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MCAS EL TORO
SSIC # 5090.3

Technical Memorandum

Progress Report
Phase I Vadose Zone Remediation Activities
Installation Restoration Program Site 24
Volatile Organic Compound (VOC) Source Area
Marine Corps Air Station, El Toro

12 January 1999

Prepared by
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
San Diego, California

OHM Remediation Services Corp.
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OHM TRANSMITTAL/DELIVERABLE RECEIPT

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Southwest Division
Bozier H. Demaree, Code 02R.BD
Building 131
1220 Pacific Highway
San Diego, California 92132-5101

Date: 12-Jan-99

D.O.: 65

Location: MCAS EL TORO

FROM:

Stewart Bornhoft, Program Manager

Edwin G. Bond, Contracts Manager

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SOUTHWESTNAVFACENGCOM
Code 05BM.DD
1220 Pacific Highway
San Diego, CA 92132
Telephone: (619) 532-4163/Fax: (619) 532-4160

Transmittal

Date: January 12, 1999

From: David B. DeMars
Remedial Project Manager
IRP Site 24, MCAS El Toro

Via: Andy Piszkin
Lead Remedial Project Manager 1-11-99
MCAS El Toro

To: Glenn Kistner, Remedial Project Manager
U.S. Environmental Protection Agency, Region IX
Hazardous Waste Management Division (SFD 8-2)
75 Hawthorne Street
San Francisco, CA 94105-3901

Tayseer Mahmoud, Remedial Project Manager
State of California Environmental Protection Agency
Department of Toxic Substances Control
Base Closure Unit
Southern California Operations
5796 Corporate Avenue
Cypress, CA 90630-4700

Patricia Hannon, Remedial Project Manager
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501-3339

Subj: January 1999 Progress Report
Phase I Vadose Zone Remediation, Installation Restoration Program Site 24
Marine Corps Air Station, El Toro

Transmitted for your information are copies of the subject progress report. Please do not hesitate to contact me at (619) 532-4163 if you have questions pertaining to this project.

CF:
Joseph Joyce (MCAS El Toro)
Pat Brooks (Bechtel National, Inc.)
Eric Peterson (Earth Tech)
Bill Sedlak (OHM/IT)
Project Files

File: bctcover.doc

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Exhibits
- Exhibit 1 TCE Concentrations in the Deep Vadose Zone
- Exhibit 2 Vacuum Response Field Data
- Exhibit 3 Selected SVE Test Data
- Exhibit 4 Draft Final EDR Wellfield Layout

Section 1
Introduction

The purpose of this technical memorandum is to provide an update on the Phase I field activities associated with the remediation of the vadose zone at Installation Restoration Program (IRP) Site 24 - the Volatile Organic Compound (VOC) Source Area - at the Marine Corps Air Station, El Toro. This technical memorandum describes start-up and testing activities that were conducted during the period from mid-November 1998 through early January 1999.

Section 2
Field Activities

Well Construction Activities
Five vapor extraction wells were constructed during the November – December 1998 time period. Well locations are shown on Exhibit 1, and details pertaining to well construction, vapor concentrations, and vacuum pressures are presented in Table 1 and Exhibits 2 and 3.

Well 24SVE104B – screened from 25 to 45 feet below ground surface (bgs) – was constructed on 16 November 1998. The well is located within the 500 microgram per liter (ug/L) contour for trichloroethylene (TCE) vapor concentrations in the shallow vadose zone as identified in 1995 during the Remedial Investigation (RI) of IRP Site 24. The well is located on a paved area near the southeast corner of Building 296 in close proximity to a degreaser unit. Preliminary testing activities were completed in November and December 1998.

Well 24SVE107 – screened from 70 to 95 feet bgs – was constructed on 17 November 1998. The well is located adjacent to the 500 ug/L contour for TCE in the deep vadose zone as identified in 1995 during the RI. The well is located near the southwest corner of Building 296. Preliminary testing activities were completed in December 1998.

Well 24SVE161 – screened from 70 to 95 feet bgs – was constructed during 18 and 19 November 1998. The well is located adjacent to the west side of Building 296 within the 500 ug/L contour for TCE in the deep vadose zone as identified in 1995 during the RI. Preliminary testing activities were completed in December 1998.

Well 24SVE116 – screened from 75 to 95 feet bgs – was constructed on 16 December 1998. The well is located near storm drain conduits south of Building 296 and between the 50 and 500 ug/L contours for TCE in the deep vadose zone as identified in 1995 during the RI. Preliminary testing activities were completed in December 1998.

Well 24SVE54 – screened from 75 to 95 feet bgs – was constructed on 17 December 1998. The well is located adjacent to the east side of Building 297 within the 500 ug/L contour for TCE in the deep vadose zone as identified in 1995 during the RI. The well is also located in close proximity to groundwater extraction well 24EX5.

Soil Vapor Extraction (SVE) Testing Activities

Testing activities utilizing portable SVE treatment units were conducted at several vapor extraction wells. Selected test information is summarized in Table 1.

Some of the existing vapor extraction wells that were constructed in 1995 during the Remedial Investigation included piezometers at intermediate depths. Inspections and testing of piezometers commenced during December 1998.

Data from the vacuum-enhanced groundwater remediation pilot test activities at extraction wells 24EX3, 24EX4, 24EX5, and 24EX6 (Bechtel, 1998) was reviewed, and TCE vapor concentrations near the groundwater interface are identified in Table 1. TCE vapor concentrations in the vadose zone near the groundwater interface were less than 100 ug/L throughout most of the groundwater remediation pilot testing activities.

Central System Start-up Activities

The Central Soil Vapor Extraction (SVE) Treatment System (Central System) was successfully energized and operated briefly on ambient air in December 1998. Adjustments are in progress that will allow the Central System to operate at low flows (in the 600 to 800 standard cubic feet per minute (scfm) range) and increased vacuum pressures.

Vapor extraction wells 24SVE10, 24SVE104B, 24SVE107, 24SVE116, 24SVE5, and 24SVE5A may be connected to the Central System for the live low flow testing activities, tentatively scheduled to begin in late January or early February 1999. Piping was installed to transport the cooling tower make up water and blowdown back and forth to the Station utilities. The control logic for handling the blowdown was also installed in December 1998. The GAC and air cooler subsystems will be fully operational during the low flow tests.

Tentative Schedule for Central System and Other Activities

Activity	**Tentative Completion Date**
Start-up Activities	
Central SVE Treatment System Assembly (Central System)	December 1998 (actual)
Central System Start-up and Testing	March 1999
Central System Optimization for Low Air Flows (includes construction of Selected Phase I Wells)	April 1999
Rebound Testing at Existing Wells	April 1999
Soil Gas Sampling	July 1999

Section 3
References and/or Sources of Information

Bechtel National, Inc. 1995. Final Field Sampling Plan, Phase II Remedial Investigation/Feasibility Study, Marine Corps Air Station, El Toro, California.

Bechtel National, Inc. 1995. Investigation-Derived Waste Management Plan, Marine Corps Air Station, El Toro, California.

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OHM. 1999. IRP Site 24, Marine Corps Air Station, El Toro, Preliminary Laboratory Data Packages for Soil Vapor Extraction Tests at IRP Site 24.

