M60050_003957
MCAS EL TORO
SSIC NO. 5090.3.A

Comprehensive Long-Term Environmental Action Navy (CLEAN) II
Contract No. N62742-94-D-0048
Contract Task Order No. 0068

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
Naval Facilities Engineering Command
San Diego, California 92132-5190

Prepared by

EARTH TECH, Inc.
700 Bishop Street, Suite 900
Honolulu, Hawaii 96813

October 1999

earth tech for the planet.
engineering and technology

CONTENTS

ACRONYMS AND ABBREVIATIONS iii

1. INTRODUCTION 1-1

2. REMEDIATION SYSTEM OPERATIONS 2-1

2.1 SVE Well Installation 2-1
2.2 SVE Well Field Monitoring and Sampling 2-1
2.3 Central Treatment System Operations 2-21
2.4 Portable Treatment Systems Operations 2-37

3. PLANNED OPERATIONS AND ACTIVITIES 3-1

4. REFERENCES 4-1

APPENDIX

A Phase I SVE Well Installation Summary
Modified Sampling and Monitoring Schedule
Extraction Well Sampling and Monitoring Data Summaries

ATTACHMENT

Plate 1 Phase I Vadose Zone Remediation Well Location Map

FIGURES

2-1 Extracted Vapor Concentrations from Active SVE Wells – Group I 2-3
2-2 Extracted Vapor Concentrations from Active SVE Wells – Group II 2-5
2-3 Extracted Vapor Concentrations from Active SVE Wells – Group III 2-7
2-4 Extracted Vapor Concentrations from Active SVE Wells – Group IV 2-9
2-5 Extracted Vapor Concentrations from Active SVE Wells – Group V 2-11
2-6 Extracted Vapor Concentrations from Active SVE Wells – Group VI 2-13
2-7 Extracted Vapor Concentrations from Active SVE Wells – Group VII 2-15
2-8 Extracted Vapor Concentrations from Active SVE Wells – Group VIII 2-17
2-9 Extracted Vapor Concentrations from Active SVE Wells – Group IX 2-19
2-10 TCE Concentrations in the Deep Vadose Zone 2-23
2-11 Central Treatment System Influent Soil Vapor Concentrations 2-29
2-12 Cumulative Mass of VOCs Removed - Central SVE System 2-35
2-13 Extracted Vapor Concentrations from 24SVE2 and 24SVE35/35A/35B 2-39
2-14 Extracted Vapor Concentrations from 24SVE13 and 24SVE18 2-41
2-15 Extracted Vapor Concentrations from 24SVE138A and 24SVE147A 2-43

TABLES

2-1	Central Treatment System Vapor Sampling Results – Influent	2-25
2-2	Central Treatment System Vapor Sampling Results - Midpoint	2-26
2-3	Central Treatment System Vapor Sampling Results - Effluent	2-27
2-4	Summary of Central Treatment System Monitoring Data	2-31
2-5	Mass of VOCs Removed During Vadose Remediation at Site 24	2-37
2-6	Summary of Portable Systems Operational Data	2-37

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
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 activities conducted through the end of September 1999 as part of the remediation of the vadose zone 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 continued use of portable SVE systems to remediate areas that are not contiguous with hangars 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.

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 being 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 were used to remediate soils in the vicinity of wells 24SVE13, 24SVE18, 24SVE15 and 24SVE138A. Data collected will be evaluated as described in the draft *SEOR*, and conclusions and recommendations will be presented in subsequent progress reports and the final *SEOR*.

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 hangar 297 was not installed due to height restrictions. Table A-1 in Appendix A summarizes well installation and completion details, and the locations of the wells are shown on Plate 1 (map pocket).

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 1999c) and the *SEOR,* with modifications noted on Table A-2 in Appendix A.

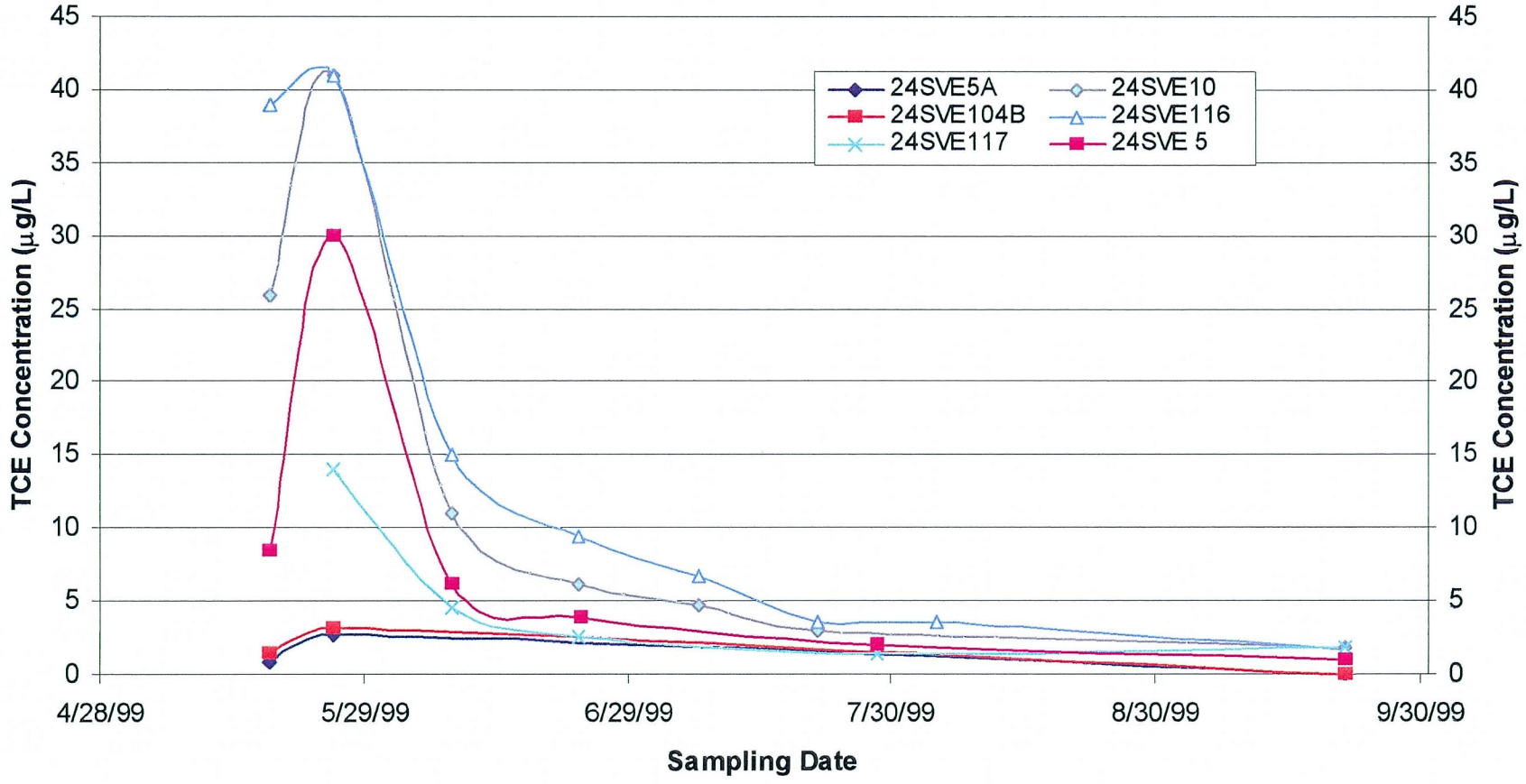
Baseline samples from each newly installed SVE well were collected in Tedlar™ bags for fixed-base laboratory analysis, using modified EPA Method TO14. These samples were collected after approximately 24 hours of extraction, as specified in the draft *SEOR*.

Samples for fixed-base analysis were then collected every two weeks from each 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 September 1999 are presented in Appendix A. Plots of extracted vapor concentrations are presented on Figures 2-1 through 2-9.

Rebound vapor concentrations were collected from wells 24SVE10, 24SVE116, 24SVE9, 24SVE106, 24SVE94A, 24SVE128B and 24SVE161 during this period. Laboratory analysis indicate none of the wells sampled for rebound had concentrations exceeding 5 micrograms per liter for TCE; in addition, all rebound concentrations were below the pre-shutdown values.

PAGE NO. 2-2

THIS PAGE IS INTENTIONALLY LEFT BLANK



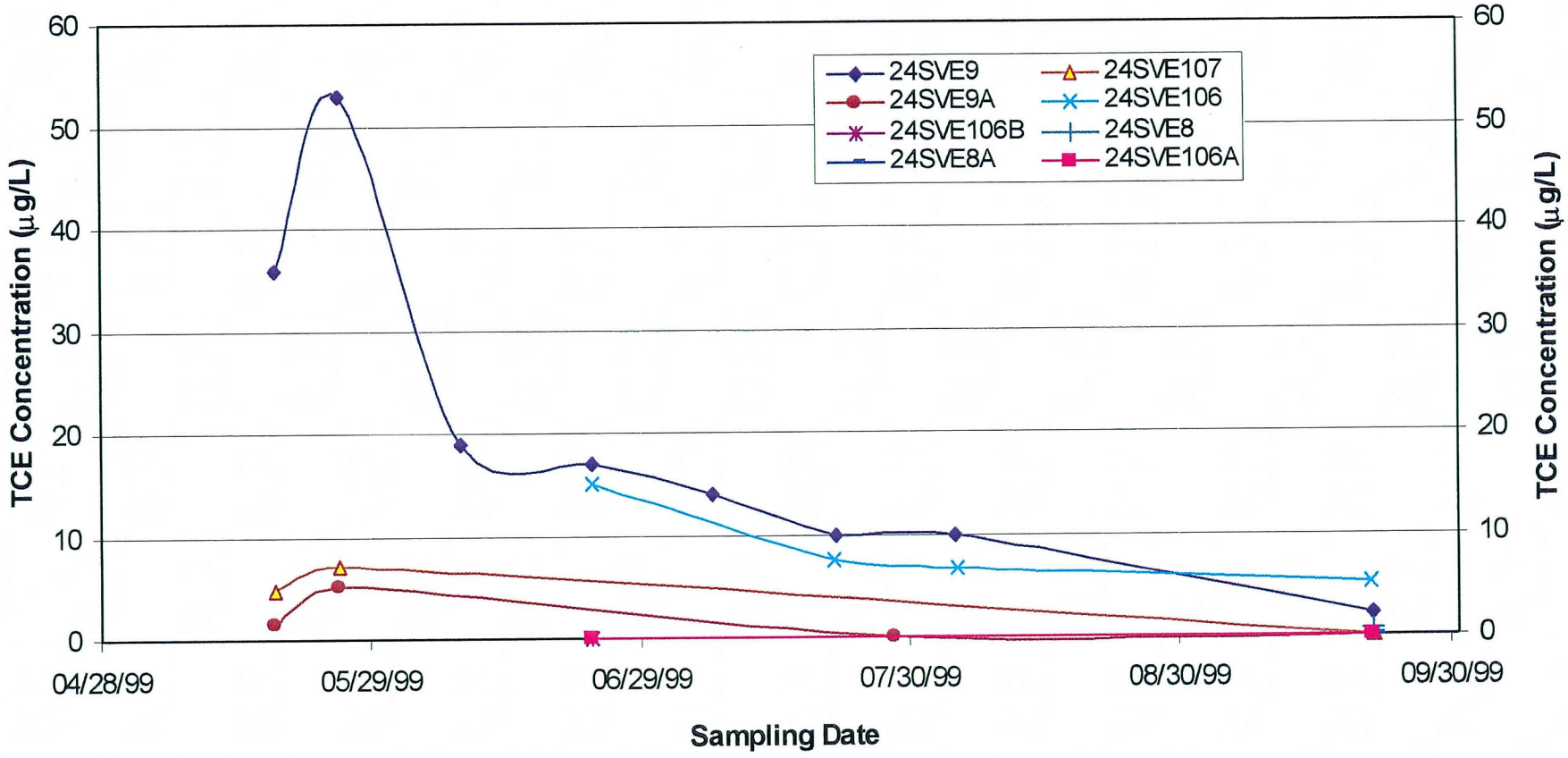
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-1

