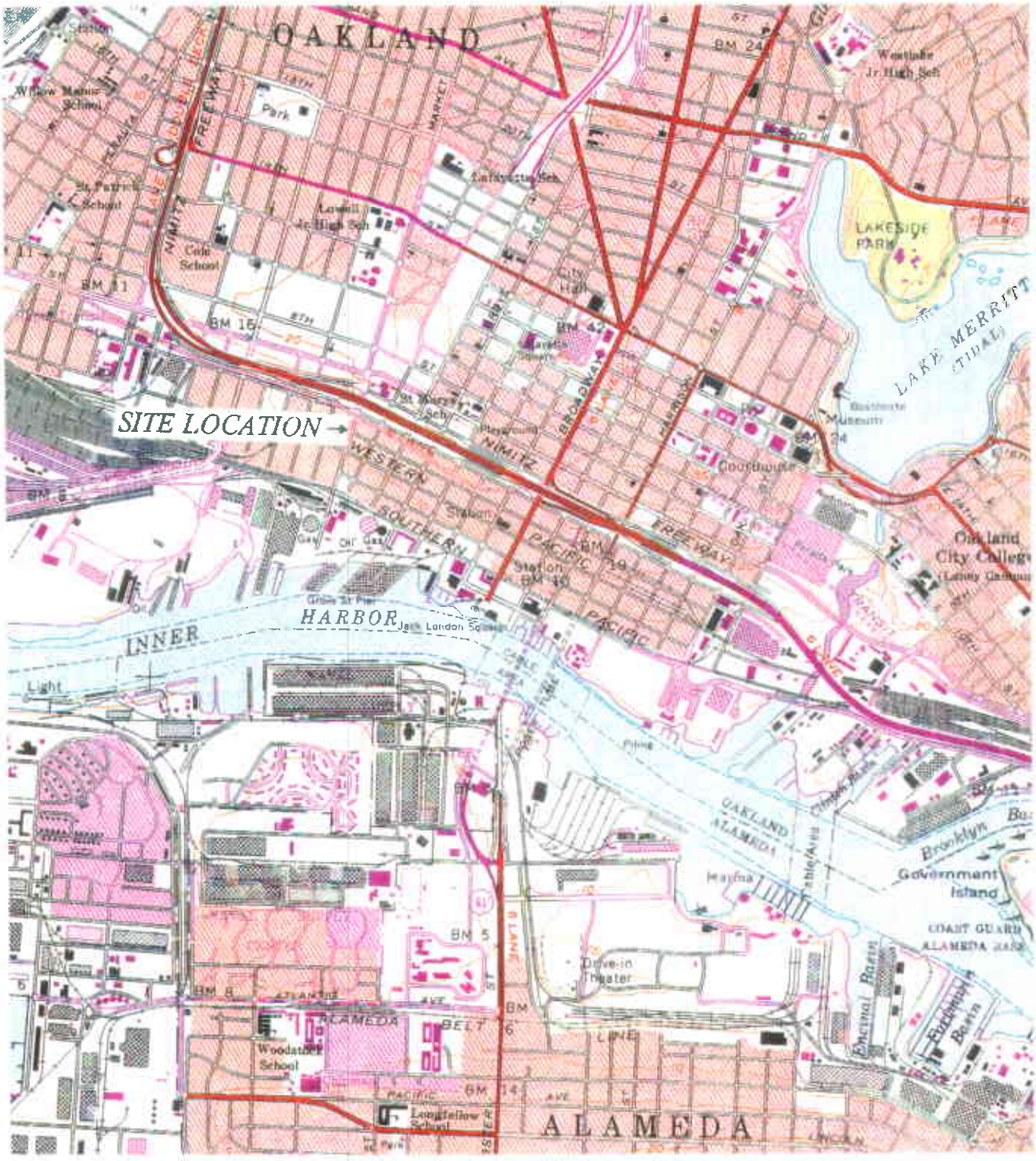
Quarterly Progress Report
Safety-Kleen Systems, Inc., Service Center
400 Market Street
Oakland, California
CAD 053044053

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sara C. Brothers, CPG
Safety-Kleen Systems, Inc.
Senior Project Manager - Remediation