Southwest Division, Naval Facilities Engineering Command. 1998. Technical Memorandum, Progress Report, Phase I Vadose Zone Remediation Activities, IRP Site 24, MCAS El Toro. December.

United States Marine Corps Air Station, El Toro. 1998. Correspondence: Letter dated 2 December 1998 to BRAC Cleanup Team Members pertaining to Central SVE System Start-Up, Testing, and Evaluation Activities.

For discussion only

Table 1. History and Status of Soil Vapor Extraction (SVE) Testing Operations at IRP Site 24, MCAS El Toro (Updated 5 January 1999)

Vapor Extraction Well ID	Screened Interval (Feet BGS)	Approximate Date(s) of SVE Operations	TCE Vapor Influent Concentrations (ug/L) unless otherwise noted	Date(s) of TCE Vapor Analyses	Comments	Average Flows (from various tests or from the EDR)	TCE Soil Gas Removal Estimates
24SVE1	91 to 109	Note: Soil gas sample via 24CPT31 at 105 feet had 6,120 ug/L of TCE on 29 August 1995. Well 24SVE1 was constructed in 1995. 19 days (10 Jun - 8 Jul 1996) 1 day or 4 hours (23 Oct 96) 84 days or 1,981.5 hours (18 Dec 96 - 12 Mar 97) 1 day (14 Mar 97) 1 day (12 May 97) 5 days (1 - 5 Jun 98) 54 days (7 Oct – 30 Nov 98) ***TOTAL: 164 days approximately***	**910** **120** **73** **89** **37** **8.7**	23 Oct 96 12 May 97 5 Jun 98 9 Oct 98 5 Nov 98 30 Nov 98	Travel time: 1.4 days per pore volume (EDR). Approx. 114 pore volumes removed during tests.	225 cfm at 42" (1996)	1.15 pound (1996) **435 pounds (through 1997)** Calculations in progress for 1998 tests
24SVE2	80 to 105	**Note: Well 24SVE2 was constructed in 1995.** **1 day** or 4 hours (11 Nov 96)	**160**	11 Nov 96		131 at 100" (1996)	0.31 pound (1996)
24SVE2A	40 to 70	**Note: Well 24SVE2A was constructed in 1995.** **1 day** or 4 hours (13 Nov 96)	**150**	13 Nov 96		44 cfm at 80" (1996)	0.08 pound (1996)
24SVP2 Piezometer	27.25-27.75 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE3	80 to 105	Note: Soil gas sample via 24CPT81 had at 90 feet had 1,007 ug/L of TCE on 29 November 1995. Well 24SVE3 was constructed in 1995. **1 day** or 4 hours (4 Nov 96) **65 days** or 1,536 hours (21 July - 24 September 1997) **6 days (21 – 28 Dec 98)** ***TOTAL: 72 days approximately***	**1100** **160**	4 Nov 96 24 Sep 97		22 cfm at 100" (1996)	0.36 pound (1996) **59 pounds (through 1997)**
24SVE3A	45 to 60	**Note: Well 24SVE3A was constructed in 1995.** **1 day** or 4 hours (5 Nov 96) 6 days (28 Dec 98 – 4 Jan 99) ***TOTAL: 7 days approximately***	**130**	5 Nov 96		27 cfm at 120" (1996)	0.04 pound (1996)
24SVE4	85 to 105	**Note: Well 24SVE4 was constructed in 1995.** **1 day** or 4 hours (14 Nov 96) planned test 18-20 Jan 99	**280**	14 Nov 96		>131 at 55" (1996)	0.55 pound (1996)

Table 1. (continued)

Vapor Extraction Well ID	Screened Interval (Feet BGS)	Approximate Date(s) of SVE Operations	TCE Vapor Influent Concentrations (ug/L) unless otherwise noted	Date(s) of TCE Vapor Analyses	Comments	Average Flows (from various tests or from the EDR)	TCE Soil Gas Removal Estimates
24SVE5	68 to 88	Note: Soil gas sample via 24CPT13 at 98 feet had 2,310 mg/L of TCE on 14 September 1995. Well 24SVE5 was constructed in 1995. **1 day** or 4 hours (18 Nov 96) **20 days** (10 Mar-30 Mar 98) ***TOTAL: 21 days approximately***	**220** **7.7**	18 Nov 96 30 Mar 98		27 cfm at 110" (1996)	0.09 pound (1996) Calculations in progress for 1998 tests
24SVE5A	41.5 to 56.5	**Note: Well 24SVE5A was constructed in 1995.** **1 day** or 4 hours (20 Nov 96)	**360**	20 Nov 96		65 cfm at 100" (1996)	0.35 pound (1996)
24SVE6	89 to 109.5	**Note: Well 24SVE6 was constructed in 1995.** **1 day** or 4 hours (8 Nov 96) 6 days (28 Dec 98- 4 Jan 99) ***TOTAL: 7 days approximately***	**440**	8 Nov 96		>131 at 30" (1996)	0.86 pound (1996)
24SVP6 Piezometer	50 to 50.5 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVP6A Piezometer	67 to 67.5 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE7	80 to 110	Note: Soil gas sample via 24CPT69 at 110 feet had 2,630 ug/L of TCE on 31 August 1995. Well 24SVE7 was constructed in 1995. **1 day** or 4 hours (31 Oct 96)	**54**	31 Oct 96		180 cfm at 135" (1996)	0.15 pound (1996)
24SVE7A	63 to 74	**Note: Well 24SVE7A was constructed in 1995.** **1 day** or 4 hours (1 Nov 96)	**30**	1 Nov 96		28 cfm at 110" (1996)	0.01 pound (1996)
24SVP7 Piezometer	54.5 to 55 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE8	83 to 113	**Note: Well 24SVE8 was constructed in 1995.** **1 day** or 4 hours (25 Oct 96) 2 days (4 – 6 Jan 99)	**100**	25 Oct 96		30 cfm at 105" (1996)	0.04 pound (1996)
24SVE8A	50 to 78	**Note: Well 24SVE8A was constructed in 1995.** **1 day** or 4 hours (24 Oct 96)	**45**	24 Oct 96		70 cfm at 100" (1996)	0.05 pound (1996)
24SVP8 Piezometer	30.5 to 31 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE9	81 to 111	Note: Soil gas sample via 24CPT17 at 105 feet had 1,060 ug/L of TCE on 31 August 1995. Well 24SVE9 was constructed in 1995. **1 day** or 4 hours (21 Nov 96) **62 days** or 1,450.8 hours (15 May –16 Jul 97) **4 days** (8 – 12 Jun 98) ***TOTAL: 67 days***	**550** **170** **58**	21 Nov 96 16 Jul 97 12 Jun 98	Travel time: 0.77 days per pore volume (EDR). Approx. 80 pore volumes removed during tests.	60 cfm at 95" (1996)	**19 pounds (through 1997)** Calculations in progress for 1998 tests

Table 1. (continued)