PAGE NO. 2-4

THIS PAGE IS INTENTIONALLY LEFT BLANK



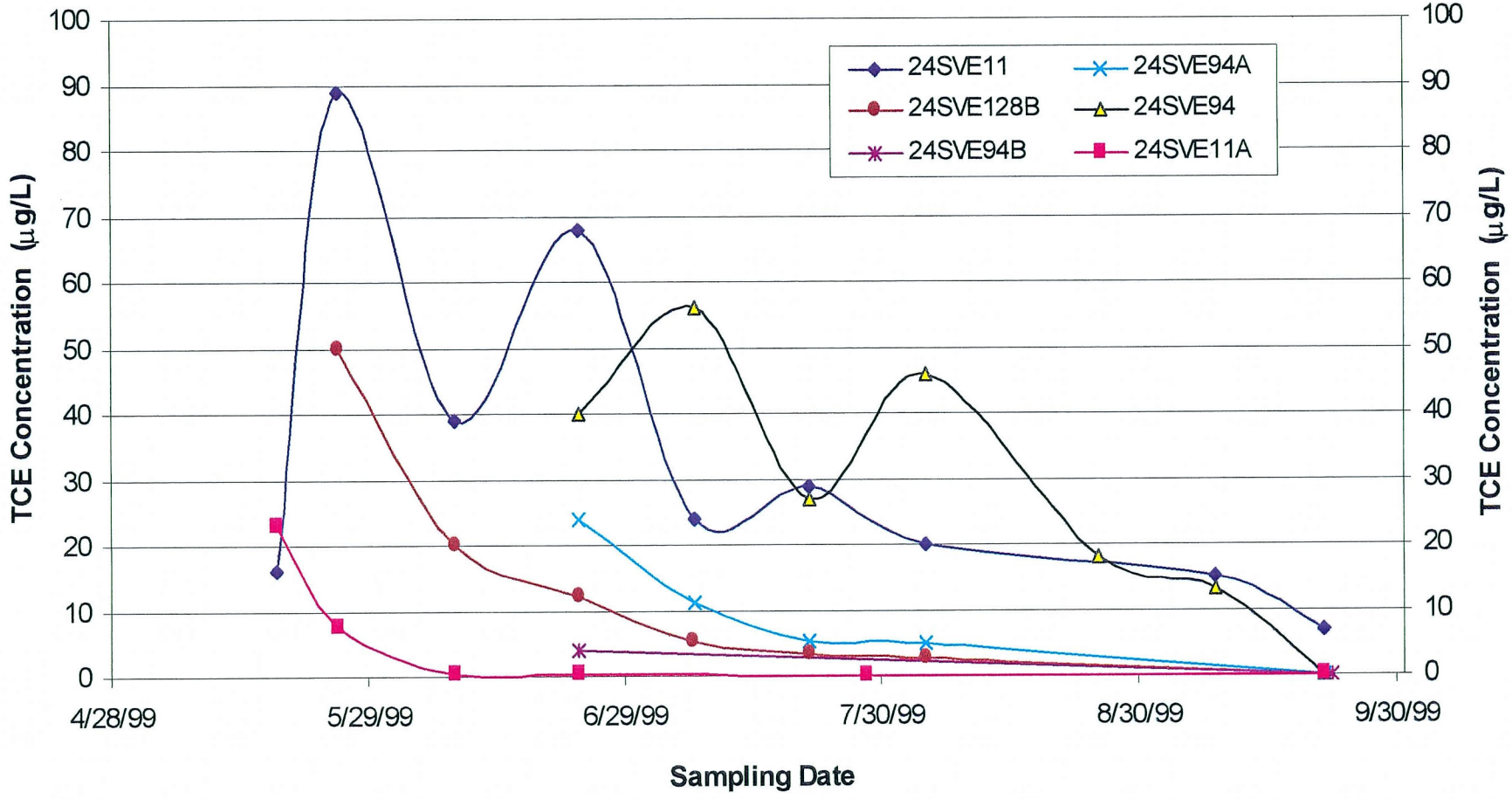
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure 2-2
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	

PAGE NO. 2-6

THIS PAGE IS INTENTIONALLY LEFT BLANK



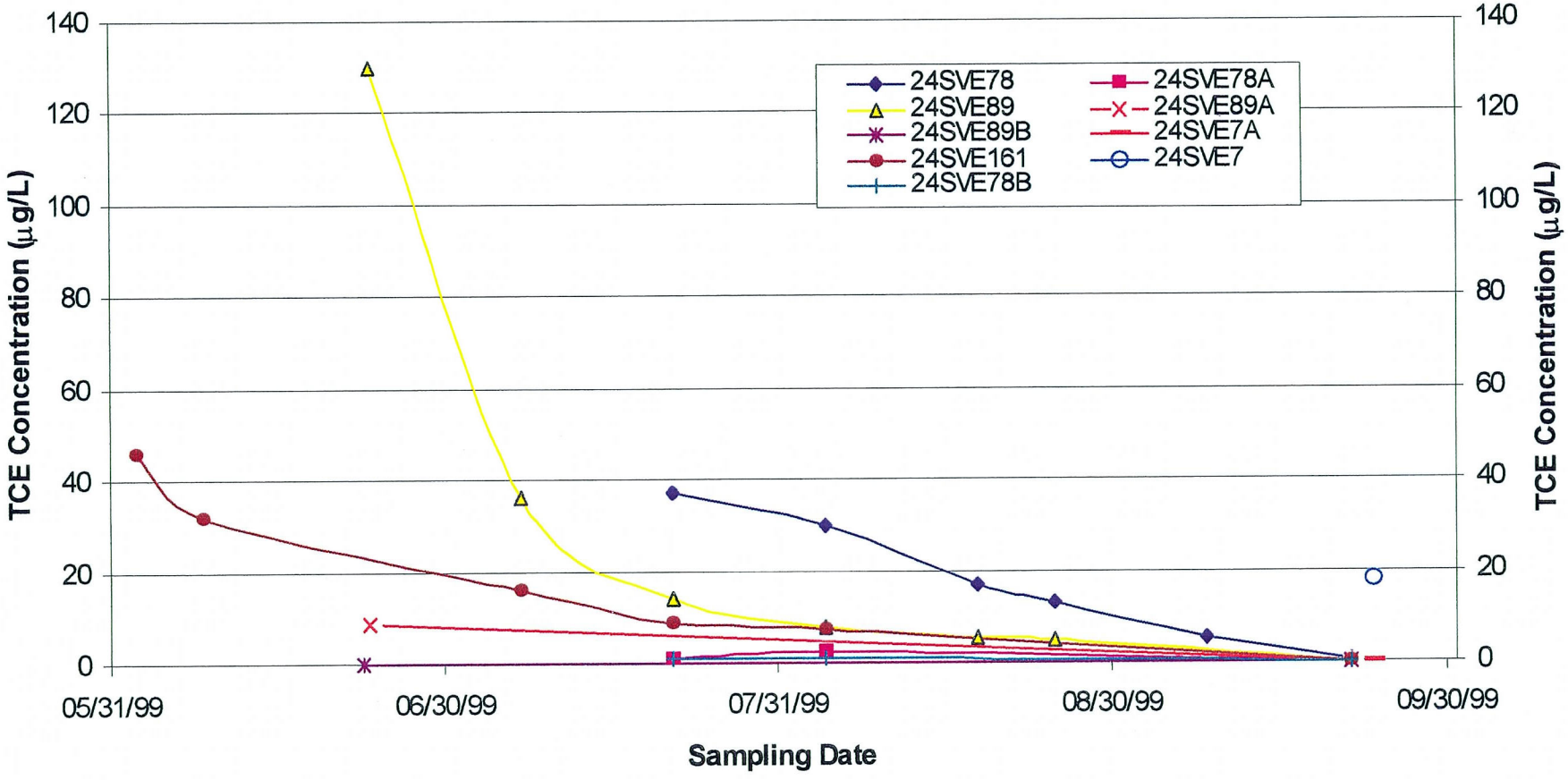
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-3

PAGE NO. 2-8

THIS PAGE IS INTENTIONALLY LEFT BLANK



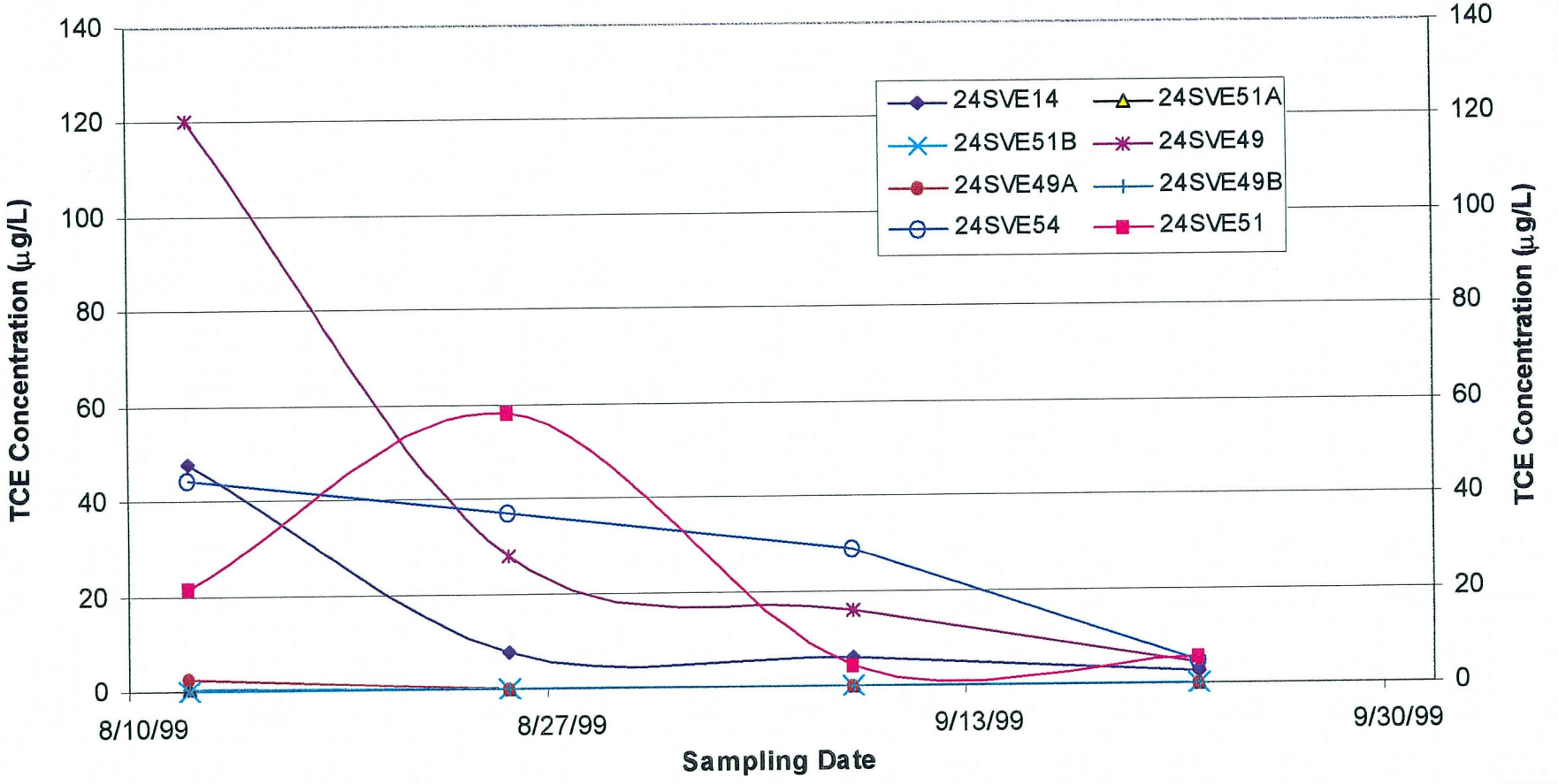
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-4