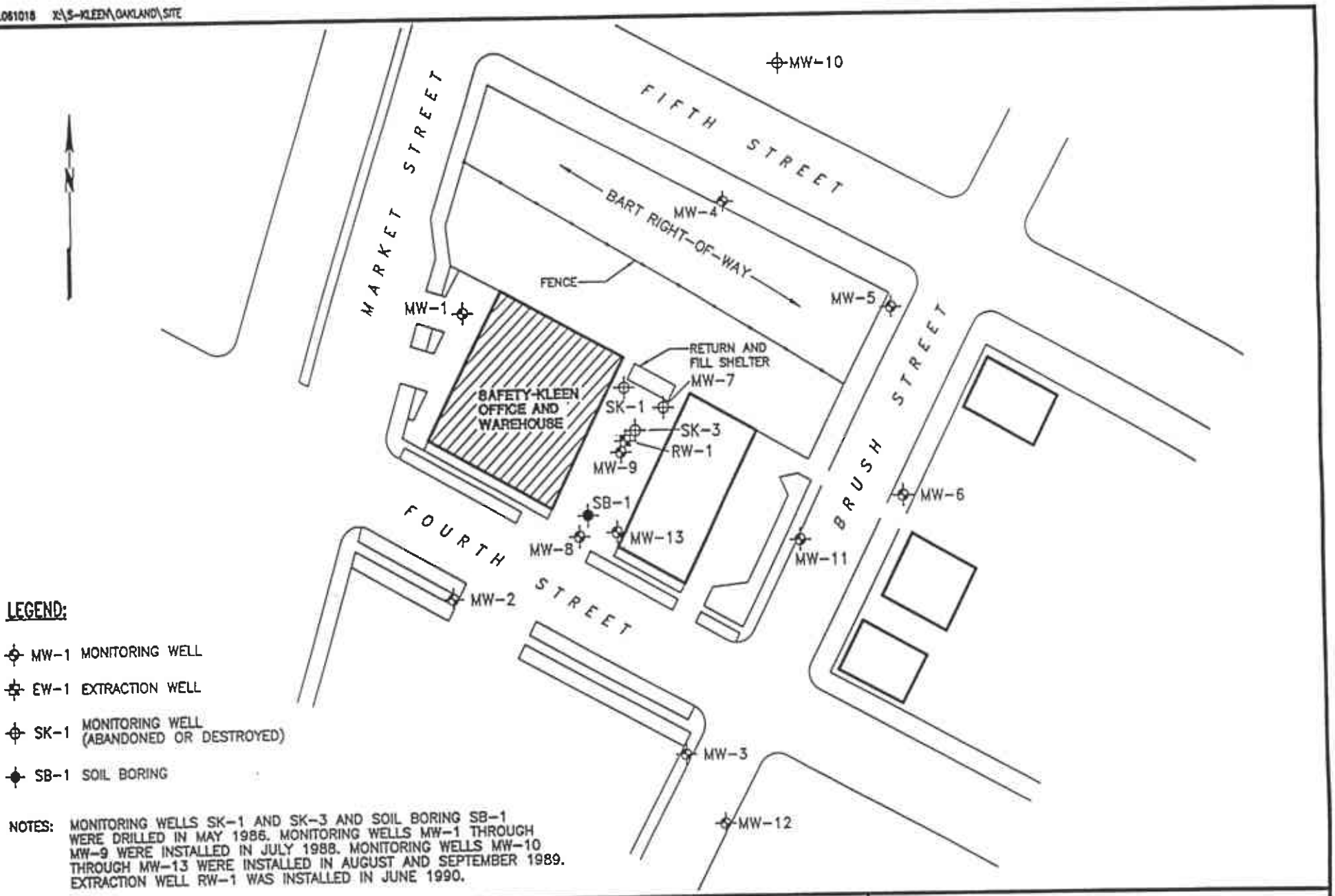
9/24/99
Date

OAKLAND WEST QUADRANGLE
California
7.5 Minute Series (Topographic)



DRAFTED BY: TS	CHECKED BY: GDH	PROJECT NO. 70005-009	FIGURE 1	*SECOR* 1390 Willow Pass Road Suite 360 Concord, CA 94520
DWG. DATE: 04-05-94	REV. DATE: 06-15-95	Safety-Kleen Corp. 400 Market Street Oakland, California	Site Location Map	
FILE NAME: Oakland7.F01				

199509.061018 X:\S-KLEEN\OAKLAND\SITE



LEGEND:

- MW-1 MONITORING WELL
- EW-1 EXTRACTION WELL
- SK-1 MONITORING WELL (ABANDONED OR DESTROYED)
- SB-1 SOIL BORING

NOTES: MONITORING WELLS SK-1 AND SK-3 AND SOIL BORING SB-1 WERE DRILLED IN MAY 1986. MONITORING WELLS MW-1 THROUGH MW-9 WERE INSTALLED IN JULY 1988. MONITORING WELLS MW-10 THROUGH MW-13 WERE INSTALLED IN AUGUST AND SEPTEMBER 1989. EXTRACTION WELL RW-1 WAS INSTALLED IN JUNE 1990.

0 80 160
SCALE FEET

SECOR
INTERNATIONAL
INCORPORATED

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DATE	05SEP95
JOB NO.	70005-009