Vapor Extraction Well ID	Screened Interval (Feet BGS)	Approximate Date(s) of SVE Operations	TCE Vapor Influent Concentrations (ug/L) unless otherwise noted	Date(s) of TCE Vapor Analyses	Comments	Average Flows (from various tests or from the EDR)	TCE Soil Gas Removal Estimates
24SVE9A	55 to 85	**Note: Well 24SVE9A was constructed in 1995.** **1 day** or 4 hours (22 Nov 96)	**36**	22 Nov 96		20 cfm at 100" (1996)	0.01 pound (1996)
24SVP9 Piezometer	35.5 to 36 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE10	79 to 109	**Note: Well 24SVE10 was constructed in 1995.** **1 day** or 4 hours (15 Nov 96) **44 days** or 1,005.9 hours (24 Mar - 7 May 97) **26 days** (25 Sep 97 – 20 Oct 97) 1 day (10-11 December 1998) ***TOTAL: 72 days approximately***	**1400** **230** **140** **33**	15 Nov 96 7 May 97 2 Oct 97 11 Dec 98	Travel time: 2.17 days per pore volume (EDR). Approx. 31 pore volumes removed during tests. GW at 104' [GW in well (Dec 98)]	250 cfm at 55" (1996)	5.24 pounds (1996) **308 pounds (through May 1997)** Calculations in progress for late 1997 and 1998 tests
24SVP10 Piezometer	55.5 to 56 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVP10A Piezometer	38 to 38.5 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE11	79 to 109	Note: Soil gas sample via 24CPT59 at 100 feet had 200 ug/L of TCE on 18 September 1995. Well 24SVE11 was constructed in 1995. **1 day** or 4 hours (25 Nov 96) **24 days** (28 Apr - 21 May 98) ***TOTAL: 25 days approximately***	**300** **120**	25 Nov 96 21 May 98		60 cfm at 100"	0.27 pound Calculations in progress for 1998 tests
24SVE11A	43 to 73	**Note: Well 24SVE11A was constructed in 1995.** **1 day** or 4 hours (26 Nov 96)	**0.14**	26 Nov 96		27 cfm at 115"	
24SVP11 Piezometer	23.5 to 24 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	
24SVE12	34 to 74	**Note: Well 24SVE12 was constructed in 1995.** **1 day** or 4 hours (30 Dec 97)	**330**	30 Dec 97			Calculations in progress
24SVE13	79 to 109	**Note: Well 24SVE13 was constructed in 1995.** Soil gas sample via 24CPT41 at 92 feet had 192 ug/L of PCE on 1 September 1995. **1 day** or 4 hours (27 Nov 96) **28 days** (11 Nov – 17 Dec 98) ***TOTAL: 29 days approximately***	**4.1 (TCE)** **120 (PCE)** **92 (PCE)** **42 (PCE)**	27 Nov 96 27 Nov 96 18 Nov 98 17 Dec 98		40 cfm at 110"	Calculations in progress (PCE mass)
24SVP13 Piezometer	71.5 to 72 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured			Not measured	

Table 1. (continued)

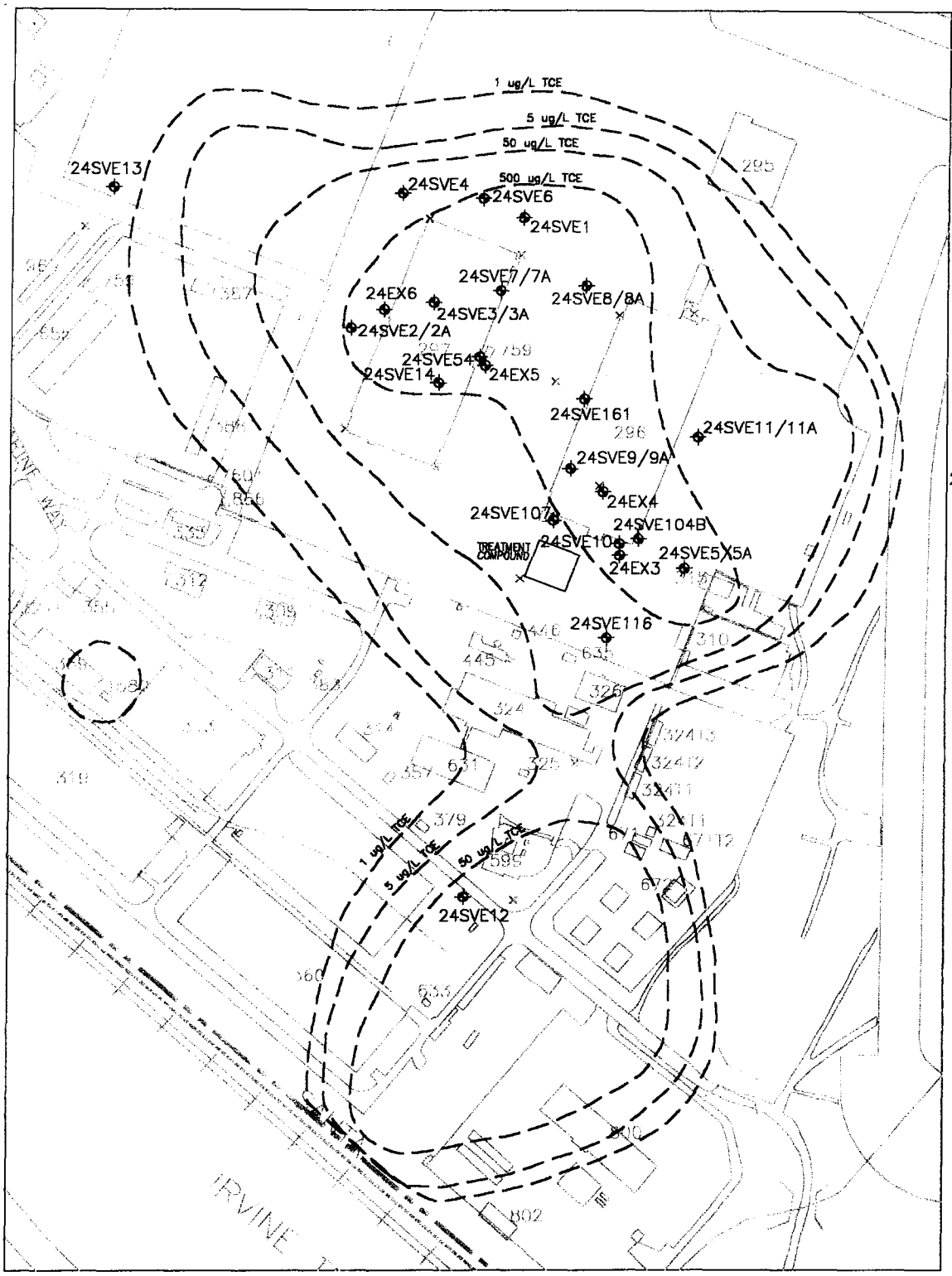
Vapor Extraction Well ID	Screened Interval (Feet BGS)	Approximate Date(s) of SVE Operations	TCE Vapor Influent Concentrations (ug/L) unless otherwise noted	Date(s) of TCE Vapor Analyses	Comments	Average Flows (from various tests or from the EDR)	TCE Soil Gas Removal Estimates
24SVE14	78 to 108	**Note: Well 24SVE14 was constructed in 1995.** **1 day** or 4 hours (7 Nov 96) 6 days (21 Dec – 28 Dec 98) ***TOTAL: 7 days approximately***	**110**	7 Nov 96		120 cfm at 120" (1996)	0.2 pound (1996)
24SVP14 Piezometer	49.5 to 50 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured				
24SVP14A Piezometer	29.5 to 30 (approximately)	Note: Piezometer was constructed in 1995. Evaluation of condition of piezometer is in progress.	Not measured				
24SVE104B	25 to 45	**Note: Well 24SVE104B was constructed 16 Nov 1998.** **2 days (30 Nov 98 – 2 Dec 98)**	**1.8**	2 Dec 98	Located within 500 ug/L TCE vapor concentration contour for shallow zone established in 1995	~200 cfm at ~20" (22 cfm at 92 IWG per EDR)	
24SVE107	70 to 95	**Note: Well 24SVE107 was constructed 17 Nov 1998.** **5 days (2 Dec – 7 Dec 98)**	**14** **4.4**	3 Dec 98 7 Dec 98		~40 cfm at ~100" (22 cfm at 92 IWG per EDR)	
24SVE161	70 to 95	**Note: Well 24SVE161 was constructed 19 Nov 1998.** **3 days (7 Dec 98 – 10 Dec 98)**	**82** **61**	7 Dec 98 9 Dec 98	GW in well (Dec 98) Located within 500 ug/L TCE vapor concentration contour for deep zone established in 1995	~50 cfm at ~95" (228 cfm at 47 IWG per EDR)	
24SVE116	75 to 95	**Note: Well 24SVE116 was constructed 16 Dec 1998.** **4 days (17-21 Dec 98) approximately**		18 Dec 98		~75 cfm at ~80" (22 cfm at 92 IWG per EDR)	
24SVE54	75 to 95	**Note: Well 24SVE54 was constructed 17 Dec 1998.** **(5 Jan 99 -**	Testing in progress				