PAGE NO. 2-10

THIS PAGE IS INTENTIONALLY LEFT BLANK



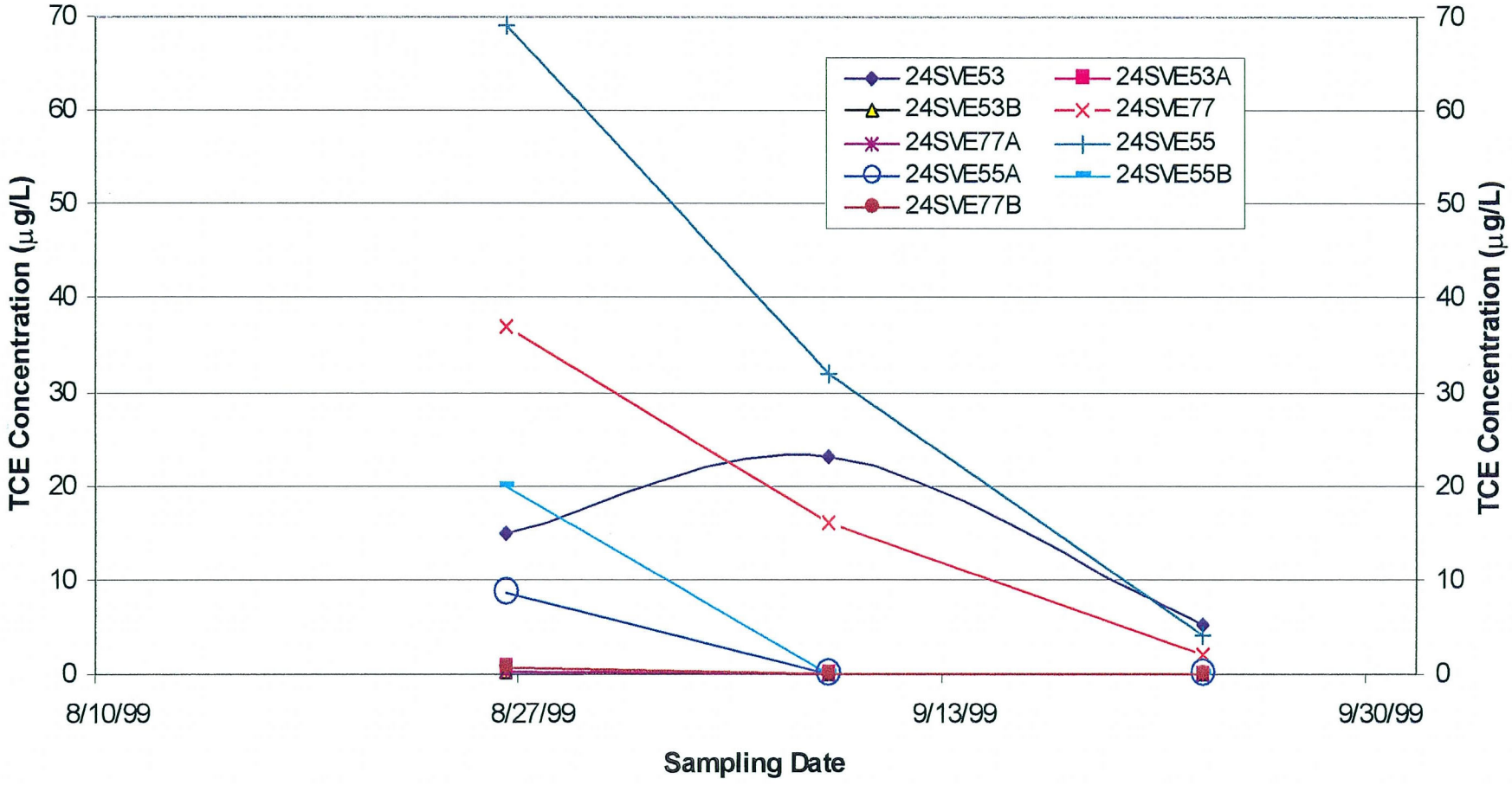
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-5

PAGE NO. 2-12

THIS PAGE IS INTENTIONALLY LEFT BLANK



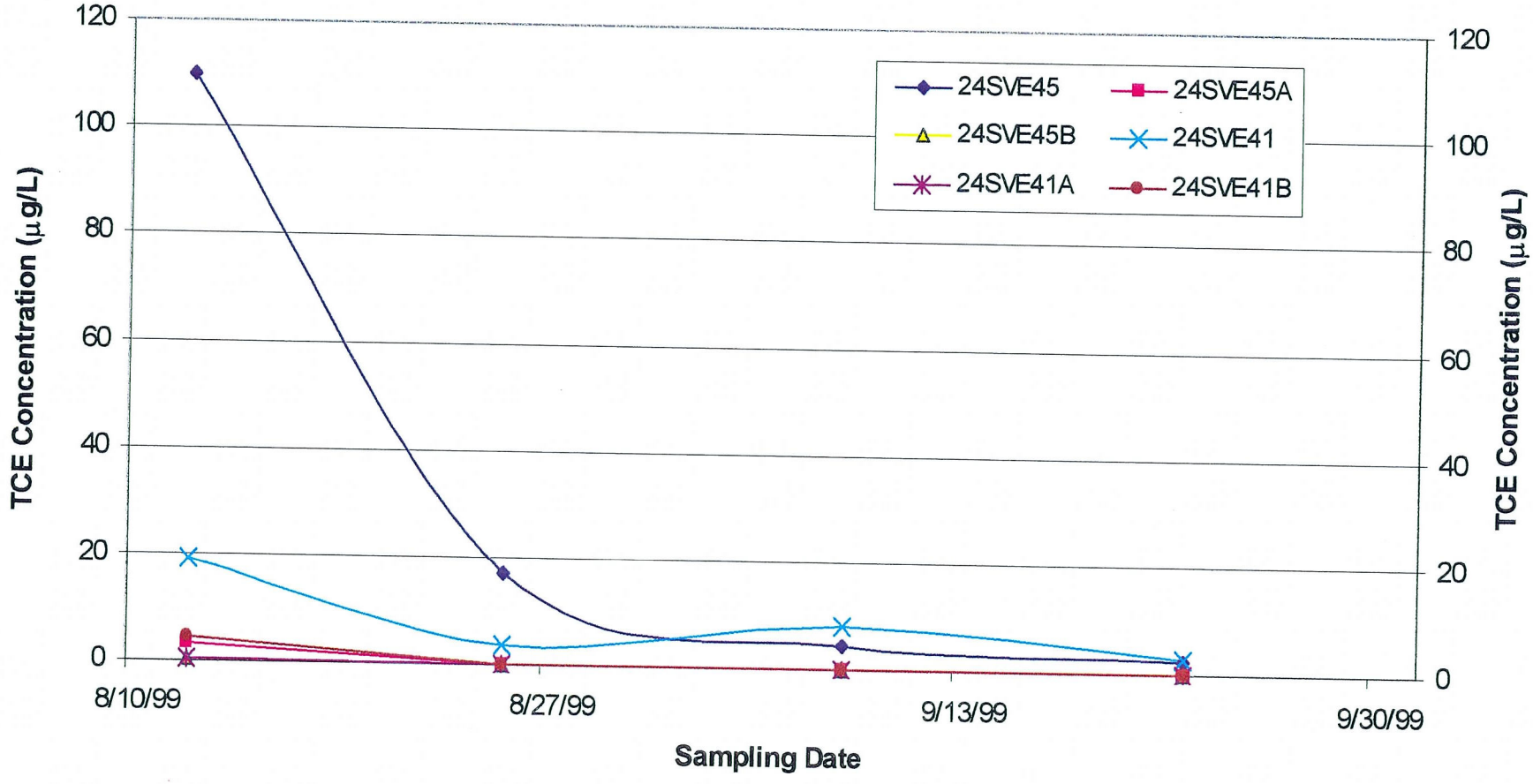
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-6

PAGE NO. 2-14

THIS PAGE IS INTENTIONALLY LEFT BLANK



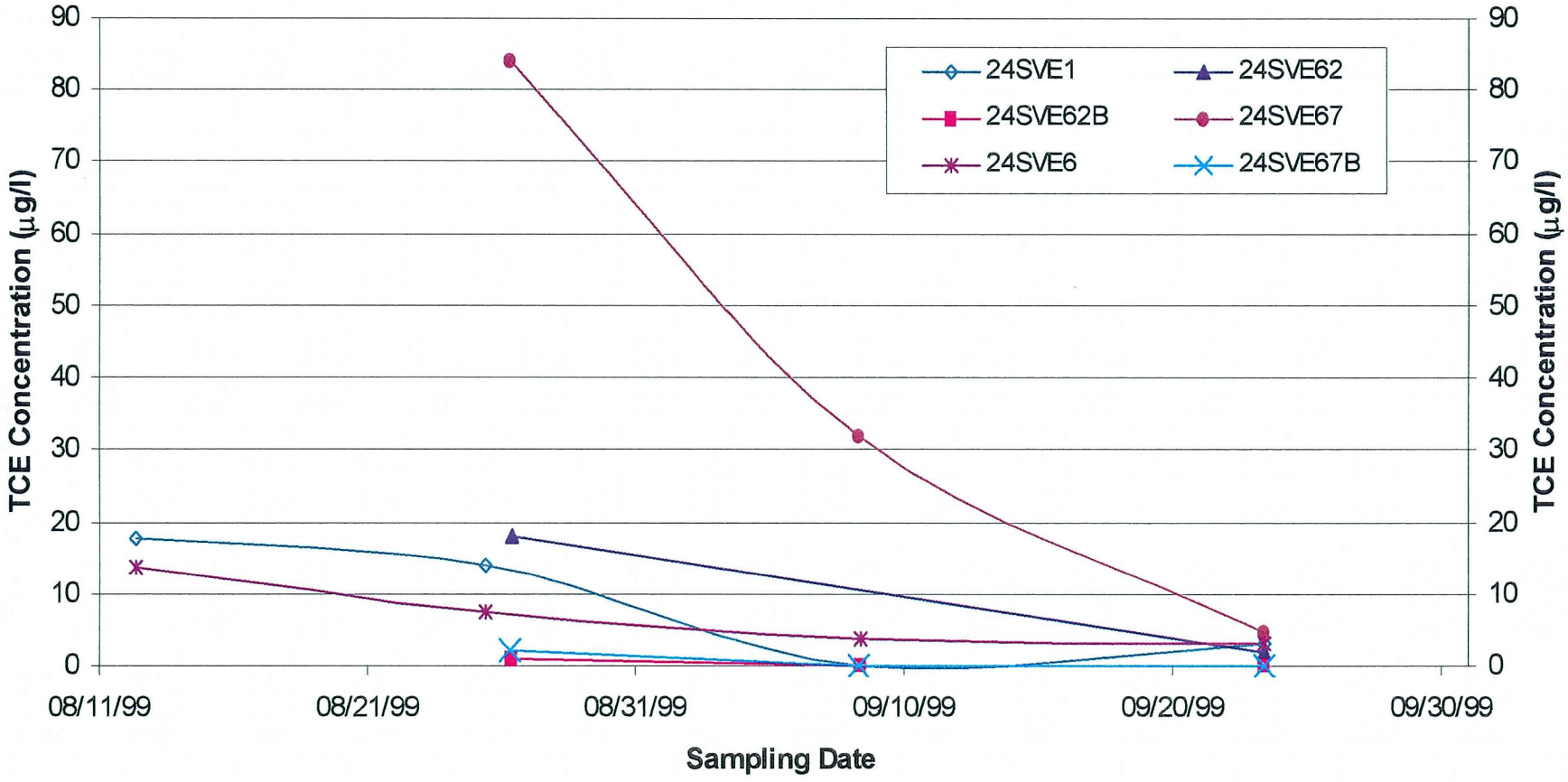
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-7

PAGE NO. 2-16

THIS PAGE IS INTENTIONALLY LEFT BLANK



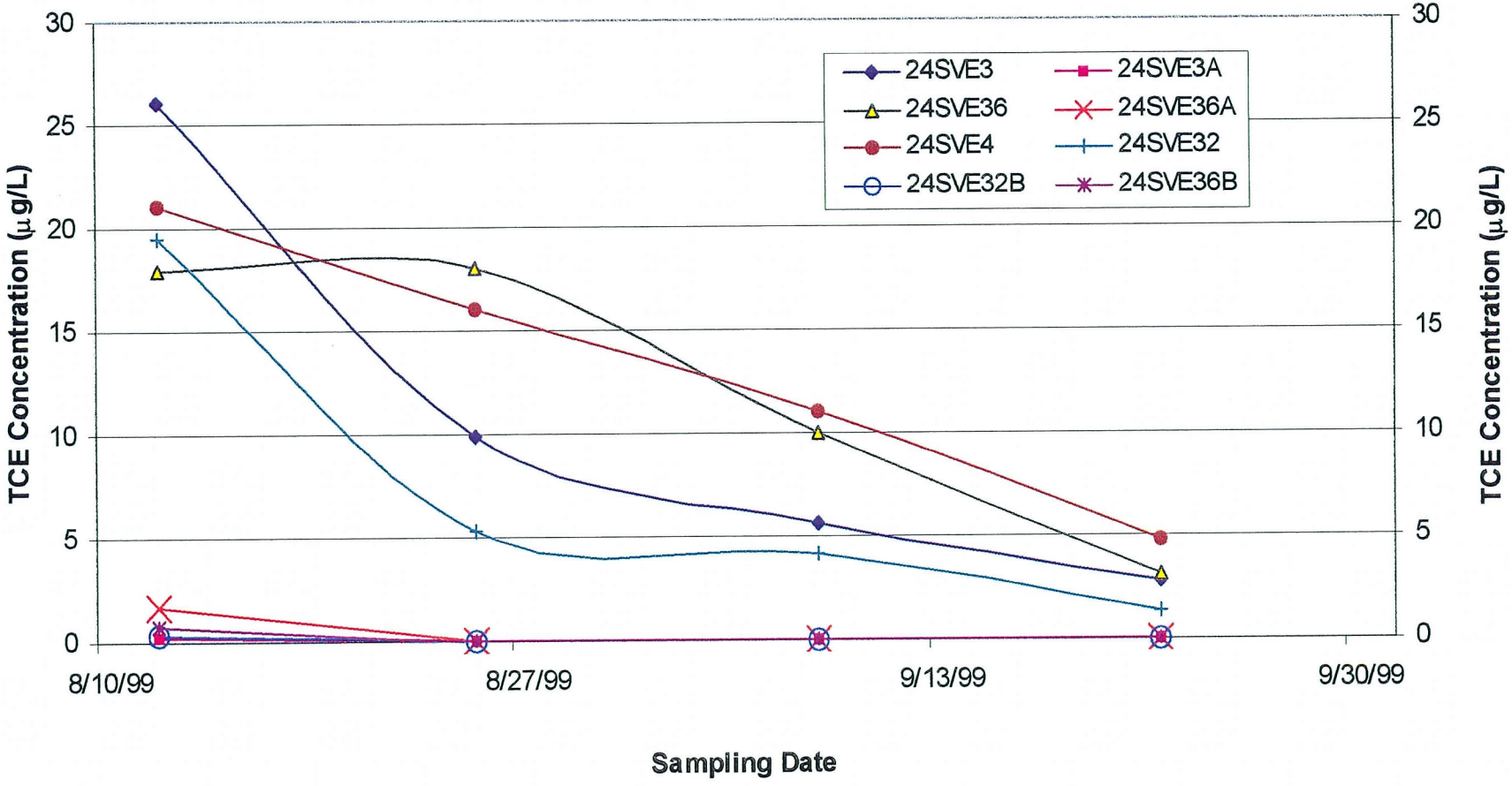
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-8

PAGE NO. 2-18

THIS PAGE IS INTENTIONALLY LEFT BLANK



Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure 2-9
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	

PAGE NO. 2-20

THIS PAGE IS INTENTIONALLY LEFT BLANK

Vapor extraction from wells 24SVE3, 24SVE11, 24SVE14, 24SVE35A, 24SVE45, 24SVE78, 24SVE89, and 24SVE94 was discontinued in September. Rebound sampling of these wells will be conducted in October.