FIGURE 2
SAFETY-KLEEN
400 MARKET STREET
OAKLAND, CALIFORNIA

SITE PLAN

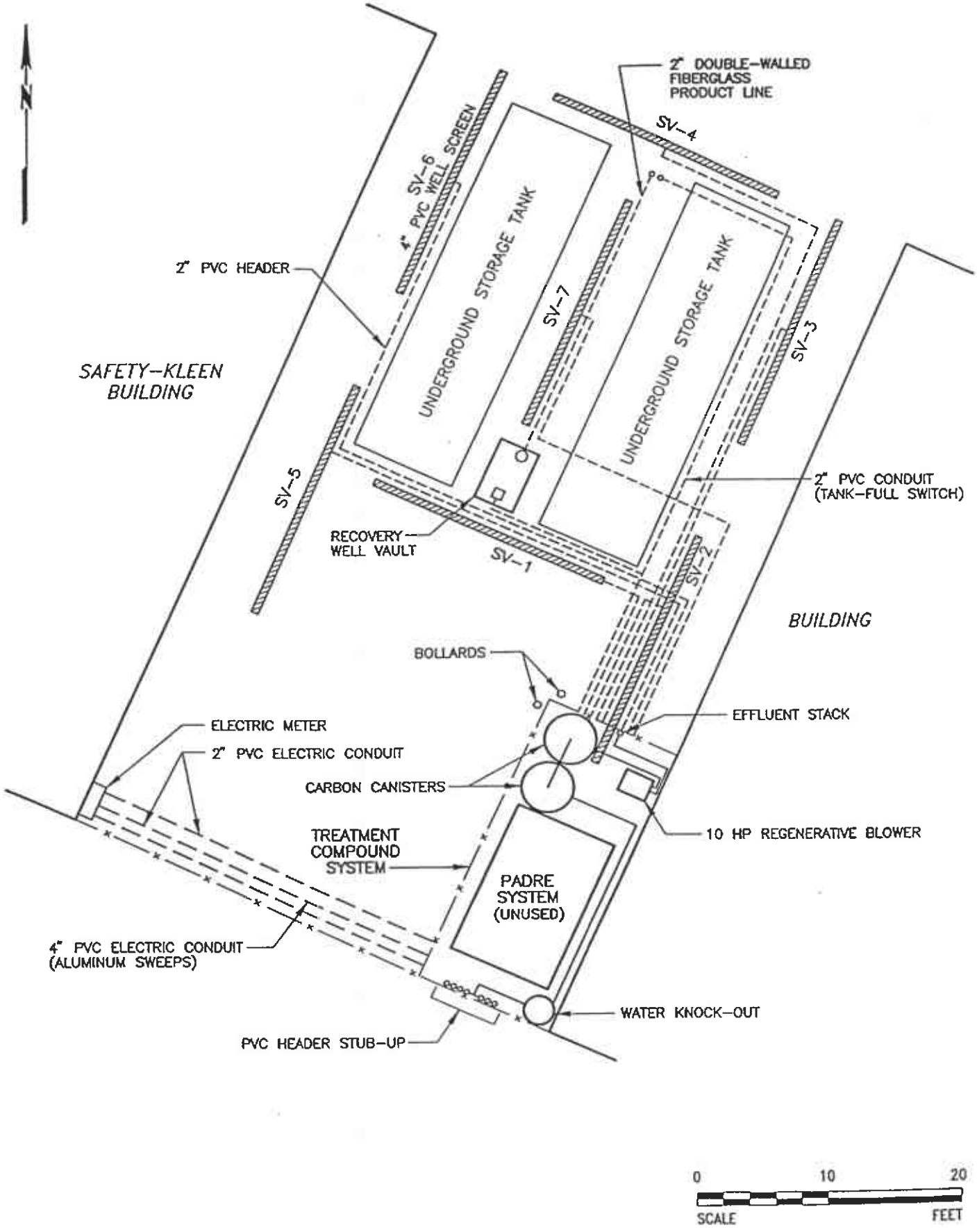

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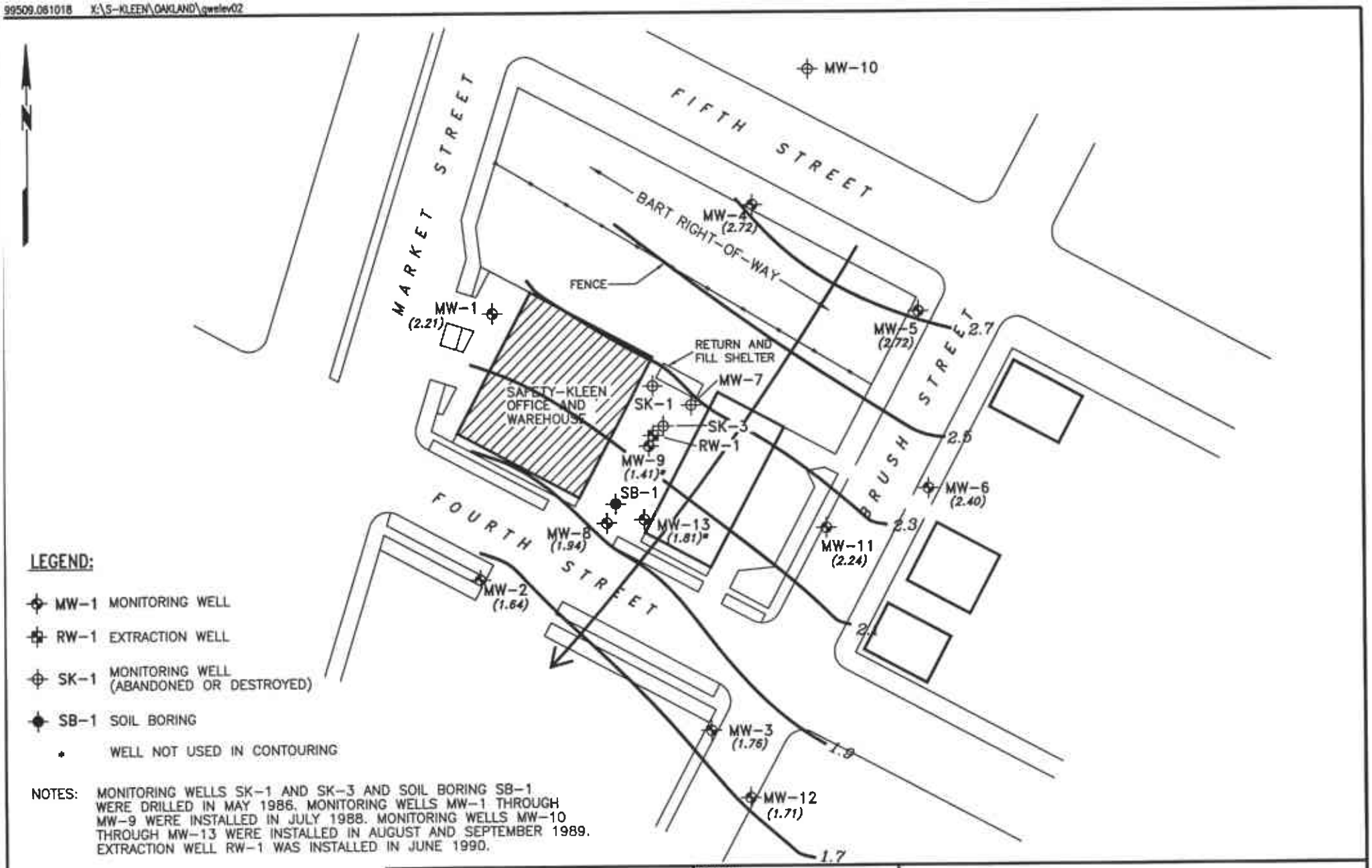
FIGURE 3
SAFETY-KLEEN SERVICE CENTER
400 MARKET STREET
OAKLAND, CALIFORNIA

SOIL VAPOR EXTRACTION SYSTEM LAYOUT

199512.071928 X:\18-KLEEN\OAKLAND\SITE2

99509.061018 X:\S-KLEEN\OAKLAND\qwelev02



LEGEND:

- MW-1 MONITORING WELL
- RW-1 EXTRACTION WELL
- SK-1 MONITORING WELL (ABANDONED OR DESTROYED)
- SB-1 SOIL BORING
- * WELL NOT USED IN CONTOURING

NOTES: MONITORING WELLS SK-1 AND SK-3 AND SOIL BORING SB-1 WERE DRILLED IN MAY 1986. MONITORING WELLS MW-1 THROUGH MW-9 WERE INSTALLED IN JULY 1988. MONITORING WELLS MW-10 THROUGH MW-13 WERE INSTALLED IN AUGUST AND SEPTEMBER 1989. EXTRACTION WELL RW-1 WAS INSTALLED IN JUNE 1990.

0 80 160
SCALE FEET

SECOR International Incorporated

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DATE	1JUN99
JOB NO.	70005-009

FIGURE 4
SAFETY-KLEEN SERVICE CENTER
400 MARKET STREET
OAKLAND, CALIFORNIA
POTENTIOMETRIC SURFACE MAP
JULY 6, 1999

Table 1
Soil Vapor Extraction System Monitoring Data

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Elapsed Time* (hours)	Well Extraction Vacuum (inches H20)	KO Vacuum (inches H20)	Extraction Flow Rate (ft/min)	(scfm)	System Influent (PID/FID units)	#1 Carbon Effluent (PID/FID units)	#2 Carbon Effluent (PID/FID units)	System Effluent (PID/FID units)	Notes
12/08/95	363	6.5	22	5000	107	413	3	5	6	* System restarted using carbon adsorption on 11/28/95.
12/21/95	677	6	20	5000	107	80	36	1	1	Influent and Effluent samples collected
01/09/96	1134	9	22	5000	106	169	42	3	2	Influent and Effluent samples collected
01/24/95	1489	5.5	17	2200	47	43	43	24	6	
02/06/96	1803	5	16	6000	129	63	61	33	16	Influent and Effluent samples collected
02/21/96	2158	8	20	5500	117	60	48	38	8	
03/08/96	2540	10	23	5000	106	184	52	45	16	Influent and Effluent samples collected
03/20/96	2635	12	23	5000	106	430	362	311	22	
04/03/96	2906	12	25	5000	106	290	45	32	2	FID used, Influent and Effluent samples collected, Carbon changed.
04/18/96	3268	11	24	5000	106	500	30	9	3	FID used.
05/02/96	3594	NM	24	5000	109	109	45	0	0	Influent and Effluent samples collected
05/16/96	3934	NM	23	5000	109	117	151	3	1	
05/31/96	4289	0.15	25	5000	109	54	61	1	0	Influent and Effluent samples collected
07/01/96	5039	11	23	5000	106	325	150	75	37	Influent and Effluent samples collected
07/17/96	5422	10	24	5000	106	159	160	163	33	System shut down for carbon replacement
08/20/96	5424	7	17	3200	68	300	0	0	0	System restarted with new carbon
08/22/96	5470	7	17	3000	64	300	1	1	0	Influent and Effluent samples collected
09/03/96	5760	0.15	16	3500	76	131	0	0	0	
09/26/96	6316	8	15	3550	76	165	30	1	2	Influent and Effluent samples collected
10/03/96	6478	8	15	3000	64	231	70	42	13	
10/10/96	6645	8	15	3500	75	269	189	21	13	Influent and Effluent samples collected