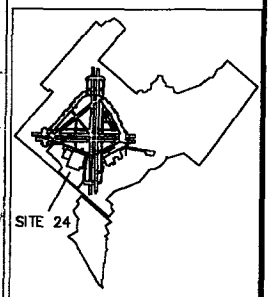
Table 1. (continued)

Vapor Extraction Well ID	Screened Interval (Feet BGS)	Approximate Date(s) of SVE Operations	TCE Vapor Influent Concentrations (ug/L) unless otherwise noted	Date(s) of TCE Vapor Analyses	Comments	Average Flows (from various tests or from the EDR)	TCE Soil Gas Removal Estimates
		NOTE: Data from the Groundwater Remediation Pilot Test is presented for reference only (Source of Information: Draft Groundwater Remediation Pilot Test Report – Site 24 (Bechtel, December 1998).					
24EX3	105-180	132-day vacuum-enhanced GW extraction pilot test (22 Oct 97 – 15 May 98)	**39** **Range: ND to 148**	15 May 98	Near 24SVE10	Approximate range: 80-140 scfm	55.45 pounds of TCE vapor mass removed
24EX4	104-190	19-day vacuum-enhanced GW extraction pilot test (6 Jan 98 – 27 Jan 98)	**75** **Range: 42 to 258**	27 Jan 98	Near 24SVE9	Approximate range: 20-29 scfm	4.06 pounds of TCE vapor mass removed
24EX5	104-154	20-day vacuum-enhanced GW extraction pilot test (31 Mar 98 – 21 Apr 98)	**38** **Range: ND to 118**	21 Apr 98	Near 24SVE54	Approximate range: 5 to 28 scfm	1.04 pound of TCE vapor mass removed
24EX6	103-173	21-day vacuum-enhanced GW extraction pilot test (2 Jun 98 – 29 Jun 98)	**26** **Range: ND to 455**	29 Jun 98	Near 24SVE2	Approximate range: 62 to 69 scfm	2.93 pounds of TCE vapor mass removed

Exhibits

1 TCE Concentrations in the Deep Vadose Zone as of December 1998
2 Vacuum Response Field Data
3 Selected SVE Test Data
4 Draft Final EDR Wellfield Layout





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LEGEND

24SVE9
VAPOR EXTRACTION WELLS 0–100 ug/L TCE AND PCE (3)

24SVE4
VAPOR EXTRACTION WELLS GREATER THAN 100 ug/L TCE OR UNKNOWN (3)

CANDIDATE SOIL GAS SAMPLING LOCATION

N

CONTOURS (DASHED LINES --------) REPRESENT APPROXIMATE TCE VAPOR CONCENTRATIONS NEAR GROUNDWATER (IN ug/L) AS MEASURED IN 1995.

GRAPHIC SCALE
0 100 200 400
(IN FEET)

NOTES:
1. PRIMARY SOURCES OF MAP INFORMATION ARE THE DRAFT FINAL ENGINEERING DESIGN REPORT (BECHTEL, 1998) AND THE DRAFT GROUNDWATER REMEDIATION PILOT TEST REPORT (BECHTEL, 1998).
2. GROUNDWATER EXTRACTION WELLS 24EX3, 24EX4, 24EX5 AND 24EX6 ARE PRESENTED ON THIS MAP BECAUSE THEY ARE LOCATED INSIDE OF THE 500 MICROGRAM PER LITER CONTOUR FOR TCE (AS ESTABLISHED DURING THE REMEDIAL INVESTIGATION OF 1995) AND BECAUSE VACUUM-ENHANCED GROUNDWATER EXTRACTION UTILIZING A PORTABLE SOIL VAPOR EXTRACTION (SVE) TREATMENT SYSTEM WAS CONDUCTED AT THESE WELLS DURING THE PILOT TESTS OF 1997 AND 1998.
3. CONCENTRATIONS FOR DUAL COMPLETION WELLS REPRESENT THE DEEPEST SCREENED ZONE.
4. LOCATIONS OF WELLS AND SURFACE FEATURES ARE INTENDED FOR ILLUSTRATION AND GENERAL USE ONLY. LOCATIONS OF WELLS ARE APPROXIMATE.