Between 21 September 1999 and 23 September 1999 a mobile laboratory was used to analyze vapor samples from all active and inactive vapor extraction wells located in the vicinity of hangars 296 and 297. The laboratory analyses obtained were used to map trichloroethylene (TCE) vapor concentrations remaining in the vadose zone. All analyses for the medium and shallow vadose zones were below detectable TCE levels. The TCE contour map of the deep vadose zone is included as Figure 2-10. Currently, only two extraction wells have TCE concentrations greater than 10 µg/L, 24SVE35 (14 µg/L) and 24SVE7 (µg/L).

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 did not exceed the South Coast Air Quality Management District (SCAQMD) emission requirements. 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 influent, midpoint, and effluent of the central treatment system. Influent soil vapor concentrations are plotted on Figure 2-11. Table 2-4 presents a summary of the central treatment system monitoring data. The samples collected on 8 and 23 September 1999 at the inlet to the lead carbon vessel indicated non-detectable concentrations of the contaminants of concern. This result is consistent with the relatively low contaminant concentrations from the individual extraction wells.

The data indicate that the system has operated as intended with no major unscheduled maintenance events and at an average on-line efficiency of 96 percent and a September monthly on-line efficiency of 100 percent. Based on an average total flowrate of 931 standard cubic feet per minute (scfm) and the average laboratory concentrations of the principal contaminants, approximately 257 pounds of VOCs have been removed using the central SVE system since 17 May 1999.

Figure 2-12 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 activities at Site 24.

PAGE NO. 2-22

THIS PAGE IS INTENTIONALLY LEFT BLANK

M60050_003957
MCAS EL TORO
SSIC NO. 5090.3.A

SENSITIVE RECORD

PORTIONS OF THIS RECORD ARE CONSIDERED SENSITIVE AND ARE NOT AVAILABLE FOR PUBLIC VIEWING

FIGURE 2-10 – TCE CONCENTRATIONS
SITE 24 - DEEP VADOSE ZONE REMEDIATION

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA, RECORDS MANAGER
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil

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

EXPLANATION

24SVE1 — SOIL VAPOR EXTRACTION WELL
TCE CONCENTRATION IN EXTRACTED SOIL VAPOR IN (UG/L)

10 — CONTOUR LINE OF TCE SOIL GAS CONCENTRATION IN (UG/L), OCTOBER 1999

NORTH

0 225 450
SCALE: 1" = 450

Progress Report - October 1999

TCE Concentrations
Site 24 - Deep Vadose Zone Remediation

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH, A tyco INTERNATIONAL LTD. COMPANY	2-10

PAGE NO. 2-24

THIS PAGE IS INTENTIONALLY LEFT BLANK

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

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

Notes:
D = The result was obtained from an analysis of a dilution.
ND = not detected

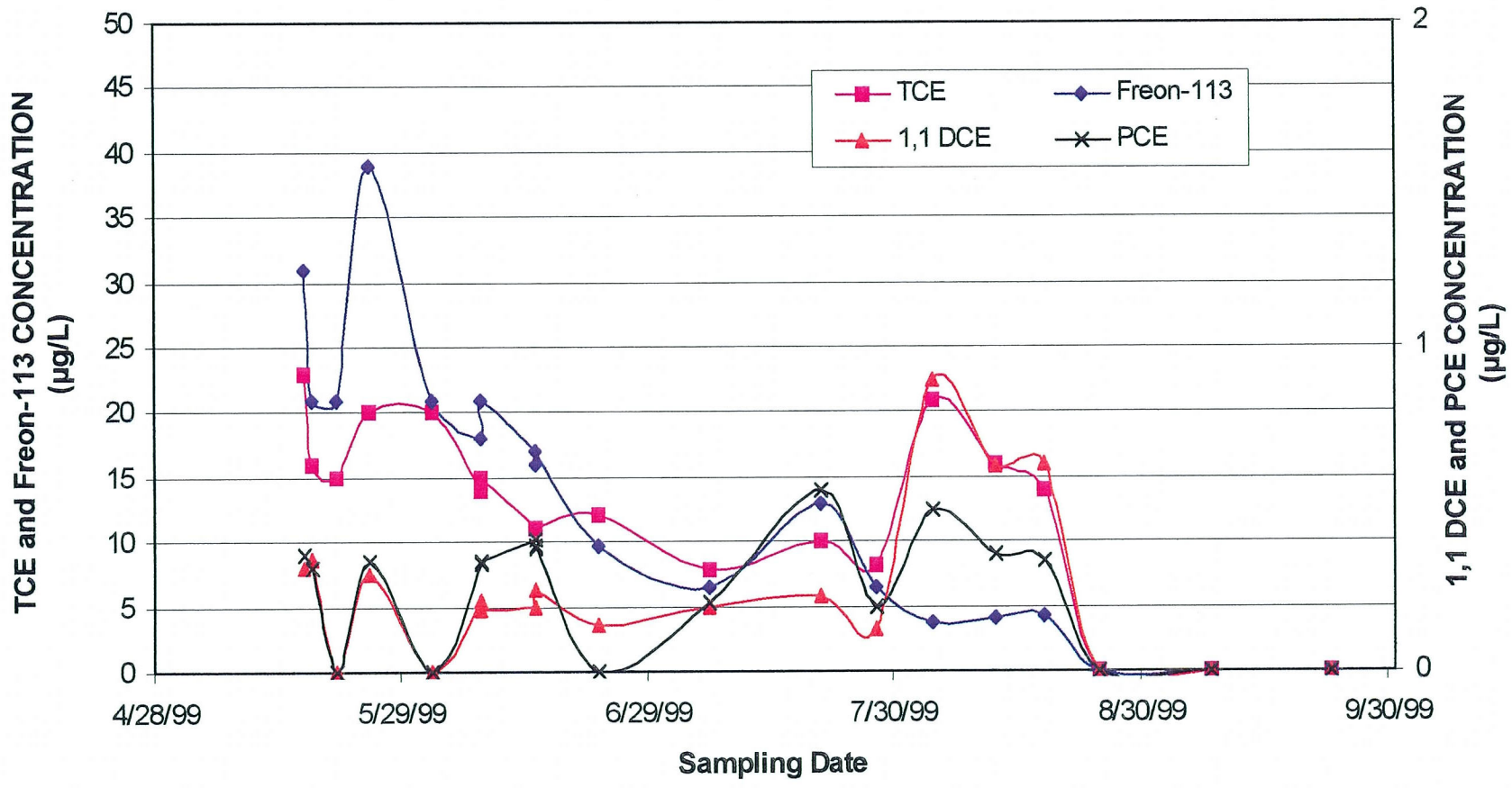
Table 2-3: Central Treatment System Vapor Sampling Results - Effluent

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

Note:
ND = not detected

PAGE NO. 2-28

THIS PAGE IS INTENTIONALLY LEFT BLANK



Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-11

PAGE NO. 2-30

THIS PAGE IS INTENTIONALLY LEFT BLANK

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	2073.5	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	2098.8	94	1043	60	72	104	130	-	106	51318.2	
8/16/99 07:15 AM	2187.0	94	1020	63	86	66	110	-	86	51366.0	
8/18/99 09:00 AM	2236.6	94	1010	63	50	80	104	-	98	51401.0	18 wells on-line
8/23/99 09:45 AM	2357.0	95	910	65	98	84	138	-	110	51470.0	
8/24/99 09:47 AM	2381.0	95	1110	60	64	90	124	-	103	51537.0	
8/25/99 10:40 AM	2406.7	95	913	65	92	100	147	-	118	51558.2	
8/25/99 01:45 PM	2409.6	95	1130	60	57	110	132	-	110	51560.9	
8/30/99 06:50 AM	2522.0	95	1333	55	43	68	86	-	78	51619.0	32 wells on-line
9/01/99 04:00 PM	2567.17	95	1130	57	57	92	116	50	100	51654.0	
9/08/99 11:30 AM	2730.67	95	1120	60	62	98	124	-	119	51711.3	23 wells on-line
9/15/99 06:30 PM	2915.4	95	1103	60	72	80	120	65.5	96	53083.0	Cooling Tower Maintenance done. Cooling Tower placed in auto mode.

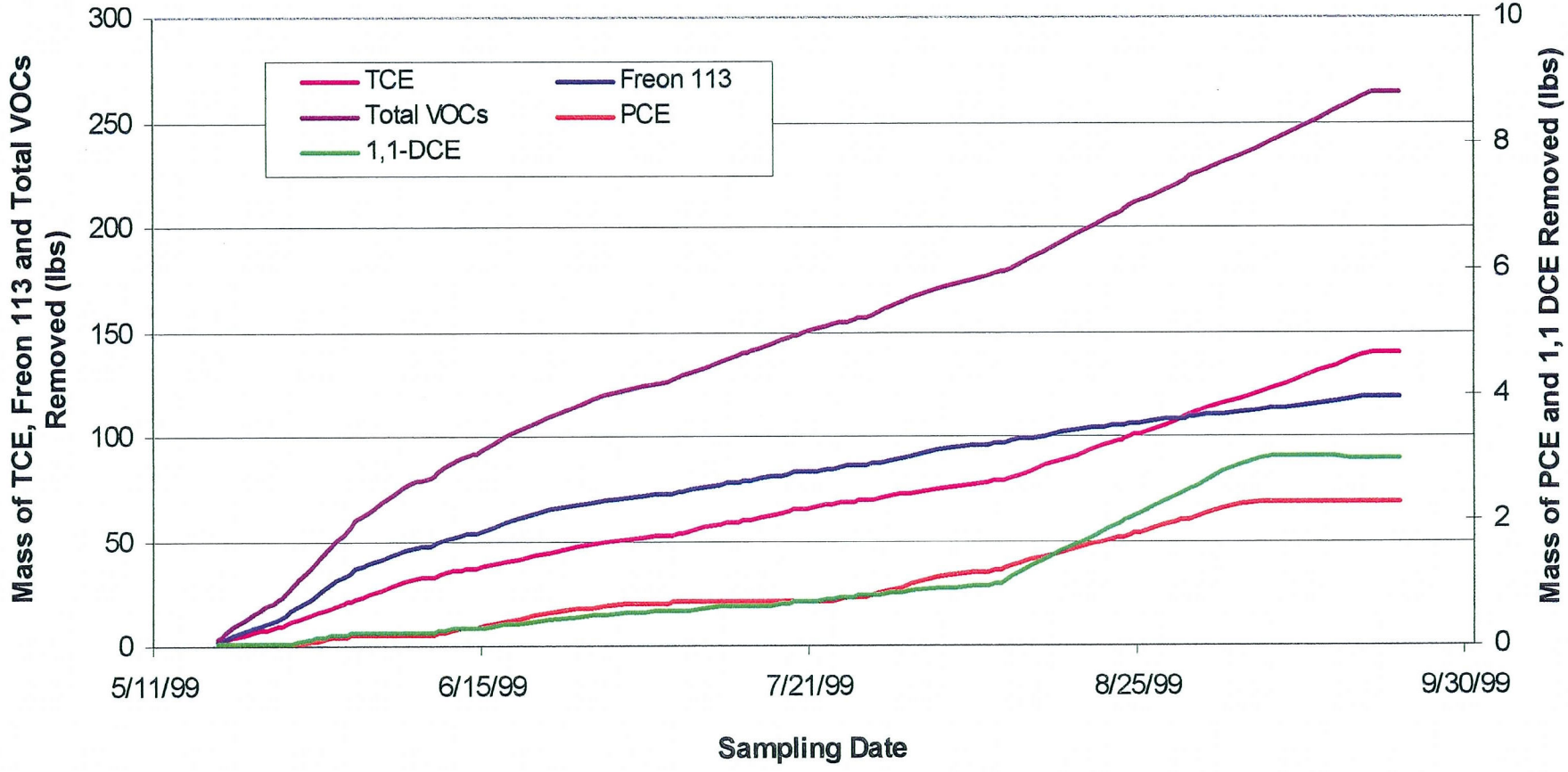
Table 2-4: Summary of Central Treatment System Monitoring Data

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
9/20/99 02:10 PM	3009.33	96	1220	55	52	79	111	-	108	53118.5	
9/21/99 12:30 PM	3043.67	96	1220	57	54	74	100	-	98	53123.0	Performing EROI Tests
9/22/99 11:30 AM	3066.67	96	1130	55	63	94	124	-	120	53136.0	Performing EROI Tests
9/23/99 11:35 AM	3090.75	96	873	69	110	95	155	-	134	53142.0	Performing EROI Tests
9/29/99 08:00 AM	3231.17	96	1140	60	68	67	100	63.5	96	53172.0	

Note:
- = data not collected

PAGE NO. 2-34

THIS PAGE IS INTENTIONALLY LEFT BLANK



Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure 2-12
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	

PAGE NO. 2-36

THIS PAGE IS INTENTIONALLY LEFT BLANK

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	1439	Based on amounts stated in the Draft *Final Engineering Design Report* (BNI 1998a)
Mass of VOCs Removed by Portable SVE Units	6/98 – 12/98	45.5	Preliminary mass estimates based on data provided by OHM Corporation.
Mass of VOCs Removed by Central Treatment System	5/99 – 9/99	257	Mass estimates for the current period (8/99 –9/99) is based on individual well concentrations and flowrates
Mass of VOCs Removed by Portable SVE Units	1/99 – 9/99	167.5	Preliminary mass estimates based on data provided by OHM Corporation.
	Total	1909	

Note:
[a]Total mass of VOCs extracted includes TCE, Freon, 1,1 DCE and PCE.