Table 1
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Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Elapsed Time* (hours)	Well Extraction Vacuum (inches H20)	KO Vacuum (inches H20)	Extraction Flow Rate (ft/min)	(scfm)	System Influent (PID/FID units)	#1 Carbon Effluent (PID/FID units)	#2 Carbon Effluent (PID/FID units)	System Effluent (PID/FID units)	Notes
10/22/96	6939	7	15	3000	64	480	442	2	1	Influent and Effluent samples collected
10/29/96	71040	8	16	4000	85	149	143	8	1	
11/13/96	7467	8	16	3500	75	120	90	40	8	Influent and Effluent samples collected
12/03/96	7944	0.19	25	5000	109	60	53	0	0	
12/18/96	8299	0.14	26	5500	120	51	55	5	5	Influent and Effluent samples collected
01/06/97	8684	24	38	4000	82	40	17	6	4	
01/17/97	8950	24	36	4000	82	147	153	83	7	Influent and Effluent samples collected
01/30/97	9259	24	37	3000	61	20	7	7	2	
02/10/97	9523	24	35	3500	72	192	306	111	4	Influent and Effluent samples collected
02/25/97	9887	22	34	3500	72	50	20	10	2	
03/07/97	10124	20	35	4000	83	40	9	5	2	Influent and Effluent samples collected
03/26/97	10587	22	35	3500	72	72	191	82	2	
04/10/97	10941	19	34	4000	83	15	33	4	3	
05/01/97	11440	23	30	3000	62	5	3	1	0	Influent and Effluent samples collected
05/14/97	11752	31	38	2000	40	19	17	9	0	
05/16/97	11798	NM	NM	NM	NM	NM	NM	NM	NM	System shutdown for carbon changeout
06/05/97	11798	20	30	8000	165	35	17	2	2	Carbon Changeout, Restart System, Influent and Effluent samples collected
06/17/97	12090	NM	30	8500	185	23	0	0	0	Shutdown system
06/30/97	12091	NM	29	4200	91	110	1	0	0	Restart system, Influent and Effluent samples collected
07/17/97	12496	NM	28	4800	104	6	0	0	0	Shutdown system
07/30/97	12497	NM	28	8000	174	19	0	0	0	Restart system, Influent and Effluent samples collected

Table 1
Soil Vapor Extraction System Monitoring Data

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Elapsed Time* (hours)	Well Extraction Vacuum (inches H20)	KO Vacuum (inches H20)	Extraction Flow Rate (ft/min)	Extraction Flow Rate (scfm)	System Influent (PID/FID units)	#1 Carbon Effluent (PID/FID units)	#2 Carbon Effluent (PID/FID units)	System Effluent (PID/FID units)	Notes
08/13/97	12837	NM	27	8500	185	12	0	0	0	Shutdown system
08/28/97	12837	18	30	8000	166	35	2	1	0	Restart system, Influent and Effluent samples collected
09/10/97	13148	>1	29	8250	179	9	0	0	0	Shutdown system
09/24/97	13149	NM	27	4000	87	25	0	0	0	Restart system, Influent and Effluent samples collected
10/08/97	13488	NM	26	8000	174	9	0	0	0	Shutdown system
10/23/97	13488	16	29	8000	167	25	4	0	0	Restart system, Influent and Effluent samples collected
11/14/97	14018	NM	28	8000	174	68	0	0	0	Shutdown system
11/26/97	14020	10	29	8000	170	6	22	0	0	Restart system
12/11/97	14377	15	30	10000	210	0	0	0	0	Influent and Effluent samples collected, Shutdown system
12/22/97	14378	18	30	10000	208	20	1	1	1	Restart system, Influent and Effluent samples collected
01/06/98	14742	6.5	28	NM	-	2	0	0	0	Shutdown system
03/17/98	14743	58	42	10000	187	0	0	0	0	Restart system, Influent and Effluent samples collected
04/06/98	15222	24	30	10000	205	33	4	4	1	Shutdown system
04/28/98	15222	6.5	23	NM	-	17	2	2	0	Restart system, Influent and Effluent samples collected
05/19/98	15731	>1	43	NM	-	3	2	3	0	Shutdown system
05/28/98	15731	34	40	10000	199	4	1	0	0	Restart system, Influent and Effluent samples collected
06/12/98	16090	40	51	10000	196	3	3	2	0	Shutdown system
06/25/98	16091	7.5	9	NM	-	3	3	2	0	Restart system
07/10/98	16452	1.5	9	NM	-	3	0	0	0	Shutdown system
07/21/98	16453	1	8	NM	-	2	0	0	0	Restart system
08/05/98	16809	7	2.5	NM	-	3	0	0	0	Shutdown system

Table 1
Soil Vapor Extraction System Monitoring Data

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Elapsed Time* (hours)	Well Extraction Vacuum (inches H20)	KO Vacuum (inches H20)	Extraction Flow Rate (ft/min)	Extraction Flow Rate (scfm)	System Influent (PID/FID units)	#1 Carbon Effluent (PID/FID units)	#2 Carbon Effluent (PID/FID units)	System Effluent (PID/FID units)	Notes
08/20/98	16809	30	30	10000	202	17	1	0	0	Restart system
09/10/98	17316	20	30	10000	207	10	4	2	0	System left running
10/02/98	17839	27	31	10000	203	1	1	0	0	Shutdown system
10/26/98	17839	22	32	10000	206	15	6	3	0	Restart system
11/11/98	18226	24	32	10000	205	5	2	1	1	Shutdown system
12/11/98	18226	28	35	10000	203	8	2	1	1	Restarted system
12/22/98	18491	26	35	10000	204	12	2	1	1	
01/05/99	18825	24	37	10000	205	1	1	1	1	Shutdown system
01/22/99	18827	28	40	10000	203	17	3	1	0	Restarted system
02/16/99	19423	36	47	10000	198	67	3	3	1	Shutdown system
03/03/99	19423	35	46	10000	199	8	1	1	0	Restarted system
03/12/99	19638	30	40	10000	202	1	1	0	0	Shutdown system
03/30/99	19640	30	38	10000	202	7	1	1	0	Restarted system
04/14/99	19998	28	35	10000	203	2	1	0	0	Shutdown system
04/27/99	19999	30	39	10000	202	1	1	0	0	Restarted system
05/13/99	20361	30	36	10000	202	2	1	1	0	Shutdown system
05/25/99	20361	51	56	10000	190	16	1	0	0	Restarted system
06/14/99	20840	55	64	10000	188	8	1	0	0	System shutdown
06/28/99	20840	56	63	10000	188	57	2	2	0	Restarted system
07/06/99	21033	20	35	10000	207	58	2	1	1	System shutdown
07/20/99	21033	28	35	10000	203	28	11	10	4	Restarted system
08/03/99	21033	18	33	10000	208	18	8	3	1	System shutdown - Hobb's meter inoperable