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

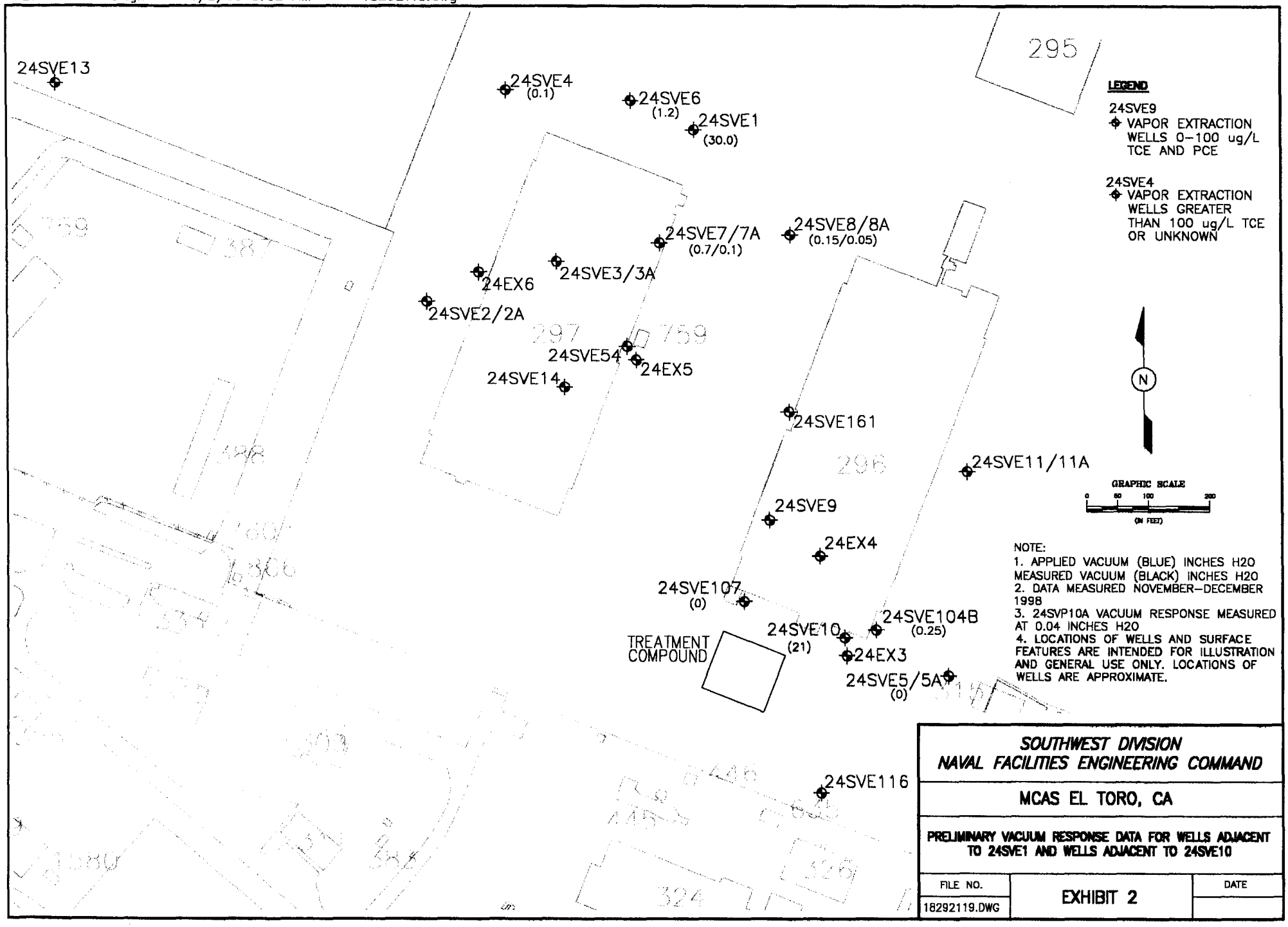
MCAS EL TORO, CA

TCE VAPOR CONCENTRATIONS IN THE DEEP VADOSE ZONE AS OF DECEMBER 1998
VADOSE ZONE REMEDIATION – IRP SITE 24

FILE NO.		DATE
18292118.DWG	EXHIBIT 1	

18292118.dwg
1/8/99 8:24 AM
Witzel-Yanez Design
Jun 18, 1998 - 14:14:49 F:\17486133.dwg

Witzel-Yanez Design 1/8/99 8:32 AM 18292119.dwg

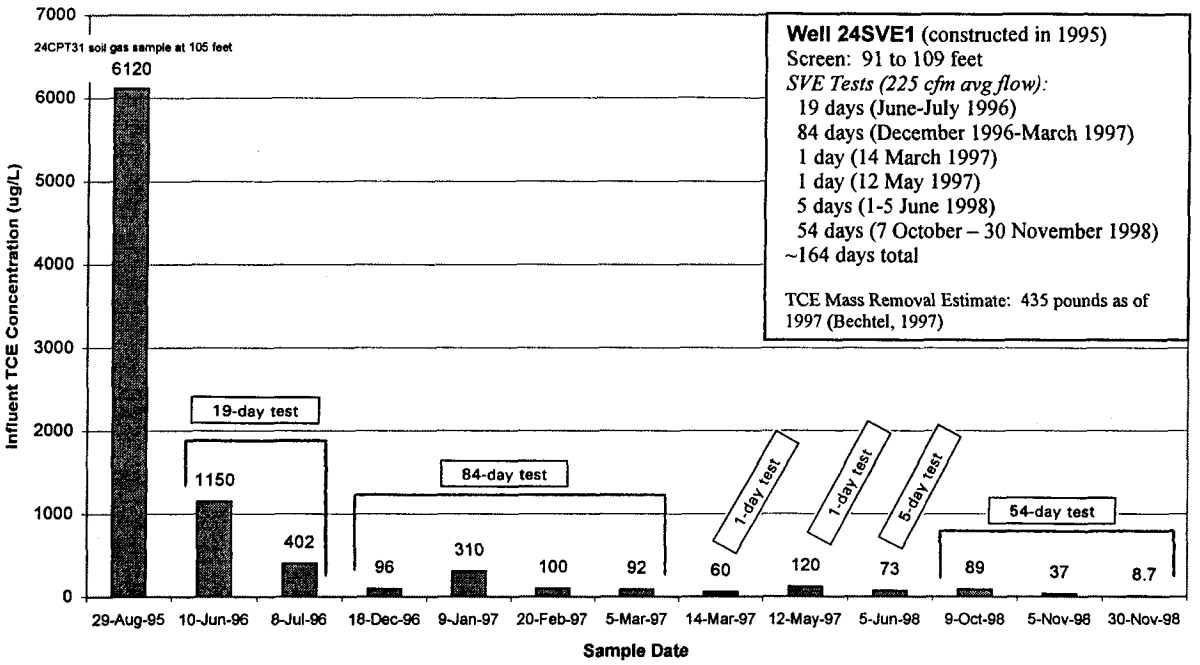


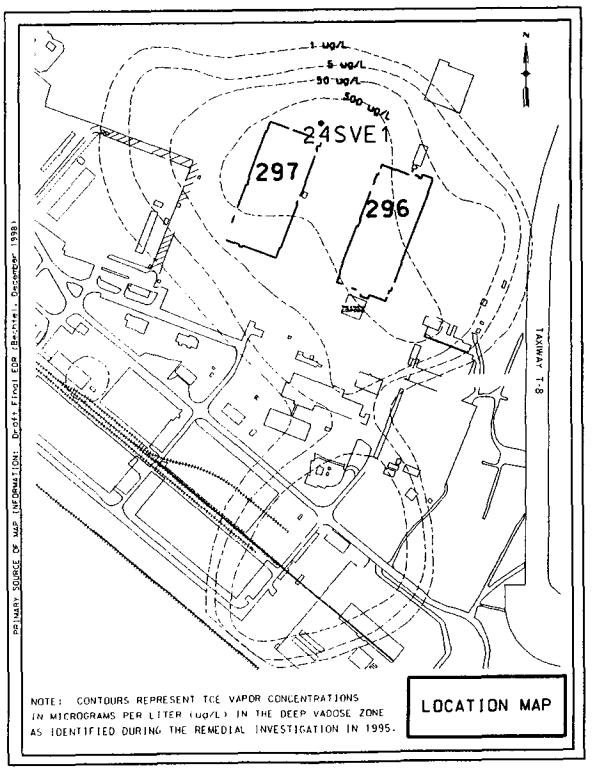
SOUTHWESTNAVFACENGCOM
Code 56MC.LMH
Telephone: (619) 532-4162/Fax: (619) 532-4160