2.4 PORTABLE TREATMENT SYSTEMS OPERATIONS

The portable systems were used to extract soil vapor from wells 24SVE15, 24SVE18, and 24SVE138A.

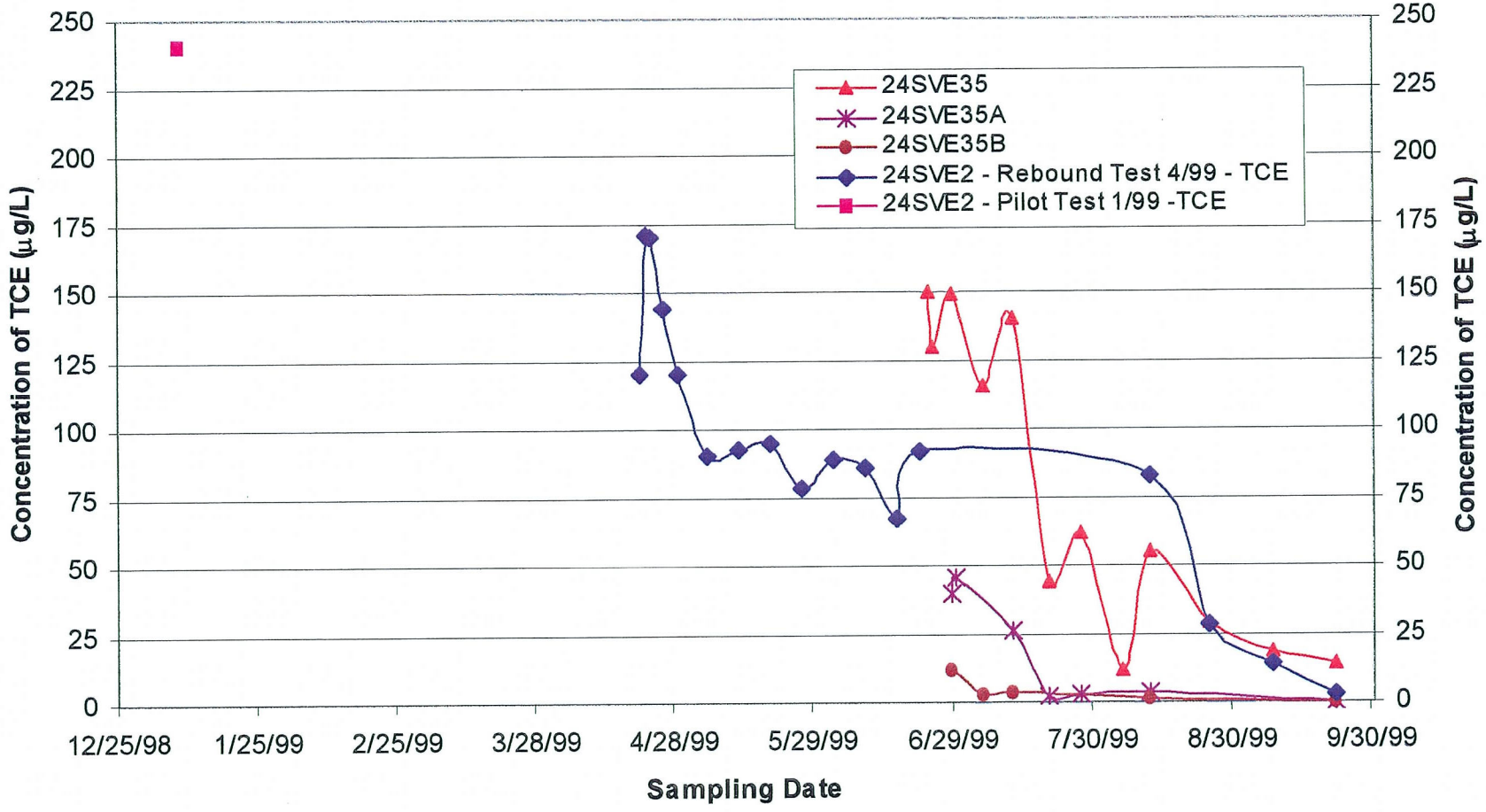
Operational data for the portable SVE systems is summarized on Table 2-6. Figures 2-13, 2-14 and 2-15 present plots of the extracted VOC concentrations from 24SVE2, 24SVE35/35A/35B, 24SVE13, 24SVE18, 24SVE138A and 24SVE147A, respectively.

Table 2-6: Summary of Portable Systems Operational Data

Extraction Well	Average Flowrate (scfm)	Average System Inlet Vacuum (inches of water)	Dates Operated	Remarks
24SVE2	7.6	5.9	4/21/99 - 6/22/99	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	4/27/99 - 7/19/99	Portable System connected to 24SVE18.
24SVE15	65	25	8/26/99 -	Well is currently on-line.
24SVE18	77	11	7/19/99 -	Well located within 70 feet of 24SVE13. Well is currently on-line.
24SVE35	75	85	6/23/99 - 8/06/99	Well was connected to the central treatment system on 8/11/99.
24SVE35A	60	85	6/29/99 - 7/28/99	Well was connected to the central treatment system on 8/11/99.
24SVE35B	100	85	6/29/99 - 7/21/99	Well was connected to the central treatment system on 8/11/99.
24SVE138A	91	100	6/29/99 -	Well is currently on-line.
24SVE147A	60	98	6/16/99 - 6/18/99	Well has remained off-line.

PAGE NO. 2-38

THIS PAGE IS INTENTIONALLY LEFT BLANK



Notes:

In June and July the wells were treated using the mobile treatment units, and starting in August they were switched onto the Central Treatment System.

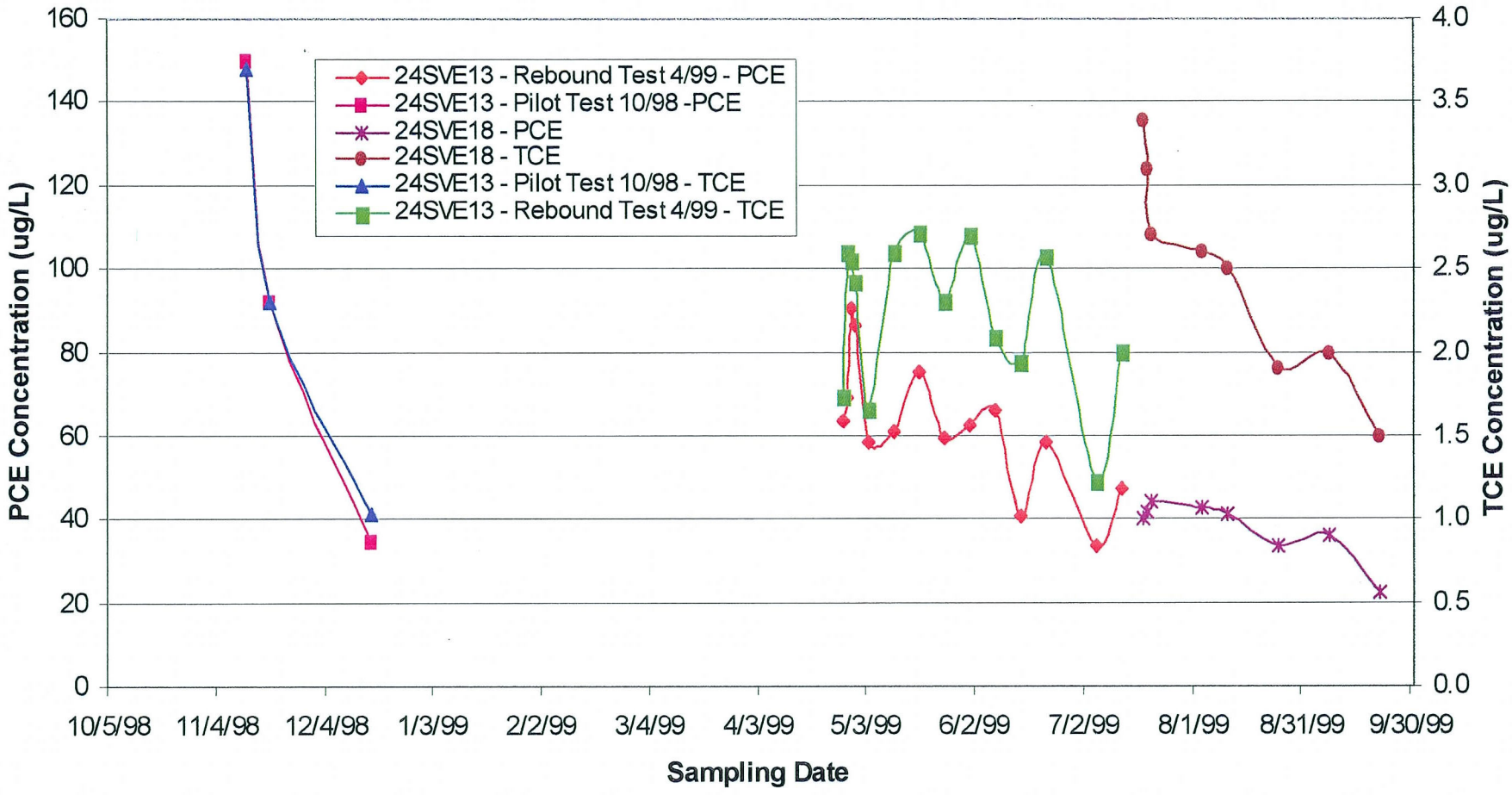
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH, A tyco INTERNATIONAL LTD. COMPANY	2-13