Table 1
Soil Vapor Extraction System Monitoring Data

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Elapsed Time* (hours)	Well Extraction Vacuum (inches H20)	KO Vacuum (inches H20)	Extraction Flow Rate (ft/min)	Extraction Flow Rate (scfm)	System Influent (PID/FID units)	#1 Carbon Effluent (PID/FID units)	#2 Carbon Effluent (PID/FID units)	System Effluent (PID/FID units)	Notes
08/30/99	21034	27	35	10000	203	14	2	1	1	Restarted system
09/13/99	21368	20.5	43	5750	119	21	4	4	2	System shutdown

Notes:
ft/min = feet per minute
scfm = standard cubic feet per minute assuming ambient temperature and ideal gas
NM = not measured

Table 2
Summary of Soil Vapor Analytical Results
Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Sample ID	Date	TPHms	Toluene	Ethylbenzene	Xylenes	1,1,1-TCA	PCA	PCE
	DRL/PQL	10 mg/m³	0.10 mg/m³	0.10 mg/m³	0.30 mg/m³	0.10 mg/m³	0.10 mg/m³	0.10 mg/m³
INF	6/25/98	29	0.18	0.11	1	-	-	-
	7/21/98	95	-	-	0.5	-	-	-
	8/21/98	-	-	-	0.3	0.1	-	-
	11/11/98	100	-	-	-	-	-	-
	3/3/99	13	-	-	-	-	-	-
	5/25/99	50	-	-	-	-	0.2	-
	7/20/99	64	-	-	-	-	-	16
EFF	6/25/98	-	-	-	0.49	-	-	-
	7/21/98	-	-	-	-	-	-	-
	8/21/98	-	-	-	0.32	-	-	-
	11/11/98	-	-	-	1	-	-	-
	3/3/99	-	-	-	-	-	-	-
	5/25/99	-	-	-	-	-	-	-
	7/20/99	27	-	-	-	-	-	2.5

TPHms = total petroleum hydrocarbons as mineral spirits
TCA = trichloroethane
PCA = tetrachloroethane
DRL = detection reporting limit
PQL = practical quantitation limit
INF = system influent point
EFF = system effluent point
\- = Not Detected

Table 3
Soil Vapor Extraction System
Mineral Spirits Removal

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Sample Date	Elapsed Time (hours)	Run Time This Period (hours)	Extraction Flow Rate (scfm)	TPHms Influent (µg/L)	Removal Rate (lbs/day)	Cummulative TPHms Removed (lbs)	Notes
11/28/95		Carbon adsorbtion system start-up				1798	TPHms removed by prior system.
12/21/95	677	677	107	823	7.9	2020	
01/09/96	1134	457	106	1116	10.6	2221	
02/06/96	1803	669	129	999	11.5	2542	
03/08/96	2540	737	106	1821	17.2	3071	
04/03/96	2906	366	106	1116	10.6	3232	
05/02/96	3594	688	109	1586	15.4	3675	
05/31/96	4289	695	109	1234	12.0	4023	
07/01/96	5039	750	106	82	0.8	4047	
08/22/96	5470	431	64	500	2.9	4098	
09/26/96	6316	846	76	1300	8.8	4409	
10/10/96	6645	329	75	880	5.9	4490	
10/22/96	6939	294	64	670	3.8	4537	
11/13/96	7467	528	75	460	3.1	4604	
12/18/96	8299	833	120	220	2.4	4686	
01/17/97	8950	651	82	69	0.5	4700	
02/10/97	9523	573	72	98	0.6	4715	
03/07/97	10124	601	83	ND (<50)	0	4715	
05/01/97	11440	1316	62	ND (<50)	0	4715	
06/05/97	11798	358	165	910	13.4	4915	Began pulsing system.

Table 3
Soil Vapor Extraction System
Mineral Spirits Removal

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Sample Date	Elapsed Time (hours)	Run Time This Period (hours)	Extraction Flow Rate (scfm)	TPHms Influent (µg/L)	Removal Rate (lbs/day)	Cummulative TPHms Removed (lbs)	Notes
06/30/97	12091	293	91	550	4.5	4969	
07/30/97	12497	406	174	150	2.3	5009	
08/28/97	12837	340	166	550	8.2	5124	
09/24/97	13149	311	87	350	2.7	5160	
10/23/97	13488	340	167	220	3.3	5206	
12/11/97	14377	889	210	ND (<50)	0	5206	
12/22/97	14378	1	208	ND (<50)	0	5206	
03/17/98	14743	365	187	78	1.3	5226	
04/28/98	15222	479	214	70	1.3	5253	
05/28/98	15731	509	199	21	0.4	5261	
06/25/98	16091	360	*214*	29	0.6	5269	
07/21/98	16453	362	*217*	95	1.8	5297	
08/20/98	16809	356	202	13	0.2	5300	
11/11/98	18226	1417	205	100	1.8	5408	
03/03/99	19423	1197	199	13	0.2	5420	
05/25/99	20361	938	190	50	0.8	5453	
07/20/99	21033	672	203	64	1.2	5485	

Notes:
scfm = cubic feet per minute
µg/L = micrograms per liter
lbs = pounds

Table 4
Groundwater Monitoring Data
July 6, 1999

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Well I.D.	TOC Elevation (ft msl)	DTW (ft)	DTP (ft)	PT (ft)	Adjusted Elevation (ft msl)
MW-1	7.99	5.78	-	-	2.21
MW-2	8.20	6.56	-		1.64
MW-3	6.66	4.90	-	-	1.76
MW-4	10.32	7.60	-	-	2.72
MW-5	10.28	7.56	-	-	2.72
MW-6	8.97	6.57	-	-	2.40
MW-7*	-	-	-	-	-
MW-8	7.80	5.86	-	-	1.94
MW-9	8.21	6.81	0.01	-	1.41
MW-10**	-	-	-	-	-
MW-11	7.91	5.67	-	-	2.24
MW-12	6.74	5.03	-	-	1.71
MW-13	8.08	6.27	-	-	1.81
RW-1	-	5.08	-	-	-

Notes:
* Well destroyed in May 1990.
** Well destroyed in July 1995.

TOC	= Top-of-casing
DTW	= Depth-to-water
DTP	= Depth-to-product
PT	= Product thickness
ft msl	= Feet relative to mean sea level

Table 5
Historical Summary of Groundwater Elevations
(in feet relative to mean sea level)

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Well Identification											
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
01/20/93	1.29	1.00	0.86	1.57	1.48	1.27	1.08	1.15	1.73	1.16	0.44	0.58
04/20/93	1.09	0.51	0.38	1.52	1.42	1.08	0.74	0.95	1.85	0.90	0.10	0.40
07/20/93	0.27	-0.23	-0.27	0.68	0.62	0.37	-0.01	-0.68	0.99	0.20	-0.72	-0.15
10/20/93	-0.02	-0.51	-0.66	0.32	0.17	-0.12	-0.35	0.14	0.62	-0.22	-0.91	-0.57
01/19/94	-0.01	-0.52	-0.77	0.33	0.48	-0.10	-0.37	-0.49	0.60	-0.14	-1.05	-0.65
04/20/94	0.55	0.05	-0.09	0.85	0.74	0.46	0.22	0.33	-	0.34	-0.76	-0.09
07/19/94	0.25	-0.20	-0.31	0.62	0.55	0.23	-0.03	0.08	0.90	0.09	-0.70	-0.22
10/19/94	0.08	-0.33	-0.44	0.41	0.38	0.12	-0.15	0.01	-	0.01	-0.59	-0.33
01/04/95	1.95	1.53	1.64	2.41	2.49	2.24	1.79	1.85	-	2.06	1.44	1.33
04/10/95	3.09	2.46	2.49	3.71	3.73	3.42	2.79	2.95	-	3.18	2.22	1.98
07/11/95	2.04	1.53	1.53	2.54	2.50	2.26	1.76	1.93	-	2.01	1.33	1.53
10/12/95	1.38	0.94	1.01	1.81	1.27	1.56	1.15	1.32	-	1.42	0.94	1.06
01/09/96	1.82	1.40	0.64	2.21	2.21	2.04	1.61	1.54	-	1.85	-	1.51
04/02/96	2.81	2.40	2.46	3.33	3.36	3.17	2.58	2.51	-	2.91	2.24	2.38
07/01/96	2.16	1.70	1.75	2.67	2.63	2.35	1.90	1.93	-	2.18	-	1.84
11/01/96	1.09	0.70	0.75	1.47	1.47	1.18	0.90	0.86	-	-	-	0.78

Table 5
Historical Summary of Groundwater Elevations
(in feet relative to mean sea level)

Safety-Kleen Systems, Inc. Service Center
400 Market Street
Oakland, California

Date	Well Identification											
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
01/17/97	2.89	2.39	2.58	3.48	3.52	3.34	2.70	2.57	-	-	-	2.50
04/10/97	2.43	1.89	1.99	2.92	2.86	2.53	2.18	2.19	-	2.45	1.71	1.99
07/17/97	1.70	1.19	1.25	2.15	2.12	1.86	1.44	1.29	-	-	1.12	1.35
10/08/97	1.40	0.94	0.97	1.79	1.76	1.51	1.16	1.35	-	-	0.84	1.06
01/12/98	3.02	2.99	3.12	3.45	3.49	3.34	2.89	2.63	-	3.15	2.50	2.48
04/13/98	3.92	3.20	3.43	4.77	4.50	4.17	3.63	3.91	-	3.91	3.08	3.37
07/21/98	2.79	2.15	2.13	3.37	3.37	3.05	2.50	2.71	-	2.85	2.21	2.35
10/12/98	2.28	1.68	1.79	2.97	2.90	2.55	2.04	1.47	-	2.33	1.72	1.93
01/22/99	2.30	1.78	2.06	2.81	2.82	2.51	2.10	1.88	-	2.41	1.71	1.76
04/14/99	3.15	2.49	2.78	3.75	3.75	3.49	2.86	3.01	-	3.24	2.33	2.59
07/06/99	2.21	1.64	1.76	2.72	2.72	2.40	1.94	1.41	-	2.24	1.71	1.81

Notes:
Groundwater elevations are in feet relative to mean sea-level datum.

- = Not measured

APPENDIX A

Field Data Sheets

SECOR

HYDROLOGIC DATA SHEET

PROJECT:	SAFETY-KLEEN 400 MARKET STREET OAKLAND, CALIFORNIA	**PROJECT NO.:** 70005-009-07 **TASK:** 001	
DATE: 7/6/99	**TIME START:** 12:00	**TIME END:** 1:30	
EVENT:	QUARTERLY/SEMI-ANNUAL/ANNUAL MONITORING AND SAMPLING	**PERSONNEL:** GARY C & FT	

WELL ID	TOC	DTW	DTP	PT	TD	ELEV.	COMMENTS
MW-1	7.99	5.78	-	-			2"
MW-2	8.20	6.56	-	-			2"
MW-3	6.66	4.90	-	-			2"
MW-4	10.32	7.60	-	-			2"
MW-5	10.28	7.56	-	-			2"
MW-6	8.97	6.57	-	-			2"
MW-8	7.80	5.86	-	-			2"
(*) MW-9	8.21	6.81	6.80	.01			4"
MW-11	7.91	5.67	-	-	6.43		2"
MW-12	6.74	5.03	-	-			2"
MW-13	8.08	6.27	-	-			4"(deep well)
RW-1	-	5.08					10"

NOTES: S-K Laboratory P.O. Number - E11819

(*) Heavy sheen v. slight product

TOC = TOP OF CASING (FEET RELATIVE TO MEAN SEA LEVEL)
DTW = DEPTH TO WATER (FEET)
DTP = DEPTH TO PRODUCT (FEET)
PT = PRODUCT THICKNESS (FEET)
TD = TOTAL DEPTH (FEET)
ELEV. = GROUNDWATER ELEVATION (FEET RELATIVE TO MEAN SEA LEVEL)

APPENDIX B

Laboratory Results - Soil Vapor Extraction System Samples

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

SECOR International
1390 Willow Pass Road, Suite 360
Concord, CA 94520
Attn: Greg Hoehn

Date: 7/27/99
Date Received: 7/20/99
Project: 70005-009-08
PO #:
Sampled By: Client

Certified Analytical Report

Vapor Sample Analysis:

Sample ID	EFF			INF							
Sample Date	7/20/99			7/20/99							
Sample Time	12:00			12:10							
Lab #	15323-001			15323-002							
	Result	DF	DLR	Result	DF	DLR				PQL	Method
Results in mg/m^3:											
Analysis Date	7/21/99			7/21/99							
Mineral Spirits	**27**	1.0	10	**64**	1.0	10				10	8015M
Benzene	**ND**	1.0	0.10	**ND**	1.0	0.10				0.10	8020
Toluene	**ND**	1.0	0.10	**ND**	1.0	0.10				0.10	8020
Ethyl Benzene	**ND**	1.0	0.10	**ND**	1.0	0.10				0.10	8020
Xylenes (total)	**ND**	1.0	0.30	**ND**	1.0	0.30				0.30	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

- Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

SECOR International
1390 Willow Pass Road, Suite 360
Concord, CA 94520
Attn: Greg Hoehn

Date: 7/27/99
Date Received: 7/20/99
Project: 70005-009-08
PO #:
Sampled By: Client

Certified Analytical Report

Vapor Sample Analysis:

Sample ID	EFF			INF							
Sample Date	7/20/99			7/20/99							
Sample Time	12:00			12:10							
Lab #	**15323-001**			**15323-002**							
	Result	DF	DLR	Result	DF	DLR				PQL	Method
Results in ppmV:											
Analysis Date	7/21/99			7/21/99							
Mineral Spirits	**6.5**	1.0	2.4	**15**	1.0	2.4				2.4	8015M
Benzene	**ND**	1.0	0.029	**ND**	1.0	0.029				0.029	8020
Toluene	**ND**	1.0	0.024	**ND**	1.0	0.024				0.024	8020
Ethyl Benzene	**ND**	1.0	0.021	**ND**	1.0	0.021				0.021	8020
Xylenes (total)	**ND**	1.0	0.063	**ND**	1.0	0.063				0.063	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

July 23, 1999

Greg Hoehn
SECOR International
1390 Willow Pass Road, Suite 360
Concord, CA 94520

Subject:	2 Vapor Samples
Lab #'s:	15323-001 – 15323-002
Project Name:	SK-Oakland
Project Number:	70005-009-08
Method(s):	EPA 8010

Dear Greg Hoehn,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#I-2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,

Michelle L. Anderson
Lab Director

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Purgeable Halocarbons by EPA Method 8010

Client: SECOR International
Sample Matrix: Vapor
Sample Date/Time: 7/20/99 12:00
Lab #: 15323-001
Client ID: EFF

Date Reported: 7/27/99
Date Received: 7/20/99
Date Analyzed: 7/22/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Bromodichloromethane	ND	0.014	0.014	trans-1,2-Dichloroethene	ND	0.023	0.023
Bromoform	ND	0.018	0.018	1,2-Dichloropropane	ND	0.02	0.02
Bromomethane	ND	0.047	0.047	cis-1,3-Dichloropropene	ND	0.02	0.02
Carbon Tetrachloride	ND	0.015	0.015	trans-1,3-Dichloropropene	ND	0.02	0.02
Chlorobenzene	ND	0.02	0.02	Methylene Chloride	ND	0.016	0.016
Chloroethane	ND	0.069	0.069	1,1,2,2-Tetrachloroethane	ND	0.013	0.013
Chloroform	ND	0.038	0.038	Tetrachloroethene	ND	0.014	0.014
Chloromethane	ND	0.044	0.044	1,1,1-Trichloroethane	ND	0.017	0.017
Dibromochloromethane	ND	0.022	0.022	1,1,2-Trichloroethane	ND	0.017	0.017
Dichlorodifluoromethane	ND	0.019	0.019	Trichloroethene	ND	0.017	0.017
1,2- Dichlorobenzene	ND	0.015	0.015	Trichlorofluoromethane	ND	0.016	0.016
1,3- Dichlorobenzene	ND	0.015	0.015	Vinyl Chloride	ND	0.036	0.036
1,4- Dichlorobenzene	ND	0.015	0.015				
1,1-Dichloroethane	ND	0.023	0.023				
1,2-Dichloroethane	ND	0.023	0.023				
1,1-Dichloroethene	ND	0.023	0.023				
cis-1,2-Dichloroethene	ND	0.023	0.023				

Surrogate	Recovery (%)
2-Bromo-1-Chloropropane	103

1. Results are reported in ppmV
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Purgeable Halocarbons by EPA Method 8010

Client: SECOR International
Sample Matrix: Vapor
Sample Date/Time: 7/20/99 12:10
Lab #: 15323-002
Client ID: INF

Date Reported: 7/27/99
Date Received: 7/20/99
Date Analyzed: 7/22/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Bromodichloromethane	ND	0.014	0.014	trans-1,2-Dichloroethene	ND	0.023	0.023
Bromoform	ND	0.018	0.018	1,2-Dichloropropane	ND	0.02	0.02
Bromomethane	ND	0.047	0.047	cis-1,3-Dichloropropene	ND	0.02	0.02
Carbon Tetrachloride	ND	0.015	0.015	trans-1,3-Dichloropropene	ND	0.02	0.02
Chlorobenzene	ND	0.02	0.02	Methylene Chloride	ND	0.016	0.016
Chloroethane	ND	0.069	0.069	1,1,2,2-Tetrachloroethane	ND	0.013	0.013
Chloroform	ND	0.038	0.038	Tetrachloroethene	2.1	0.014	0.014
Chloromethane	ND	0.044	0.044	1,1,1-Trichloroethane	ND	0.017	0.017
Dibromochloromethane	ND	0.022	0.022	1,1,2-Trichloroethane	ND	0.017	0.017
Dichlorodifluoromethane	ND	0.019	0.019	Trichloroethene	ND	0.017	0.017
1,2- Dichlorobenzene	ND	0.015	0.015	Trichlorofluoromethane	ND	0.016	0.016
1,3- Dichlorobenzene	ND	0.015	0.015	Vinyl Chloride	ND	0.036	0.036
1,4- Dichlorobenzene	ND	0.015	0.015				
1,1-Dichloroethane	ND	0.023	0.023				
1,2-Dichloroethane	ND	0.023	0.023				
1,1-Dichloroethene	ND	0.023	0.023				
cis-1,2-Dichloroethene	ND	0.023	0.023				

Surrogate	Recovery (%)
2-Bromo-1-Chloropropane	99

1. Results are reported in ppmV
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Purgeable Halocarbons by EPA Method 8010

Client: SECOR International
Sample Matrix: Vapor
Sample Date/Time: 7/20/99 12:00
Lab #: 15323-001
Client ID: EFF

Date Reported: 7/27/99
Date Received: 7/20/99
Date Analyzed: 7/22/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Bromodichloromethane	ND	0.1	0.1	trans-1,2-Dichloroethene	ND	0.1	0.1
Bromoform	ND	0.2	0.2	1,2-Dichloropropane	ND	0.1	0.1
Bromomethane	ND	0.2	0.2	cis-1,3-Dichloropropene	ND	0.1	0.1
Carbon Tetrachloride	ND	0.1	0.1	trans-1,3-Dichloropropene	ND	0.1	0.1
Chlorobenzene	ND	0.1	0.1	Methylene Chloride	ND	0.2	0.2
Chloroethane	ND	0.2	0.2	1,1,2,2-Tetrachloroethane	ND	0.1	0.1
Chloroform	ND	0.2	0.2	Tetrachloroethene	ND	0.1	0.1
Chloromethane	ND	0.1	0.1	1,1,1-Trichloroethane	ND	0.1	0.1
Dibromochloromethane	ND	0.2	0.2	1,1,2-Trichloroethane	ND	0.1	0.1
Dichlorodifluoromethane	ND	0.1	0.1	Trichloroethene	ND	0.1	0.1
1,2- Dichlorobenzene	ND	0.1	0.1	Trichlorofluoromethane	ND	0.1	0.1
1,3- Dichlorobenzene	ND	0.1	0.1	Vinyl Chloride	ND	0.1	0.1
1,4- Dichlorobenzene	ND	0.1	0.1				
1,1-Dichloroethane	ND	0.1	0.1				
1,2-Dichloroethane	ND	0.1	0.1				
1,1-Dichloroethene	ND	0.1	0.1				
cis-1,2-Dichloroethene	ND	0.1	0.1				

Surrogate	Recovery (%)
2-Bromo-1-Chloropropane	103

1. Results are reported in mg/m^3
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Certified Analytical Report
Purgeable Halocarbons by EPA Method 8010

Client: SECOR International
Sample Matrix: Vapor
Sample Date/Time: 7/20/99 12:10
Lab #: 15323-002
Client ID: INF

Date Reported: 7/27/99
Date Received: 7/20/99
Date Analyzed: 7/22/99
Dilution Factor: 1

Compound	Value	PQL	DLR	Compound	Value	PQL	DLR
Bromodichloromethane	ND	0.1	0.1	trans-1,2-Dichloroethene	ND	0.1	0.1
Bromoform	ND	0.2	0.2	1,2-Dichloropropane	ND	0.1	0.1
Bromomethane	ND	0.2	0.2	cis-1,3-Dichloropropene	ND	0.1	0.1
Carbon Tetrachloride	ND	0.1	0.1	trans-1,3-Dichloropropene	ND	0.1	0.1
Chlorobenzene	ND	0.1	0.1	Methylene Chloride	ND	0.2	0.2
Chloroethane	ND	0.2	0.2	1,1,2,2-Tetrachloroethane	ND	0.1	0.1
Chloroform	ND	0.2	0.2	Tetrachloroethene	16	0.1	0.1
Chloromethane	ND	0.1	0.1	1,1,1-Trichloroethane	ND	0.1	0.1
Dibromochloromethane	ND	0.2	0.2	1,1,2-Trichloroethane	ND	0.1	0.1
Dichlorodifluoromethane	ND	0.1	0.1	Trichloroethene	ND	0.1	0.1
1,2- Dichlorobenzene	ND	0.1	0.1	Trichlorofluoromethane	ND	0.1	0.1
1,3- Dichlorobenzene	ND	0.1	0.1	Vinyl Chloride	ND	0.1	0.1
1,4- Dichlorobenzene	ND	0.1	0.1				
1,1-Dichloroethane	ND	0.1	0.1				
1,2-Dichloroethane	ND	0.1	0.1				
1,1-Dichloroethene	ND	0.1	0.1				
cis-1,2-Dichloroethene	ND	0.1	0.1				

Surrogate	Recovery (%)
2-Bromo-1-Chloropropane	99

1. Results are reported in mg/m^3
2. DLR= DF x PQL
3. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #I-2346)

Michelle L. Anderson, Lab Director

ND: None Detected at or above DLR
DLR: Detection Reporting Limit

PQL: Practical Quantitation Limit
DF: Dilution Factor

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography - Volatile Organics
Laboratory Control Spikes

QC Batch #: VOC2W990720
Matrix: Water
Units: µg/L

Date Analyzed: 07/20/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	SA µg/L	SR µg/L	SP µg/L	SP % R	SPD µg/L	SPD %R	RPD %	QC LIMITS RPD	QC LIMITS %R
Benzene	602/8020	40	ND	40	**100**	40	**101**	1.2	25	84-118
Chlorobenzene	601/8010	40	ND	38	**95**	40	**100**	4.9	25	83-121
1,1-Dichloroethane	601/8010	40	ND	38	**96**	36	**91**	5.3	25	77-120
Toluene	602/8020	40	ND	37	**92**	37	**94**	1.3	25	80-120
Trichloroethene	601/8010	40	ND	43	**107**	40	**101**	5.8	25	73-139
2-Bromo-1-Chloropropane	601/8010		99%	100%		93%				65-135
a,a,a-Trifluorotoluene	602/8020		113%	114%		116%				65-135

Definition of Terms:

na: Not Analyzed in QC batch
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike Duplicate % Recovery
NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Sample

QC Batch #: GBG2990721
Matrix: Water
Units: µg/Liter

Date Analyzed: 07/21/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/Liter	SA µg/Liter	SR µg/Liter	SP µg/Liter	**SP % R**	SPD µg/Liter	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	5.0	ND	4.1	**82**	4.3	**85**	4.1	25	69-118
Toluene	8020	<0.50	25.0	ND	27	**107**	28	**110**	3.2	25	82-122
Ethyl Benzene	8020	<0.50	5.0	ND	5.2	**104**	5.4	**109**	4.7	25	77-114
Xylenes	8020	<0.50	25.0	ND	28	**111**	29	**116**	3.7	25	85-125
Gasoline	8015	<50.0	500	ND	455	**91**	463	**93**	1.7	25	75-125
aaa-TFT(S.S.)-PID	8020			100%	98%		99%				65-135
aaa-TFT(S.S.)-FID	8015			102%	100%		100%				65-135

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- nc: Not Calculated

Chain-of Custody Number:

SECOR Chain-of Custody Record

Field Office: Concord
Address: 1390 Willow Pass Rd., Ste. 360
Concord, CA 94520

☐ Additional documents are attached, and are a part of this Record.

Job Name: SK - Oakland
Location: 400 Market St.
Oakland, CA

Project # 70005-009-08 Task # 8
Project Manager Greg Hoehn
Laboratory ENTECH
Turnaround Time Standard

Sampler's Name Charles Melancon
Sampler's Signature

Analysis Request

Sample ID	Date	Time	Matrix	TPH Mineral Spirits (8015)	BTEX/MTBE/TPH-G 8015 (modified)/8020	TPHd/WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	VOCs		Comments/ Instructions	Number of Containers
EFF	7-20-99	12:00	Air	X	X					X						X		15323-001	1
INF	7-20-99	12:10	Air	X	X					X						X		15323-002	1

Special Instructions/Comments:

Relinquished by:
Sign
Print Charles Melancon
Company SECOR
Time ____ Date 7-20-99

Received by: FRANK
Sign
Print Frank
Company W. C.
Time 3:00 p. Date 7/20/99

Relinquished by: FRANK
Sign
Print
Company W. C.
Time 4:30 p. Date 7/20/99

Received by:
Sign
Print S. Madsen
Company Entech
Time 4:30 Date 7-20

Sample Receipt
Total no. of containers: 2
Chain of custody seals: N/A
Rec'd. in good condition/cold:
Conforms to record: Y

Client:
Client Contact:
Client Phone:

SECOR CUSTREC Rev. 1/95

Date: 7/20/99 Page 1 of 1