File: svelog2

PRELIMINARY – FOR DISCUSSION ONLY

Soil Gas Data (1995) with Selected Influent TCE Concentrations at Well 24SVE1, MCAS El Toro
NOTE: TARGET CLEANUP LEVEL FOR TCE IS 27 ug/L





SOUTHWESTNAVFACENGCOM
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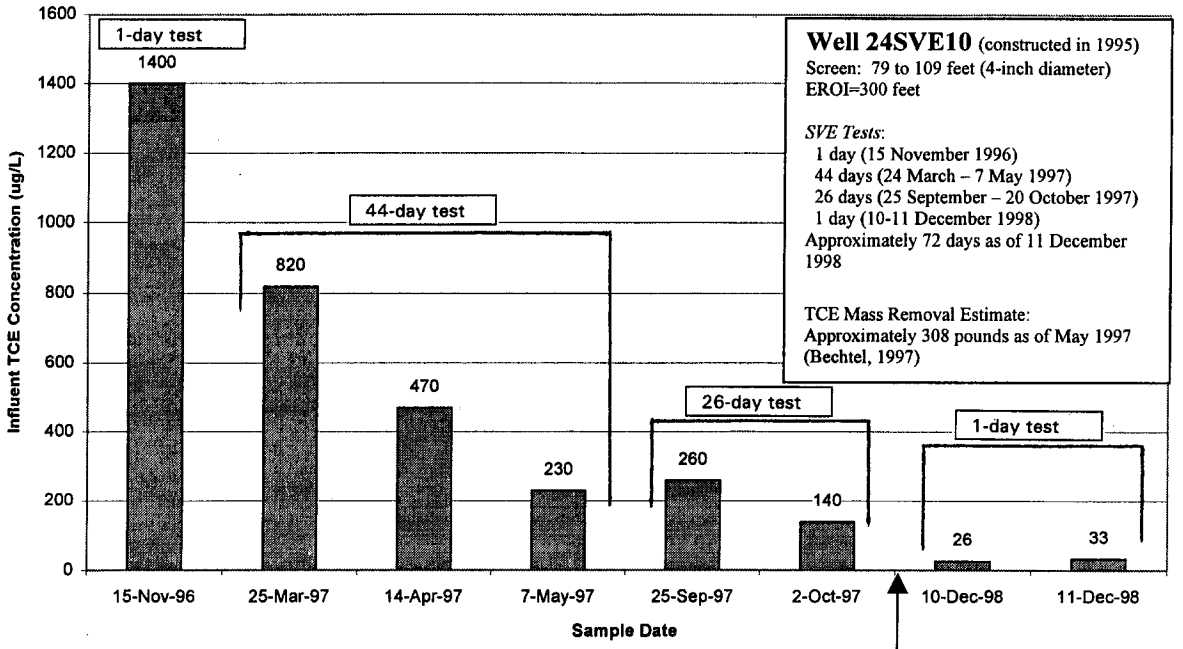
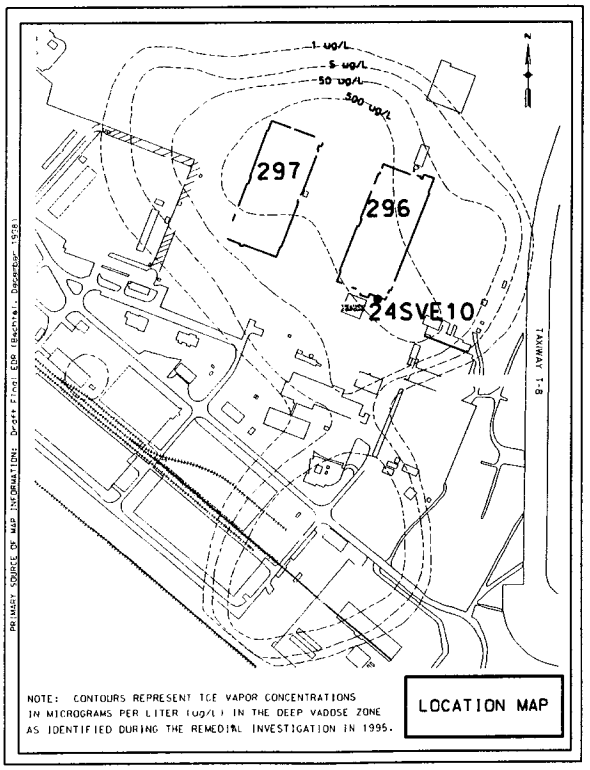
File: svelog2

PRELIMINARY – FOR DISCUSSION ONLY

Selected Influent TCE Concentrations at Well 24SVE10, MCAS El Toro



Note: Vacuum-enhanced groundwater extraction test was conducted at nearby *Well 24EX3* during the period from 22 October 1997 through 15 May 1998



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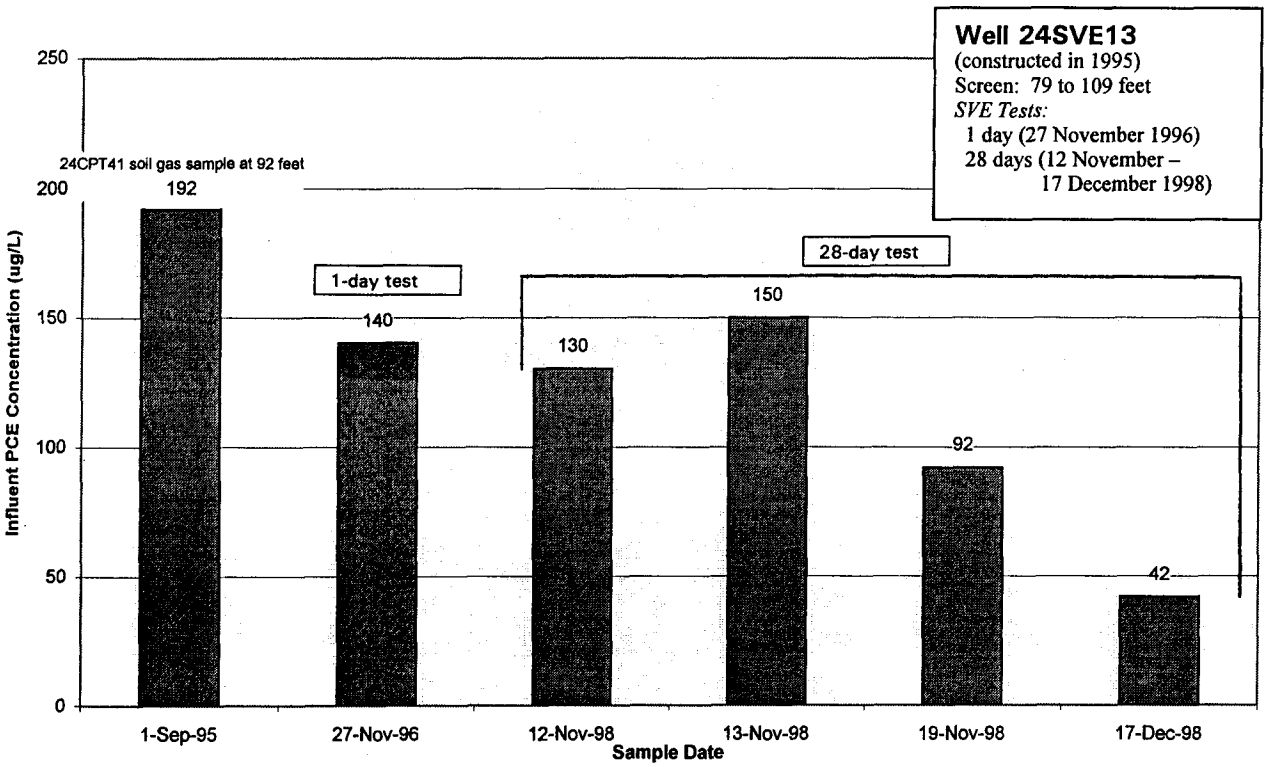
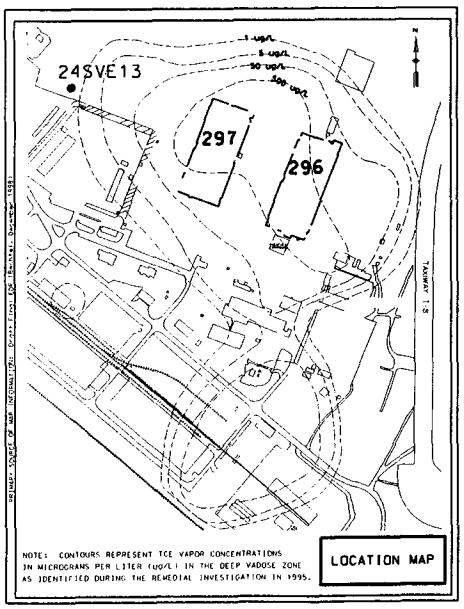
File: svelog2