PAGE NO. 2-40

THIS PAGE IS INTENTIONALLY LEFT BLANK



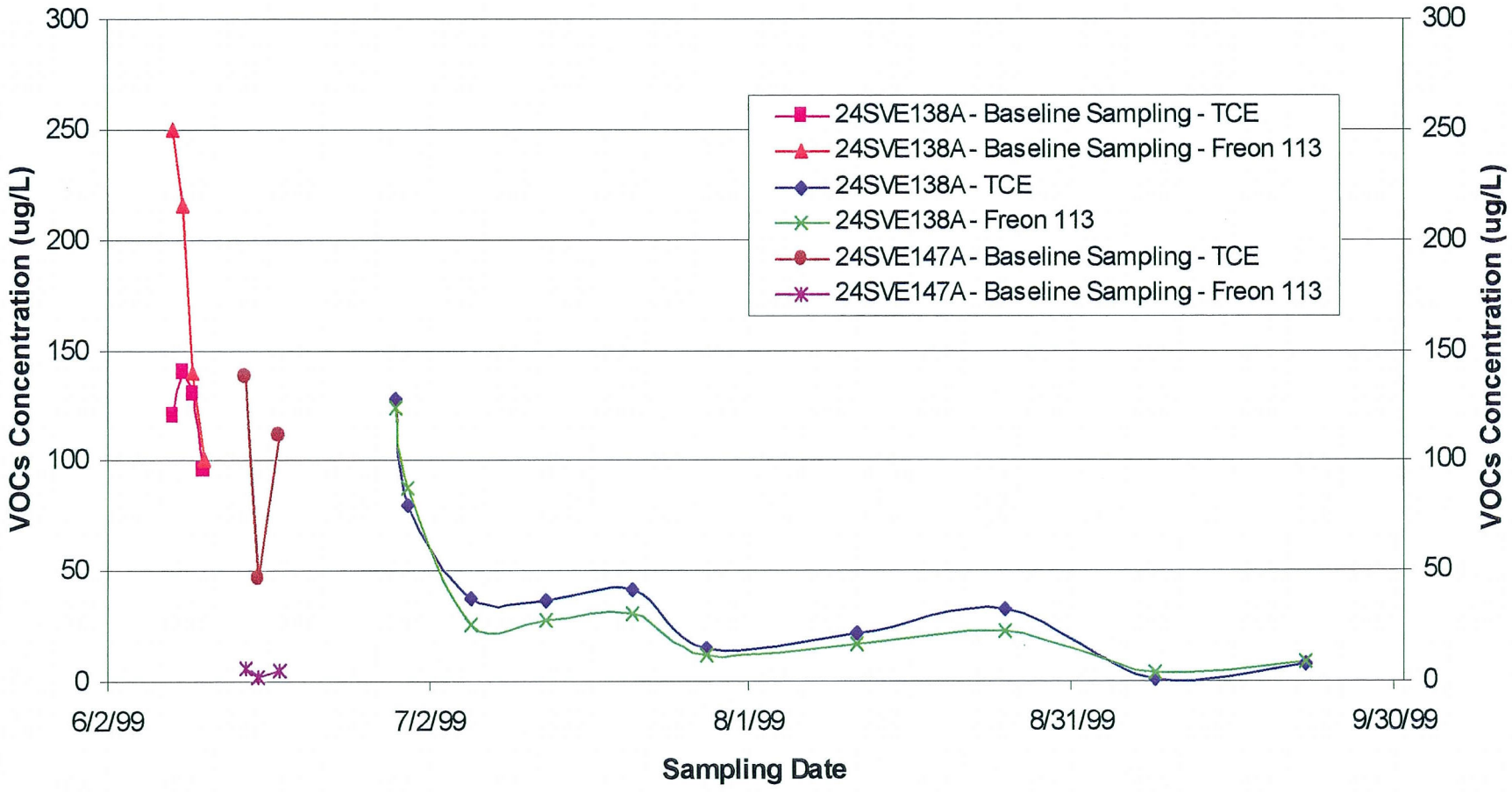
Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	2-14

PAGE NO. 2-42

THIS PAGE IS INTENTIONALLY LEFT BLANK



Progress Report - October 1999

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

Date: 10-99	MCAS, El Toro	Figure 2-15
Project No. 29307	EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	

3. PLANNED OPERATIONS AND ACTIVITIES

Activities planned for October 1999 include

Continuation of SVE at the existing wells and the operation of the central treatment system;

Continuation of evaluation of EROI and identify locations for additional wells required to verify the plume configuration;

Continuation of SVE at 24SVE15, 24SVE18, and 24SVE138A, using portable treatment systems;

Relocation of the portable treatment system currently at 24SVE15 to 24SVE154

Rebound testing on the deactivated SVE wells 24SVE3, 24SVE11, 24SVE14, 24SVE35A, 24SVE45, 24SVE78, 24SVE89, and 24SVE94.

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. *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. *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.

———. 1999b. *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	Modified Sampling and Monitoring Schedule
Tables A-3	Extraction Well Sampling and Monitoring Data Summaries
Plate 1	Phase I Vadose Zone Remediation Well Location Map

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: 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

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

Well	Depth	Screen Interval (ft)	Wells on-line 5/18/99	Extracted Vapor Concentrations after 24 Hrs (5/18/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE10	Deep	79-109	y	32	225	26	23	0.4-JA	ND	ND
24SVE104B	Shallow	25-45	y	25	300	1.4	0.69	ND	ND	ND
24SVE106	Deep	70-95	n	-	-	-	-	-	-	-
24SVE106A	Intermediate	45-65	n	-	-	-	-	-	-	-
24SVE106B	Shallow	15-40	n	-	-	-	-	-	-	-
24SVE107	Deep	70-95	y	>100	50	4.7	66	ND	ND	ND
24SVE11	Deep	79-109	y	99	20.2	16	8.5	ND	ND	ND
24SVE11A	Intermediate	43-73	y	99	20	23	14	ND	ND	ND
24SVE116	Deep	75-95	y	99	119.43	**39**	81	1.1	1.2	ND
24SVE117	Deep	73-98	n	-	-	-	-	-	-	-
24SVE128B	Shallow	15-40	n	-	-	-	-	-	-	-
24SVE138A	Intermediate	45-70	n	-	-	-	-	-	-	-
24SVE147A	Intermediate	57-77	n	-	-	-	-	-	-	-
24SVE161	Deep	70-95	n	-	-	-	-	-	-	-
24SVE5	Deep	68-88	y	95	21.25	8.5	9.1	0.45-JA	0.92	0.3
24SVE5A	Intermediate	42-57	y	80	120	0.96	0.52	0.034	0.12	0.024
24SVE78	Deep	80-100	n	-	-	-	-	-	-	-
24SVE78A	Intermediate	45-60	n	-	-	-	-	-	-	-
24SVE78B	Shallow	20-35	n	-	-	-	-	-	-	-
24SVE89	Deep	80-105	n	-	-	-	-	-	-	-
24SVE89A	Intermediate	50-75	n	-	-	-	-	-	-	-
24SVE89B	Shallow	15-35	n	-	-	-	-	-	-	-
24SVE9	Deep	81-111	y	>100	>15	**36**	68	.38-JA	ND	ND
24SVE9A	Intermediate	55-85	y	>100	-	1.6	2.3	0.014-JA	ND	ND
24SVE94	Deep	75-105	n	-	-	-	-	-	-	-
24SVE94A	Intermediate	45-65	n	-	-	-	-	-	-	-
24SVE94B	Shallow	15-40	n	-	-	-	-	-	-	-
24SVE 8	Deep									
24SVE 8A	Intermediate									
24SVE15	Deep	79-104	n	-	-	-	-	-	-	-
24SVE15A	Intermediate	38-53	n	-	-	-	-	-	-	-
24SVE15B	Shallow	15-30	n	-	-	-	-	-	-	-

Well	Wells on-line 5/25/99	Extracted Vapor Concentrations after 7 days (5/25/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	Wells on line 6/2/99	Extracted Vapor Concentrations (6/2/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	y	25	175	**41**	31.00	0.42	ND	ND	y	55	>125	-	-	-	-	-
24SVE104B	y	16	300	3.10	1.30	ND	ND	ND	n	1.5	-	-	-	-	-	-
24SVE106	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE107	y	90	50	7.10	120-D	.20-JA	ND	0.16	n	-	-	-	-	-	-	-
24SVE11	y	80	25	**89**	27.00	ND	ND	ND	y	90	25	-	-	-	-	-
24SVE11A	y	80	25	7.50	1.00	ND	ND	ND	y	90	25	-	-	-	-	-
24SVE116	y	90	110	**41**	63	1.10-JA	ND	1.20	y	110	125	-	-	-	-	-
24SVE117	y	90	70	14	330-D	0.98-JA	0.76	4.4	y	110	77	-	-	-	-	-
24SVE128B	y	70	280	**50**	37	ND	ND	ND	n	-	-	-	-	-	-	-
24SVE138A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE147A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE161	n	-	-	-	-	-	-	-	y	97	70	**50**	13	0.53	ND	ND
24SVE5	y	95	25	**30**	35.00	1.60	1.50	4.00	n	0.7	-	-	-	-	-	-
24SVE5A	y	65	120	2.70	1.90	0.09	0.08	0.31	n	1.25	-	-	-	-	-	-
24SVE78	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE9	y	90	16	**53**	170	0.44-JA	ND	ND	y	110	18	-	-	-	-	-
24SVE9A	n	90	25	5.20	11	ND	ND	ND	n	0.75	-	-	-	-	-	-
24SVE94	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE 8																
24SVE 8A																
24SVE15	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on line 6/8/99	Extracted Vapor Concentrations (6/8/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	Wells on-line 6/23/99	Extracted Vapor Concentrations (6/23/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	y	-	-	11	14	0.16	ND	0.30	y	50.00	>125	6.14	11.04	ND	ND	ND
24SVE104B	n	1.35	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106	n	-	-	-	-	-	-	-	y	50	>45	15.03	0.77	ND	ND	ND
24SVE106A	n	-	-	-	-	-	-	-	y	50	9	0.05	ND	ND	ND	ND
24SVE106B	n	-	-	-	-	-	-	-	n	50	>45	0.04	ND	ND	ND	ND
24SVE107	n	0.15	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE11	y	95	30	**39**	3.30	ND	ND	ND	y	45	18	**68.20**	2.41	ND	ND	ND
24SVE11A	y	95	25	0.55	ND	ND	ND	ND	y	45	5	0.3	ND	ND	ND	ND
24SVE116	y	115	>125	15	22	0.63-JA	ND	0.74	y	65	75	9.50	14.07	0.37	0.09	0.56
24SVE117	y	110	88	4.60	87-D	0.39	0.42	2.30	y	81	70	2.64	72.31	ND	ND	1.94
24SVE128B	y	83	308	20	8.10	ND	ND	ND	y	35	140	11.85	2.84	ND	ND	ND
24SVE138A	y[1]	98	70	**140**	215.3	ND	5.266	5.24	n	-	-	-	-	-	-	-
24SVE147A	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
24SVE161	y	100	62	**32**	10	0.37	ND	ND	y	45	32	22	21	0.25	ND	ND
24SVE5	y	120	25	6.20	1.10	0.12	0.12	0.59	y	85	5	3.90	0.27	0.05	0.04	0.35
24SVE5A	n	-	-	-	-	-	-	-	n	-	-	-				
24SVE78	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89	n	-	-	-	-	-	-	-	y	35	25	**129.38**	24.09	2.68	ND	ND
24SVE89A	n	-	-	-	-	-	-	-	y	32	>45	8.88	1.17	0.15	ND	ND
24SVE89B	n	-	-	-	-	-	-	-	y	30	>45	0.07	0.05	ND	ND	ND
24SVE9	y	112	14	19	58	ND	ND	ND	y	70.00	18	17	80	ND	ND	ND
24SVE9A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94	n	2.6	-	-	-	-	-	-	y	30	12.6	**40.49**	15.77	0.82	0.61	ND
24SVE94A	n	3.1	-	-	-	-	-	-	y	28	>45	24.11	14 81	0.26	0.44	ND
24SVE94B	n	3.2	-	-	-	-	-	-	y	25	>45	3.87	3.51	0.05	0.14	ND
24SVE 8																
24SVE 8A																
24SVE15	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on-line 6/29/99	Extracted Vapor Concentrations (6/29/99) µg/L: Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	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	CCL4	PCE
24SVE10	n	38	-	-	-	-	-	-	y	1.35	-	4.80	8.5	0.1-JA	ND	0.15
24SVE104B	n	0.9	-	-	-	-	-	-	n	1.2	-	-	-	-	-	-
24SVE106	y	55	>125	-	-	-	-	-	y[5]	72	>165	-	-	-	-	-
24SVE106A	n	3	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106B	n	1.2	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE107	n	0.1	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE11	y	45	9	-	-	-	-	-	y	70	25	24	0.46	ND	ND	ND
24SVE11A	n	2.5	-	-	-	-	-	-	n	3	-	-	-	-	-	-
24SVE116	y	75	77	-	-	-	-	-	y	78	84	6.70	21	0.34-JA	ND	0.59
24SVE117	n	-	-	-	-	-	-	-	n	0.01	-	-	-	-	-	-
24SVE128B	y	39	150	-	-	-	-	-	y	60	224	5.30	1.6	ND	ND	ND
24SVE138A	y[4]	100	85	**79.74**	87.70	ND	2.50	2.57	y	100	90	**37**	26	ND	0.69	0.77
24SVE147A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE161	y	48	30	-	-	-	-	-	y	75	55	16	44 D	0.22-JA	0.19	0.41
24SVE5	n	0.85	-	-	-	-	-	-	n	1.15	-	-	-	-	-	-
24SVE5A	n	0.6	-	-	-	-	-	-	n	0.75	-	-	-	-	-	-
24SVE78	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89	y	40	30	-	-	-	-	-	y	70	75	**36**	7.7	0.65	ND	0.36
24SVE89A	y	35	100	-	-	-	-	-	n	3.5	-	-	-	-	-	-
24SVE89B	y	30	>125	-	-	-	-	-	n	0.6	-	-	-	-	-	-
24SVE9	y	78	13	-	-	-	-	-	y	95	15	14	140-D	0.24-JA	0.2	0.34
24SVE9A	n	0.85	-	-	-	-	-	-	n	1	-	-	-	-	-	-
24SVE94	y	35	25	-	-	-	-	-	y	55	30	**56**	18	0.50-JA	0.83	ND
24SVE94A	y	30	70	-	-	-	-	-	y	50	>125	11	3.7	0.068-JA	0.25	ND
24SVE94B	y	28	>125	-	-	-	-	-	n	5	-	-	-	-	-	-
24SVE 8						-	-	-	-	-	-	-	-	-	-	-
24SVE 8A						-	-	-	-	-	-	-	-	-	-	-
24SVE15	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Table A-3
(Page 2 of 5)

