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Progress Report

Vadose Zone Remediation Volatile Organic Compound Source Area Installation Restoration Program Site 24

Marine Corps Air Station, El Toro

Prepared for

Department of the Navy
Commander, Pacific Division
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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
°F	degrees Fahrenheit
bgs	below ground surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	contract task officer
DON	Department of the Navy
EDR	engineering design report
EPA	Environmental Protection Agency
EROI	effective radius of influence
IRP	Installation Restoration Program
MCAS	Marine Corps Air Station
MCL	maximum contaminant level
OU	operable unit
PACNAVFACENGCOM	Pacific Division, Naval Facilities Engineering Command
PID	photoionization detector
PVC	polyvinyl chloride
ROD	record of decision
ROI	Radius of influence
SAP	sampling and analysis plan
SCAQMD	South Coast Air Quality Management District
scfm	standard cubic feet per minute
SEOR	system evaluation and optimization report
SVE	soil vapor extraction
TCE	trichloroethylene
VOC	volatile organic compound

1. INTRODUCTION

This progress report presents results of remediation of the vadose zone during January 2000 at the volatile organic compound (VOC) source area at Installation Restoration Program (IRP) Site 24 - Marine Corp Air Station (MCAS), El Toro. Remediation is being implemented in accordance with the draft *Final Interim Record of Decision (ROD) for Operable Unit (OU) 2A- Site 24 VOC Source Area, Vadose Zone* (BNI 1997c), the draft *Final Engineering Design Report (EDR) Vadose Zone Remediation at Site 24* (BNI 1998a) and the draft *System Evaluation and Optimization Report (SEOR), IRP Site 24 Vadose Zone Remediation* (Earth Tech 1999b).

This progress report was prepared by Earth Tech, Inc. (Earth Tech) on behalf of the United States Department of the Navy (DON), Southwest Division, Naval Facilities Engineering Command, as authorized by the U.S. Navy, Pacific Division, Naval Facilities Engineering Command (PACNAVFACENGCOM) under contract task order (CTO) no. 0068 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) II program, contract number N62742-94-D-0048.

The objective of this remedial action is to reduce concentrations of volatile organic compounds (VOCs) in the vadose zone to levels that will not cause VOC concentrations in groundwater to exceed the maximum contaminant level (MCL). Phase I of the remedial action was initiated with the startup of the central soil vapor extraction (SVE) system, the installation of additional SVE wells, and the use of portable SVE systems to remediate areas that are not contiguous with buildings 296 and 297.

Specific objectives for Phase I include

- Installation and operation of SVE wells to accurately evaluate the effective radius of influence (EROI) and provide data regarding the current VOC plume configuration;
- Acquisition of operational data required for the selection of SVE well locations that will provide full coverage of the contaminant plume in the vadose zone;
- Evaluation of VOC rebound concentrations and possible deactivation for wells with concentrations below threshold values;
- Continued use of portable SVE systems for rebound testing of SVE wells and identification of areas within Site 24, where the use of the portable units would be most cost-effective.

During Phase I operations significant remediation progress was achieved. As a result, fourteen additional wells were installed at Site 24 and Phase I was extended for an additional three months so that additional data could be acquired to support a site closure recommendation. Seven of the fourteen wells were installed in December 1999, and the remaining seven in January 2000. In addition, 24-hr baseline samples were collected from the newly installed wells in January 2000, the results of which indicate that no concentrations exceeded the soil gas threshold value of 27μg/L for TCE and 69μg/L for PCE. Based on these results, along with data gathered during Phase I operations, treatment verification sampling as described in the draft *SEOR* and draft final *EDR* is being proposed.

2. REMEDIATION SYSTEM OPERATIONS

The installation of the Phase I SVE wells and operation of the central SVE system began on 7 May and 17 May, 1999, respectively. The Phase I SVE wells are used as either active extraction wells or as monitoring wells to evaluate the extent of contamination and effective radius of influence (EROI). In addition, portable SVE systems are used to remediate soils in the vicinity of the wells that are not contiguous with building 296 and building 297. These include wells 24SVE12, 24SVE13, 24SVE15/15A/15B, 24SVE18, 24SVE138A, 24SVE147A, 24SVE154/154A/154B, and the newly installed wells 24SVE16, 24SVE39A, 24SVE68, 24SVE141A, 24SVE143A, and 24SVE148A. Data collected is evaluated as described in the draft *SEOR*, and conclusions and recommendations presented in monthly progress reports. A comprehensive evaluation of data collected, along with conclusions and recommendations on the data collected, will also be presented in the final *SEOR* or the Site 24 Closure Verification Report.

2.1 SVE WELL INSTALLATION

Five wells were installed in May 1999 using a hollow-stem auger. Eighteen wells were completed in June and July 1999 using a triple-casing percussion hammer drill rig and either 2- or 4-inch schedule 40 polyvinyl chloride (PVC) casing and screen.

The 23 wells installed between May and July 1999 included 15 triple-completions, 3 dual-completions and 5 single-completion wells. This number includes the following three wells not listed in the draft *SEOR:* 24SVE18 located near 24SVE13; 24SVE15 located west of the crash crew area in the vicinity of groundwater monitoring well 24NEW1; and 24SVE154 located near the Agua Chinon Wash. One well, 24SVE43 located within building 297 was not installed due to height restrictions. Table A-1 in Appendix A summarizes well installation and completion details.

The November Monthly *Progress Report* (Earth Tech 1999c) presented a proposal for installation of fourteen additional wells to address gaps in coverage of the Site 24 baseline TCE (May 1999) plume area. Eight were to be deep completion wells, five intermediate completion wells, and one a shallow completion well. In addition, the report called for the extension of Phase I operations for three additional months.

Seven of the proposed wells were installed in December 1999, using an air-percussion drill rig, and the remaining seven in January 2000. Three of these seven wells were completed in the deep interval, three in the intermediate interval, and one in the shallow interval. Table A-2 in Appendix A summarizes the well installation and completion details of all fourteen wells.

Eight of the fourteen wells (24SVE21, 24SVE21A, 24SVE24, 24SVE50, 24SVE92, 24SVE129, 24SVE131, and 24SVE131B) that are contiguous to buildings 296 and 297, were connected to the central treatment system in January 2000. The remaining six wells (24SVE16, 24SVE39A, 24SVE68, 24SVE141A, 24SVE143A, and 24SVE148A) that are not contiguous to the buildings were connected to the portable treatment systems in January 2000. Final survey locations for the new deep, intermediate, and shallow interval SVE wells are shown on Figures 2-20, 2-21, and 2-22, respectively.

2.2 SVE WELL FIELD MONITORING AND SAMPLING

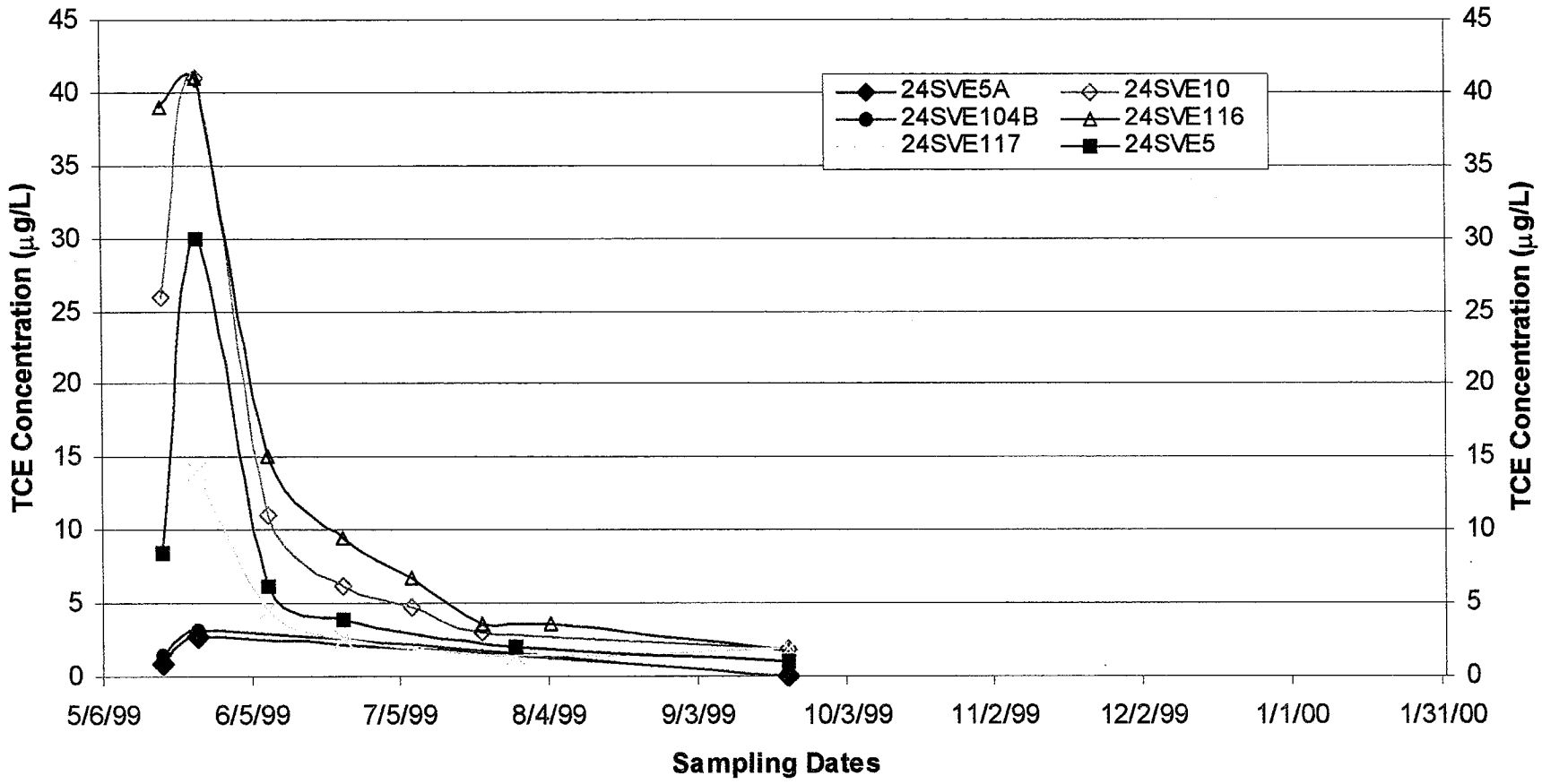
Extraction from wells connected to the central SVE system began on 17 May 1999. Field monitoring of extracted vapor concentrations was conducted using a photoionization detector (PID). In addition to vapor concentrations, flowrates and applied vacuum were also monitored. Sampling and

monitoring were conducted as described in the draft *Sampling and Analysis Plan* (SAP) (Earth Tech 1999d) and the draft *SEOR,* with modifications noted on Table A-3 in Appendix A.

Baseline samples from each extraction well were collected after approximately 24 hours of initial extraction and analyzed as specified in the draft *SEOR*. Samples for fixed-base analysis were then collected every two weeks from each active well where baseline concentrations were above the soil cleanup threshold. The laboratory results were then used as a basis for optimizing the mass of VOCs extracted. In general, extraction from SVE wells with baseline concentrations less than 10 μg/L was discontinued following receipt of the preliminary baseline analytical data. Summaries of the sampling and monitoring data collected through the end of January 2000 are presented in Appendix A, and plots of extracted vapor concentrations are presented on Figures 2-1 through 2-11.

On January 14, 2000, baseline samples from the fourteen newly installed SVE wells were collected in Tedlar™ bags for fixed-base laboratory analysis, using modified EPA Method TO14. These samples were collected after approximately 24 hours of extraction, as specified in the draft *SEOR*. The results indicate that none of the wells exceeded the soil gas threshold value of 27μg/L for TCE. However, two of the wells, 24SVE21 and 24SVE131 exceeded 10μg/L at 26μg/L and 11μg/L respectively. These two wells will continue to be operated until the TCE concentrations fall below 10μg/L. The baseline results are summarized in Table A-4 in Appendix A.

During January 2000, routine sampling of wells connected to the portable treatment systems was only conducted on well 24SVE147A. In addition, 24-hr baseline samples were collected from the newly installed wells that are not contiguous to buildings 296 and 297. These wells are treated using the two portable treatment systems. These results indicate that none of the wells exceeded the soil gas threshold value of 27μg/L for TCE or 69μg/L for PCE. Only two exceeded 10μg/L for TCE. These were 24SVE39A and 24SVE143A, with concentrations of 21μg/L and 14μg/L respectively.



Progress Report - February 2000

Extracted Vapor Concentrations from SVE Wells - Group I
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A Tyco INTERNATIONAL LTD. COMPANY	2-1

PAGE NO. 2-4

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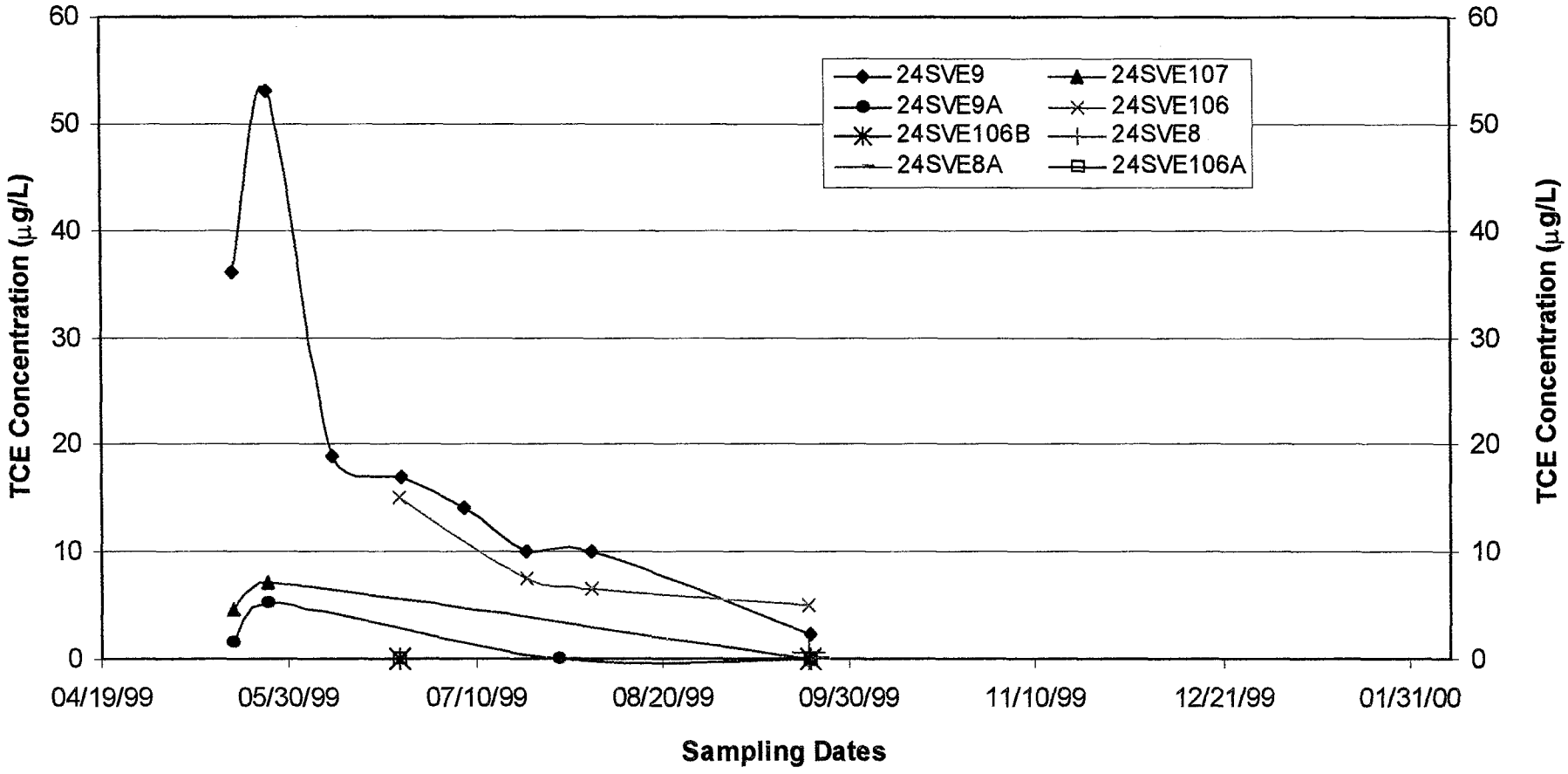

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Extracted Vapor Concentrations from SVE Wells - Group II
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-2

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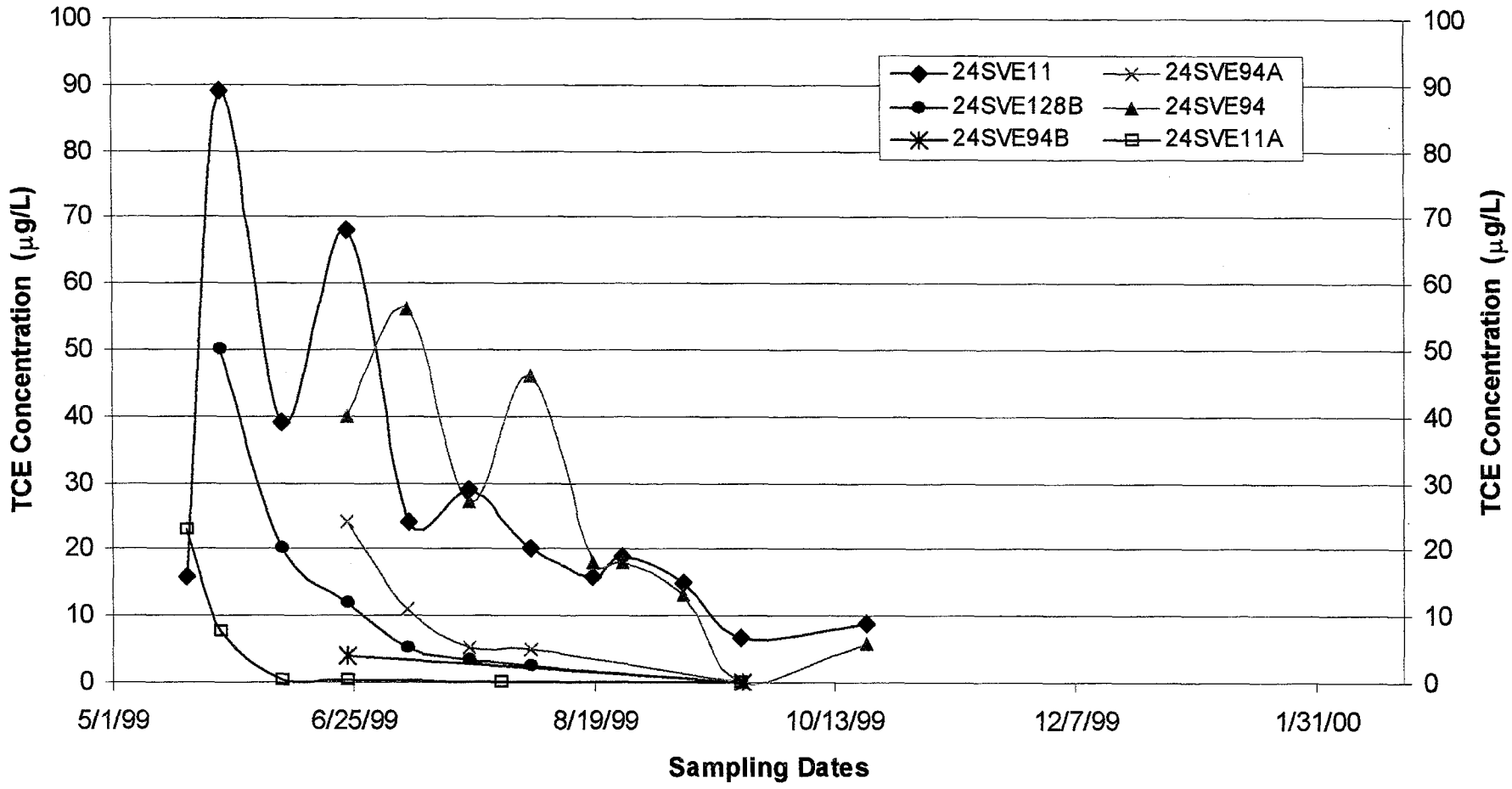

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Extracted Vapor Concentrations from SVE Wells - Group III Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A TYCO INTERNATIONAL LTD. COMPANY	2-3

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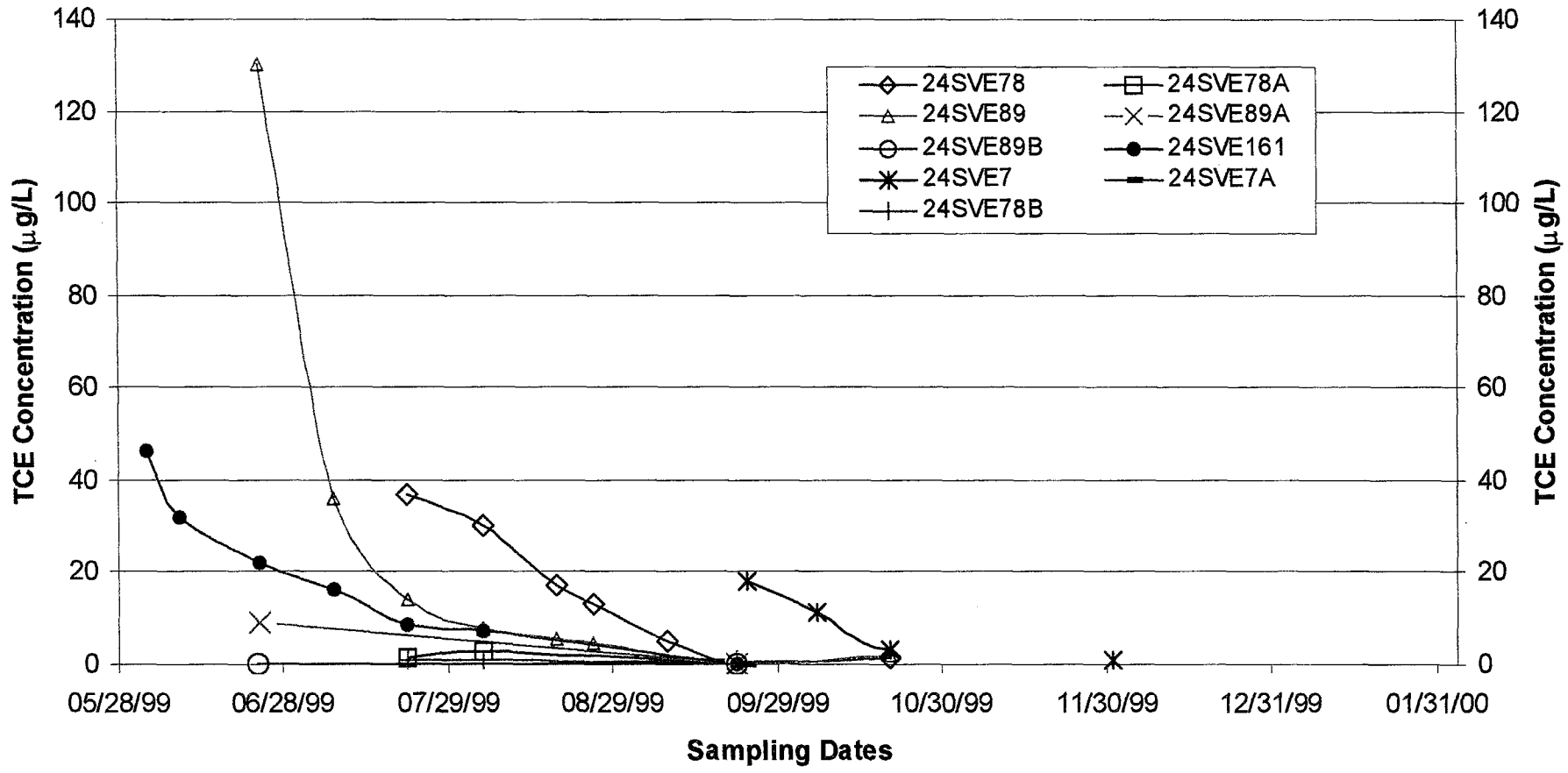

Notes:

1. Sample collected on 12/1/99 was a rebound sample.

Progress Report - February 2000 Extracted Vapor Concentrations from SVE Wells - Group IV Site 24 - Vadose Zone Remediation		
Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-4

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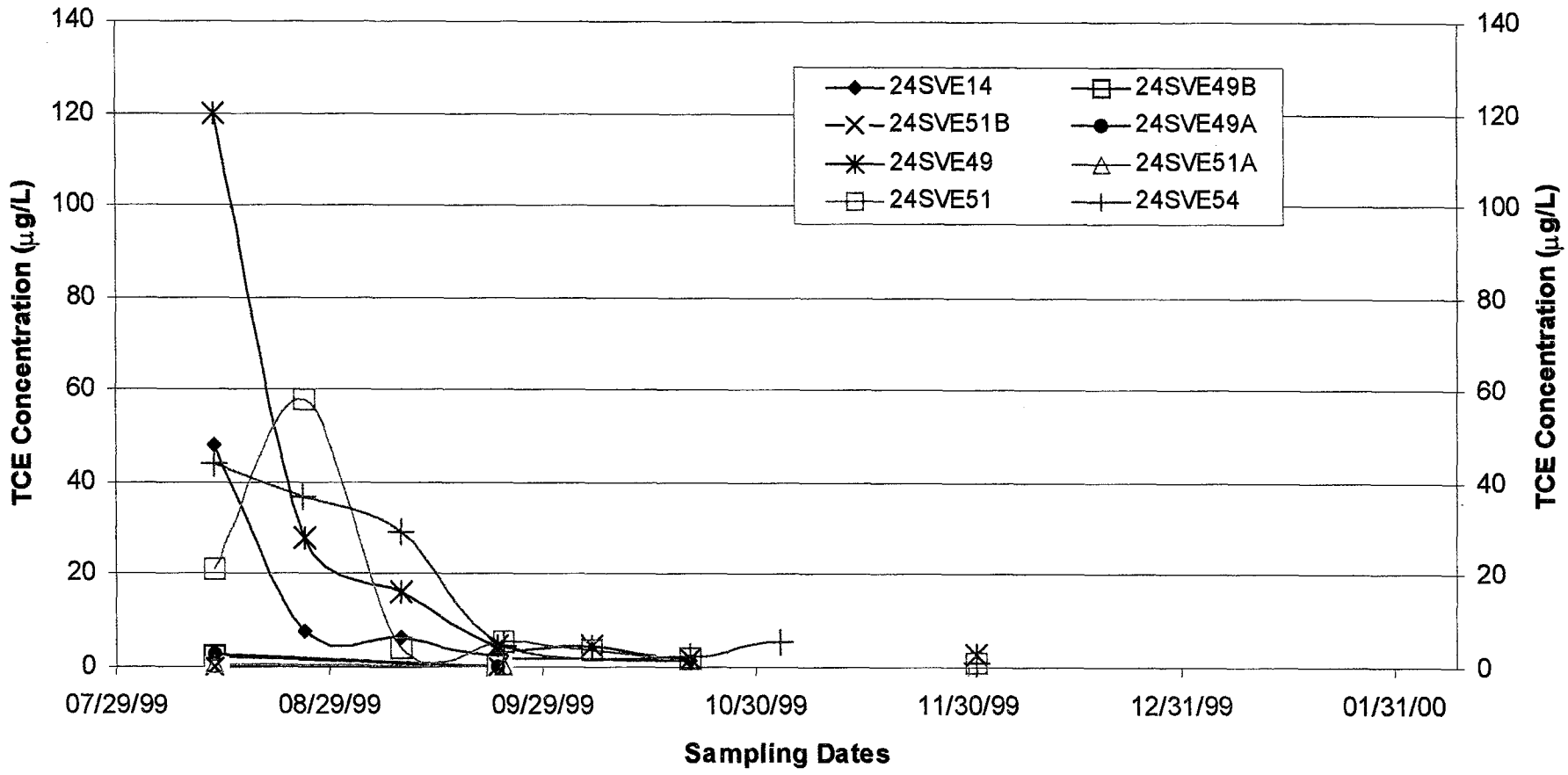

Notes:

1. Samples collected on 12/1/99 were rebound samples.

Progress Report - February 2000 Extracted Vapor Concentrations from SVE Wells - Group V Site 24 - Vadose Zone Remediation		
Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-5

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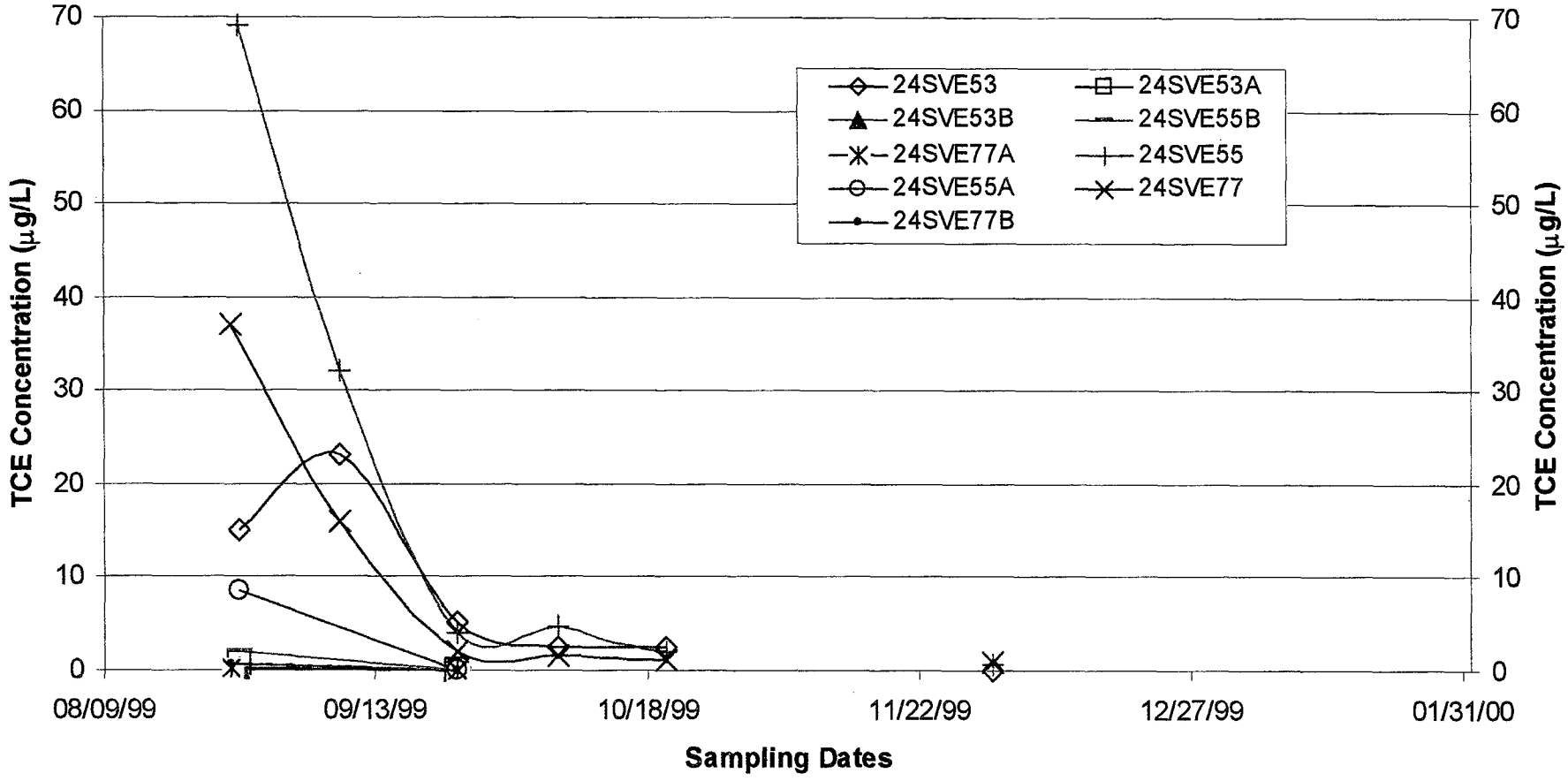

Notes:

1. Samples collected on 12/1/99 were rebound samples.

Progress Report - February 2000

Extracted Vapor Concentrations
from SVE Wells - Group VI
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-6

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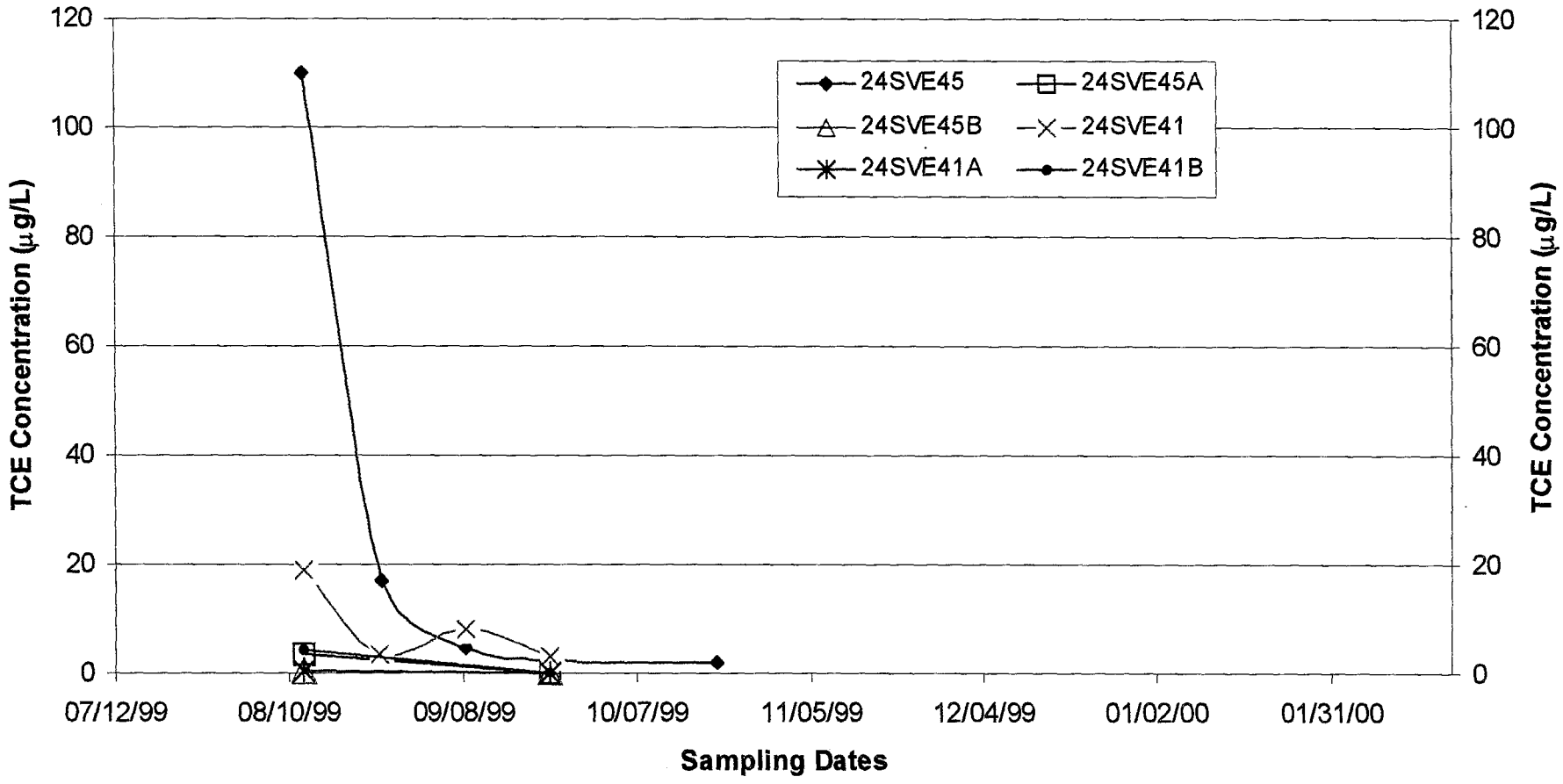

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Extracted Vapor Concentrations from SVE Wells - Group VII Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-7

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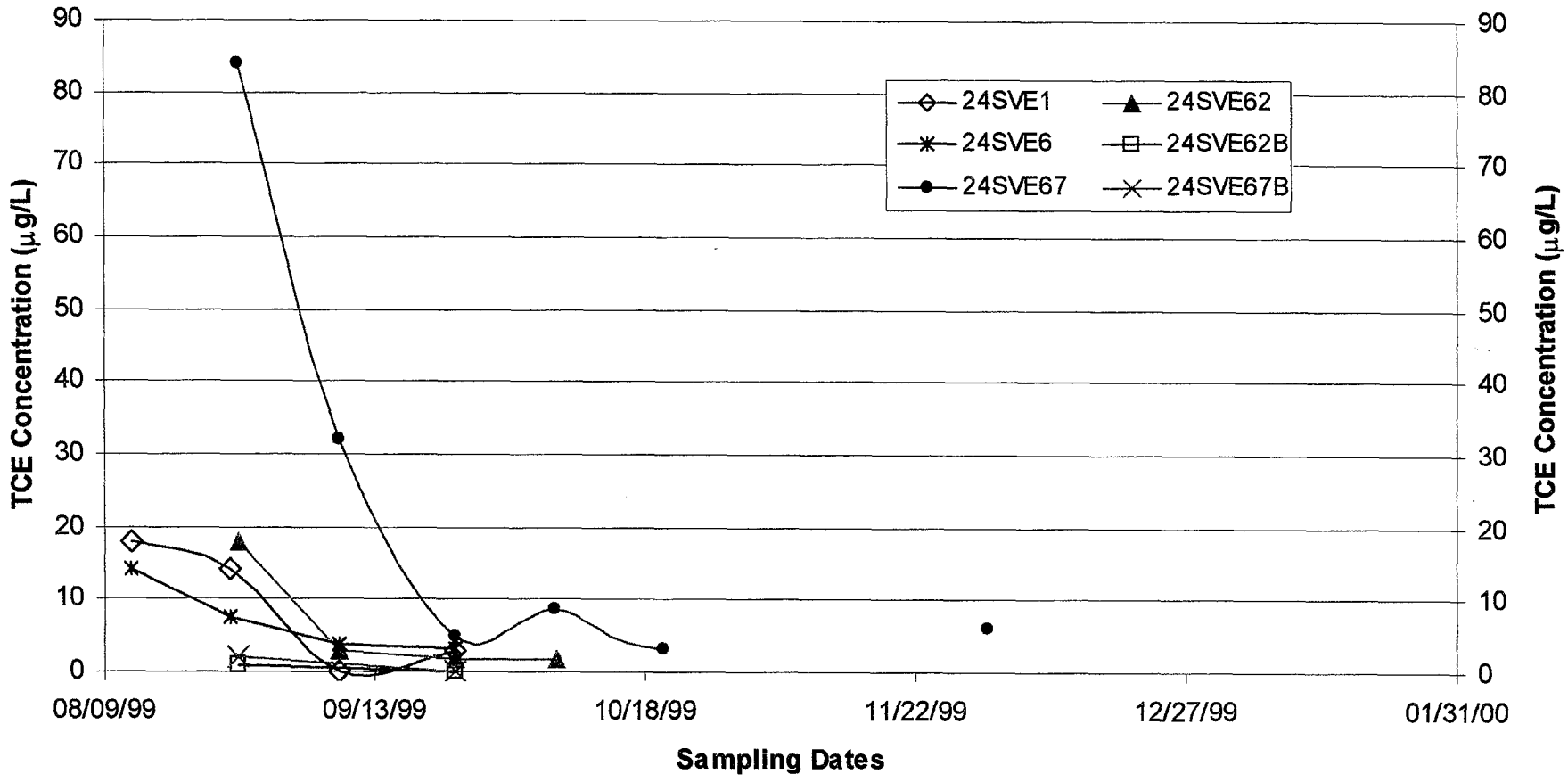

Notes:

1. Sample collected on 12/1/99 was a rebound sample.

Progress Report - February 2000		
Extracted Vapor Concentrations from SVE Wells - Group VIII Site 24 - Vadose Zone Remediation		
Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-8

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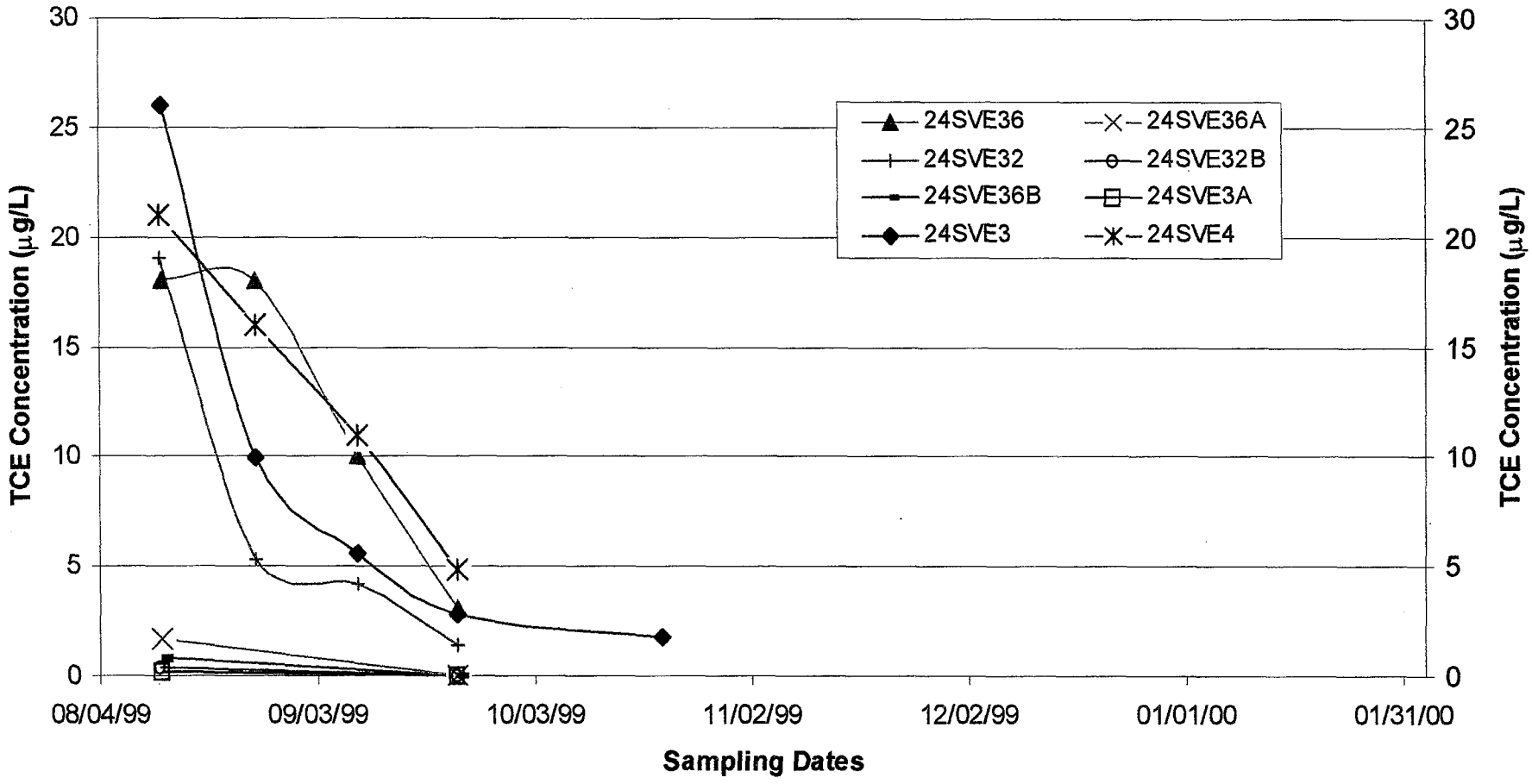

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Extracted Vapor Concentrations from SVE Wells - Group IX
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A Tyco INTERNATIONAL LTD. COMPANY	2-9

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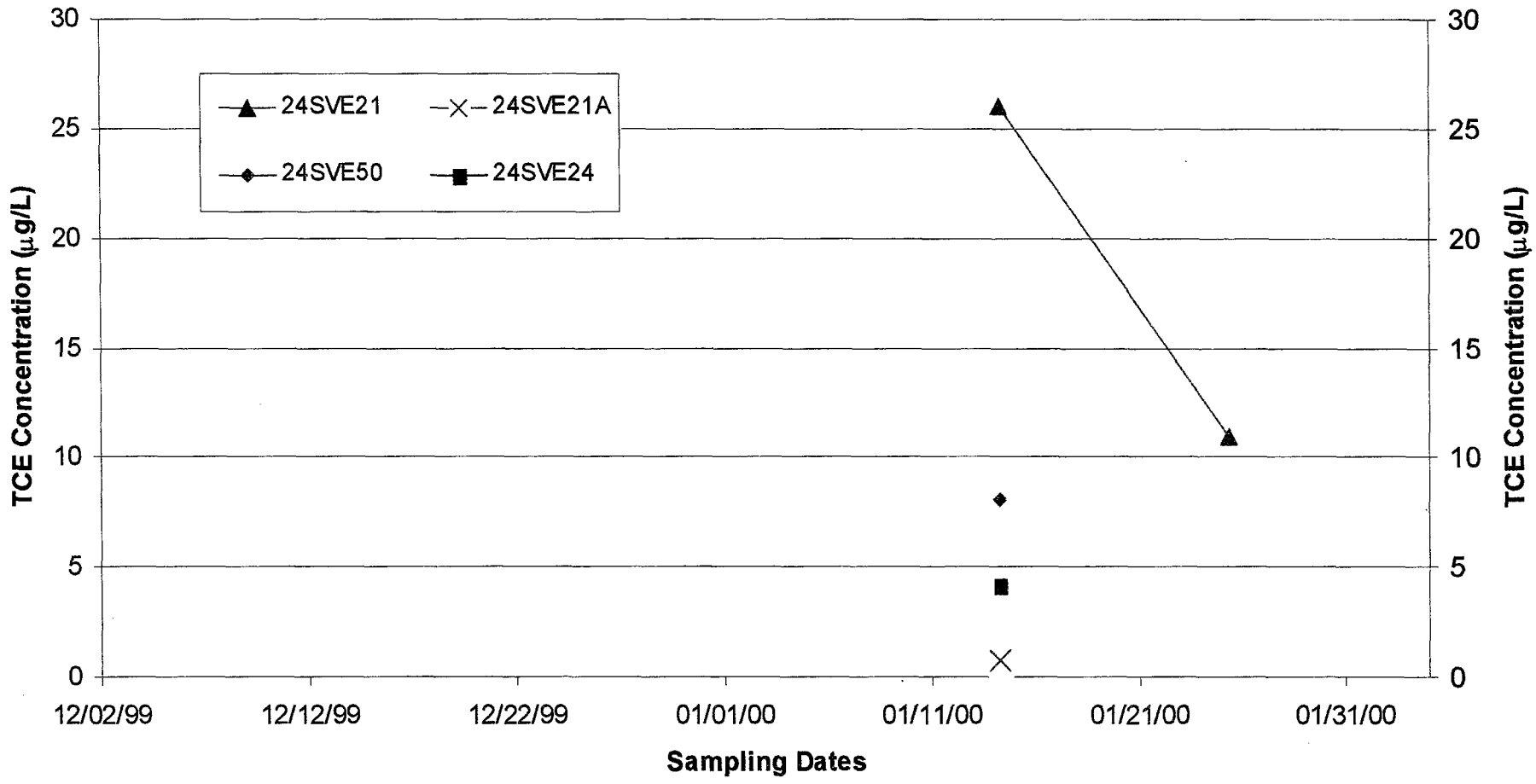

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Extracted Vapor Concentrations from SVE Wells - Group X
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure 2-10
Project No. 28307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	

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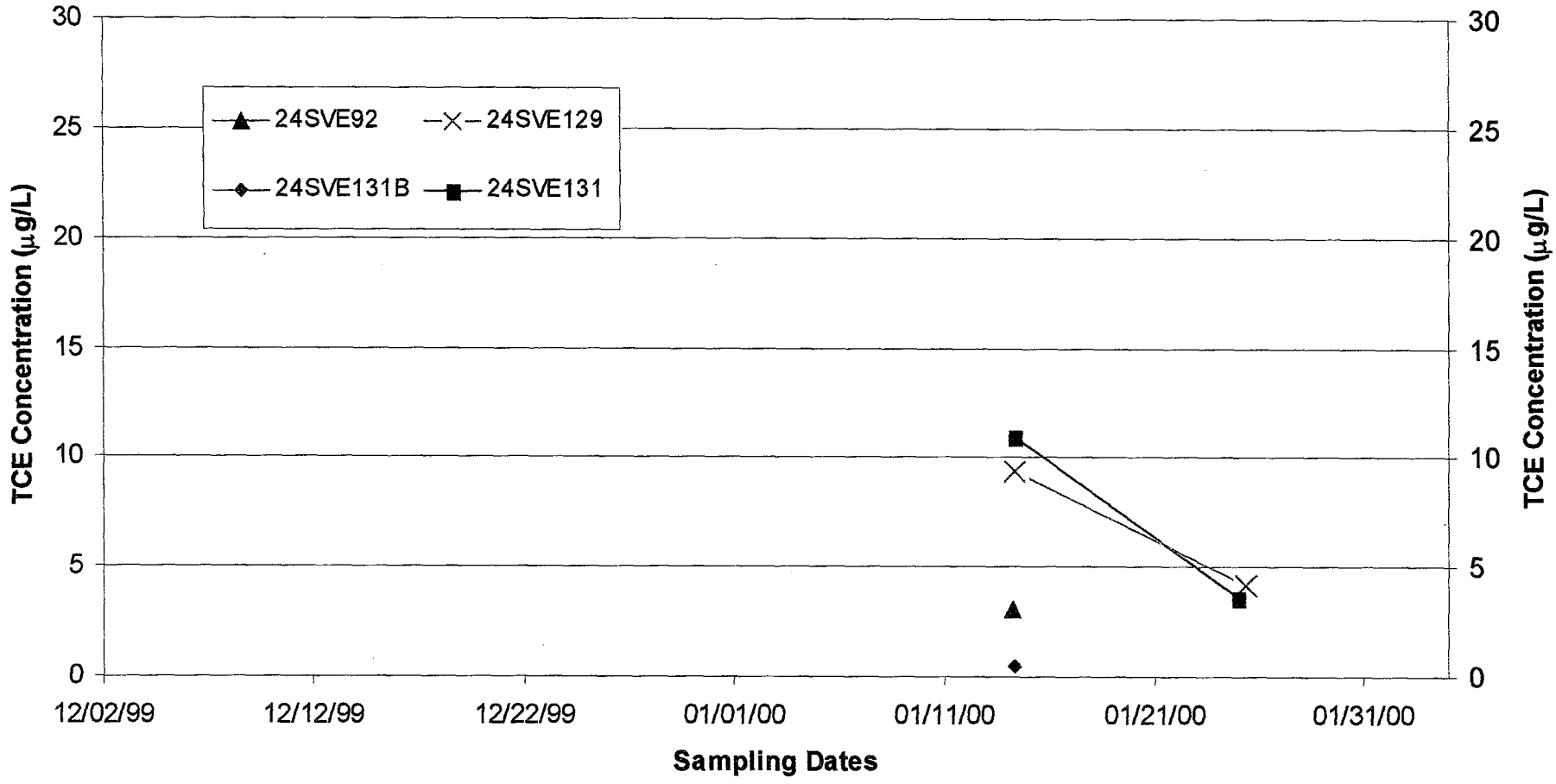

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Extracted Vapor Concentrations from SVE Wells - Group XI
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-11

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2.3 CENTRAL TREATMENT SYSTEM OPERATIONS

Monitoring of the central treatment system was conducted to assess whether the individual components were operating within their intended range. Monitoring included sampling of (1) the extracted vapor concentrations at the inlet to the lead carbon vessel; (2) between the lead and the second carbon vessel; and (3) at the outlet from the second carbon vessel. Discharges from the treatment system are compliant with the South Coast Air Quality Management District (SCAQMD) applicable rules and regulations. In addition, the flowrate, temperature, and relative humidity were recorded on an Operation and Maintenance Data Form (see Figure 5-4 of the Draft *SEOR*).

Tables 2-1, 2-2, and 2-3 summarize results of vapor sampling at the influent, midpoint, and effluent of the central treatment system. Influent soil vapor concentrations are plotted on Figure 2-12. Table 2-4 presents a summary of the central treatment system monitoring data. The data indicate that the system has operated as intended with no major unscheduled maintenance events and at a cumulative on-line efficiency of 75 percent. The cumulative on-line efficiency has dropped from 95 percent in October because the system had been turned off for rebound sampling in November and turned off due to low concentrations system wide in December. Based on an average total flowrate of 914 standard cubic feet per minute (scfm) and the average laboratory concentrations of the principal contaminants, approximately 279 pounds of VOCs have been removed using the central SVE system since 17 May 1999.

Figure 2-13 shows a plot of the cumulative mass of the principal contaminants removed by the central treatment system. Table 2-5 summarizes the total cumulative mass of principal VOCs removed as a result of pilot testing and current SVE at Site 24.

PAGE NO. 2-26

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Table 2-1: Central Treatment System Vapor Sampling Results – Influent

Sample Location	EPA Sample Number	Sample Identifier	Date	TCE µg/L	Freon-113 µg/L	PCE µg/L	1,1 DCE µg/L
Influent	LC001	24 S1 01 VS	5/17/99	23	31	0.36	0.32
	LC007	24 S1 02 VS	5/18/99	16	21.0	0.32	0.35 JA
	LC023	24 S1 03 VS	5/21/99	15	21	ND	ND
	LC026	24 S1 04 VS	5/25/99	20	39	0.34	0.30 JA
	LC027	24 S1 04 VSD	5/25/99	20	38	0.29	0.32 JA
	LC042	24 S1 05 VS	6/2/99	20	21	ND	ND
	LC047	24 S1 06 VS	6/8/99	14	18	0.33	0.22 JA
	LC048	24 S1 07 VS	6/8/99	15	21	0.34	0.19
	LC070	24 S1 08 VS	6/15/99	11	17	0.41	0.20
	LC071	24 S1 09 VS	6/15/99	11	16	0.38	0.20
	LC072	24 S1 09 VSD	6/15/99	11	17	0.39	0.25
	LC073	24 S1 10 VS	6/23/99	11	10	0.17	0.15
	LC094	24 S1 12 VS	7/7/99	12	9.7	ND	0.14 JA
	LC119	24 S1 13 VS	7/21/99	7.9	6.4	0.21	0.20
	LC129	24 S1 14 VS	7/28/99	10	13	0.56	0.23
	LC144	24 S1 15 VS	8/4/99	8.2	6.5	0.20	0.13
	LC181	24 S1 16 VS	8/12/99	21	3.7	0.5	0.9
	LC187	24 S1 17 VS	8/18/99	16	4.1	0.36	0.63
	LC215	24 S1 18 VS	8/25/99	14	4.2	0.34	0.64
	LC254	24 S1 19 VS	9/8/99	ND	ND	ND	ND
	LC337	24 S1 20 VS	9/23/99	ND	ND	ND	ND
	LC341	24 S1 20 VSD	9/23/99	ND	ND	ND	ND
	LC354	24 S1 21 VS	10/6/99	2.5	0.98	0.057	0.16
	LC376	24 S1 22 VS	10/20/99	1.6	0.81	0.031	0.08
	LC390	24 S1 23 VS	12/1/99	6	2.2	0.12	0.24
	LC-413	24 S1 24 VS	1/14/00	7.4	6	0.11	0.63
	LC-418	24 S1 25 VS	1/25/00	4.4	1.5	0.11	0.36

Notes:
JA = The compound was positively identified, but the quantification is an estimate.
ND = not detected

Table 2-2: Central Treatment System Vapor Sampling Results - Midpoint

Sample Location	EPA Sample Number	Sample Identifier	Date	TCE µg/L	Freon-113 µg/L	PCE µg/L	1,1 DCE µg/L
Midpoint	LC002	24 S2 01 VS	5/17/99	0.01	0.031	ND	ND
	LC005	24 S2 02 VS	5/18/99	ND	0.02	ND	ND
	LC025	24 S2 03 VS	5/25/99	0.26	0.37	ND	ND
	LC049	24 S2 05 VS	6/8/99	0.056	1.8	ND	ND
	LC050	24 S2 06 VS	6/8/99	0.15	1.9	ND	ND
	LC068	24 S2 07 VS	6/15/99	0.081	1.8	ND	ND
	LC069	24 S2 08 VS	6/15/99	0.1	1.5	ND	ND
	LC095	24 S2 09 VS	7/7/99	ND	3.2	ND	ND
	LC145	24 S2 10 VS	8/4/99	ND	4.7 *D*	ND	ND
	LC147	24 S2 10 VSD	8/4/99	ND	4.7	ND	ND
	LC255	24 S2 11 VS	9/8/99	ND	5.9	ND	0.039
	LC338	24 S2 12 VS	9/23/99	ND	ND	ND	ND
	LC377	24 S2 13 VS	10/20/99	ND	15	ND	0.49
	LC391	24 S2 14 VS	12/1/99	0.3	9.8 *E*	ND	0.48
	LC414	24 S2 15 VS	1/14/00	0.19	0.45	ND	0.058

Notes:
D = The result was obtained from an analysis of a dilution.
E = Estimated result. Result concentration exceeds the calibration range.
ND = not detected

Table 2-3: Central Treatment System Vapor Sampling Results - Effluent

Sample Location	EPA Sample Number	Sample Identifier	Date	TCE µg/L	Freon-113 µg/L	PCE µg/L	1,1 DCE µg/L
Effluent	LC003	24 S3 01 VS	5/17/99	0.012	0.025	ND	ND
	LC004	24 S3 02 VS	5/17/99	ND	0.02	ND	ND
	LC006	24 S3 03 VS	5/18/99	ND	0.02	ND	ND
	LC019	24 S3 04 VS	5/19/99	ND	ND	ND	ND
	LC020	24 S3 05 VS	5/20/99	ND	ND	ND	ND
	LC021	24 S3 05 VSD	5/20/99	ND	ND	ND	ND
	LC022	24 S3 06 VS	5/21/99	0.049	0.16	ND	ND
	LC024	24 S3 07 VS	5/25/99	0.039	ND	ND	ND
	LC044	24 S3 08 VS	6/2/99	0.058	0.037	ND	ND
	LC051	24 S3 09 VS	6/8/99	ND	0.05	ND	ND
	LC052	24 S3 10 VS	6/8/99	0.021	0.072	ND	ND
	LC066	24 S3 11 VS	6/15/99	0.02	0.19	ND	ND
	LC067	24 S3 12 VS	6/15/99	0.02	0.18	ND	ND
	LC074	24 S3 13 VS	6/23/99	ND	7.500	ND	ND
	LC093	24 S3 14 VS	6/29/99	ND	0.21	ND	ND
	LC096	24 S3 15 VS	7/7/99	ND	0.34	ND	ND
	LC120	24 S3 16 VS	7/21/99	ND	0.16	ND	ND
	LC130	24 S3 17 VS	7/28/99	0.018	0.64	ND	ND
	LC146	24 S3 18 VS	8/4/99	0.02	0.97	ND	ND
	LC182	24 S3 19 VS	8/12/99	0.182	0.768	ND	ND
	LC216	24 S3 20 VS	8/25/99	0.28	0.87	ND	ND
	LC256	24 S3 21 VS	9/8/99	ND	2.7	ND	ND
	LC339	24 S3 22 VS	9/23/99	ND	ND	ND	ND
	LC342	24 S3 22 VSD	9/23/99	0.096	2.8	ND	ND
	LC378	24 S3 23 VS	10/20/99	ND	26	ND	ND
	LC392	24 S3 24 VS	12/1/99	0.24	23	ND	ND
	LC415	24 S3 25 VS	1/14/00	0.17	0.57	ND	ND
	LC419	24 S3 26 VS	1/25/00	0.28	2	ND	0.024

Note:
ND = *not detected*

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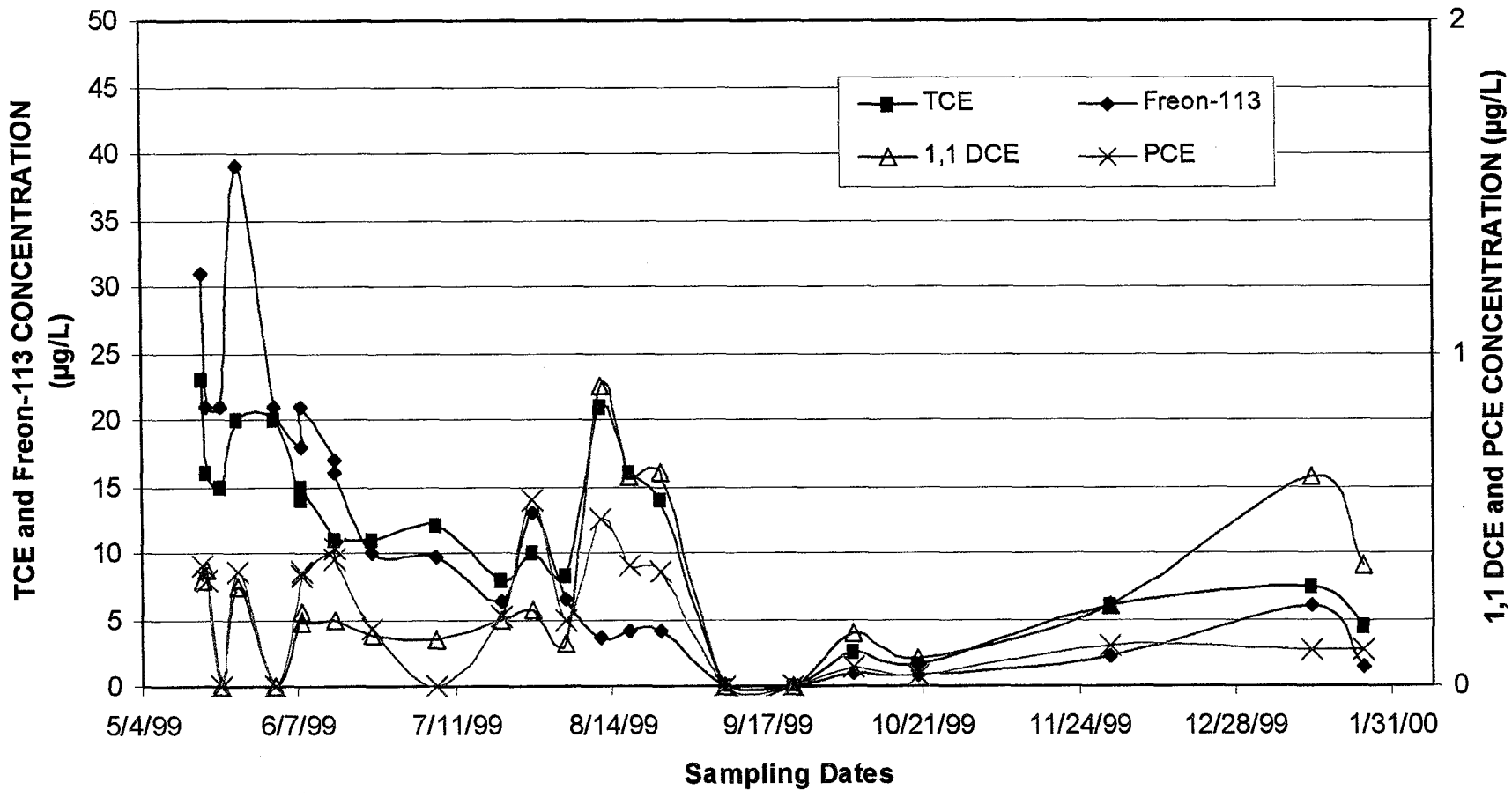

Progress Report - February 2000

Central Treatment System
Influent Soil Vapor Concentrations
Site 24 - Vados Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-12

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Table 2-4: Summary of Central Treatment System Monitoring Data

Date	Blower "B" Hours of Operation	Cumulative On-line Efficiency (%)	Total System Flowrate (scfm)	Blower "B" Amperage (AMPS)	Blower "B" Inlet Vacuum (inches of water)	Blower "B" Inlet Temp. (°F)	Blower "B" Outlet Temp. (°F)	Relative Humidity (%)	Temp. at Lead GAC Vessel (°F)	Makeup Water Flow Totalizer (gal)	Remarks
5/17/99 04:50 PM	141.0	-	898	69	106	82	149	-	103	48305.0	10 wells on-line
5/18/99 09:37 AM	158.9	100	915	60	102	80	145	-	110	48305.0	
5/19/99 09:42 AM	181.9	100	-	70	103	78	130	-	-	48344.0	
5/21/99 12:00 PM	232.2	100	876	60	110	70	140	84	98	48391.0	
5/24/99 07:52 AM	300.0	100	887	60	110	65	138	81	95	48391.0	
5/25/99 08:00 AM	324.2	100	970	65	100	66	120	63.7	94	48391.0	12 wells on-line
5/25/99 05:20 PM	333.8	100	838	70	117	74	148	-	90	48402.0	
5/26/99 07:20 AM	346.0	99	843	70	120	74	140	-	95	48402.0	
5/26/99 02:00 PM	353.5	100	833	75	120	80	150	54	100	-	
5/28/99 09:00 AM	396.7	100	845	75	120	70	145	63	100	48451.0	
5/31/99 12:30 PM	470.3	99	837	70	118	73	154	-	108	48570.0	
6/01/99 07:20 AM	490.7	100	842	72	120	64	136	-	90	48599.0	8 wells on-line
6/02/99 08:50 AM	516.2	100	841	73	120	63	132	70	93.9	48611.0	
6/04/99 07:30 AM	563.1	100	841	75	120	60	130	70	90	48644.0	
6/08/99 09:05 AM	660.5	100	815	73	124	65	140	62.8	90	48747.0	
6/10/99 07:30 AM	682.5	96	827	72.5	122	66	140	-	90	48780.0	
6/11/99 07:30 AM	706.8	96	817	75	120	65	140	73	95	48814.0	9 wells on-line
6/14/99 07:05 AM	778.1	96	830	70	121	66	142	-	-	48893.1	
6/15/99 08:20 AM	787.8	94	843	75	119	70	134	78	90	48923.0	
6/17/99 04:16 PM	843.7	95	788	75	120	80	160	-	100	49419.0	
6/23/99 09:00 AM	980.4	95	988	63	89	69	122	63.5	97	50486.8	18 wells on-line
6/23/99 06:30 PM	988.55	95	900	65	100	78	138	-	98	50489.3	Performed scheduled system maintenance.
6/29/99 08:30 AM	1,123.1	96	924	65	100	71	134	66	100	50743.6	Cleaned clogged float valve.
7/03/99 11:15 AM	1,179.5	93	947	65	96	72	94	-	79	50776.0	
7/06/99 07:24 AM	1,207.4	90	883	70	113	68	103	-	80	50778.0	
7/07/99 10:15 AM	1,233.7	90	857	65	112	78	148	-	102	50784.0	10 wells on-line

Table 2-4: Summary of Central Treatment System Monitoring Data

Date	Blower "B" Hours of Operation	Cumulative On-line Efficiency (%)	Total System Flowrate (scfm)	Blower "B" Amperage (AMPS)	Blower "B" Inlet Vacuum (inches of water)	Blower "B" Inlet Temp. (°F)	Blower "B" Outlet Temp. (°F)	Relative Humidity (%)	Temp. at Lead GAC Vessel (°F)	Makeup Water Flow Totalizer (gal)	Remarks
7/13/99 09:00 AM	1,374.5	91	800	70	120	82	162	-	100	50789.7	
7/15/99 09:30 AM	1,422.0	91	808	70	122	80	158	-	94	50829.0	
7/19/99 07:45 AM	1,516.9	92	800	73	130	70	154	84	82	50903.0	
7/20/99 07:14 AM	1,540.4	92	792	74	130	68	150	91.6	78	50923.0	
7/21/99 09:20 AM	1,566.5	91	858	70	116	74	148	-	110	50942.4	
7/21/99 02:10 PM	1,571.7	92	853	70	112	88	148	59.9	94	50943.0	13 wells on-line
7/23/99 08:23 AM	1,613.1	92	854	70	116	70	146	86.5	92	50982.0	
7/26/99 07:20 AM	1,684.0	92	819	74	128	70	150	-	90	51029.0	
7/27/99 08:15 AM	1,708.0	92	809	74	129	78	148	-	88	51060.0	
7/28/99 08:15 AM	1,732.8	93	856	58	116	70	140	73.8	88	51082.1	16 wells on-line
7/30/99 07:40 AM	1,780.0	93	822	74	127	68	150	70	90	51120.0	
8/04/99 08:53 AM	1,901.7	93	822	75	126	70	154	-	105	51199.0	
8/11/99 09:45 AM	2069.7	94	825	72	126	70	154	-	104	51299.0	
8/11/99 01:30 PM	2,073.5	94	1240	55	44	104	108	-	100	51301.0	34 wells on-line
8/12/99 10:25 AM	-	94	1220	55	50	94	112	-	100	51368.0	
8/12/99 03:00 PM	2,098.8	94	1043	60	72	104	130	-	106	51318.2	
8/16/99 07:15 AM	2,187.0	94	1020	63	86	66	110	-	86	51366.0	
8/18/99 09:00 AM	2,236.6	94	1010	63	50	80	104	-	98	51401.0	18 wells on-line
8/23/99 09:45 AM	2,357.0	95	910	65	98	84	138	-	110	51470.0	
8/24/99 09:47 AM	2,381.0	95	1110	60	64	90	124	-	103	51537.0	
8/25/99 10:40 AM	2,406.7	95	913	65	92	100	147	-	118	51558.2	
8/25/99 01:45 PM	2,409.6	95	1130	60	57	110	132	-	110	51560.9	
8/30/99 06:50 AM	2,522.0	95	1333	55	43	68	86	-	78	51619.0	32 wells on-line
9/01/99 04:00 PM	2,578	95	1130	57	57	92	116	50	100	51654.0	
9/08/99 11:30 AM	2,741.7	95	1120	60	62	98	124	-	119	51711.3	23 wells on-line
9/15/99 06:30 PM	2,915.4	95	1103	60	72	80	120	65.5	96	53083.0	Cooling tower maintenance performed.
9/20/99 02:10 PM	3,032.3	96	1220	55	52	79	111	-	108	53118.5	

Table 2-4: Summary of Central Treatment System Monitoring Data

Date	Blower "B" Hours of Operation	Cumulative On-line Efficiency (%)	Total System Flowrate (scfm)	Blower "B" Amperage (AMPS)	Blower "B" Inlet Vacuum (inches of water)	Blower "B" Inlet Temp. (°F)	Blower "B" Outlet Temp. (°F)	Relative Humidity (%)	Temp. at Lead GAC Vessel (°F)	Makeup Water Flow Totalizer (gal)	Remarks
9/21/99 12:30 PM	3,054.5	96	1,220	57	54	74	100	-	98	53123.0	Performing EROI tests
9/22/99 11:30 AM	3,077.6	96	1,130	55	63	94	124	-	120	53136.0	Performing EROI tests
9/23/99 11:35 AM	3,101.7	96	873	69	110	95	155	-	134	53142.0	21 wells on-line
9/29/99 8:00 AM	3,242.0	96	1,140	60	68	67	100	63.5	96	53172.0	Well #54 - 4" pipe disconnected
10/6/99 12:15 PM	3,414	96	747	75	144	82	172	-	102	53367.0	10 wells on-line
10/14/99 7:35 AM	3,600	96	721	72	127	62	142	47.5	80	53664.0	Performing EROI tests
10/18/99 1:00 PM	3,676.7	96	-	65	100	100	130	-	96	53172.0	
10/19/99 8:20 AM	3,696	96	725	73	123	68	130	-	80	53769.0	
10/20/99 7:45 AM	3,719	96	836	65	100	72	120	-	72	53811.0	Cooling tower water drained due to a broken water main, which supplied makeup water to cooling tower.
10/22/99 5:00 PM	3,742	95	764	70	105	86	0	-	109	53981.0	SVE system turned back on.
10/27/99 7:20 AM	3,853	95	1,090	55	50	62	85	54	80	56005.0	Main vapor line east wing at bldg. 297 disconnected; no VOC readings taken.
10/27/99 6:00 PM	3,863	95	767	70	120	72	150	55	95	56086.0	
11/3/99 7:00 AM	3,997.9	95	680	70	120	70	136	49.4	94	56323.0	Vapor samples collected from 24SVE54. System shut down for well rebound sampling in December.
12/1/99 1:30 PM	4,040.9	82	673	74	127	74	153	-	114	56370.0	System turned on 11/30 for rebound sampling.
12/10/99 8:00 AM	4,250	83	929	65	100	52	100	-	86	56393.0	Oil changed in blower, and the system shut down.
1/7/00 8:30 AM	4,274.1	73	816	65	92	59	110	-	88	56393	System restarted.
1/13/00 8:30 AM	4,418	74	-	68	105	55	110	-	85	58189	
1/14/00 9:55 AM	4,442.7	74	1,030	63	80	70	114	-	90	58229	Baseline samples collected from the 8 new wells installed and connected to the central treatment system.
1/20/00 4:00 PM	4576.2	75	977	65	94	68	118	-	84	58366	
1/25/00 8:40 AM	4689.1	75	940	62	102	61	116	-	72	58448	

Note:
- = data not collected

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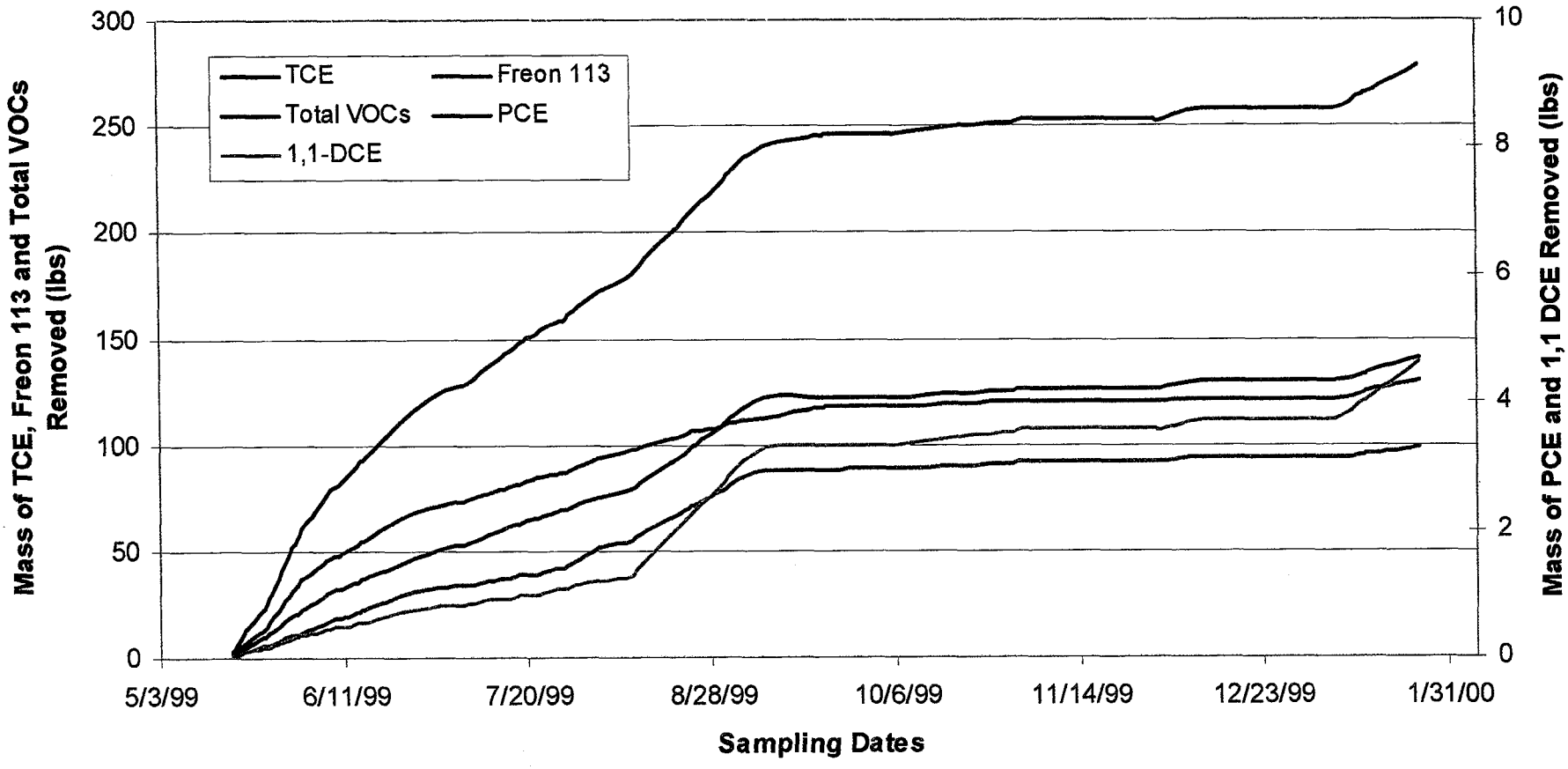

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Cumulative Mass of VOCs Removed by the Central SVE System Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A TYCO INTERNATIONAL LTD. COMPANY	2-13

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Table 2-5: Mass of VOCs Removed During Vadose Remediation at Site 24

Remediation Phase	Dates	Mass (lbs)[a]	Remarks
Mass of VOCs removed during pilot scale testing	4/95 - 5/98	1,439	Based on amounts stated in the Draft *Final Engineering Design Report* (BNI 1998a)
Mass of VOCs removed by portable SVE units [b]	6/98 - 12/98	70	Preliminary mass estimates based on data provided by OHM Corporation.
Mass of VOCs removed by central treatment system [c]	5/99 – 01/00	279	Mass estimates for the current period (5/99 –01/00) is based on treatment system inlet concentrations.
Mass of VOCs removed by portable SVE units	1/99 – 01/00	208	Preliminary mass estimates based on data provided by OHM Corporation.
	Total	1,996	

Notes:
[a]Total mass of VOCs extracted includes TCE, Freon, 1,1 DCE and PCE.
[b]Cumulative mass removal by the Portable SVE units between 6/98 and 12/98 was adjusted to 70 lbs.
[c]Cumulative mass removal by the Central Treatment System through 9/99 was adjusted to 246 lbs.

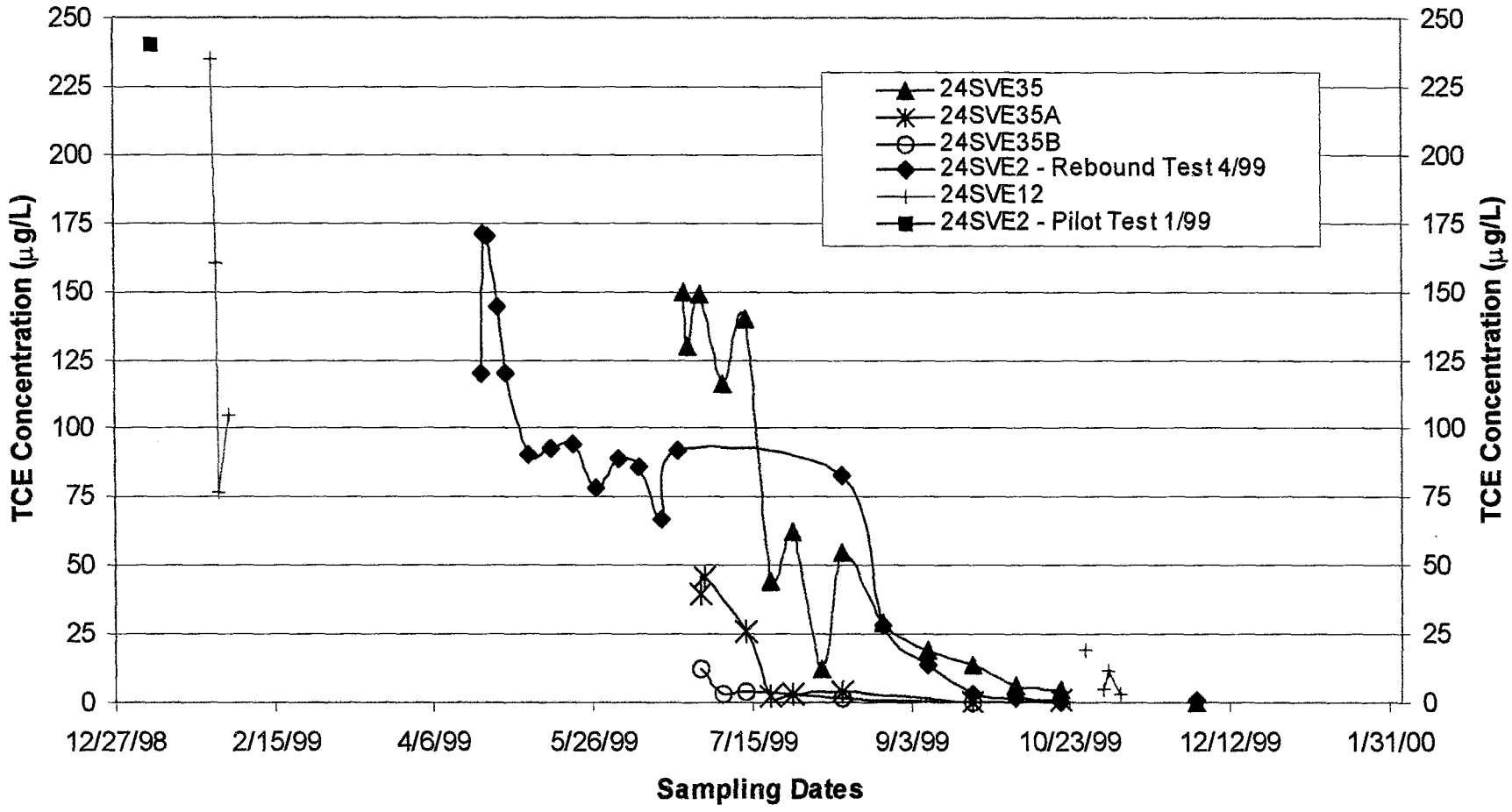
2.4 PORTABLE TREATMENT SYSTEMS OPERATIONS

The portable systems were used to extract soil vapor from wells 24SVE12, 24SVE147A, and the newly installed wells 24SVE16, 24SVE39A, 24SVE68, 24SVE141A, 24SVE143A, and 24SVE148A. The TCE concentration in 24SVE12 was 3μg/L in November, while SVE147A dropped to 9.4μg/L in January. No rebound samples were collected from any existing remote wells this month. However, 24-hr baseline samples were collected from the newly installed wells. Each of the baseline sample analyses for the new wells indicated concentrations were below the soil gas threshold values.

Operational data for the portable SVE systems are summarized on Table 2-6. Figures 2-14, 2-15, 2-16, 2-17, 2-18, and 2-19 present plots of the extracted VOC concentrations from wells 24SVE2, 24SVE12, 24SVE35, 24SVE35A, and 24SVE35B; 24SVE13 and 24SVE18; 24SVE138A and 24SVE147A; 24SVE15, 24SVE 15A, 24SVE 15B, 24SVE154, 24SVE 154A, and 24SVE 154B; 24SVE16 and 24SVE68; and 24SVE39A, 24SVE141A, 24SVE143A, and 24SVE148A respectively.

Table 2-6: Summary of Portable Systems Operational Data

Extraction Well	Average Flowrate (scfm)	Average System Inlet Vacuum (inches of water)	Dates Operated	Remarks
24SVE12	42	54	01/28/99 - 02/01/99 06/14/99 - 06/19/99 10/26/99 - 01/03/00	Well shut down on 01/03/00. The portable system was then relocated to collect baseline samples from the new wells that were installed in December and January.
24SVE147A	36	55	06/16/99 - 06/18/99 10/26/99 - 10/28/99 11/02/99 - 01/04/00	Well was resampled in October, shut down, and restarted in November and shut down on 01/04/00. The portable system was then relocated to collect baseline samples from the new wells installed in December and January.
24SVE2	7.6	5.9	04/21/99 - 06/22/99	Portable system relocated and connected to 24SVE35 on 6/23/99. Well was connected to the central treatment system on 8/11/99.
24SVE13	28	96	04/27/99 - 07/19/99	Portable system connected to 24SVE18. Rebound samples were collected on 10/26, 10/27, and 10/28.
24SVE35B	100	85	06/29/99 - 07/21/99	Well was connected to the central treatment system on 8/11/99.
24SVE35A	60	85	06/29/99 - 07/28/99	Well was connected to the central treatment system on 8/11/99.
24SVE35	75	85	06/23/99 - 08/06/99	Well was connected to the central treatment system on 8/11/99.
24SVE18	77	10	07/19/99 - 09/27/99 11/02/99 - 12/08/99	Well located within 70 feet of 24SVE13. Rebound samples were collected on 11/01, 11/02, and 11/03. System shut down on 12/8/99.
24SVE15	103	31	08/26/99 - 10/08/99	Portable system relocated and connected to 24SVE154/154A/154B.
24SVE138A	100	100	06/29/99 - 10/20/99	Well is currently off-line.
24SVE154, 154A, 154B	10	54	10/13/99 - 10/20/99	Wells sampled on 10/14,10/15,10/18 and 10/20, and shut down on 10/20. Wells located near the Agua Chinnon Wash.
24SVE16	78	10	01/03/00 - 01/05/00	New well. Baseline sample collected on 01/04/00. Portable system relocated and connected to SVE68.
24SVE148A	160	37	01/05/00 - 01/07/00	New well. Baseline sample collected on 01/06/00.
24SVE143A	102	100	01/10/00 - 01/12/00	New well. Baseline sample collected on 01/11/00.
24SVE39A	52	100	01/12/00 - 01/17/00 01/31/00 -	New well. Baseline sample collected on 01/13/00. System shut down on 01/17 for scheduled system maintenance by the vendor.
24SVE68	77	8	01/15/00 - 01/07/00	New well. Baseline sample collected on 01/6/00.
24SVE141A	163	63	01/19/00 - 01/26/00	New well. Baseline sample collected on 01/20/00.



Notes:

1. In June and July wells 24SVE35/35A/35B and 24SVE2 were treated using the mobile treatment units, and starting in August they were switched onto the central treatment system.
2. Samples collected on 12/1/99 were rebound samples.

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Extracted Vapor Concentrations from 24SVE2, 24SVE12 and 24SVE35/35A/35B
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A Tyco INTERNATIONAL LTD. COMPANY	2-14

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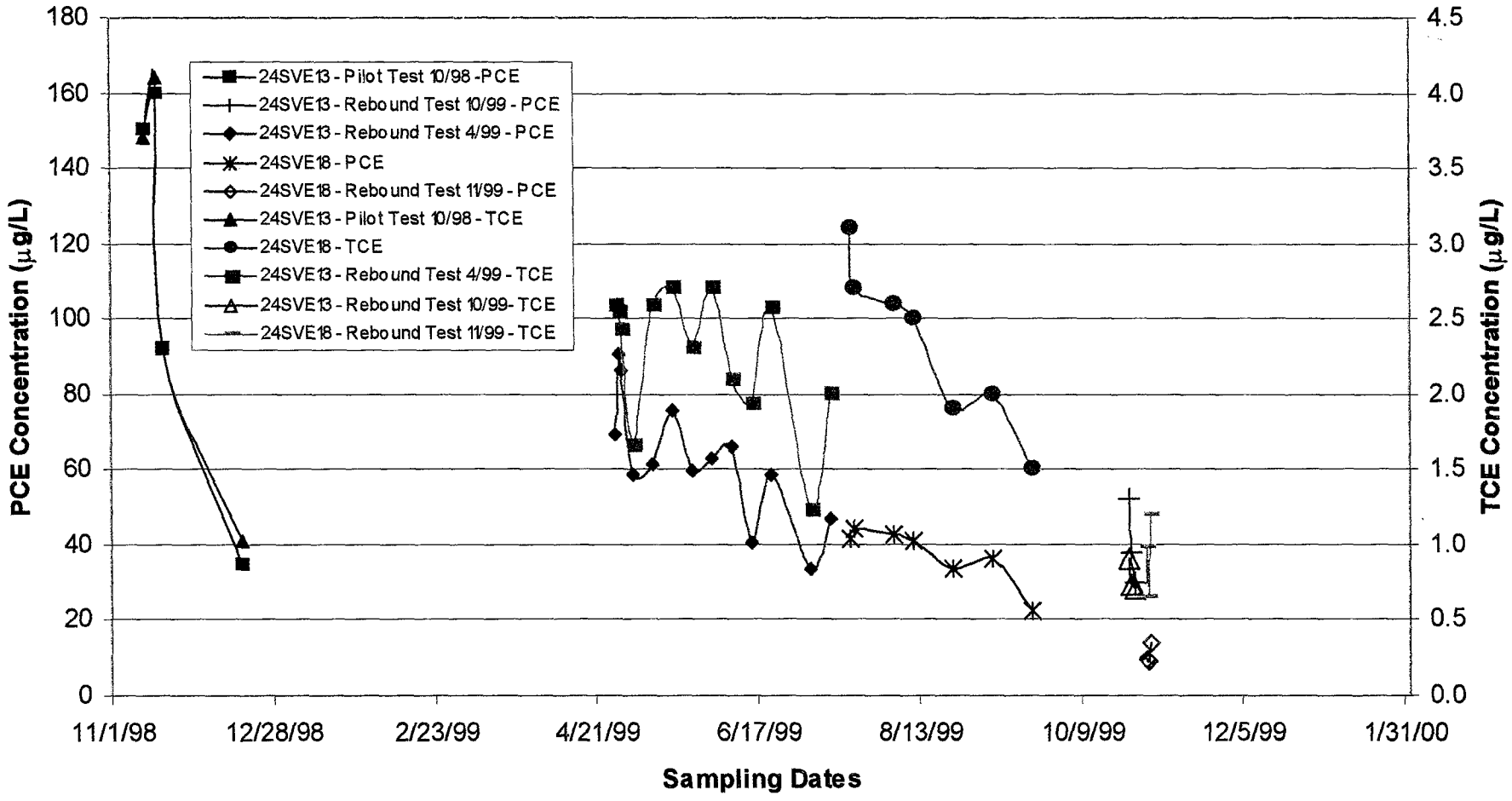

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Extracted Vapor Concentrations from 24SVE13 and 24SVE18 Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-15

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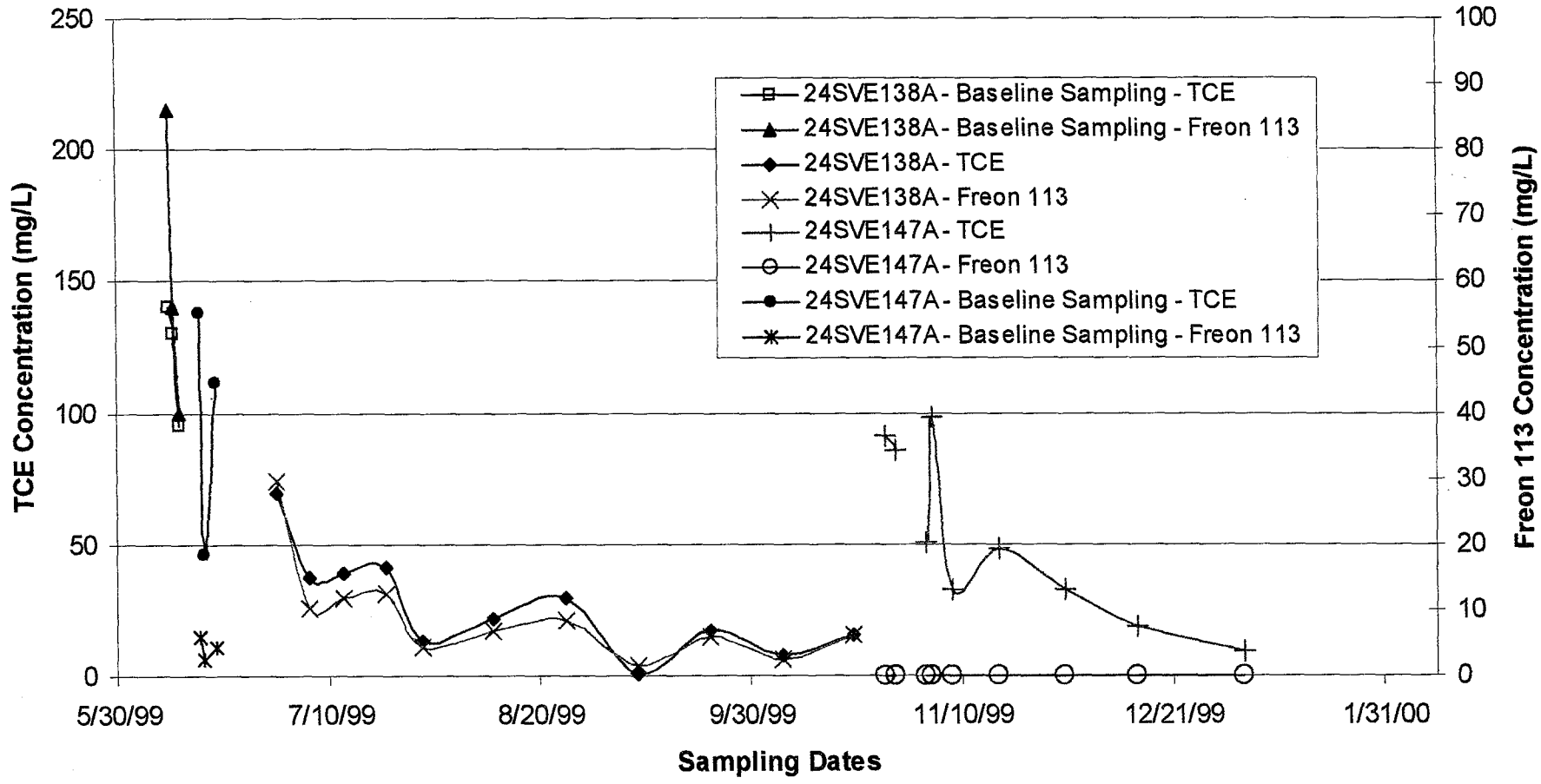

Notes:

1. Samples collected on 11/3/99 were restart samples.

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Extracted Vapor Concentrations from 24SVE138A and 24SVE147A Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-16

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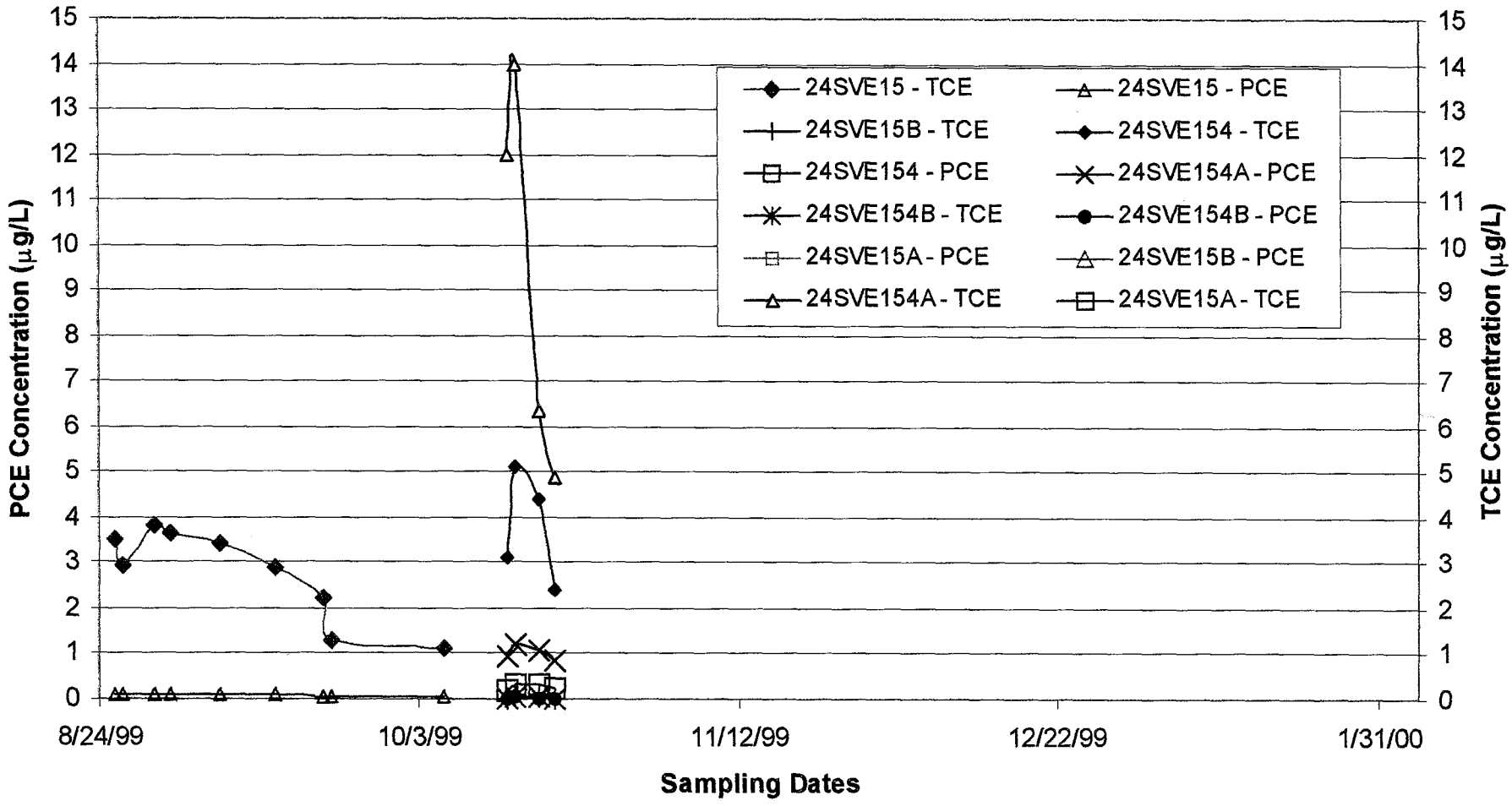

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Extracted Vapor Concentrations from 24SVE15/15A/15B and 24SVE154/154A/154B Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-17

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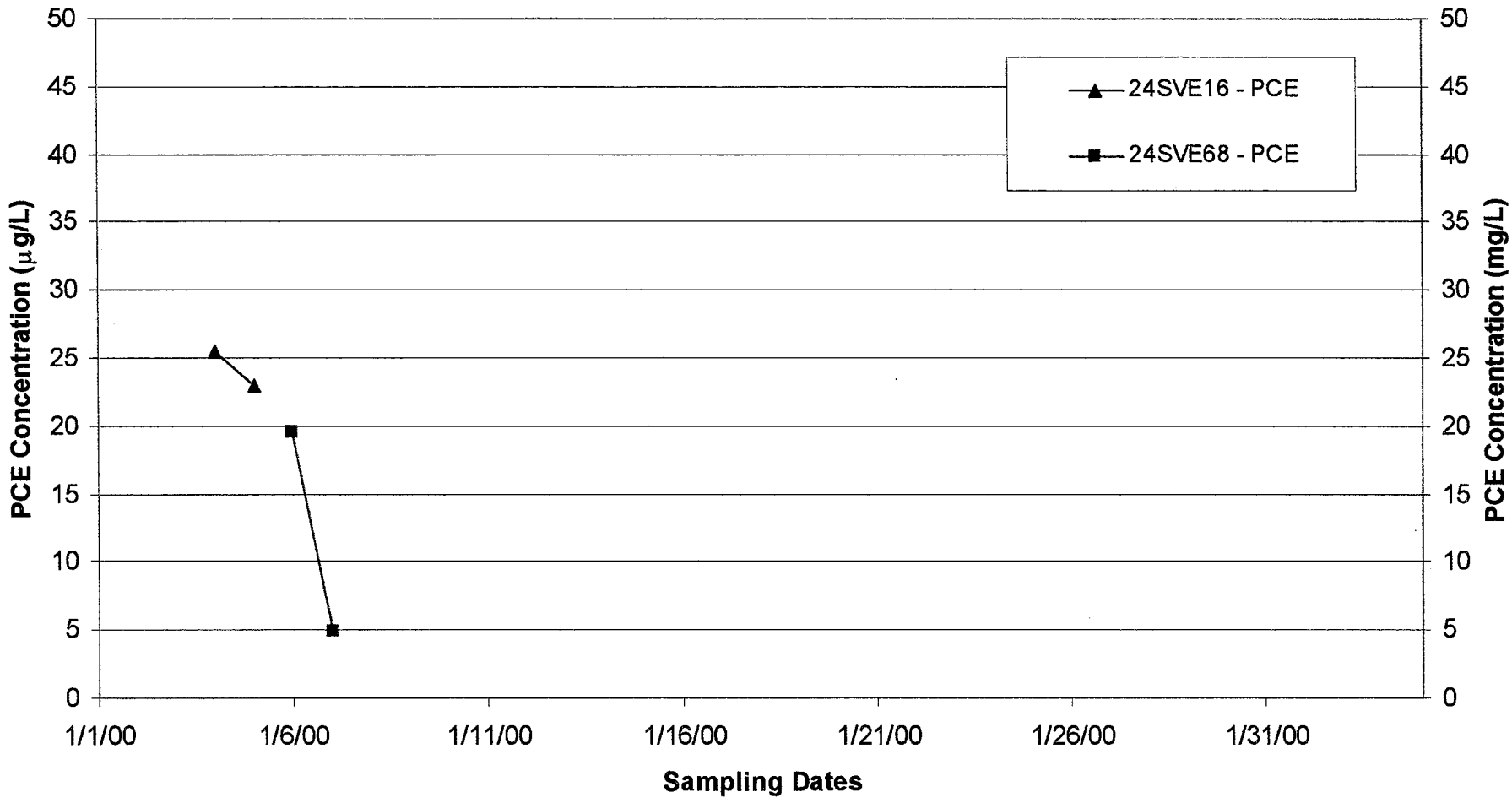

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Extracted Vapor Concentrations from 24SVE16 AND 24SVE68
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-18

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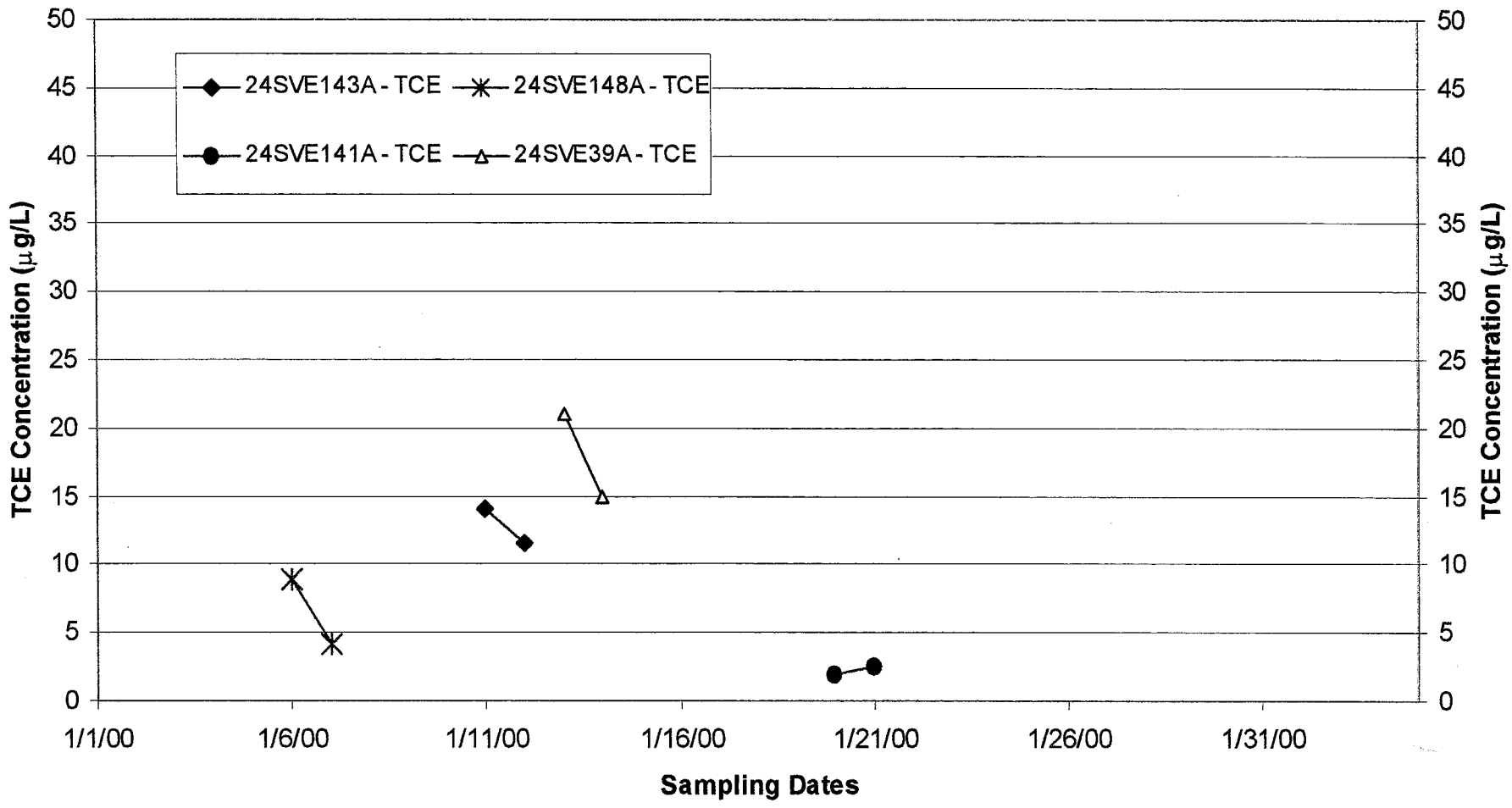

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Extracted Vapor Concentrations from 24SVE39, 24SVE141A, 24SVE143A AND 24SVE148A
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-19

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2.5 SVE PERFORMANCE EVALUATION

Objectives for Phase I operations include installation and operation of SVE wells to accurately evaluate the effective radius of influence (EROI), provide data regarding the current VOC plume configuration, and acquisition of operational data required for the selection of SVE well locations that will provide full coverage of the contaminant plume in the vadose zone. Extracted vapor concentrations and calculated EROI values, along with previous soil gas survey data, were used to assess the aerial coverage of the existing Phase I extraction wells. Recent vapor concentrations were used to assess progress of the remedial effort.

The January 14, 2000, 24-hr baseline sample results of the eight newly installed wells contiguous to buildings 296 and 297 indicate that the aerial extent of the TCE concentration plume around the two buildings had been as defined in the November Monthly *Progress Report* (Earth Tech 1999c). Plume maps for TCE in the deep, intermediate, and shallow zone are presented on Figures 2-20, 2-21, and 2-22 respectively. In addition, the smaller of the ROI and EROI value for the newly installed wells was added to the collective ROI boundaries shown on Figures 2-20, 2-21, and 2-22. This revised cumulative EROI boundary now shows full coverage of the baseline TCE contamination plume. A summary of the calculated ROI and EROI for each tested well is provided in Table A-5.

2.5.1 Pneulog™ Evaluation

A Pneulog™ evaluation was conducted by Praxis Environmental Technologies, Inc to assess SVE system progress and performance. Soil vapor flowrates and concentrations were measured and recorded versus depth in ten SVE wells. The evaluation was performed November 29 through December 3, 1999 and included the following wells: 24SVE9, 24SVE11, 24SVE18, 24SVE35, 24SVE35A, 24SVE49, 24SVE51, 24SVE94, 24SVE128B, and 24SVE147A. A summary of the Pneulog™ evaluation is presented on Table 2-7.

Wells 24SVE9, 24SVE11, 24SVE18, 24SVE35, 24SVE49, 24SVE51, 24SVE94, and 24SVE147A are screened in the deep zone with the bottom of the screen placed within five feet above or below groundwater. Wells 24SVE35A and 24SVE128B are screened in the intermediate and shallow zones, and are approximately 25 and 60 feet above groundwater, respectively. The presence of capillary water prevented the logging of the entire screen intervals in the wells screened near groundwater. Depth to groundwater is approximately 100 feet to 105 feet bgs near buildings 296 and 297 and approximately 75 feet to 80 feet bgs near well 24SVE147A.

The pneulog results depict an inverse relationship between concentration and distance from groundwater. Concentrations increased dramatically in the lower screen near groundwater, and were relatively low in the upper screen further from groundwater. The maximum concentration detected in all wells was collected from the deepest portion of the logged screen. The concentration versus depth profiles indicate volatilization of TCE from the groundwater and subsequent capture by the SVE wells.

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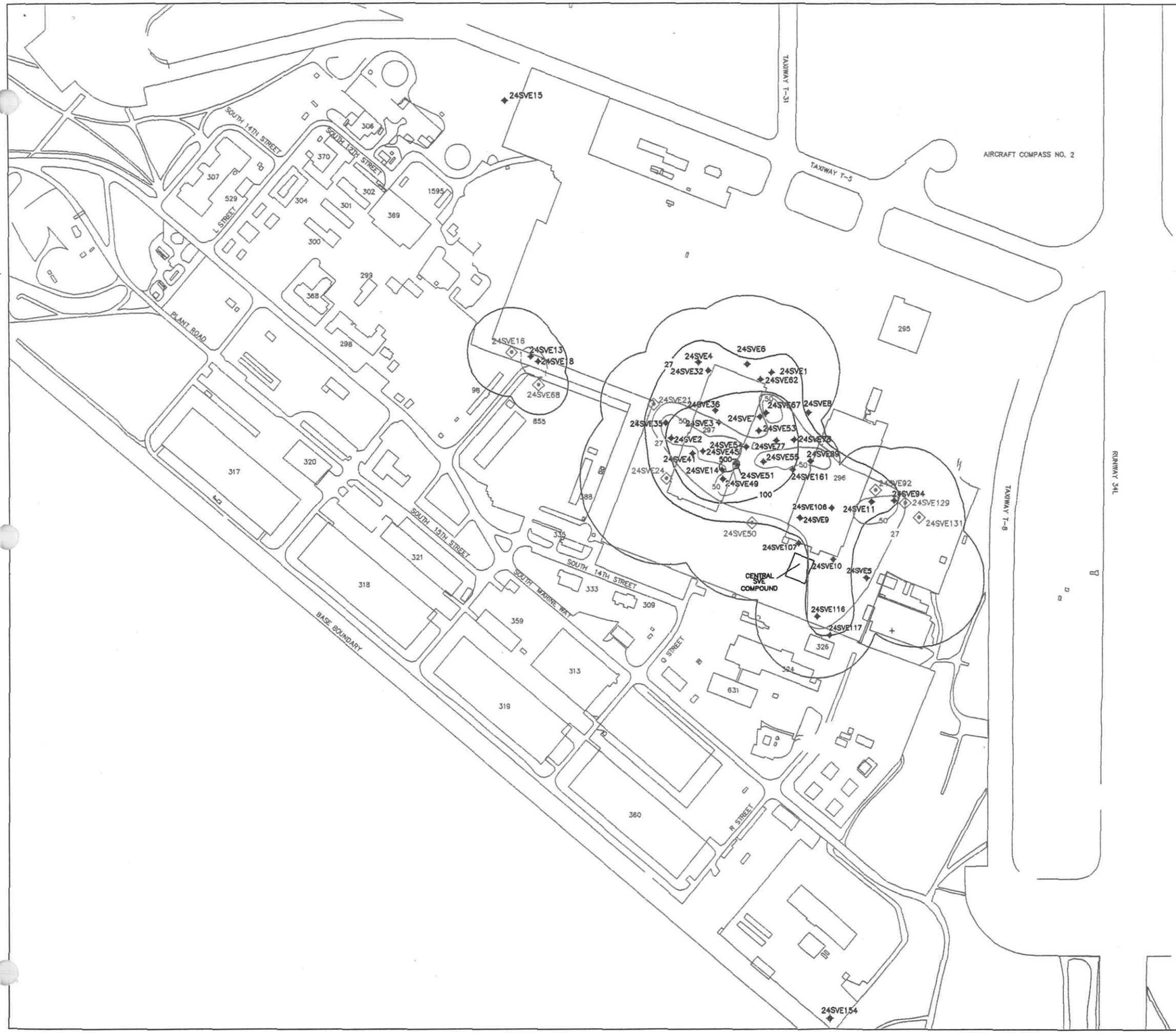
PRIMARY SOURCE OF MAP INFORMATION
DRAFT FINAL ENGINEERING
DESIGN REPORT (BECHTEL)



EXPLANATION

24SVE1 — SOIL VAPOR EXTRACTION WELL

ADDITIONAL SOIL VAPOR EXTRACTION WELL INSTALLED DECEMBER 1999/JANUARY 2000

27 — CONTOUR LINE OF TCE SOIL GAS CONCENTRATION IN µG/L MAY 1999

27 — CONTOUR LINE OF TCE BASELINE SAMPLE CONCENTRATION IN µG/L

EROI BOUNDARY

NORTH

0 225 450

SCALE: 1" = 450

Progress Report - February 2000

Deep Zone Baseline TCE Concentrations vs EROI and Proposed Well Locations
Site 24 - Vadose Zone Remediation

Date: 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH — A TYCO INTERNATIONAL LTD. COMPANY	2-20

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PRIMARY SOURCE OF MAP INFORMATION
DRAFT FINAL ENGINEERING
DESIGN REPORT (BECHTEL)

EXPLANATION

24SVE1 — SOIL VAPOR EXTRACTION WELL

ADDITIONAL SOIL VAPOR EXTRACTION WELL INSTALLED DECEMBER 1999/JANUARY 2000

27 — CONTOUR LINE OF TCE SOIL GAS CONCENTRATION IN µG/L MAY 1999

27 — CONTOUR LINE OF TCE BASELINE SAMPLE CONCENTRATION IN µG/L

EROI BOUNDARY

NORTH

0 225 450

SCALE: 1" = 450

Progress Report - February 2000

Intermediate Zone Baseline TCE Concentrations vs EROI and Proposed Well Locations Site 24 - Vadose Zone Remediation

Date 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH — A tyco INTERNATIONAL LTD. COMPANY	2-21

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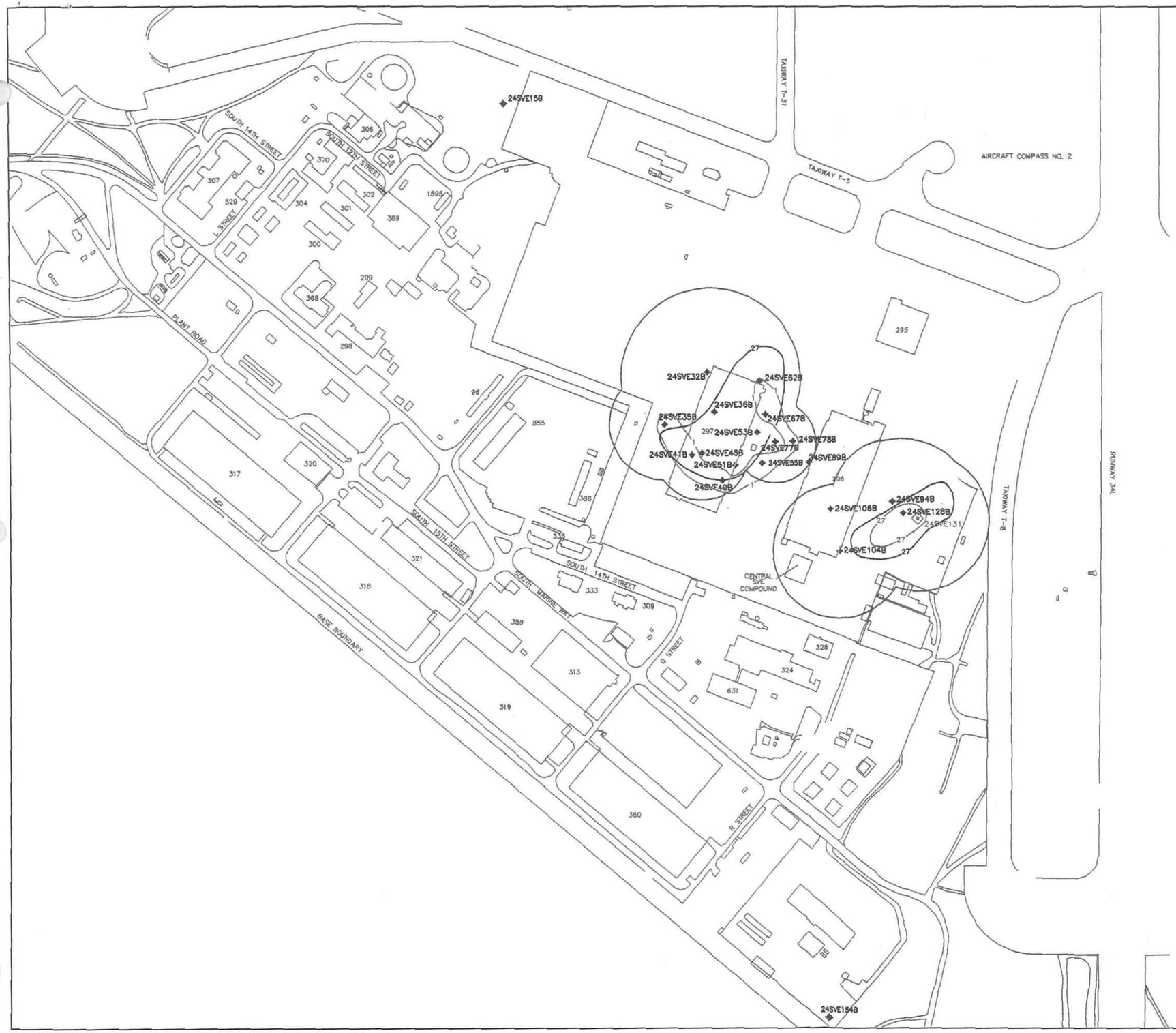

EXPLANATION

24SVE1 — SOIL VAPOR EXTRACTION WELL

ADDITIONAL SOIL VAPOR EXTRACTION WELL INSTALLED DECEMBER 1999/JANUARY 2000

27 — CONTOUR LINE OF TCE SOIL GAS CONCENTRATION IN µG/L MAY 1999

27 — CONTOUR LINE OF TCE BASELINE SAMPLE CONCENTRATION IN µG/L

EROI BOUNDARY

NORTH

0 225 450

SCALE: 1" = 450

Progress Report - February 2000

Shallow Zone Baseline TCE Concentrations vs EROI and Proposed Well Locations
Site 24 - Vadose Zone Remediation

Date 2-00	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH — A TYCO INTERNATIONAL LTD. COMPANY	2-22

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Table 2-7: Pneulog™ Evaluation Results

Well	Screen Interval	Wellhead Vacuum (" H_2O)	Wellhead Flow Rate (scfm)[a]	Wellhead Concentration (µg/L)	Maximum PID Concentration (µg/L)[b]	Maximum Laboratory Concentration (µg/L)	Depth of Maximum Concentration (feet bgs)[c]	Maximum Depth of Log (feet bgs)
24SVE9	81-111	80	6	1	3	NA[d]	105	105
24SVE11	79-109	68	8	15	49	16	94	94
24SVE18[e]	80-100	9	33	15	43	45	95	97
24SVE35	85-105	69	32	7	17	29	96	96
24SVE35A	50-75	63	34	12	12	0.42	73	73
24SVE49	83-103	19	39	5	48	48	100	100
24SVE51	83-103	20	15	4	22	59	95	95
24SVE94	75-105	63	11	2.5	6	7.6	87	87
24SVE128B	15-40	46	231	0.03	0.15	1.9	33	33
24SVE147A	57-77	75	47	26	91	110	73	73

Notes:
[a] scfm = standard cubic feet per minute.
[b] = PID calibrated to isobutylene.
[c] bgs = below ground surface.
[d] Insufficient sample collected.
[e] Concentrations listed for well 24SVE18 are PCE; all other concentrations are TCE.

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2.6 REMEDIAL ACTION OBJECTIVE STATUS

The remedial action objectives stated in the draft *SEOR* and draft final *EDR* and the Interim *ROD* are as follows.

- Reduce concentrations of VOCs in the VOC source areas to prevent or minimize further degradation of the shallow groundwater unit above the MCLs for drinking water.
- Continue vadose zone remediation until VOC soil gas concentrations are below the threshold concentrations (concentrations capable of contaminating the shallow groundwater unit above the MCLs).

Soil gas threshold concentrations summarized below in Table 2-8 were presented as the target cleanup goals in the Interim *ROD* (BNI 1977c).

Table 2-8: IRP Site 24 Target Soil Gas Threshold Concentrations

Contaminant of Concern	U.S. EPA MCL (µg/L)	Soil Gas Threshold (µg/L)
Trichloroethene (TCE)	5	27
Tetrachloroethene (PCE)	5	69
Carbon Tetrachloride	5	61
1,1 –dichloroethene (1,1-DCE)	6	563
Freon 113	1200[a]	234,000

Notes:
[a] California MCL

The draft *SEOR* presented a remediation implementation approach that consisted of two major phases of system operations, Phase I and Phase II. Figures 2-23 and 2-24, taken from the *SEOR*, are flow charts showing sequence of operations for Phase I and Phase II respectively. Along with showing the sequence for SVE system operations, a well deactivation sequence was also outlined in the draft *SEOR* and is summarized in a flow chart, included as Figure 2-25. The SVE implementation strategy outlined in the *SEOR* included six months of Phase I operations, submittal of an addendum to the *SEOR*, and Phase II operations as needed until site closure.

Phase I operations were initiated in May 1999, and project status and system progress were summarized in monthly progress reports. Soil gas thresholds had been achieved in all SVE wells prior to the completion of Phase I operations. Due to the significant progress, Phase I operations were extended for a period of 3 months to accomplish the following tasks:

- Update the estimated TCE concentration distribution within the subsurface.
- Verify EROI coverage throughout the vadose zone plume.
- Identify additional SVE well locations required for plume assessment and/or removal.
- Install and activate additional SVE wells.
- Initiate extraction at the additional wells and reduce concentrations below threshold values.
- Perform rebound testing to verify removal of VOCs below threshold concentrations.

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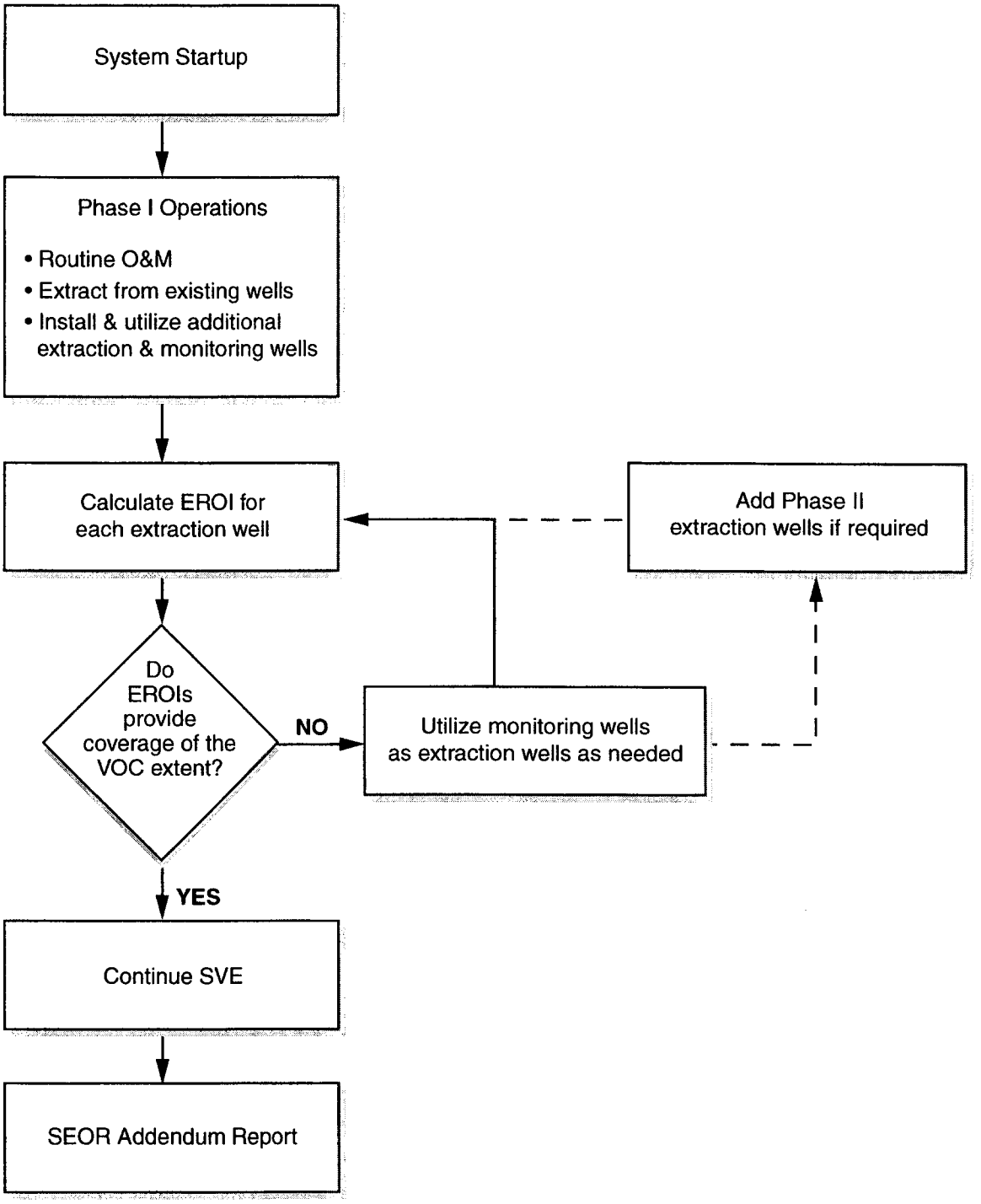

Progress Report - February 2000

Phase I SVE Operations
Vadose Zone Remediation

Date 02-00	EARTH TECH	Figure
Project No. 29307	A tyco INTERNATIONAL LTD. COMPANY	2-23

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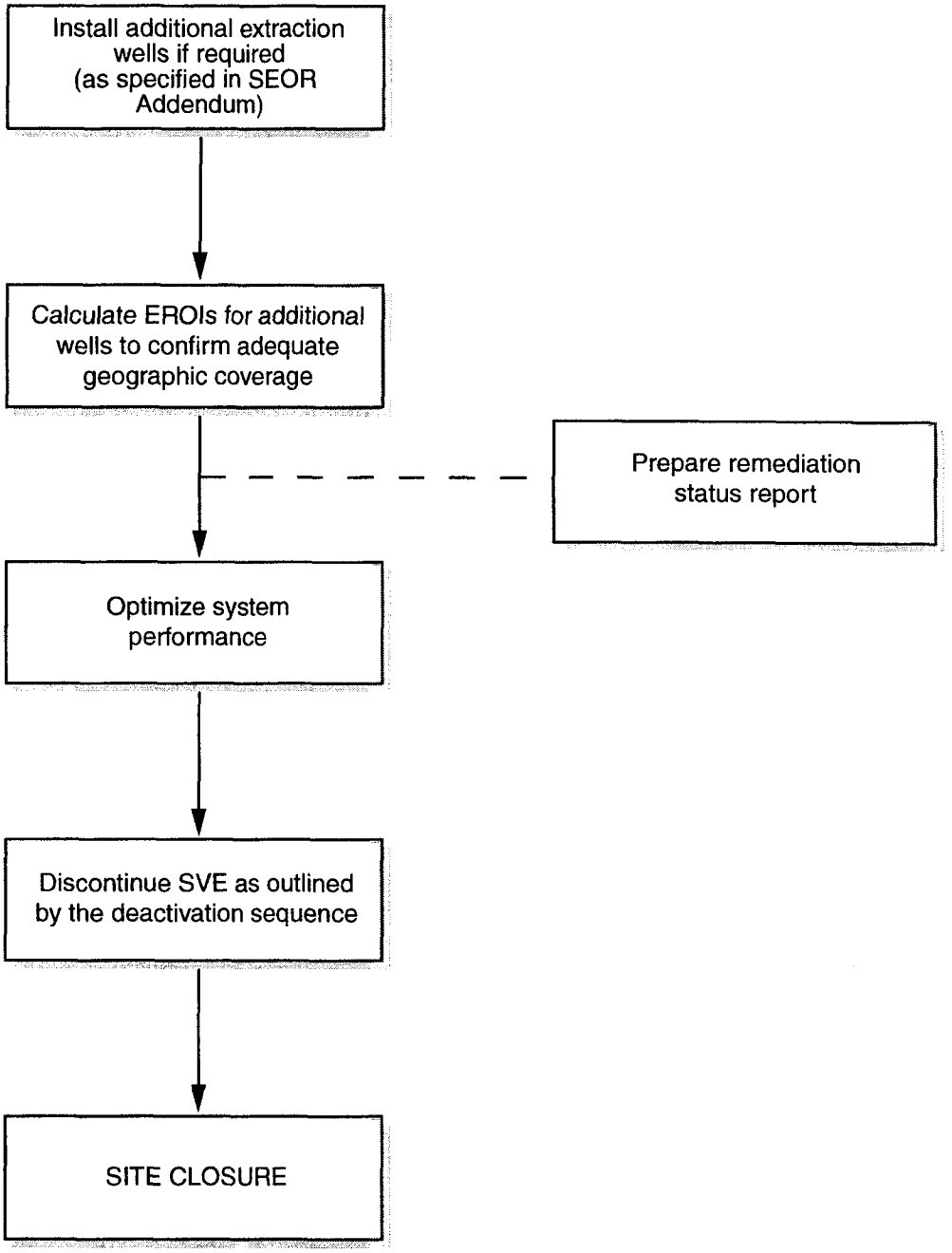

Progress Report - February 2000

Phase II SVE Operations
Vadose Zone Remediation

Date 02-00	EARTH TECH	Figure
Project No. 29307	A tyco INTERNATIONAL LTD. COMPANY	2-24

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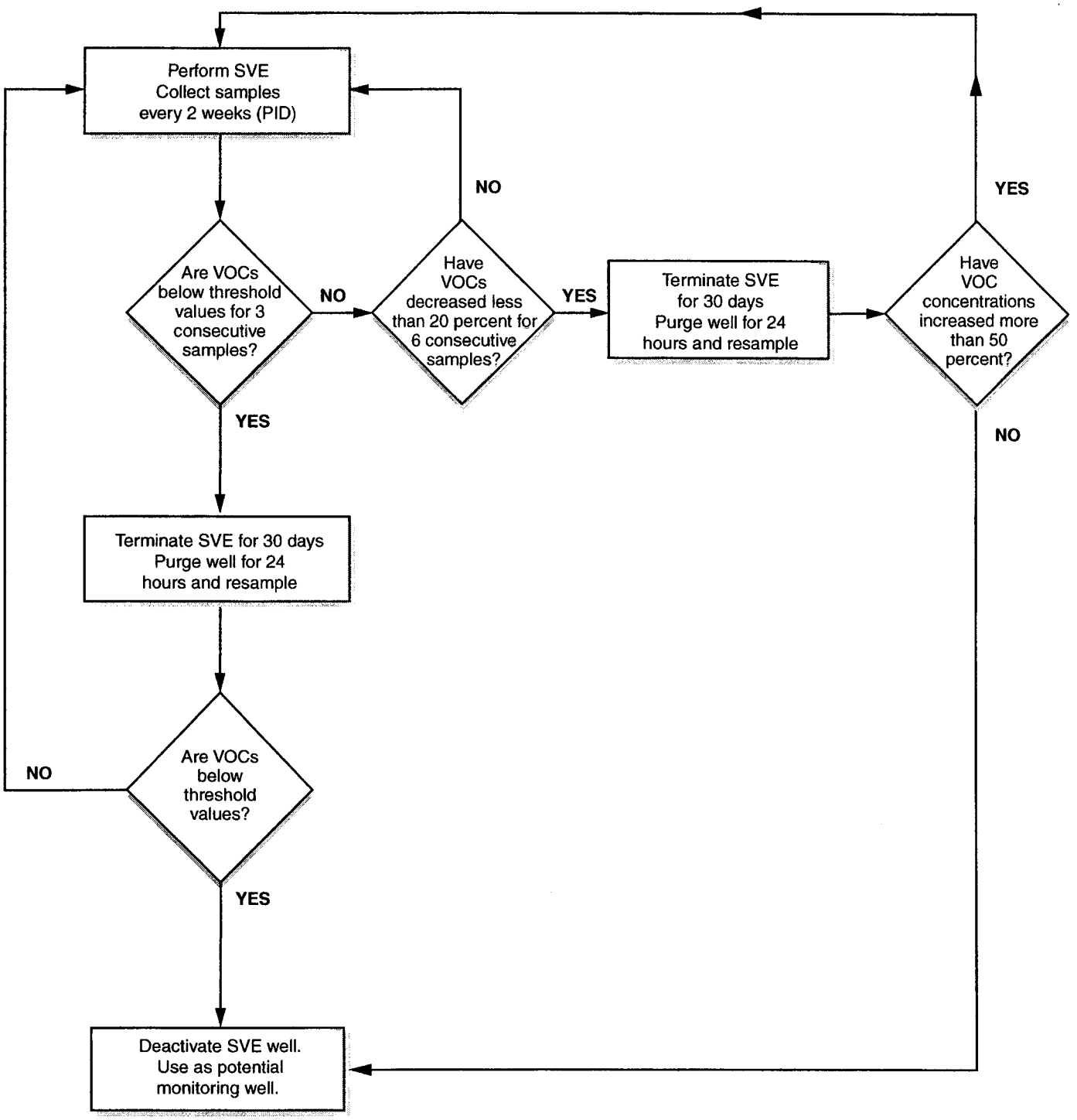

Progress Report - February 2000

Well Deactivation Sequence
Vadose Zone Remediation

Date 02-00	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	Figure 2-25
Project No. 29307		

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As indicated on Figure 2-23, during Phase I SVE operations, the EROI for each extraction well was to be calculated. The November Monthly *Progress Report* (Earth Tech 1999c) presented EROI coverage and plume boundaries. This information was used to determine the location of coverage and concentration data gaps, as outlined on Figure 2-23 and in the *SEOR*. Additional extraction wells were installed in December 1999 and January 2000, as an extension to Phase I operations, to provide coverage of the known plume and confirm the plume boundaries.

Well deactivation has continued from initial system startup to the present time. As of January 31, 2000, all but eight wells have been deactivated. The remaining, active, wells, 24SVE12, 24SVE39A, 24SVE92, 24SVE129, 24SVE131, 24SVE138A, 24SVE143A, and 24SVE147A require only a rebound test to confirm that concentrations remain under threshold prior to deactivation. As indicated on Figure 2-24, once all wells have been deactivated, the site closure sequence will be initiated. Prior to site closure, one additional system-wide rebound/closure confirmation sampling event will be performed. This event will confirm that the vapor concentration in the extraction wells are below the threshold value. If any wells indicate a vapor concentration above the threshold, the wells will be returned to active status, and the system will run until the deactivation sequence has been accomplished. If warranted, additional wells will be reactivated to aid in mass removal near any well that is reactivated. The modified closure strategy is summarized on Figure 2-26.

Once all wells have been deactivated after the rebound/closure confirmation sampling event, a Site Closure Verification Report will be prepared and submitted for regulatory agency review. The Site Closure Verification Report will include a summary of operational data collected during the remedial action. All calculations and derivations based upon the operational data will be presented. Graphs of soil gas concentration versus time for each SVE well will also be provided.

The SVE system will be decommissioned upon regulatory concurrence unless potential facilitation of groundwater remediation via SVE is indicated. To evaluate the effect of SVE on groundwater concentrations, groundwater samples will be collected from monitoring wells 24EX4OB1, 24EX4OB2, 24EX5OB2,and 24EX6OB1 and analyzed for TCE and other VOCs according to EPA Method 8260. The results will be compared with VOC concentrations measured during quarterly sampling conducted in May 1999. The results of the Pneulog™ evaluation indicated the volatilization of TCE from the groundwater to the vadose zone and subsequent removal via the SVE wells. The existing SVE system will be evaluated as a potential complementary technology to groundwater remedial alternatives such as air sparging. If pilot testing demonstrates that SVE will economically and viably enhance groundwater remediation, the system will remain intact.

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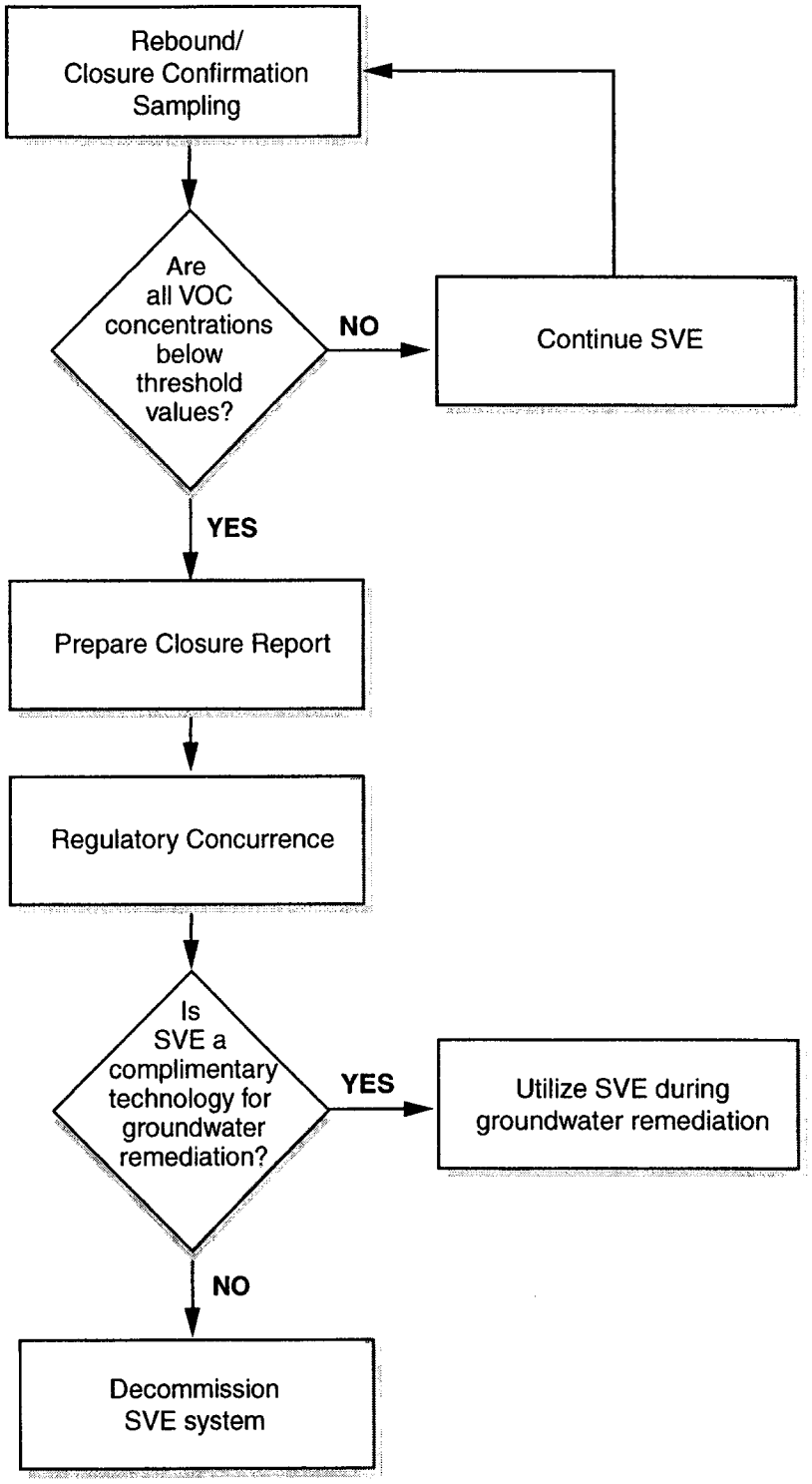

Progress Report - February 2000

SVE System Closure Strategy

Date 02-00	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	Figure
Project No. 29307		2-26

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3. PLANNED OPERATIONS AND ACTIVITIES

Activities planned for February 2000 include

- Continuation of SVE at some existing wells and the operation of the central treatment system,
- Collection of rebound samples for wells 24SVE138A and 24SVE147A,
- Preparation for a system-wide rebound sampling round/closure confirmation sampling round within the next two months.

In addition, preparations for SVE shutdown will be made. These will include

- Review of data to confirm all wells have met deactivation criteria,
- Review of system-wide rebound/closure confirmation sampling results to confirm all wells are below threshold concentration,
- Preparation of closure verification report,
- Preparation of final well construction logs and SVE system record drawings.

The closure verification report will be submitted for agency concurrence. The closure report will contain:

1) Introduction, discussing site background and project approach,
2) Remedial action objectives (RAOs), discussing the RAO and summarizing the numerical threshold cleanup concentrations previously derived and approved,
3) Evaluation of subsurface data, presenting results of the soil gas survey and pilot SVE test results,
4) SVE system operations, describing the SVE systems including as-builts of the central treatment system and system operational data,
5) Extraction well data, including graphs of soil vapor concentration versus time for each well, EROI calculations, soil gas contours based on SVE well baseline samples, extraction well aerial coverage, and deactivation confirmation for each extraction well,
6) Conclusion, discussing attainment of closure criteria and discussing/requesting agency concurrence that the vadose zone soil cleanup objectives have been met.

4. REFERENCES

Bechtel National, Inc. (BNI). 1997a. *Final Phase II Vadose Zone Feasibility Study Report Operable Unit (OU) 2A, Site 24.* Draft. San Diego, California.

———. 1997b. *Final Phase II Vadose Zone Remedial Investigation Report OU 2A, Site 24.* Draft. San Diego, California.

———. 1997c. Draft *Final Interim Record of Decision (ROD), OU 2A, Site 24 VOC Source Area, Vadose Zone.* Draft. San Diego, California.

———. 1997d. *Soil Vapor Extraction Pilot Test Summary Report, Site 24 VOC Source Area.* Draft. San Diego, California.

———. 1997e. *Groundwater Remediation Pilot Test Report, Site 24.* Draft. San Diego, California.

———. 1998a. *Final Engineering Design Report Vadose Zone Remediation, Site 24.* Draft. San Diego, California.

———. 1998b. *Final Contingency Plan Vadose Zone Remediation, Site 24.* Draft. San Diego, California.

Earth Tech, Inc. (Earth Tech). 1999a. *Operation and Maintenance Manual, In Situ Soil Vapor Extraction System.* Draft. Honolulu, Hawaii.

———. 1999b. *System Evaluation and Optimization Report, IRP Site 24 Vadose Zone Remediation.* Draft. Honolulu, Hawaii.

———. 1999c. *Progress Report, Vadose Zone Remediation Volatile Organic Compound Source Area, IRP Site 24, November.* Honolulu, Hawaii.

———. 1999d. *Sampling, Analysis, and Quality Assurance Plan, IRP Site 24 Vadose Zone Remediation.* Draft. Honolulu, Hawaii.

OHM Corporation. 1996. *Technical Memorandum, Continuation of CLEAN II Site 24 Soil Vapor Extraction Pilot Test, MCAS, El Toro.* Irvine, California.

———. 1999a. *Radius of Influence Data From SVE Pilot Tests at IRP Site 24.* Irvine, California.

———. 1999b. *Preliminary Laboratory Data Packages for SVE Pilot Tests at IRP Site 24.* Irvine, California.

———. 1999c. *Preliminary Laboratory Data Packages for the Soil Gas Survey at IRP Site 24.* Irvine, California.

Southwest Division, Naval Facilities Engineering Command. 1999. *Technical Memorandum, Progress Report, Phase I Vadose Zone Remediation Activities, IRP Site 24, MCAS El Toro.* San Diego, California.

Appendix A

Table A-1 Phase I SVE Well Installation Summary
Table A-2 Additional Well Installation and Completion Details
Table A-3 Modified Sampling and Monitoring Schedule
Table A-4 Extraction Well Sampling and Monitoring Data Summaries
Table A-5 Summary of EROI Estimates

Table A-1: Phase I SVE Well Installation Summary

Well Number	Date Installed	Total Depth (feet bgs)	Well Diameter (inches)	Screen Interval (feet bgs)	Depth Zone	Primary Purpose /Remarks
24SVE138A	5/7/99	71.2	2	45-70	Intermediate	Monitoring well for 24SVE12.
24SVE147A	5/7/99	77.75	2	57-77	Intermediate	Monitoring well for 24SVE12.
24SVE 117	5/11/99	105	4	73-98	Deep	Monitoring well for 24SVE116 and evaluation of the extent of contamination to the southeast of 24SVE116.
24SVE 128B	5/17/99	41	4	15-40	Shallow	Extraction well and evaluation of shallow contamination to the east of hangar 296.
24SVE67B	5/13/99	104	2	17-32	Shallow	Monitor extraction at 24SVE1 and 24SVE7.
24SVE67			2	75-100	Deep	
24SVE32B	6/17/99	105	4	20-40	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE3 and SVE4.
24SVE32			2	77-102	Deep	
24SVE35B	6/10/99	105	2	15-35	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE2; plume delineation.
24SVE35A			2	50-75	Intermediate	
24SVE35			2	85-105	Deep	
24SVE36B	6/29/99	105	2	15-40	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE2, SVE3, SVE14, and SVE45.
24SVE36A			2	45-65	Intermediate	
24SVE36			2	80-100	Deep	
24SVE41B	6/24/99	105	4	20-40	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE14 and SVE45; plume delineation.
24SVE41A			2	55-75	Intermediate	
24SVE41			2	85-105	Deep	
24SVE45B	6/25/99	105	2	20-40	Shallow	Extraction
24SVE45A			2	50-70	Intermediate	
24SVE45			2	80-100	Deep	
24SVE49B	6/23/99	105	4	18-33	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE14; plume delineation.
24SVE49A			2	45-65	Intermediate	
24SVE49			2	83-103	Deep	
24SVE51B	6/22/99	105	2	18-33	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE14 and SVE54; plume delineation.
24SVE51A			2	49-69	Intermediate	
24SVE51			2	83-103	Deep	
24SVE53B	6/14/99	105	2	15-35	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE3, SVE7, SVE54, and SVE77; plume delineation.
24SVE53A			2	45-65	Intermediate	
24SVE53			2	73-88	Deep	
24SVE55B	6/18/99	105	2	15-30	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE14, SVE54, SVE77, and SVE161.
24SVE55A			2	40-70	Intermediate	
24SVE55			2	80-100	Deep	
24SVE62B	6/30/99	105	2	15-40	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE1.
24SVE62			2	80-105	Deep	
24SVE77B	6/15/99	105	2	18-33	Shallow	Extraction
24SVE77A			2	39-54	Intermediate	
24SVE77			2	75-100	Deep	
24SVE89B	6/9/99	105	2	15-35	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE161.
24SVE89A			2	50-75	Intermediate	
24SVE89			2	80-105	Deep	
24SVE94B	6/4/99	105	2	25-45	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE11; plume delineation.
24SVE94A			2	50-70	Intermediate	
24SVE94			2	75-105	Deep	
24SVE106B	6/8/99	105	2	15-40	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE9, SVE11, and SVE161.
24SVE106A			2	45-65	Intermediate	
24SVE106			2	70-95	Deep	

Well Number	Date Installed	Total Depth (feet bgs)	Well Diameter (inches)	Screen Interval (feet bgs)	Depth Zone	Primary Purpose /Remarks
24SVE78B	7/2/99	100	2	20-35	Shallow	Concentration and vacuum monitoring; provides EROI data for SVE7, SVE77, and SVE161; plume delineation.
24SVE78A			2	45-60	Intermediate	
24SVE78			2	80-100	Deep	
24SVE18	7/7/99	100	4	80-100	Deep	Concentration and vacuum monitoring; provides EROI data for SVE13; plume delineation.
24SVE154B	7/9/99	100	2	15-35	Shallow	Plume delineation in the vicinity of Agua Chinon Wash.
24SVE154A			2	45-60	Intermediate	
24SVE154			2	65-75	Deep	
24SVE15B	7/12/99	104	2	15-30	Shallow	Plume delineation in the crash crew area.
24SVE15A			2	38-53	Intermediate	
24SVE15			2	79-104	Deep	

Notes:
bgs = below ground surface
EROI = effective radius of influence

Table A-2: Additional Well Installation and Completion Details

Well Number	Date Installed	Total Depth of Well (feet bgs)	Well Diameter (inches)	Screen Interval (feet bgs)	Depth Zone	Primary Purpose / Remarks
24SVE16	12/14/99	100	4	80 - 100	Deep	Plume delineation; extraction; provides EROI data for SVE 13 and SVE18.
24SVE21A	1/6/00	105	2	50 - 75	Intermediate	Plume delineation; extraction.
24SVE21	1/6/00		2	85 - 105	Deep	Plume delineation; extraction.
24SVE24	12/16/99	100	4	70 - 100	Deep	Plume delineation; extraction.
24SVE50	12/16/99	103	4	78 - 103	Deep	Plume delineation; extraction.
24SVE68	12/14/99	104	4	79 - 104	Deep	Plume delineation; extraction; provides EROI data for SVE 18 and SVE13.
24SVE92	12/17/99	100	4	75 - 100	Deep	Plume delineation; extraction; provides EROI data for SVE94.
24SVE129	1/7/00	105	4	75 - 105	Deep	Plume delineation; extraction; provides EROI data for SVE94.
24SVE131B	1/10/00	103	2	20 - 40	Shallow	Plume delineation; extraction;
24SVE131	1/10/00		2	73 - 103	Deep	Plume delineation; extraction; provides EROI data for SVE94.
24SVE39A	1/11/00	75	4	50 - 75	Intermediate	Plume delineation; extraction; provides EROI data for SVE12.
24SVE141A	1/12/00	80	4	50 - 80	Intermediate	Plume delineation; provides EROI data for SVE138A.
24SVE143A	12/22/99	70	4	50 - 70	Intermediate	Plume delineation; provides EROI data for SVE147A.
24SVE148A	12/21/99	75	4	55 - 75	Intermediate	Plume delineation; provides EROI data for SVE147A.

Table A-3: Modified Sampling and Monitoring Schedule

Time	Sample Location(s)	Frequency	Measurements
System startup (Week 1)	S1, S2, S3	Daily	Flowrates, system vacuum, and system effluent
Initial operation period (Week 2 – 4)	S1, S2, S3	Weekly	VOCs by TO14/ 8021 (Tedlar™ bag) for operational assessment
Initial operation period (Week 5 – 8)	S1, S2, S3	Biweekly	Flowrates, vacuum, vapor concentration
Initial operation period (Week 5 – 8)	S1, S3	Biweekly	VOCs by TO14/ 8021 (Tedlar™ bag) for operational assessment
Initial operation period (Week 5 – 8)	S2	Monthly	VOCs by TO14/ 8021 (Tedlar™ bag) for compliance
End of initial operation period (Week 15)	Extraction wells	Event I	VOCs in extracted vapors by Method 8021
Phase I operations (Month 2 – Month 6)	Treatment system and extraction wells	Biweekly	Flowrates, vacuum, vapor concentration, wellhead vacuum
Phase I and Phase II operations	Groundwater monitoring wells	Monthly	Groundwater elevations
End of Phase I operations (Month 6)	Extraction wells	Event II	VOCs in extracted vapors by Method 8021
Phase II operations (Month 6 – Month 18)	S1,S3 and extraction wells	Biweekly	Flowrates, vacuum, vapor concentration, wellhead vacuum
Phase II operations (Month 6 – Month 18)	S2	Monthly	VOCs by TO14/ 8021 (Tedlar™ bag) for operational assessment
Phase II operations (Month 8)	Extraction wells	Event III	VOCs in extracted vapors by Method 8021
Phase II operations (Month 12)	Extraction wells	Event IV	VOCs in extracted vapors by Method 8021
Phase II operations (Month 18)	Extraction wells	Event V	VOCs in extracted vapors by Method 8021
Initial load of condensate and spent carbon	T-100 and VT100	Initial load	Waste characterization

Table A-4
(Page 1 of 5)

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Depth of Screen Interval	Wells on-line 5/18/99	Extracted Vapor Concentrations after 24 Hrs (5/18/99) µg/L							Wells on-line 5/25/99	Extracted Vapor Concentrations after 7 days (5/25/99) µg/L							Wells on line 6/2/99	Extracted Vapor Concentrations (6/2/99) µg/L							Wells on line 6/8/99	Extracted Vapor Concentrations (6/8/99) µg/L							Wells on-line 6/23/99	Extracted Vapor Concentrations (6/23/99) µg/L							Wells on-line 6/29/99	Extracted Vapor Concentrations (6/29/99) µg/L							Wells on line 7/7/99	Extracted Vapor Concentrations (7/7/99) µg/L						
				Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	Deep	79-109	Y	32	225	26	23	0.4-JA	ND	ND	Y	25	175	41	31.00	0.42	ND	ND	Y	55	> 125	-	-	-	-	-	Y	-	-	11	14	0.16	ND	0.30	Y	50	> 125	6.10	11.00	ND	ND	ND	N	38	-	-	-	-	-	-	Y	44	> 125	4.80	8.5	0.1-JA	ND	0.15
24SVE 8	Deep	83-113	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE 8A	Intermediate	50-78	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE104B	Shallow	25-45	Y	25	-	1.4	0.69	ND	ND	ND	Y	16	300	3.10	1.30	ND	ND	ND	N	1.5	-	-	-	-	-	-	N	1.35	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	0.9	-	-	-	-	-	-	N	1.2	-	-	-	-	-	-
24SVE106	Deep	70-95	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	50	> 45	15.00	0.77	ND	ND	ND	Y	55	> 125	-	-	-	-	-	Y[5]	72	> 165	-	-	-	-	-
24SVE106A	Intermediate	45-65	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	50	9	0.046	ND	ND	ND	ND	N	3	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106B	Shallow	15-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	50	> 45	0.04	ND	ND	ND	ND	N	1.2	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE107	Deep	70-95	Y	> 100	50	4.7	66	ND	ND	ND	Y	90	50	7.10	120-D	0.20-JA	ND	0.16	N	-	-	-	-	-	-	-	N	0.15	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	0.1	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE11	Deep	79-109	Y	99	20.2	16	8.5	ND	ND	ND	Y	80	25	89	27.00	ND	ND	ND	Y	90	25	-	-	-	-	-	Y	95	30	39	3.30	ND	ND	ND	Y	45	19	68	2.40	ND	ND	ND	Y	45	9	-	-	-	-	-	Y	70	25	24	0.46	ND	ND	ND
24SVE11A	Intermediate	43-73	Y	99	20	23	14	ND	ND	ND	Y	80	25	7.50	1.00	ND	ND	ND	Y	90	25	-	-	-	-	-	Y	95	25	0.45	ND	ND	ND	ND	Y	45	5	0.3	ND	ND	ND	ND	N	2.5	-	-	-	-	-	-	N	3	-	-	-	-	-	-
24SVE116	Deep	75-95	Y	99	119.43	39	81	1.1	1.2	ND	Y	90	110	41	63	1.10-JA	ND	1.20	Y	110	125	-	-	-	-	-	Y	115	> 125	15	22	0.63-JA	ND	0.74	Y	65	75	9.50	14.07	0.37	0.09	0.56	Y	75	77	-	-	-	-	-	Y	78	84	6.70	21	0.34-JA	ND	0.59
24SVE117	Deep	73-98	N	-	-	-	-	-	-	-	Y	90	70	14	330-D	0.98-JA	0.76	4.4	Y	110	77	-	-	-	-	-	Y	110	88	4.60	87-D	0.39	0.42	2.30	Y	81	70	2.60	72.00	ND	ND	1.90	N	-	-	-	-	-	-	-	N	0.01	-	-	-	-	-	-
24SVE128B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	70	280	50	37	ND	ND	ND	N	-	-	-	-	-	-	-	Y	83	308	20	8.10	ND	ND	ND	Y	35	140	12.00	2.80	ND	ND	ND	Y	39	150	-	-	-	-	-	Y	60	224	5.30	1.6	ND	ND	ND
24SVE129	Deep	75-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131	Deep	73-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE161	Deep	70-95	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	97	70	46	13	0.53	ND	ND	Y	100	62	32	10	0.37	ND	ND	Y	45	32	22	21	0.25 JA	ND	ND	Y	48	30	-	-	-	-	-	Y	75	55	16	44 D	0.22-JA	0.19	0.41
24SVE5	Deep	68-88	Y	95	21.25	8.5	9.1	0.45-JA	0.92	0.3	Y	95	25	30	35.00	1.60	1.50	4.00	N	0.7	-	-	-	-	-	-	Y	120	25	6.20	1.10	0.12	0.12	0.59	Y	85	5	3.90	0.27	0.052	0.042	0.35	N	0.85	-	-	-	-	-	-	N	1.15	-	-	-	-	-	-
24SVE5A	Intermediate	42-57	Y	80	120	0.84	0.49	0.031	0.097	0.023	Y	65	120	2.70	1.90	0.09	0.079	0.31	N	1.25	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-					N	0.6	-	-	-	-	-	-	N	0.75	-	-	-	-	-	-
24SVE78	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78A	Intermediate	45-60	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78B	Shallow	20-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE89	Deep	80-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	35	25	130	24	2.70	ND	ND	Y	40	30	-	-	-	-	-	Y	70	75	36	7.7	0.65	ND	0.36
24SVE89A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	32	> 45	8.90	1.20	0.15	ND	ND	Y	35	100	-	-	-	-	-	N	3.5	-	-	-	-	-	-
24SVE89B	Shallow	15-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	> 45	0.07	0.05	ND	ND	ND	Y	30	> 125	-	-	-	-	-	N	0.6	-	-	-	-	-	-
24SVE9	Deep	81-111	Y	> 100	> 15	36	68	0.38-JA	ND	ND	Y	90	16	53	170	0.44-JA	ND	ND	Y	110	18	-	-	-	-	-	Y	112	14	19	58	ND	ND	ND	Y	70.00	18	17	80	ND	ND	ND	Y	78	13	-	-	-	-	-	Y	95	25	14	140-D	0.24-JA	0.2	0.34
24SVE9A	Intermediate	55-85	Y	> 100	-	1.6	2.3	0.014-JA	ND	ND	Y	90	50	5.20	11	ND	ND	ND	N	0.75	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	0.85	-	-	-	-	-	-	N	1	-	-	-	-	-	-
24SVE94	Deep	75-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	2.6	-	-	-	-	-	-	Y	30	12.6	40	16	0.82	0.61	ND	Y	35	25	-	-	-	-	-	Y	55	30	56	18	0.50-JA	0.83	ND
24SVE92	Deep	75-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94A	Intermediate	45-65	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	3.1	-	-	-	-	-	-	Y	28	> 45	24	15	0.26 JA	0.44	ND	Y	30	70	-	-	-	-	-	Y	50	> 125	11	3.7	0.068-JA	0.25	ND
24SVE94B	Shallow	15-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	3.2	-	-	-	-	-	-	Y	25	> 45	3.90	3.50	0.052	0.14	ND	Y	28	> 125	-	-	-	-	-	N	5	-	-	-	-	-	-
PORTABLE SVE UNITS																																																									
24SVE12	Intermediate	34-74	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE13	Deep	79-109	Y	84	27	2.71	2.29	ND	75.4	ND	Y	74	23	2.65	2.357	ND	ND	66.07	Y	100	27	2.71	2.67	ND	ND	62.7	Y	100	27	1.95	1.9	ND	ND	65.5	Y	98	27	2.585	2.32	ND	ND	58.65	Y	100	27	ND	ND	ND	ND	ND	Y	100	27	1.235	0.98	ND	ND	26.8
24SVE15	Deep	79-104	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15A	Intermediate	38-53	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15B	Shallow	15-30	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE16	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE18	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE39A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE68	Deep	79-104	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE138A	Intermediate	45-70	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[1]	94	70	140	215.3	ND	5.266	5.24	Y	98	70	Not sampled					Y[4]	100	85	79.74	87.70	ND	2.50	2.57	Y	100	90	37	26	ND	0.69	0.77
24SVE141A	Intermediate	50-80	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE143A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE147A	Intermediate	57-77	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[2]	98	60	138	5.885	1.116	2.95	3.29	Y[3]	98	60	111.53	4.45	ND	ND	2.46	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE148A	Intermediate	55-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154	Deep	65-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154A	Intermediate	45-60	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154B	Shallow	15-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-

Table A-4
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IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Depth of Screen Interval	Wells on-line 7/21/99	Extracted Vapor Concentrations (7/21/99) µg/L							Wells on-line 7/28/99	Extracted Vapor Concentrations6 (7/28/99) µg/L							Wells on line 8/4/99	Extracted Vapor Concentrations (8/4/99) µg/L							Wells on-line 8/18/99	Extracted Vapor Concentrations (8/18/99) µg/L							Wells on-line 8/25/99	Extracted Vapor Concentrations (8/25/99) µg/L							Wells on-line 8/27/99	Extracted Vapor Concentrations (8/27/99) µg/L							Wells on-line 8/31/99	Extracted Vapor Concentrations (8/31/99) µg/L						
				Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	Deep	79-109	Y	25	170	3	6.9	0.1 JA	ND	0.16	N	0.45	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE 8	Deep	83-113	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE 8A	Intermediate	50-78	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE104B	Shallow	25-45	N	0.8	-	-	-	-	-	-	N	0.15	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106	Deep	70-95	Y	50	125	7.60	3.4	ND	ND	ND	Y	50	125	-	-	-	-	-	Y	50	125	6.6	1.6	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106A	Intermediate	45-65	N	2	-	-	-	-	-	-	N	0	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106B	Shallow	15-40	N	1.15	-	-	-	-	-	-	N	1.1	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE107	Deep	70-95	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE11	Deep	79-109	Y	60	25	29	ND	ND	ND	ND	Y	61	25	-	-	-	-	-	Y	56	25	20	ND	ND	ND	ND	Y	70	25	16	ND	ND	ND	ND	Y	55	21	16	ND	ND	ND	ND	Y	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
24SVE11A	Intermediate	43-73	N	3	-	-	-	-	-	-	Y	3	-	0.04	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE116	Deep	75-95	Y	110	210	3.60	14	0.26-JA	ND	0.48	Y	105	210	-	-	-	-	-	Y	110	220	3.6	17	0.28	0.094	0.53	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE117	Deep	73-98	N	0.1	-	-	-	-	-	-	Y	106	168	1.40	45	ND	ND	1.3	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE128B	Shallow	15-40	Y	50	105	3.40	1.9	ND	ND	ND	Y	50	105	-	-	-	-	-	Y	50	-	2.5	1.6	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE129	Deep	75-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131	Deep	73-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE161	Deep	70-95	Y	60	7	8.60	24	0.15	0.15	0.35	Y	56	56	-	-	-	-	-	Y	55	30	7.2	27	ND	ND	0.21	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE5	Deep	68-88	N	0.8	-	-	-	-	-	-	Y	110	25	2	0.34	0.057	0.062	0.24	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE5A	Intermediate	42-57	N	0.55	-	-	-	-	-	-	N	0.4	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78	Deep	80-100	Y	40	75	37	4.8	0.76	ND	ND	Y	40	75	-	-	-	-	-	Y	40	80	30	9.4	0.65	ND	0.54	Y	60	125	17	6.1	0.38	ND	0.41	Y	50	95	13	3.7	0.25	ND	0.24	Y	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
24SVE78A	Intermediate	45-60	Y	42	25	1.20	0.093	ND	ND	0.062	Y	45	25	-	-	-	-	-	Y	40	25	2.6	0.43	ND	ND	0.075	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78B	Shallow	20-35	Y	40	> 125	1.10	0.039	ND	ND	0.32	Y	32	> 125	-	-	-	-	-	Y	30	125	0.74	0.55	ND	ND	0.28	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE89	Deep	80-105	Y	55	50	14	1.7	0.25	ND	0.23	Y	55	50	-	-	-	-	-	Y	55	55	7.7	8.6	0.11	ND	0.13	Y	65	65	5.4	3.9	0.072	ND	0.096	Y	55	50	4.7	1.2	ND	ND	ND	Y	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
24SVE89A	Intermediate	50-75	N	4	-	-	-	-	-	-	N	4	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE89B	Shallow	15-35	N	0.3	-	-	-	-	-	-	N	1.2	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE9	Deep	81-111	Y	90	12	10	88	ND	ND	ND	Y	87	30	-	-	-	-	-	Y	92	30	10	55	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE9A	Intermediate	55-85	N	1.05	-	-	-	-	-	-	Y	87	45	0.049	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94	Deep	75-105	Y	50	35	27	8.4	ND	ND	ND	Y	50	25	-	-	-	-	-	Y	50	25	46	11	0.32	0.67	ND	Y	70	25	18	5.4	ND	0.34	ND	Y	55	30	18	4.3	ND	0.2	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE92	Deep	75-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94A	Intermediate	45-65	Y	35	60	5.30	2.3	ND	0.17	ND	Y	43	115	-	-	-	-	-	Y	45	> 125	4.8	2	0.028	0.12	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94B	Shallow	15-40	N	5	-	-	-	-	-	-	N	0.002	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
PORTABLE SVE UNITS																																																								
24SVE12	Intermediate	34-74	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE13	Deep	79-109	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15	Deep	79-104	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	10	65	2.95	0.335	ND	ND	0.08	Y	11	65	3.8	0.44	ND	ND	0.09
24SVE15A	Intermediate	38-53	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	10	60	0.012	0.035	ND	ND	ND	Y	11	60	0.029	0.052	ND	ND	ND
24SVE15B	Shallow	15-30	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	10	55	ND	ND	ND	ND	ND	Y	11	55	ND	ND	ND	ND	ND
24SVE16	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE18	Deep	80-100	Y	12	80	3.1	2.55	ND	ND	41.5	Y	12	80	Not sampled					Y	5	72	2.6	2.05	ND	ND	42.5	Y	10	85	Not sampled					Y	10	85	1.9	1.1	ND	ND	33.5	Y	10	87	Not sampled					Y	10	87	Not sampled							
24SVE39A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE68	Deep	79-104	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE138A	Intermediate	45-70	Y	100	100	41.02	30.81	ND	0.7	0.87	Y	100	100	13.5	11	0.1	0.2	0.3	Y[7]	100	105	22	17	ND	0.26	0.49	Y	100	105	Not sampled					Y	100	105	29.89	21.29	0.16	0.39	0.66	Y	100	105	Not sampled					Y	100	105	Not sampled							
24SVE141A	Intermediate	50-80	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE143A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE147A	Intermediate	57-77	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE148A	Intermediate	55-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154	Deep	65-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154A	Intermediate	45-60	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154B	Shallow	15-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Depth of Screen Interval	Wells on-line 9/8/99	Extracted Vapor Concentrations (9/8/99) µg/L							Wells on-line 9/21-9/23/99	Extracted Vapor Concentrations (9/21-9/23/99) µg/L						
				Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	Deep	79-109	N	-	-	-	-	-	-	-	Y	26	185	ND	3.3	ND	ND	ND
24SVE 8	Deep	83-113	N	-	-	-	-	-	-	-	Y	22	0	ND	ND	ND	ND	ND
24SVE 8A	Intermediate	50-78	N	-	-	-	-	-	-	-	Y	22	35	ND	ND	ND	ND	ND
24SVE104B	Shallow	25-45	N	-	-	-	-	-	-	-	Y	33	>350	ND	ND	ND	ND	ND
24SVE106	Deep	70-95	N	-	-	-	-	-	-	-	Y	16	37	ND	ND	ND	ND	ND
24SVE106A	Intermediate	45-65	N	-	-	-	-	-	-	-	Y	32	25	ND	ND	ND	ND	ND
24SVE106B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	32	35	ND	ND	ND	ND	ND
24SVE107	Deep	70-95	N	-	-	-	-	-	-	-	Y	45	35	ND	11	ND	ND	ND
24SVE11	Deep	79-109	Y	58	22	15	ND	ND	ND	ND	Y	17	9	6.8	ND	ND	ND	ND
24SVE11A	Intermediate	43-73	N	-	-	-	-	-	-	-	Y	20	30	ND	ND	ND	ND	ND
24SVE116	Deep	75-95	N	-	-	-	-	-	-	-	Y	43	90	1.7	11	ND	ND	ND
24SVE117	Deep	73-98	N	-	-	-	-	-	-	-	Y	45	-	ND	71	ND	ND	ND
24SVE128B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	20	91	ND	ND	ND	ND	ND
24SVE129	Deep	75-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131	Deep	73-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE161	Deep	70-95	N	-	-	-	-	-	-	-	Y	20	0	ND	ND	ND	ND	ND
24SVE5	Deep	68-88	N	-	-	-	-	-	-	-	Y	46	84	1	ND	ND	ND	ND
24SVE5A	Intermediate	42-57	N	-	-	-	-	-	-	-	Y	43	100	ND	ND	ND	ND	ND
24SVE78	Deep	80-100	Y	50	80	5.1	0.41	0.16	ND	ND	Y	16	90	ND	ND	ND	ND	ND
24SVE78A	Intermediate	45-60	N	6	-	-	-	-	-	-	Y	16	0	ND	ND	ND	ND	ND
24SVE78B	Shallow	20-35	N	4.5	-	-	-	-	-	-	Y	15	100	ND	ND	ND	ND	ND
24SVE89	Deep	80-105	N	-	-	-	-	-	-	-	Y	19	45	ND	ND	ND	ND	ND
24SVE89A	Intermediate	50-75	N	-	-	-	-	-	-	-	Y	16	100	ND	ND	ND	ND	ND
24SVE89B	Shallow	15-35	N	-	-	-	-	-	-	-	Y	15	96	ND	ND	ND	ND	ND
24SVE9	Deep	81-111	N	-	-	-	-	-	-	-	Y	40	25	2.6	3.7	ND	ND	ND
24SVE9A	Intermediate	55-85	N	-	-	-	-	-	-	-	Y	40	35	ND	ND	ND	ND	ND
24SVE94	Deep	75-105	Y	58	30	13	4	ND	0.29	ND	Y	20	30	ND	ND	ND	ND	ND
24SVE92	Deep	75-100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE94A	Intermediate	45-65	N	-	-	-	-	-	-	-	Y	12	75	ND	ND	ND	ND	ND
24SVE94B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	40	100	ND	ND	ND	ND	ND
PORTABLE SVE UNITS																		
24SVE12	Intermediate	34-74	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE13	Deep	79-109	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15	Deep	79-104	Y	11	65	3.4	0.53	ND	ND	0.08	Y	54	120	1.3	0.31	0.0082	0.013	0.041
24SVE15A	Intermediate	38-53	Y	11	60	0.021	0.024	ND	ND	ND	N	-	-	-	-	-	-	-
24SVE15B	Shallow	15-30	Y	11	55	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-
24SVE16	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE18	Deep	80-100	Y	10	87	2	1.3	ND	ND	36	Y	12	75	1.5	0.88	0.079	0.046	22.5
24SVE39A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE68	Deep	79-104	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE138A	Intermediate	45-70	Y	100	105	5.8	4.6	ND	ND	0.15	Y	100	105	8.55	7.55	ND	ND	0.1635
24SVE141A	Intermediate	50-80	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE143A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE147A	Intermediate	57-77	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE148A	Intermediate	55-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154	Deep	65-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154A	Intermediate	45-60	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154B	Shallow	15-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-

	Wells on-line 10/6/99	Extracted Vapor Concentrations (10/6/99) µg/L							Wells on-line 10/20/99	Extracted Vapor Concentrations (10/20/99) µg/L							Wells on-line 12/1/99	Extracted Vapor Concentrations (12/1/99) µg/L						
		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	N	-	-	-	-	-	-	-	N	0.12	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE 8	N	-	-	-	-	-	-	-	N	2	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE 8A	N	-	-	-	-	-	-	-	N	2	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE104B	N	-	-	-	-	-	-	-	N	0.04	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106	N	-	-	-	-	-	-	-	N	0.37	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106A	N	-	-	-	-	-	-	-	N	0	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE106B	N	-	-	-	-	-	-	-	N	0.09	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE107	N	-	-	-	-	-	-	-	N	0.2	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE11	N	-	-	-	-	-	-	-	Y	58	22	8.7	0.16	ND	ND	ND	N	-	-	-	-	-	-	-
24SVE11A	N	-	-	-	-	-	-	-	N	0.5	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE116	N	-	-	-	-	-	-	-	N	0	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE117	N	-	-	-	-	-	-	-	N	0	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE128B	N	-	-	-	-	-	-	-	N	0.25	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE129	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE131B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE161	N	-	-	-	-	-	-	-	N	0.5	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE5	N	-	-	-	-	-	-	-	N	0	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE5A	N	-	-	-	-	-	-	-	N	0.04	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78	N	-	-	-	-	-	-	-	Y	58	105	1.3	ND	0.028	ND	ND	N	-	-	-	-	-	-	-
24SVE78A	N	-	-	-	-	-	-	-	N	1.9	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE78B	N	-	-	-	-	-	-	-	N	2.1	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE89	N	-	-	-	-	-	-	-	Y	62	56	1.6	0.029	ND	ND	ND	N	-	-	-	-	-	-	-
24SVE89A	N	-	-	-	-	-	-	-	N	3	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE89B	N	-	-	-	-	-	-	-	N	0.75	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE9	N	-	-	-	-	-	-	-	N	0.5	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE9A	N	-	-	-	-	-	-	-	N	0.15	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94	N	-	-	-	-	-	-	-	Y	76	27	5.8	2.7	ND	0.15	ND	N	-	-	-	-	-	-	-
24SVE92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94A	N	-	-	-	-	-	-	-	N	0.35	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE94B	N	-	-	-	-	-	-	-	N	0.25	-	-	-	-	-	-	N	-	-	-	-	-	-	-
PORTABLE SVE UNITS																								
24SVE12	N	-	-	-	-	-	-	-	Y[9]	36	35	19	3.8	91	0.7	0.57	N	-	-	-	-	-	-	-
24SVE13	N	-	-	-	-	-	-	-	Y[10]	96	32	0.91	ND	ND	ND	52	N	-	-	-	-	-	-	-
24SVE15	Y	51	120	1.1	0.3	ND	0.032	0.016	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE15B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE16	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE18	N	-	-	-	-	-	-	-	Y[11]	10	74	0.98	0.51	ND	-	9.6	N	-	-	-	-	-	-	-
24SVE39A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE68	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE138A	Y	100	105	7.4	6.6	ND	0.12	ND	Y	100	105	15.5	15.5	ND	0.295	0.3	N	-	-	-	-	-	-	-
24SVE141A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE143A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE147A	N	-	-	-	-	-	-	-	Y[10]	98	60	91	ND	ND	2.2	2.3	Y[12]	64	45	33	ND	0.2	0.52	0.54
24SVE148A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE154	Y[8]	54	10	3.1	ND	ND	0.18	ND	Y	54	10	2.4	0.072	ND	ND	0.22	N	-	-	-	-	-	-	-
24SVE154A	Y[8]	54	10	12	0.21	ND	0.94	ND	Y	54	10	4.9	0.14	ND	ND	0.85	N	-	-	-	-	-	-	-
24SVE154B	Y[8]	54	10	0.016	ND	ND	ND	ND	Y	54	10	0.016	ND	ND	ND	ND	N	-	-	-	-	-	-	-

	Wells on-line 12/15/99	Extracted Vapor Concentrations (12/15/99) µg/L							Wells on-line 1/14/00	Extracted Vapor Concentrations (1/14/00) µg/L							Wells on-line 1/25/00	Extracted Vapor Concentrations (1/25/00) µg/L					
		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4
24SVE10	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE 8	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE 8A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE104B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE106	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE106A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE106B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE107	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE11	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE11A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE116	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE117	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE128B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE129	N	-	-	-	-	-	-	-	Y	40	112	9.4	3.3	ND	0.16	ND	Y	50	>125	4.2	0.8	ND	0.061
24SVE131	N	-	-	-	-	-	-	-	Y	25	84	11	13	0.12	0.26	ND	Y	30	90	3.6	5.4	0.042	0.084
24SVE131B	N	-	-	-	-	-	-	-	Y	25	135	0.5	0.15	ND	ND	ND	N	-	-	-	-	-	-
24SVE161	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE5	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE5A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE78	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE78A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE78B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE89	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE89A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE89B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE9	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE9A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE94	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE92	N	-	-	-	-	-	-	-	Y	45	125	3.1	0.54	0.027	0.047	ND	N	-	-	-	-	-	-
24SVE94A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE94B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
PORTABLE SVE UNITS																							
24SVE12	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE13	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE15	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE15A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE15B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE16	N	-	-	-	-	-	-	-	Y[14]	10	78	0.048	0.36	ND	ND	23	N	-	-	-	-	-	-
24SVE18	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE39A	N	-	-	-	-	-	-	-	Y	100	45	15	14	0.42	0.84	0.31	N	-	-	-	-	-	-
24SVE68	N	-	-	-	-	-	-	-	Y[15]	8	77	0.31	0.24	0.035	ND	4.9	N	-	-	-	-	-	-
24SVE138A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE141A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[17]	-	-	1.95	27.5	ND	0.13
24SVE143A	N	-	-	-	-	-	-	-	Y[16]	100	110	11	0.25	ND	0.22	0.23	N	-	-	-	-	-	-
24SVE147A	Y[13]	56	44	19	ND	0.175	0.45	0.43	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE148A	N	-	-	-	-	-	-	-	Y[15]	38	160	4.2	ND	0.054	0.16	0.2	N	-	-	-	-	-	-
24SVE154	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE154A	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-
24SVE154B	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-

Notes

Wells 24SVE138A and 24SVE147A are treated using portable SVE systems.

Bold data indicate concentrations of contaminants are above threshold for the specific contaminant.

JA The analyte was positively identified, but the quantification is an estimate.

D The result was obtained from the analysis of a dilution.

ND Non-Detect

Y Yes N No

* Wells not on-line 5/18/99. Samples collected from all the wells on 5/25/99.

1 Well was on-line on 6/8/99. A 24-hr sample was collected on 6/9/99.

2 Well was on-line on 6/14/99. A 24-hr sample was collected on 6/15/99.

3 Well was on-line and sampled on 6/18/99.

4 Well was on-line on 6/29/99. A 24-hr sample was collected on 6/30/99.

5 Sample not analyzed. Tedlar bag leaked enroute to the lab.

6 Rebound sampling

7 Sample collected on 8/11/99.

8 Well was on-line on 10/13/99. A 24-hr sample was collected on 10/14/99.

9 Well was on-line on 10/27/99. A 24-hr sample was collected on 10/28/99.

10 Well was on-line on 10/25/99. A 24-hr sample was collected on 10/26/99.

11 Well was on-line on 10/31/99. A 24-hr sample was collected on 11/1/99.

12 Sample collected on 11/30/99.

13 Sample collected on 12/14/99.

14 Sample collected on 1/5/00.

15 Sample collected on 1/7/00.

16 Sample collected on 1/12/00.

17 Sample collected on 1/21/00.

Table A-4
(Page 4 of 5)

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

			Screen Interval (ft)	Wells on-line 6/23/99	Extracted Vapor Concentrations after 24 Hrs (6/23/99) µg/L							Wells on-line 6/29/99	Extracted Vapor Concentrations (6/29/99) µg/L							Wells on line 7/6/99	Extracted Vapor Concentrations (7/6/99) µg/L							Wells on line 7/21/99	Extracted Vapor Concentrations (7/21/99) µg/L							Wells on line 8/12/99	Extracted Vapor Concentrations (8/12/99) µg/L							Wells on-line 8/25/99	Extracted Vapor Concentrations (8/25/99) µg/L							Wells on line 8/26/99	Extracted Vapor Concentrations (8/26/99) µg/L						
					Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	Deep	91-109	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	308	18	5.9	2.1	ND	ND	Y	30	330	14	6.7	1.9	ND	ND	Y	-	-	-	-	-	-	-
24SVE14	Deep	78-108	N	-	60	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	5	48	2.4	1.3	1	ND	Y	45	25	7.7	ND	0.088	0.17	ND	Y	-	-	-	-	-	-	-
24SVE2	Deep	80-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	34	15	83	7.01	4.8	2.2	ND	Y	50	21	28	3.6	3.5	0.02	ND	Y	-	-	-	-	-	-	-
24SVE2A	Intermediate	40-70	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	34	25	11	0.68	0.56	0.36	ND	Y	50	50	1.9	0.38	0.21	0.12	ND	Y	-	-	-	-	-	-	-
24SVE21	Deep	85-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE21A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE24	Deep	70-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE3	Deep	80-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	30	26	ND	0.34	0.38	ND	Y	45	40	9.9	ND	0.10	0.17	ND	Y	-	-	-	-	-	-	-
24SVE3A	Intermediate	45-60	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	0	0.18	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE32	Deep	77-102	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	72	19	0.54	0.86	0.27	ND	Y	40	95	5.3	0.19	0.19	ND	ND	Y	-	-	-	-	-	-	-
24SVE32B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	224	0.33	ND	ND	0.029	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE35	Deep	85-105	Y[1]	85	75	150	10	33	ND	5.5	Y2	65	75	-	-	-	-	-	Y	65	75	121.395	12.15	20.62	3.38	1.34	Y	65	75	1.49	4.70	7.2	1.49	ND	Y	30	25	55	7.5	8.7	1.6	ND	Y	50	40	29	3.9	5.1	0.77	ND	Y	-	-	-	-	-	-	-
24SVE35A	Intermediate	50-75	N	-	-	-	-	-	-	-	Y	85	60	39.2	2.06	6.18	1.45	ND	Y	85	60	45.4	4.2	8.49	1.50	ND	Y	85	60	2.5	0.13	0.15	0.09	ND	Y	30	10	3.6	0.84	0.35	0.22	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE35B	Shallow	15-35	N	-	-	-	-	-	-	-	Y	85	100	11.8	0.66	0.79	0.82	ND	Y	85	100	3.26	0.45	0.33	0.23	ND	N	-	-	-	-	-	-	-	Y	25	90	1.4	0.26	0.069	0.19	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE36	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	26	45	18	ND	0.48	0.41	ND	Y	40	18	18	ND	0.31	0.3	ND	Y	-	-	-	-	-	-	-
24SVE36A	Intermediate	45-65	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	26	0	1.7	ND	ND	0.16	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE36B	Shallow	15-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	55	0.76	ND	ND	0.11	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE4	Deep	85-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	27	60	21	1.9	1.3	0.37	ND	Y	40	90	16	2	0.84	0.26	ND	Y	-	-	-	-	-	-	-
24SVE41	Deep	85-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	55	19	0.87	0.64	0.34	ND	Y	40	100	3.6	0.49	0.27	0.08	ND	Y	-	-	-	-	-	-	-
24SVE41A	Intermediate	55-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	12	0.31	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE41B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	224	4.4	ND	ND	0.29	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE45	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	35	110	ND	1.9	1.5	ND	Y	45	65	17	0.24	0.21	0.21	ND	Y	-	-	-	-	-	-	-
24SVE45A	Intermediate	50-70	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	25	3.4	ND	ND	0.099	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE45B	Shallow	20-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	85	0.5	ND	ND	0.043	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE49	Deep	83-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	50	120	25	1.6	3.4	ND	Y	45	90	28	22	0.45	0.94	ND	Y	-	-	-	-	-	-	-
24SVE49A	Intermediate	45-65	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	12	2.5	0.047	ND	0.12	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE49B	Shallow	18-33	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	330	2.1	ND	ND	0.19	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE50	Deep	78-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE51	Deep	83-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	12	21	5.6	ND	0.52	ND	Y	35	14	58	33	0.55	1.2	ND	Y	-	-	-	-	-	-	-
24SVE51A	Intermediate	49-69	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	12	0.34	ND	ND	0.024	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE51B	Shallow	18-33	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	90	0.13	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE53	Deep	73-88	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[3]	20	30	15	ND	0.17	0.28	ND
24SVE53A	Intermediate	45-65	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[3]	20	ND	0.72	ND	ND	0.9	ND
24SVE53B	Shallow	15-35	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y[3]	20	ND	0.21	0.12	ND	0.93	ND
24SVE54	Deep	75-95	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	35	44	1.40	0.49	0.91	ND	Y	46	35	37	9.90	ND	0.84	ND	Y	-	-	-	-	-	-	-
24SVE55	Deep	80-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	45	69 D	57	0.81	2.7	0.93
24SVE55A	Intermediate	40-70	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	10	8.5	6	ND	0.43	ND
24SVE55B	Shallow	15-30	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	20	90	2	2.7	ND	0.25	ND
24SVE6	Deep	85-110	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	290	14	0.96	0.83	ND	ND	Y	30	280	7.5	1.6	0.61	ND	ND	Y	-	-	-	-	-	-	-
24SVE62	Deep	80-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	19	25	18	ND	0.41	0.24	ND
24SVE62B	Shallow	15-40	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	19	5	1	ND	ND	0.023	ND
24SVE67	Deep	75-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	20	12.5	84	ND	1.2	ND	ND
24SVE67B	Shallow	17-32	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	20	30	2.1	0.062	ND	0.067	ND
24SVE7	Deep	80-110	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE7A	Intermediate	63-74	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE77	Deep	75-100	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	30	80	37	7	0.32	0.87	ND	Y	-	-	-	-	-	-	-
24SVE77A	Intermediate	39-54	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	35	5	0.23	ND	ND	0.83	ND	Y	-	-	-	-	-	-	-
24SVE77B	Shallow	18-33	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	25	>125	0.68	0.46	ND	0.14	ND	Y	-	-	-	-	-	-	-

Table A-4
(Page 5 of 5)

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Depth of Screen Interval	Wells on-line 9/8/99	Extracted Vapor Concentrations (9/8/99) µg/L							Wells on-line 9/21-9/23/99	Extracted Vapor Concentrations (9/21-9/23/99) µg/L							Wells on-line 10/6/99	Extracted Vapor Concentrations (10/6/99) µg/L							Wells on-line 10/20/99	Extracted Vapor Concentrations (10/20/99) µg/L						
				Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	Deep	91-109	Y	35	290	0.038	ND	ND	ND	ND	Y	25	300	3	ND	1.2	ND	ND	N	-	-	-	-	-	-	-	N	0.9	-	-	-	-	-	-	-
24SVE14	Deep	78-108	Y	50	25	6.1	ND	ND	0.099	ND	Y	30	0	2.4	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	60	49	1.2	0.08	0.023	0.024	ND
24SVE2	Deep	80-105	Y	50	26	14	4.6	3.3	0.56	ND	Y	44	19	3	ND	1.5	ND	ND	Y	116	35	1.3	0.49	0.36	0.11	ND	Y	90	9	0.12	0.064	0.041	ND	ND
24SVE2A	Intermediate	40-70	Y	50	70	1.1	0.29	0.17	0.097	ND	Y	44	308	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.9	-	-	-	-	-	-
24SVE21	Deep	85-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE21A	Intermediate	50-75	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE24	Deep	70-105	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE3	Deep	80-105	Y	45	45	5.6	ND	0.041	0.093	ND	Y	25	27	2.8	ND	ND	ND	ND	N	-	-	-	-	-	-	-	Y	45	49	1.8	ND	0.023	0.024	ND
24SVE3A	Intermediate	45-60	N	-	-	-	-	-	-	-	Y	25	0	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	2.2	-	-	-	-	-	-
24SVE32	Deep	77-102	Y	42	97	4.2	0.35	0.17	0.11	ND	Y	30	72	1.4	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.18	-	-	-	-	-	-
24SVE32B	Shallow	20-40	N	-	-	-	-	-	-	-	Y	35	250	0.33	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.1	-	-	-	-	-	-
24SVE35	Deep	85-105	Y	50	45	19	3.4	5	0.61	0.31	Y	40	30	14	3	5.8	ND	ND	Y	113	65	6.4	1.2	1.2	0.21	ND	Y	89	45	4.7	0.99	0.89	0.2	ND
24SVE35A	Intermediate	50-75	N	-	-	-	-	-	-	-	Y	40	37	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	Y	45	42	0.5	0.065	0.05	0.061	ND
24SVE35B	Shallow	15-35	N	-	-	-	-	-	-	-	Y	35	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.5	-	-	-	-	-	-
24SVE36	Deep	80-100	Y	45	20	10	0.36	0.24	0.23	ND	Y	26	73	3.1	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	2.2	-	-	-	-	-	-
24SVE36A	Intermediate	45-65	N	-	-	-	-	-	-	-	Y	27	0	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.65	-	-	-	-	-	-
24SVE36B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	26	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.6	-	-	-	-	-	-
24SVE4	Deep	85-105	Y	42	85	11	2.4	0.66	ND	ND	Y	32	6	4.8	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.1	-	-	-	-	-	-
24SVE41	Deep	85-105	Y	45	100	8.2	1.6	0.76	0.24	ND	Y	25	55	3	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	25	-	-	-	-	-	-
24SVE41A	Intermediate	55-75	N	-	-	-	-	-	-	-	Y	26	35	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	2	-	-	-	-	-	-
24SVE41B	Shallow	20-40	N	-	-	-	-	-	-	-	Y	26	224	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.9	-	-	-	-	-	-
24SVE45	Deep	80-100	Y	45	75	4.6	0.13	0.056	0.081	ND	Y	26	35	2.3	ND	ND	ND	ND	N	-	-	-	-	-	-	-	Y	55	84	2	0.27	0.1	0.036	ND
24SVE45A	Intermediate	50-70	N	-	-	-	-	-	-	-	Y	26	60	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	4	-	-	-	-	-	-
24SVE45B	Shallow	20-40	N	-	-	-	-	-	-	-	Y	25	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1	-	-	-	-	-	-
24SVE49	Deep	83-103	Y	45	75	16	11	0.17	0.43	ND	Y	25	50	4.4	12	ND	ND	ND	Y	90	> 175	4.4	6	0.093	0.11	ND	Y	70	170	1.8	2.8	0.048	0.05	ND
24SVE49A	Intermediate	45-65	N	-	-	-	-	-	-	-	Y	27	0	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.45	-	-	-	-	-	-
24SVE49B	Shallow	18-33	N	-	-	-	-	-	-	-	Y	26	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.7	-	-	-	-	-	-
24SVE50	Deep	78-103	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-
24SVE51	Deep	83-103	Y	2.5	1	4.1	1.1	ND	0.082	ND	Y	35	14	5.4	ND	ND	ND	ND	Y	100	42	3.7	1.5	ND	0.056	ND	Y	79	42	1.6	1	ND	ND	ND
24SVE51A	Intermediate	49-69	N	-	-	-	-	-	-	-	Y	35	65	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	4	-	-	-	-	-	-
24SVE51B	Shallow	18-33	N	-	-	-	-	-	-	-	Y	31	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.35	-	-	-	-	-	-
24SVE53	Deep	73-88	Y	35	55	23	ND	ND	ND	ND	Y	24	36	5.2	ND	ND	ND	ND	Y	84	130	2.4	ND	0.016	0.046	ND	Y	70	112	2.5	ND	ND	0.046	ND
24SVE53A	Intermediate	45-65	N	-	-	-	-	-	-	-	Y	24	290	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	9.5	-	-	-	-	-	-
24SVE53B	Shallow	15-35	N	-	-	-	-	-	-	-	Y	11	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	2	-	-	-	-	-	-
24SVE54	Deep	75-95	Y	40	10	29	2.4	ND	0.47	ND	Y	34	0	4.6	ND	ND	ND	ND	N	-	-	-	-	-	-	-	Y	78	40	2.2	0.056	ND	ND	ND
24SVE55	Deep	80-100	Y	36	75	32	34	0.28	0.98	0.33	Y	30	50	4.1	ND	ND	ND	ND	Y	80	150	4.7	3.3	ND	ND	ND	Y	65	126	2	1.6	0.017	0.043	ND
24SVE55A	Intermediate	40-70	N	-	-	-	-	-	-	-	Y	30	5	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	21	-	-	-	-	-	-
24SVE55B	Shallow	15-30	N	-	-	-	-	-	-	-	Y	25	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	3	-	-	-	-	-	-
24SVE6	Deep	85-110	Y	45	260	3.8	0.81	0.36	ND	ND	Y	24	280	3.1	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.7	-	-	-	-	-	-
24SVE62	Deep	80-105	Y	35	25	2.8	ND	0.022	0.029	ND	Y	25	65	1.8	ND	ND	ND	ND	Y	90	56	1.8	0.069	0.04	0.021	ND	N	0.95	-	-	-	-	-	-
24SVE62B	Shallow	15-40	N	-	-	-	-	-	-	-	Y	25	20	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	0.5	-	-	-	-	-	-
24SVE67	Deep	75-100	Y	37	25	32	ND	0.26	ND	ND	Y	44	35	4.8	ND	ND	ND	ND	Y	93	49	8.6	ND	0.12	0.089	ND	Y	75	18	3.3	0.051	0.035	ND	ND
24SVE67B	Shallow	17-32	N	-	-	-	-	-	-	-	Y	30	25	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	1.5	-	-	-	-	-	-
24SVE7	Deep	80-110	N	-	-	-	-	-	-	-	Y	29	0	21	ND	ND	ND	ND	Y	90	0	11	ND	ND	ND	ND	Y	75	0	3.3	ND	ND	ND	ND
24SVE7A	Intermediate	63-74	N	-	-	-	-	-	-	-	Y	29	25	15	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	3.5	-	-	-	-	-	-
24SVE77	Deep	75-100	Y	30	87	16	2	0.13	0.25	ND	Y	25	55	2	ND	ND	ND	ND	Y	75	> 175	1.6	0.12	0.02	0.026	ND	Y	62	154	1.1	0.11	0.01	ND	ND
24SVE77A	Intermediate	39-54	N	-	-	-	-	-	-	-	Y	29	100	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	8	-	-	-	-	-	-
24SVE77B	Shallow	18-33	N	25	-	-	-	-	-	-	Y	21	25	ND	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	3	-	-	-	-	-	-

		Wells on-line 11/3/99	Extracted Vapor Concentrations (11/3/99) µg/L							Wells on-line 12/1/99	Extracted Vapor Concentrations (12/1/99) µg/L							Wells on-line 1/14/00	Extracted Vapor Concentrations (1/14/00) µg/L							Wells on-line 1/25/00	Extracted Vapor Concentrations (1/25/00) µg/L						
			Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4		Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE14	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE2	Deep	N	-	-	-	-	-	-	-	Y	119	16	0.38	0.25	0.14	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE2A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE21	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	45	105	26	3.6	3.8	0.79	ND	Y	55	120	11	1.7	1.4	0.41	ND
24SVE21A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	50	105	0.74	0.084	0.05	0.069	ND	N	-	-	-	-	-	-	-	-
24SVE24	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	55	63	4.2	2.5	1.2	0.14	ND	N	-	-	-	-	-	-	-	-
24SVE3	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE3A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE32	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE32B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE35	Deep	N	-	-	-	-	-	-	-	Y	130	77	0.051	ND	ND	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE35A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE35B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE36	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE36A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE36B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE4	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE41	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE41A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE41B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE45	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE45A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE45B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE49	Deep	N	-	-	-	-	-	-	-	Y	89	> 175	2.5	1.9	0.058	0.083	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE49A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE49B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE50	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	Y	65	165	8.1	19	0.34	ND	ND	N	-	-	-	-	-	-	-	-
24SVE51	Deep	N	-	-	-	-	-	-	-	Y	100	41	0.94	0.38	ND	0.028	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE51A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE51B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE53	Deep	N	-	-	-	-	-	-	-	Y	85	133	0.046	ND	ND	0.021	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE53A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE53B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE54	Deep	Y4	80	50	5.6	ND	ND	ND	ND	Y	100	50	0.74	0.02	ND	0.021	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE55	Deep	N	-	-	-	-	-	-	-	Y	81	150	0.65	0.63	ND	0.024	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE55A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE55B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE6	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE62	Deep	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE62B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE67	Deep	N	-	-	-	-	-	-	-	Y	104	56	6.2	0.52	0.12	ND	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE67B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE7	Deep	N	-	-	-	-	-	-	-	Y	105	7	0.72	ND	ND	0.03	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE7A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE77	Deep	N	-	-	-	-	-	-	-	Y	78	> 175	0.95	0.036	0.012	0.019	ND	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE77A	Intermediate	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-
24SVE77B	Shallow	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	-

Notes

Wells 24SVE35/35A/35B were treated using portable SVE systems in June and July.

Bold data indicate concentrations of contaminants are above threshold for the specific contaminant.

JA The analyte was positively identified, but the quantification is an estimate.

D The result was obtained from the analysis of a dilution.

ND Non-Detect

Y Yes N No

[1] Well was on-line on 6/23/99. A 24-hr sample was collected on 6/24/99.

[2] Well was on-line but not sampled.

[3] Flow measurements could not be taken.

[4] Sample collected on 11/02/99.

Table A-5: Summary of EROI Estimates

Well ID Number (24-)	Completion Zone	Screen Interval From (ft)	Screen Interval To (ft)	Screen Length (ft)	Vacuum (inches water)	Flow (scfm)	EROI (ft)	ROI (ft)
SVE1	Deep	91	109	18	30	280	654	299
SVE2*	Deep	80	105	25	110	35	70	182
SVE3*	Deep	80	105	25	80	85	164	149
SVE4	Deep	85	105	20	65	140	335	234
SVE6	Deep	85	110	25	30	224	524	298
SVE7	Deep	80	110	30	90	0	0	0
SVE9	Deep	81	111	30	110	18	29	32
SVE10	Deep	79	109	30	36	175	270	53
SVE11*	Deep	79	109	30	115	50	82	136
SVE13*	Deep	79	109	30	96	28	*138*	*248*
SVE14	Deep	78	108	30	80	23	38	107
SVE16	Deep	80	100	20	10	78	211	193
SVE18*	Deep	80	100	20	10	72	*125*	*233*
SVE21	Deep	85	100	15	80	175	336	229
SVE24*	Deep	70	100	30	80	133	323	374
SVE32	Deep	77	102	25	40	100	238	230
SVE35*	Deep	85	105	20	110	80	190	92
SVE36*	Deep	80	100	20	80	161	307	180
SVE 41*	Deep	85	105	20	75	165	391	172
SVE45	Deep	80	100	20	35	59	140	170
SVE49*	Deep	83	103	20	70	168	399	184
SVE50*	Deep	78	103	25	85	175	421	337
SVE51	Deep	83	103	20	90	36	87	85
SVE53	Deep	73	88	15	47	84	200	163
SVE54	Deep	75	95	20	80	50	121	111
SVE55	Deep	80	100	20	38	80	190	196
SVE62	Deep	80	105	25	50	54	104	131
SVE68	Deep	79	104	25	8	77	129	190
SVE77	Deep	75	100	25	39	90	214	268
SVE89	Deep	80	105	25	55	52	125	141
SVE92*	Deep	75	100	25	60	175	415	190
SVE94*	Deep	75	105	30	110	50	115	28
SVE106	Deep	70.5	95.5	25	55	125	299	228
SVE107*	Deep	70.3	95.3	25	105	90	141	59
SVE116	Deep	75	95	20	95	110	267	276
SVE129*	Deep	75	105	30	75	125	242	257
SVE131*	Deep	73	103	30	65	175	416	201
SVE161	Deep	70.3	95.3	25	70	57	110	104

Well ID Number (24-)	Completion Zone	Screen Interval From (ft)	Screen Interval To (ft)	Screen Length (ft)	Vacuum (inches water)	Flow (scfm)	EROI (ft)	ROI (ft)
SVE2A	Intermediate	40	70	30	42	56	90	239
SVE3A	Intermediate	45	60	15	120	55	176	115
SVE11A	Intermediate	43	73	30	90	27	66	90
SVE12*	Intermediate	34	74	40	53	42	*102*	*179*
SVE21A	Intermediate	50	75	25	75	160	384	285
SVE35A	Intermediate	50	75	25	80	70	169	140
SVE39A	Intermediate	40	70	30	100	52	79	149
SVE45A	Intermediate	50	70	20	60	56	135	124
SVE49A	Intermediate	45	65	20	110	50	123	161
SVE55A	Intermediate	40	70	30	100	0	0	0
SVE77A	Intermediate	39	54	15	30	100	235	235
SVE78A	Intermediate	45	60	15	90	49	156	90
SVE94A	Intermediate	50	70	20	40	115	274	335
SVE138A	Intermediate	45	70	25	100	105	194	178
SVE141A*	Intermediate	40	70	30	63	163	*311*	*190*
SVE143A*	Intermediate	50	70	20	100	100.5	*200*	*219*
SVE147A	Intermediate	57	77	20	55	36	69	317
SVE148A*	Intermediate	55	75	20	38	160	*302*	*170*
SVE32B*	Shallow	20	40	20	59	>125	243	433
SVE35B	Shallow	15	35	20	60	175	417	241
SVE36B*	Shallow	15	40	25	80	>125	241	215
SVE45B	Shallow	20	40	20	35	154	362	205
SVE62B	Shallow	15	40	25	110	35	0	0
SVE67B	Shallow	17	32	15	99	133	254	142
SVE77B	Shallow	18	33	15	30	175	408	178
SVE94B	Shallow	25	45	20	55	175	335	269
SVE104B	Shallow	25.3	45.3	20	19	308	701	293
SVE128B	Shallow	15	40	25	40	170	324	349
SVE131B*	Shallow	20	40	20	45	175	334	305

Notes:

* indicates the well ROI and EROI were evaluated after the fourteen additional wells were installed.

Italics indicates preliminary values pending further evaluation.