PRELIMINARY – FOR DISCUSSION ONLY

Soil Gas Data (1995) with Selected Influent PCE Concentrations at Well 24SVE13, MCAS El Toro

NOTE: TARGET CLEANUP LEVEL FOR PCE IS 69 ug/L





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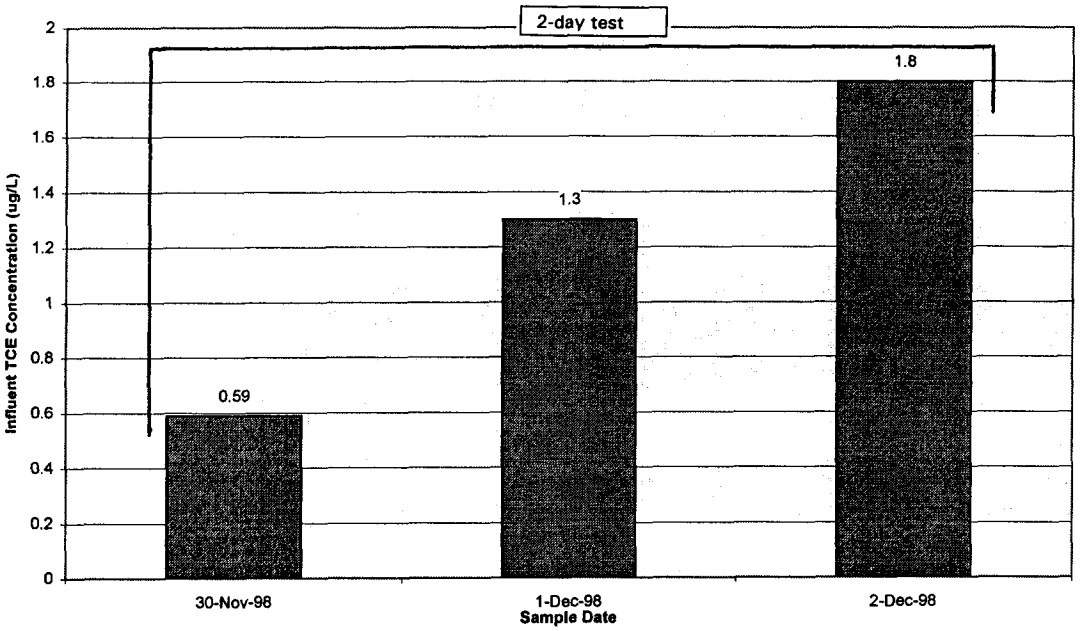
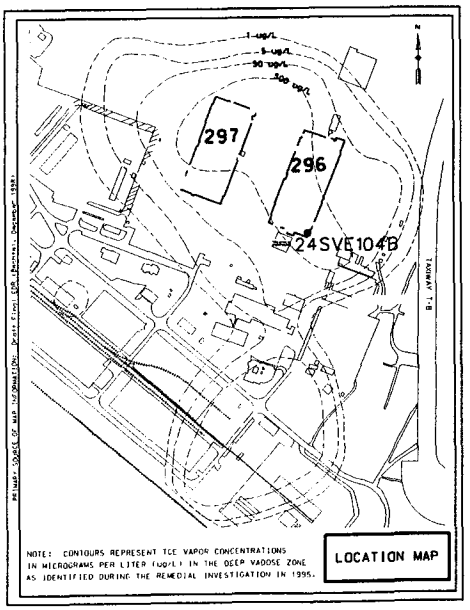
PRELIMINARY – FOR DISCUSSION ONLY

Selected Influent TCE Concentrations at Well 24SVE104B, MCAS El Toro
(Initial Testing Activities of November - December 1998)



Well 24SVE104B (constructed 16 November 1998)
Screen: 25 to 45 feet (4-inch diameter)
Located within the 500 ug/L TCE vapor concentration contour in the shallow vadose zone as identified in 1995 during the Remedial Investigation of IRP Site 24

SVE Test:
2 days (30 November – 2 December 1998)



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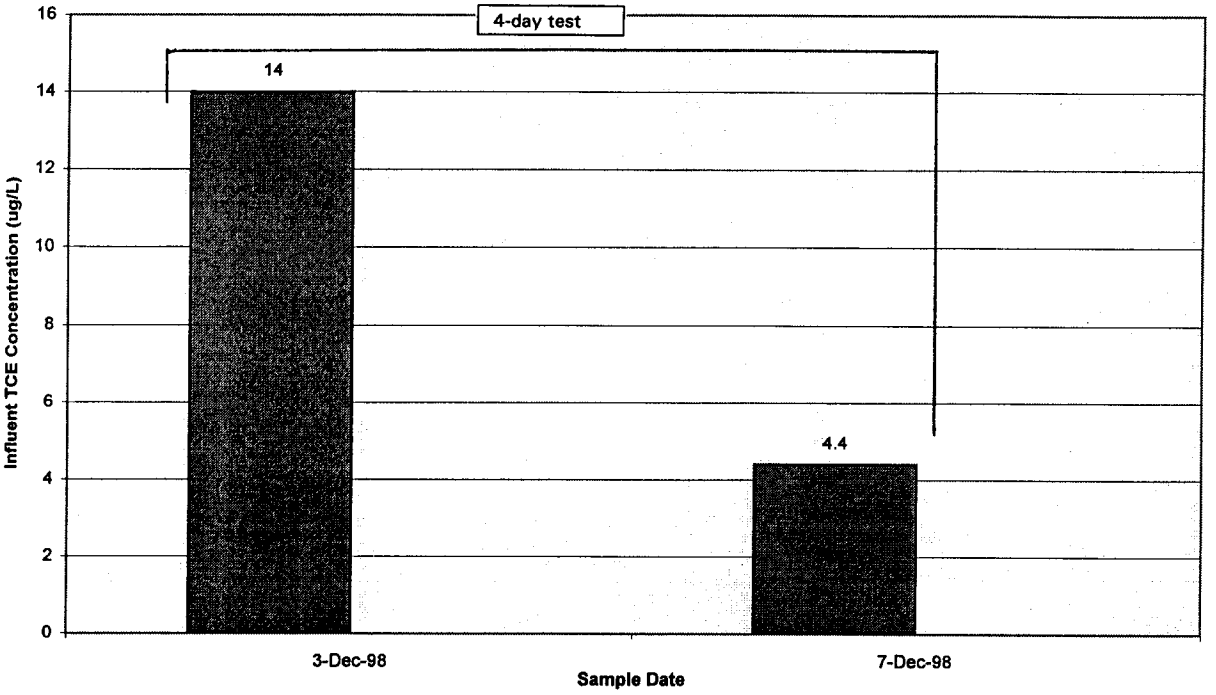
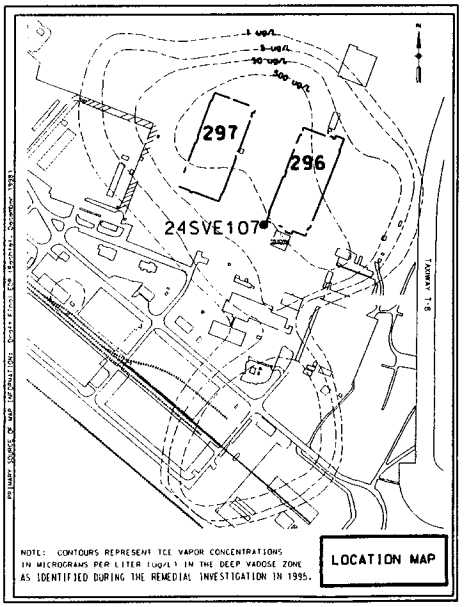
Telephone: (619) 532-4162/Fax: (619) 532-4160

File: svelog2

PRELIMINARY – FOR DISCUSSION ONLY

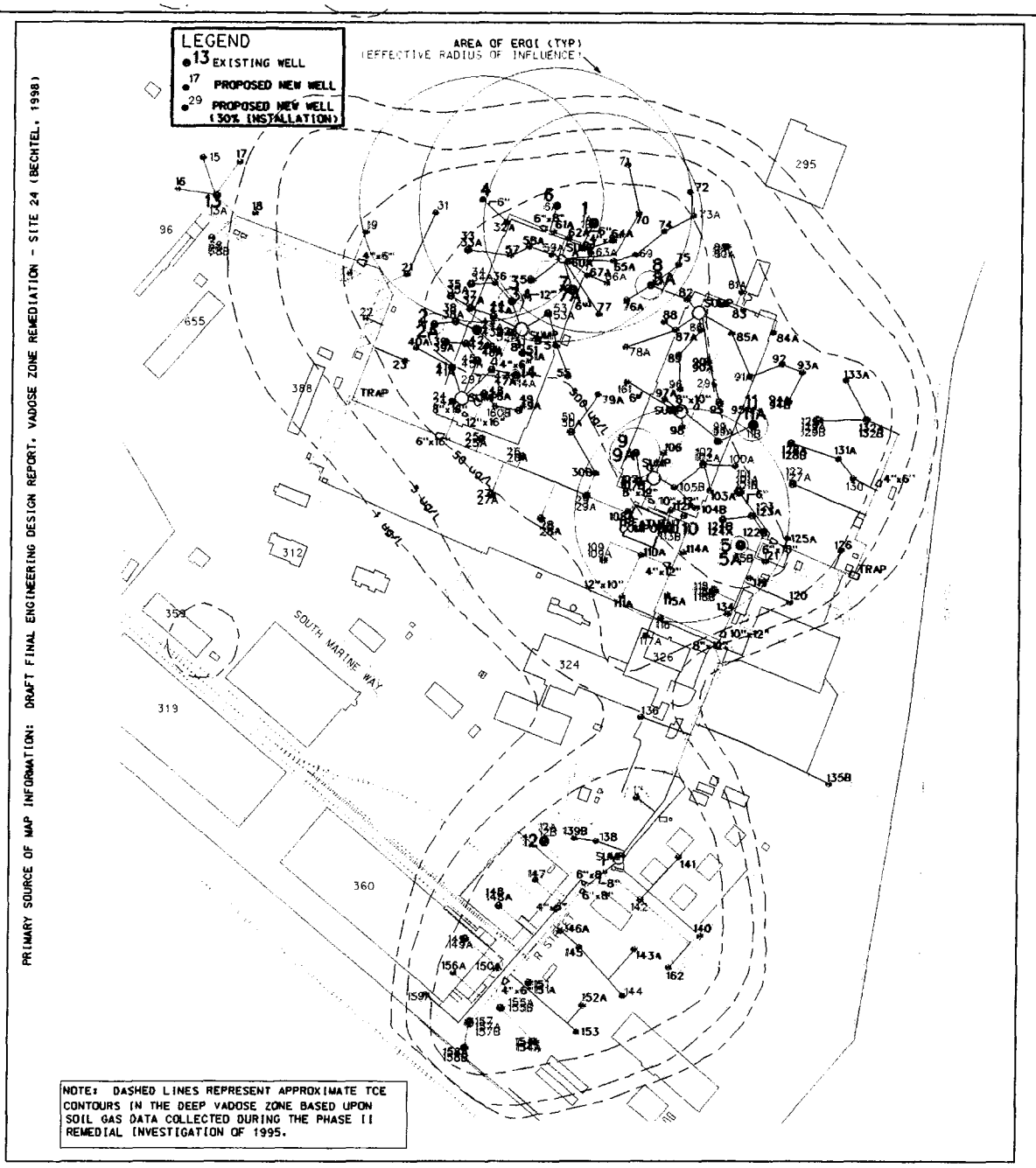
Selected Influent TCE Concentrations at Well 24SVE107, MCAS El Toro
(Initial Testing Activities of December 1998)





Well 24SVE107 (constructed 17 November 1998)
Screen: 70 to 95 feet (4-inch diameter)

SVE Test:
4 days (3 – 7 December 1998)



N

150 0 300 FT

APPROXIMATE SCALE

SOUTHWEST DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

MARINE CORPS AIR STATION, EL TORO, CALIFORNIA

DRAFT FINAL EDR WELLFIELD LAYOUT

VADOSE ZONE REMEDIATION - IRP SITE 24

FILE		DATE
24EDR1.dgn	EXHIBIT 4	DEC 98