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

Well	Type	Screen Interval (ft)	Wells on line 7/21/99	Extracted Vapor Concentrations (7/21/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	Wells on-line 7/28/99	Extracted Vapor Concentrations[6] (7/28/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	Deep	79-109	y	25	170	3	6.9	0.054	ND	0.16	n	0.45	-	-	-	-	-	-
24SVE104B	Shallow	25-45	n	0.8	-	-	-	-	-	-	n	0.15	-	-	-	-	-	-
24SVE106	Deep	70-95	y	50	125	7.60	3.4	ND	ND	ND	y	50	125	-	-	-	-	-
24SVE106A	Intermediate	45-65	n	2	-	-	-	-	-	-	n	0	-	-	-	-	-	-
24SVE106B	Shallow	15-40	n	1.15	-	-	-	-	-	-	n	1.1	-	-	-	-	-	-
24SVE107	Deep	70-95	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE11	Deep	79-109	y	60	25	**29**	ND	ND	ND	ND	y	58	25	-	-	-	-	-
24SVE11A	Intermediate	43-73	n	3	-	-	-	-	-	-	y	58	25	0.04	ND	ND	ND	ND
24SVE116	Deep	75-95	y	110	210	3.60	14	0.26-JA	ND	0.48	y	105	210	-	-	-	-	-
24SVE117	Deep	73-98	n	0.1	-	-	-	-	-	-	y	106	168	1.40	45	ND	ND	1.3
24SVE128B	Shallow	15-40	y	50	105	3.40	1.9	ND	ND	ND	y	50	105	-	-	-	-	-
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	0.295
24SVE147A	Intermediate	57-77	n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE161	Deep	70-95	y	60	7	8.60	24	0.15	0.15	0.35	y	56	56	-	-	-	-	-
24SVE5	Deep	68-88	n	0.8	-	-	-	-	-	-	y	110	25	2	0.34	0.057	0.062	0.24
24SVE5A	Intermediate	42-57	n	0.55	-	-	-	-	-	-	n	0.4	-	-	-	-	-	-
24SVE78	Deep	80-100	y	40	75	**37**	4.8	0.76	ND	ND	y	40	75	-	-	-	-	-
24SVE78A	Intermediate	45-60	y	42	25	1.20	0.093	ND	ND	0.062	y	45	25	-	-	-	-	-
24SVE78B	Shallow	20-35	y	40	>125	1.10	0.039	ND	ND	0.32	y	32	>125	-	-	-	-	-
24SVE89	Deep	80-105	y	55	50	14	1.7	0.25	ND	0.23	y	55	50	-	-	-	-	-
24SVE89A	Intermediate	50-75	n	4	-	-	-	-	-	-	n	4	-	-	-	-	-	-
24SVE89B	Shallow	15-35	n	0.3	-	-	-	-	-	-	n	1.2	-	-	-	-	-	-
24SVE9	Deep	81-111	y	90	12	8.75	77.5	ND	ND	ND	y	87	30	-	-	-	-	-
24SVE9A	Intermediate	55-85	n	1.05	-	-	-	-	-	-	y	87	45	0.05	ND	ND	ND	ND
24SVE94	Deep	75-105	y	50	35	**27**	8.4	ND	ND	ND	y	50	25	-	-	-	-	-
24SVE94A	Intermediate	45-65	y	35	60	5.30	2.3	ND	0.17	ND	y	43	115	-	-	-	-	-
24SVE94B	Shallow	15-40	n	5	-	-	-	-	-	-	n	0.002	-	-	-	-	-	-
24SVE 8	Deep		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE 8A	Intermediate		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE15	Deep	79-104	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15A	Intermediate	38-53	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15B	Shallow	15-30	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on line 8/4/99	Extracted Vapor Concentrations (8/4/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	Wells on-line 8/18/99	Extracted Vapor Concentrations (8/18/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE
24SVE10	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE104B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106	y	50	125	6.6	1.6	ND	ND	ND	n	-	-	-	-	-	-	-
24SVE106A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE107	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE11	y	56	25	20	ND	ND	ND	ND	y	70	25	16	ND	ND	ND	ND
24SVE11A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE116	y	110	220	3.6	17	0.28	0.094	0.53	n	-	-	-	-	-	-	-
24SVE117	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE128B	y	50	-	2.5	1.6	ND	ND	ND	n	-	-	-	-	-	-	-
24SVE138A	y5	100	105	22	17	ND	0.26	0.49	y5	100	105	22	17	ND	0.26	0.49
24SVE147A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE161	y	55	30	7.6	27.5	0.097	ND	0.225	n	-	-	-	-	-	-	-
24SVE5	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE5A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78	y	40	80	**30**	9.4	0.65	ND	0.54	y	60	125	17	6.1	0.38	ND	0.41
24SVE78A	y	40	25	2.6	0.43	ND	ND	0.075	n	-	-	-	-	-	-	-
24SVE78B	y	30	125	0.74	0.55	ND	ND	0.28	n	-	-	-	-	-	-	-
24SVE89	y	55	55	7.7	8.6	0.11	ND	0.13	y	65	65	5.4	3.9	0.072	ND	0.096
24SVE89A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE9	y	92	30	10	55	ND	ND	ND	n	-	-	-	-	-	-	-
24SVE9A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94	y	50	25	**46**	11	0.32	0.67	ND	y	70	25	18	5.4	ND	0.34	ND
24SVE94A	y	45	125	4.8	2	0.028	0.12	ND	n	-	-	-	-	-	-	-
24SVE94B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE 8A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE15	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE15B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on-line 8/25/99	Extracted Vapor Concentrations (8/25/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	Wells on-line 8/27/99	Extracted Vapor Concentrations (8/27/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	CCL4	PCE	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
24SVE10	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE104B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE106B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE107	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE11	y	55	21	19	ND	ND	ND	ND	y	-	-	-	-	-	-	-	y	-	-	-	-	-	-	-
24SVE11A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE116	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE117	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE128B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE138A	y	100	105	**29.89**	21.29	0.16	0.39	0.66	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE147A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE161	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE5	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE5A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78	y	50	95	13	3.7	0.25	ND	0.24	y	-	-	-	-	-	-	-	y	-	-	-	-	-	-	-
24SVE78A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE78B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89	y	55	50	4.7	1.2	ND	ND	ND	y	-	-	-	-	-	-	-	y	-	-	-	-	-	-	-
24SVE89A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE89B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE9	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE9A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94	y	55	30	18	4.3	ND	0.2	ND	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE94B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE 8A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE15	n	-	-	-	-	-	-	-	y	25	65	2.95	0.335	ND	ND	0.08	y	25	65	3.8	0.44	ND	ND	0.09
24SVE15A	n	-	-	-	-	-	-	-	y	-	60	0.012	0.035	ND	ND	ND	y	-	60	0.029	0.052	ND	ND	ND
24SVE15B	n	-	-	-	-	-	-	-	y	-	55	ND	ND	ND	ND	ND	y	-	55	ND	ND	ND	ND	ND

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.

* 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 and is the data reported.

[2] Well was on-line on 6/14/99. A 24-hr sample was collected on 6/15/99 and is the data reported.

[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 and is the data reported.

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

[6] Rebound Sampling

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Screen Interval (ft)	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
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	ND	71	ND	ND	ND
24SVE128B	Shallow	15-40	n	-	-	-	-	-	-	-	y	20	91	ND	ND	ND	ND	ND
24SVE138A	Intermediate	45-70	n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE147A	Intermediate	57-77	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	>350	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	>350	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	>350	ND	ND	ND	ND	ND
24SVE89B	Shallow	15-35	n	-	-	-	-	-	-	-	y	15	336	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
24SVE94A	Intermediate	45-65	n	-	-	-	-	-	-	-	y	12	75	ND	ND	ND	ND	ND
24SVE94B	Shallow	15-40	n	-	-	-	-	-	-	-	y	40	>350	ND	ND	ND	ND	ND
24SVE 8	Deep		n	-	-	-	-	-	-	-	y	22	0	ND	ND	ND	ND	ND
24SVE 8A	Intermediate		n	-	-	-	-	-	-	-	y	22	35	ND	ND	ND	ND	ND
24SVE15	Deep	79-104	y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE15A	Intermediate	38-53	y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE15B	Shallow	15-30	y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A-3
(4of 5)

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

Well	Depth	Screen Interval (ft)	Wells on-line 6/23/99	Extracted Vapor Concentrations after 24 Hrs (6/23/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	Deep	91-109	n	-	-	-	-	-	-	-
24SVE14	Deep	78-108	n	-	60	-	-	-	-	-
24SVE2	Deep	80-105	n	-	-	-	-	-	-	-
24SVE2A	Intermediate	40-70	n	-	-	-	-	-	-	-
24SVE3	Deep	80-105	n	-	-	-	-	-	-	-
24SVE32	Deep	77-102	n	-	-	-	-	-	-	-
24SVE32B	Shallow		-	-	-	-	-	-	-	-
24SVE35	Deep	85-105	y[1]	85	75	**150**	10	33	ND	5.5
24SVE35A	Intermediate	50-75	n	-	-	-	-	-	-	-
24SVE35B	Shallow	15-35	n	-	-	-	-	-	-	-
24SVE36	Deep	80-100	n	-	-	-	-	-	-	-
24SVE36A	Intermediate	45-65	n	-	-	-	-	-	-	-
24SVE36B	Shallow	15-40	n	-	-	-	-	-	-	-
24SVE3A	Intermediate	45-60	n	-	-	-	-	-	-	-
24SVE4	Deep	85-105	n	-	-	-	-	-	-	-
24SVE41	Deep	85-105	n	-	-	-	-	-	-	-
24SVE41A	Intermediate	55-75	n	-	-	-	-	-	-	-
24SVE41B	Shallow	20-40	n	-	-	-	-	-	-	-
24SVE45	Deep	80-100	n	-	-	-	-	-	-	-
24SVE45A	Intermediate	50-70	n	-	-	-	-	-	-	-
24SVE45B	Shallow	20-40	n	-	-	-	-	-	-	-
24SVE49	Deep	83-103	n	-	-	-	-	-	-	-
24SVE49A	Intermediate	45-65	n	-	-	-	-	-	-	-
24SVE49B	Shallow	18-33	n	-	-	-	-	-	-	-
24SVE51	Deep	83-103	n	-	-	-	-	-	-	-
24SVE51A	Intermediate	49-69	n	-	-	-	-	-	-	-
24SVE51B	Shallow	18-33	n	-	-	-	-	-	-	-
24SVE54	Deep	75-95	n	-	-	-	-	-	-	-
24SVE6	Deep	85-110	n	-	-	-	-	-	-	-
24SVE77	Deep	75-100	n	-	-	-	-	-	-	-
24SVE77A	Intermediate	39-54	n	-	-	-	-	-	-	-
24SVE77B	Shallow	18-33	n	-	-	-	-	-	-	-
24SVE53	Deep	73-88	n	-	-	-	-	-	-	-
24SVE53A	Intermediate	45-65	n	-	-	-	-	-	-	-
24SVE53B	Shallow	15-35	n	-	-	-	-	-	-	-
24SVE55	Deep	80-100	n	-	-	-	-	-	-	-
24SVE55A	Intermediate	40-70	n	-	-	-	-	-	-	-
24SVE55B	Shallow	15-30	n	-	-	-	-	-	-	-
24SVE62	Deep	80-105	n	-	-	-	-	-	-	-
24SVE62B	Shallow	15-40	n	-	-	-	-	-	-	-
24SVE67	Deep	75-100	n	-	-	-	-	-	-	-
24SVE67B	Shallow	17-32	n	-	-	-	-	-	-	-
24SVE7	Deep		n	-	-	-	-	-	-	-
24SVE7A	Intermediate		n	-	-	-	-	-	-	-

Well	Wells on-line 6/29/99	Extracted Vapor Concentrations (6/29/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4	Wells on line 7/6/99	Extracted Vapor Concentrations (7/6/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE14	n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE2	n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE2A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE3	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE32	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE32B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE35	y[2]	65	75	-	-	-	-	-	y	65	75	121.295	12.15	20.62	3.38	1.34
24SVE35A	y	85	60	**39.2**	2.06	6.18	1.45	ND	y	85	60	**45.4**	4.2	8.49	1.50	ND
24SVE35B	y	85	100	11.8	0.66	0.79	0.82	ND	y	85	100	3.26	0.45	0.33	0.23	ND
24SVE36	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE36A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE36B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE3A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE4	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE41	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE41A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE41B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE45	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE45A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE45B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE49	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE49A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE49B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE51	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE51A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE51B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE54	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE6	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE77	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE77A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE77B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE62	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE62B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE67	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE67B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE7	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE7A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on line 7/21/99	Extracted Vapor Concentrations (7/21/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4	Wells on line 8/12/99	Extracted Vapor Concentrations (8/12/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4
24SVE1	n	-	-	-	-	-	-	-	y	30	308	18	5.9	2.1	ND	ND
24SVE14	n	-	-	-	-	-	-	-	y	25	5	**48**	2.4	1.3	1	ND
24SVE2	n	-	-	-	-	-	-	-	y	34	15	**83**	7.01	4.8	2.2	ND
24SVE2A	n	-	-	-	-	-	-	-	y	34	25	11	0.68	0.56	0.36	ND
24SVE3	n	-	-	-	-	-	-	-	y	25	30	26	ND	0.34	0.38	ND
24SVE32	n	-	-	-	-	-	-	-	y	30	60	19	0.54	0.86	0.27	ND
24SVE32B	-	-	-	-	-	-	-	-	-	30	224	0.33	ND	ND	0.029	ND
24SVE35	y	65	75	1.49	4.70	7.2	1.49	ND	y	30	25	**55**	7.5	8.7	1.6	ND
24SVE35A	y	85	60	2.5	0.13	0.15	0.09	ND	y	30	10	3.6	0.84	0.35	0.22	ND
24SVE35B	n	-	-	-	-	-	-	-	y	25	90	1.4	0.26	0.069	0.19	ND
24SVE36	n	-	-	-	-	-	-	-	y	26	45	18	ND	0.48	0.41	ND
24SVE36A	n	-	-	-	-	-	-	-	y	26	0	1.7	ND	ND	0.16	ND
24SVE36B	n	-	-	-	-	-	-	-	y	25	55	0.76	ND	ND	0.11	ND
24SVE3A	n	-	-	-	-	-	-	-	y	25	0	0.18	ND	ND	ND	ND
24SVE4	n	-	-	-	-	-	-	-	y	27	60	21	1.9	1.3	0.37	ND
24SVE41	n	-	-	-	-	-	-	-	y	25	55	19	0.87	0.64	0.34	ND
24SVE41A	n	-	-	-	-	-	-	-	y	25	12	0.31	ND	ND	ND	ND
24SVE41B	n	-	-	-	-	-	-	-	y	25	224	4.4	ND	ND	0.29	ND
24SVE45	n	-	-	-	-	-	-	-	y	25	35	**110**	ND	1.9	1.5	ND
24SVE45A	n	-	-	-	-	-	-	-	y	25	25	3.4	ND	ND	0.099	ND
24SVE45B	n	-	-	-	-	-	-	-	y	25	85	0.5	ND	ND	0.043	ND
24SVE49	n	-	-	-	-	-	-	-	y	25	50	**120**	25	1.6	3.4	ND
24SVE49A	n	-	-	-	-	-	-	-	y	25	12	2.5	0.047	ND	0.12	ND
24SVE49B	n	-	-	-	-	-	-	-	y	25	330	2.1	ND	ND	0.19	ND
24SVE51	n	-	-	-	-	-	-	-	y	30	12	21	5.6	ND	0.52	ND
24SVE51A	n	-	-	-	-	-	-	-	y	30	12	0.34	ND	ND	0.024	ND
24SVE51B	n	-	-	-	-	-	-	-	y	30	90	0.13	ND	ND	ND	ND
24SVE54	n	-	-	-	-	-	-	-	y	30	35	**44**	1.40	0.49	0.91	ND
24SVE6	n	-	-	-	-	-	-	-	y	30	290	14	0.96	0.83	ND	ND
24SVE77	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE77A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE77B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE53B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE55B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE62	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE62B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE67	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE67B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE7	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE7A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-

Well	Wells on-line 8/25/99	Extracted Vapor Concentrations (8/25/99) µg/L Vacuum (in. H2O)	Flow (scfm)	TCE	Freon 113	1,1 DCE	PCE	CCL4	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
24SVE1	y	30	330	14	6.7	1.9	ND	ND	y	-	-	-	-	-	-	-
24SVE14	y	45	25	7.7	ND	0.088	0.17	ND	y	-	-	-	-	-	-	-
24SVE2	y	50	21	**28**	3.6	3.5	0.62	ND	y	-	-	-	-	-	-	-
24SVE2A	y	50	50	1.9	0.38	0.21	0.12	ND	y	-	-	-	-	-	-	-
24SVE3	y	45	40	9.9	ND	0.10	0.17	ND	y	-	-	-	-	-	-	-
24SVE32	y	40	105	5.3	0.19	0.19	ND	ND	y	-	-	-	-	-	-	-
24SVE32B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24SVE35	y	50	40	**29**	3.9	5.1	0.77	ND	y	-	-	-	-	-	-	-
24SVE35A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE35B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE36	y	40	85	18	ND	0.31	0.3	ND	y	-	-	-	-	-	-	-
24SVE36A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE36B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE3A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE4	y	40	90	16	2	0.84	0.26	ND	y	-	-	-	-	-	-	-
24SVE41	y	40	100	3.6	0.49	0.27	0.08	ND	y	-	-	-	-	-	-	-
24SVE41A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE41B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE45	y	45	65	17	0.24	0.21	0.21	ND	y	-	-	-	-	-	-	-
24SVE45A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE45B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE49	y	45	90	**28**	22	0.45	0.94	ND	y	-	-	-	-	-	-	-
24SVE49A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE49B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE51	y	35	14	**58**	33	0.55	1.2	ND	y	-	-	-	-	-	-	-
24SVE51A	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE51B	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE54	y	46	35	**37**	9.90	ND	0.84	ND	y	-	-	-	-	-	-	-
24SVE6	y	30	280	7.5	1.6	0.61	ND	ND	y	-	-	-	-	-	-	-
24SVE77	y	30	80	**37**	7	0.32	0.87	ND	y	-	-	-	-	-	-	-
24SVE77A	y	35	5	0.23	ND	ND	0.83	ND	y	-	-	-	-	-	-	-
24SVE77B	y	25	>125	0.68	0.46	ND	0.14	ND	y	-	-	-	-	-	-	-
24SVE53	n	-	-	-	-	-	-	-	y[3]	20	30	15	ND	0.17	0.28	ND
24SVE53A	n	-	-	-	-	-	-	-	y[3]	20	ND	0.72	ND	ND	0.9	ND
24SVE53B	n	-	-	-	-	-	-	-	y[3]	20	ND	0.21	0.12	ND	0.93	ND
24SVE55	n	-	-	-	-	-	-	-	y	25	45	**69**	57	0.81	2.7	0.93
24SVE55A	n	-	-	-	-	-	-	-	y	25	10	8.5	6	ND	0.43	ND
24SVE55B	n	-	-	-	-	-	-	-	y	20	90	2	2.7	ND	0.25	ND
24SVE62	n	-	-	-	-	-	-	-	y	19	25	18	ND	0.41	0.24	ND
24SVE62B	n	-	-	-	-	-	-	-	y	19	5	1	ND	ND	0.023	ND
24SVE67	n	-	-	-	-	-	-	-	y	20	12.5	**84**	ND	1.2	ND	ND
24SVE67B	n	-	-	-	-	-	-	-	y	20	30	2.1	0.062	ND	0.067	ND
24SVE7	n	-	-	-	-	-	-	-	n	-	-	-	-	-	-	-
24SVE7A	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.

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

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

[3] Flow measurements could not be taken.

IRP Site 24 Extraction Well Sampling and Monitoring Data Summary

		Screen Interval (ft)	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	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
24SVE14	Deep	78-108	y	50	25	6.1	ND	ND	0.099	ND	y	30	0	2.4	ND	ND	ND	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
24SVE2A	Intermediate	40-70	y	50	70	1.1	0.29	0.17	0.097	ND	y	44	308	ND	ND	ND	ND	ND
24SVE3	Deep	80-105	y	45	45	5.6	ND	0.041	0.093	ND	y	25	27	2.8	ND	ND	ND	ND
24SVE32	Deep	77-102	y	42	105	4.2	0.35	0.17	0.11	ND	y	30	72	1.4	ND	ND	ND	ND
24SVE32B	Shallow		-	-	-	-	-	-	-	-	y	35	250	0.33	ND	ND	ND	ND
24SVE35	Deep	85-105	y	50	45	19	3.4	5	0.61	0.31	y	40	30	14	3	5.8	ND	ND
24SVE35A	Intermediate	50-75		-	-	-	-	-	-	-	y	40	150	ND	ND	ND	ND	ND
24SVE35B	Shallow	15-35		-	-	-	-	-	-	-	y	35	>350	ND	ND	ND	ND	ND
24SVE36	Deep	80-100	y	45	90	10	0.26	0.24	0.23	ND	y	26	266	3.1	ND	ND	ND	ND
24SVE36A	Intermediate	45-65		-	-	-	-	-	-	-	y	27	0	ND	ND	ND	ND	ND
24SVE36B	Shallow	15-40		-	-	-	-	-	-	-	y	26	320	ND	ND	ND	ND	ND
24SVE3A	Intermediate	45-60		-	-	-	-	-	-	-	y	25	0	ND	ND	ND	ND	ND
24SVE4	Deep	85-105	y	42	85	11	2.4	0.66	ND	ND	y	32	350	4.8	ND	ND	ND	ND
24SVE41	Deep	85-105	y	45	100	8.2	1.6	0.76	0.24	ND	y	25	55	3	ND	ND	ND	ND
24SVE41A	Intermediate	55-75		-	-	-	-	-	-	-	y	26	35	ND	ND	ND	ND	ND
24SVE41B	Shallow	20-40	n	-	-	-	-	-	-	-	y	26	224	ND	ND	ND	ND	ND
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
24SVE45A	Intermediate	50-70	n	-	-	-	-	-	-	-	y	26	60	ND	ND	ND	ND	ND
24SVE45B	Shallow	20-40	n	-	-	-	-	-	-	-	y	25	>350	ND	ND	ND	ND	ND
24SVE49	Deep	83-103	y	45	75	16	11	0.17	0.43	ND	y	25	50	4.4	12	ND	ND	ND
24SVE49A	Intermediate	45-65	n	-	-	-	-	-	-	-	y	27	0	ND	ND	ND	ND	ND
24SVE49B	Shallow	18-33	n	-	-	-	-	-	-	-	y	26	>350	ND	ND	ND	ND	ND
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
24SVE51A	Intermediate	49-69	n	-	-	-	-	-	-	-	y	35	65	ND	ND	ND	ND	ND
24SVE51B	Shallow	18-33	n	-	-	-	-	-	-	-	y	31	>350	ND	ND	ND	ND	ND
24SVE54	Deep	75-95	y	40	10	29	2.4	ND	0.47	ND	y	34	0	4.6	ND	ND	ND	ND
24SVE6	Deep	85-110	y	45	260	3.8	0.81	0.36	ND	ND	y	24	280	3.1	ND	ND	ND	ND
24SVE77	Deep	75-100	y	-	-	-	-	-	-	-	y	25	55	2	ND	ND	ND	ND
24SVE77A	Intermediate	39-54	y	30	87	16	2	0.13	0.25	ND	y	29	>350	ND	ND	ND	ND	ND
24SVE77B	Shallow	18-33	n	-	-	-	-	-	-	-	y	21	25	ND	ND	ND	ND	ND
24SVE53	Deep	73-88	y	35	55	23	ND	ND	ND	ND	y	24	36	5.2	ND	ND	ND	ND
24SVE53A	Intermediate	45-65	n	-	-	-	-	-	-	-	y	24	290	ND	ND	ND	ND	ND
24SVE53B	Shallow	15-35	n	-	-	-	-	-	-	-	y	11	>350	ND	ND	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	0.33
24SVE55A	Intermediate	40-70	n	-	-	-	-	-	-	-	y	30	5	ND	ND	ND	ND	ND
24SVE55B	Shallow	15-30	n	-	-	-	-	-	-	-	y	25	>350	ND	ND	ND	ND	ND
24SVE62	Deep	80-105	y	35	25	2.8	ND	0.022	0.029	ND	y	25	65	1.8	ND	ND	ND	ND
24SVE62B	Shallow	15-40	n	-	-	-	-	-	-	-	y	25	20	ND	ND	ND	ND	ND
24SVE67	Deep	75-100	y	37	25	32	ND	0.26	ND	ND	y	44	35	4.8	ND	ND	ND	ND
24SVE67B	Shallow	17-32	n	-	-	-	-	-	-	-	y	30	110	ND	ND	ND	ND	ND
24SVE7	Deep		n	-	-	-	-	-	-	-	y	29	0	21	ND	ND	ND	ND
24SVE7A	Intermediate		n	-	-	-	-	-	-	-	y	29	25	15	ND	ND	ND	ND

PLATE 1 – PHASE I VADOSE ZONE REMEDIATION WELL LOCATION MAP

THIS PLATE IS NOT AVAILABLE.

EXTENSIVE RESEARCH WAS PERFORMED BY NAVFAC SOUTHWEST RECORDS OFFICE TO LOCATE THE MISSING PLATE. THIS PAGE HAS BEEN INSERTED AS A PLACEHOLDER AND WILL BE REPLACED SHOULD THE MISSING ITEM BE LOCATED.

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA, RECORDS MANAGER
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil