BECHTEL NATIONAL INC.

CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-92-D-4670 **Document Control No.:** CTO-0142/0194

File Code: 0208

TO: Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS1.RS
Building 127, Room 112
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: February 6, 1998
CTO #: 142
LOCATION: MCAS El Toro

FROM: D. J. Tedaldi, Ph.D., P.E., Project Manager

DESCRIPTION: Meeting Minutes, Site 24 Pilot Test Update - DTD January 14, 1998

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Chron No.: CTO-0142/0194

MEETING MINUTES

Meeting Subject: Site 24 Pilot Test Update	**Meeting Date**: January 14, 1998 **Meeting Time**: 10:00 AM **Meeting Place**: Conference Call **Meeting Notes Prepared By**: Patrick Brooks

Attendees: (*Part Time)

Navy	Bechtel	Other
Bernie Lindsey, RPM	Pat Brooks, CTOL	John Broderick, RWQCB
	Tim Latas, Field Manager	Glenn Kistner, U.S. EPA
	Dante Tedaldi, PM	Herb Levine, U.S. EPA
		Tayseer Mahmoud, DTSC
		Larry Vitale, RWQCB

Additional Distribution:
- Theodore Johnson, DTSC
- Andy Piszkin, Navy
- El Toro File
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Pat Brooks reviewed the field work that had been accomplished since the last Site 24 Update meeting. The low-flow groundwater sampling at the EX5 well group was completed using the sampling procedures agreed upon by the group. Results from the low-flow sampling are compared to sampling using standard purging and nearby HydroPunch data for TCE. The following data are available:

(in µg/L)	Standard	Low-Flow	HydroPunch
24EX5	614	550	494 (HCPT95)
24EX5OB1	510	670	573 (HCPT97)
24EX5OB2	676	920	717 (HCPT97)

Each well was purged at 100 milliliters per minute and drawdown was less than 0.1 feet. Turbidity at 24EX5 was below 5 NTUs but the turbidity for 24EX5OB1 and OB2 were above 5 NTUs but below 20 NTUs. This issue was tabled to provide an opportunity for Herb Levine to comment. Pat promised to obtain an article written by the U.S. EPA regarding turbidity and VOC groundwater analyses and distribute to the group.

A preliminary estimate of the mass removed at 24EX3 was discussed. Approximately 40 pounds of TCE were removed in the vapor phase and about 3.5 pounds were removed in the liquid phase. About twice as much TCE was removed in the liquid phase during vacuum-enhanced extraction. This was due to a larger pumping rate and higher TCE concentrations in the extracted groundwater during vacuum-enhanced pumping.

Drawdown curves for 24EX3 and 24EX4 show that both wells yield more water with less drawdown than during standard pumping. This phenomenon is common in low-producing wells.

The Plan of Action for Site 24 field work for the next two weeks included the following:

1. Continue vacuum-enhanced extraction test at well 24EX4.
2. Present sample data from wells 24IN2OB2 and 24EX6OB3.
3. Prepare fore CPT/HydroPunch sampling at the leading edge of the TCE hot spot.
4. Prepare for step-drawdown and step-buildup tests at 24EX5 and 24IN2.

CLEAN II PROGRAM
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CTO-142/0169
File Code: 0208

F A X C O V E R S H E E T

DATE: 1/12/987

SUBJECT: SITE 24 PILOT TEST UPDATE, MCAS EL TORO - 14 JANUARY 1998

FROM: Patrick Brooks
for Bernie Lindsey

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cc: Pat Brooks
Dan Eldredge Fax: (714) 654-8392
Dante Tedaldi
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Document Control

Number of pages including cover sheet: 9

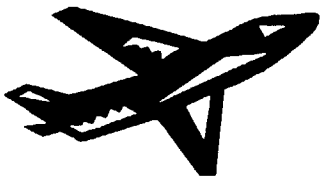
Message:

Drawdown curves for wells EX3 & EX4 are attached. Mass removal estimates are included for EX3. Low-flow sampling data (TCE) for the 24EX5 well group are shown below:

(in µg/L)	Standard	Low-Flow	HydroPunch
24EX5	614	550	494 (HCPT95)
24EX5OB1	510	670	573 (HCPT97)
24EX5OB2	676	920	717 (HCPT97)

Agenda

Site 24 Pilot Test Update



MCAS El Toro

14 January 1998
10:00 am
Telephone Conference Call

Vision:	Maximize restoration and reuse by 1999.
Mission:	Fast-track remediation of MCAS El Toro to expedite reuse and protect human health and environment.

Agenda Topics

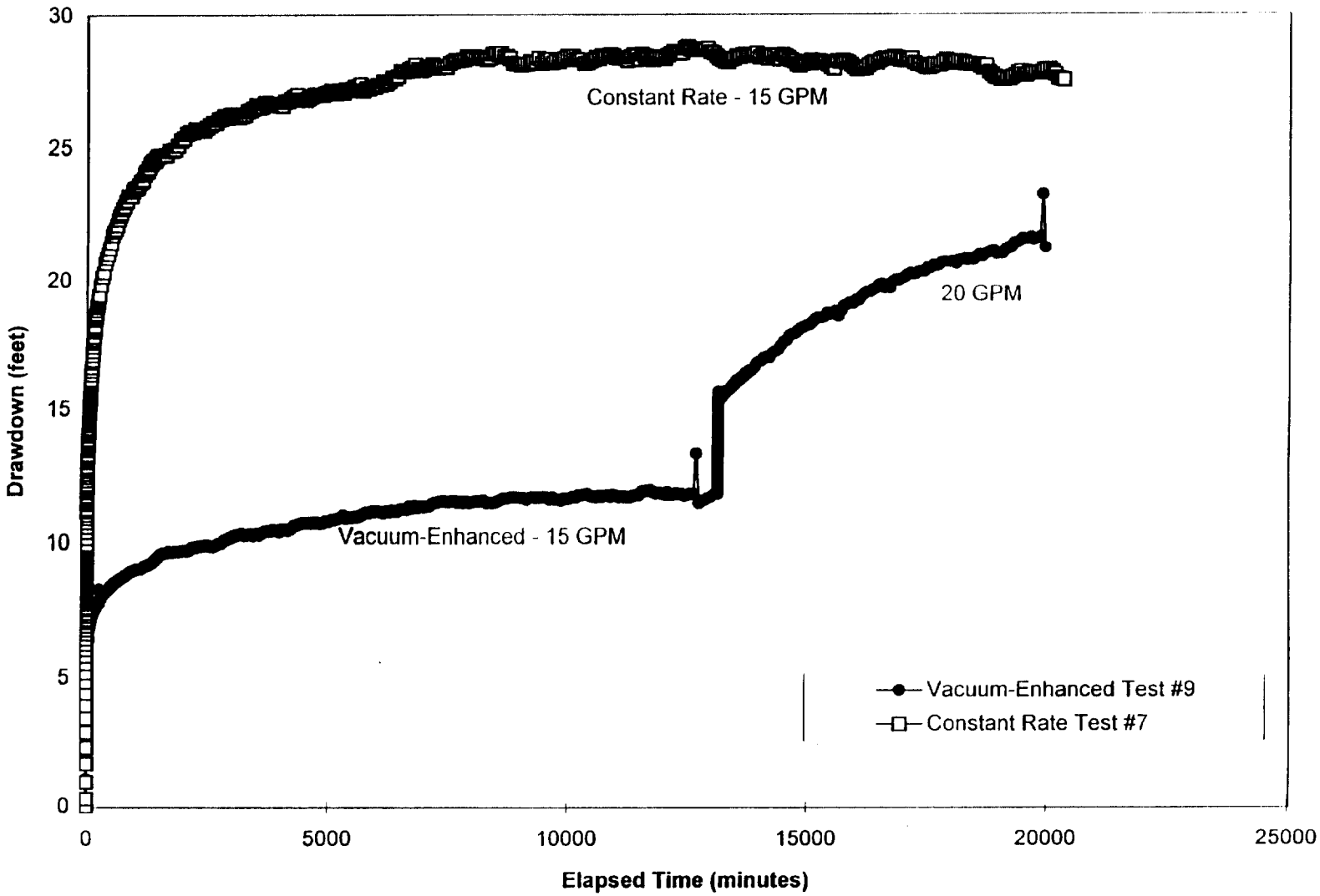
10:00 - 10:15	Site 24 field work update: Vacuum-enhanced pumping test at well 24EX4. Groundwater sampling results from EX6 group. Low flow sampling results for the 24EX5 group. Mass removal estimates for 24EX3 and 24EX4.	Lindsey/Brooks
10:15 - 10:30	Two week forecast	Lindsey/Brooks

Special notes: **The conference call telephone number is 1-888-566-6168 and the code word is El Toro. The conference leader is Patrick Brooks.**

El Toro CLEAN II staff will be at the field office (Building 296).

WORKING DRAFT

EX3 Constant Rate Drawdown and Vacuum-Enhanced Drawdown



WORKING DRAFT

Mass of TCE Removed During EX3 Step and Constant Rate Tests

Week(s) [1]	Test Number	Test Start Date	Test End Date	Test Duration (minutes) [2]	Port 1 Conc. (ug/L)	Sample Collection Date	Gallons Pumped	TCE Removed (grams) [3]	TCE Removed (kg) [4]	TCE Removed (lb) [5]	Comments
8/18-24/97	step test	8/19/97	8/21/97	2880	206	8/20/97	54,240	42.3228	0.0423	0.0931	EX3 GW Sampling data
9/14-25/97	test 1	9/16/97	9/16/97	690	259	9/19/97	9,999	9.8091	0.0098	0.0216	
9/14-25/97	test 2	9/17/97	9/18/97	795	259		11,853	11.6284	0.0116	0.0256	
9/14-25/97	test 3	9/18/97	9/18/97	112	259		1,674	1.6424	0.0016	0.0036	CLP low concentration
9/14-25/97	test 4	9/18/97	9/25/97	9697	259		144,504	141.7638	0.1418	0.3119	
9-26 to 10/9/97	test 5	9/26/97	9/26/97	267	242	10/1/97	3,988	3.6557	0.0037	0.0080	
9-26 to 10/9/97	test 6	9/29/97	10/2/97	4140	242		61,748	56.6015	0.0566	0.1245	
9-26 to 10/9/97	test 7	10/3/97	10/9/97	8640	262		128,689	127.7117	0.1277	0.2810	
10/9-26/97		10/9/97	10/17/97	11729	276	10/16/97	174,699	182.6358	0.1826	0.4018	
10/9-26/97	test 8	10/22/97	10/22/97	330	276		4,929	5.1532	0.0052	0.0113	
10-27 to 11/6/97	test 9	10/27/97	11/6/97	15840	378	11/3/97	288,928	413.6840	0.4137	0.9101	
11/7-14/97		11/7/97	11/14/97	11520	285	11/11/97	210,130	226.8397	0.2268	0.4990	
11/15-21/97		11/15/97	11/21/97	10080	307	11/17/97	183,863	213.8064	0.2138	0.4704	
11/22-26/97		10/22/97	11/26/97	5584	418	11/24/97	101,854	161.2662	0.1613	0.3548	
Totals							**1,381,099**	**1598.52**	**1.60**	**3.52**	

Notes:

1. Weeks are arranged such that they span sample collection dates .
2. Tests 7 and 9 durations are split up because these tests span different sample collection dates and consequently are associated with different sample concentrations.
3. TCE concentrations were converted from ug/L to grams using the following equation:
   (sample concentration ug/L) (3.7878 L/gallon) (1/1000000 g/ug) (gallons water removed)
4. TCE masses were converted from grams to kilograms by dividing by 1000.
5. TCE masses were converted from kilograms to gallons by mulitplying by 2.20.

L... cto/el bro/prelim~rpt/

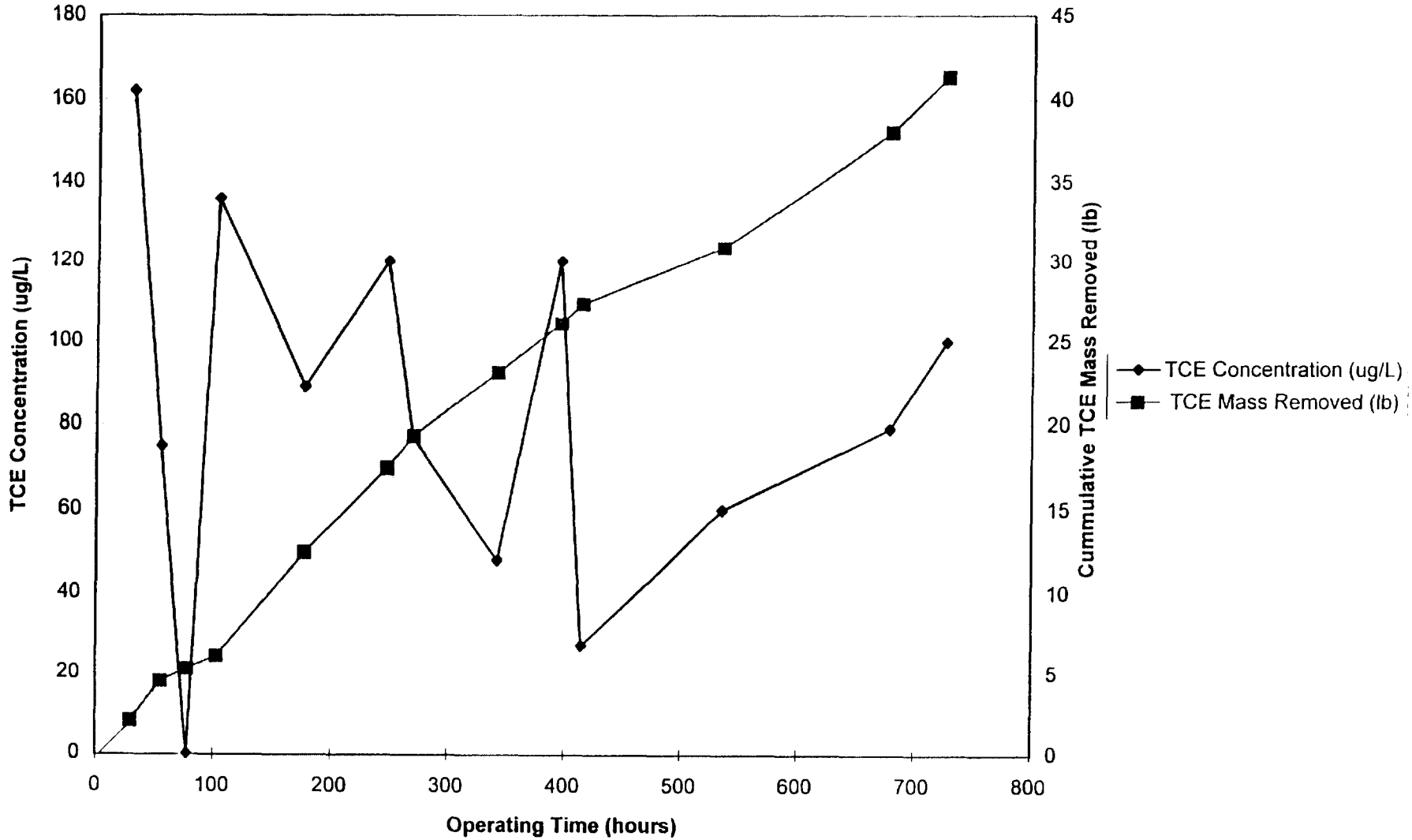
WORKING DRAFT

TCE Mass Removal Estimate for Soil Gas
Pilot Test at Well 24EX3

Date	Time Between Samples (min)	Elapsed Time (min)	Applied Vacuum (in. H2O)	Recorded Flow Rate (acfm)	Corrected Flow Rate (scfm)	Flow Rate (L/min)	Recorded TCE Concentration (ug/L)	TCE Mass Removed (ug)	TCE Mass Removed (lb)
10/22/97	350	350	20	85	80.78465	2287.821	69	55250884.23	0.121698
10/27/97	1434	1434	44	150	133.6345	3784.53	162	879176531.5	1.936512
10/28/97	1530	2964	42	145	129.8991	3678.743	75	1122881223	2.473307
10/29/97	1350	4314	42	132	118.253	3348.925	0	339078653.2	0.746869
10/30/97	1510	5824	42	142	127.2116	3602.631	136	369918192.8	0.814798
10/31/97	4450	10274	42	142	127.2116	3602.631	89	2893723612	6.373841
11/3/97	4240	14514	42	142	127.2116	3602.631	120	2275998417	5.013212
11/6/97	1320	15834	44	160	142.5435	4036.832	77	844585929.8	1.860321
11/7/97	4355	20189	44	155	138.089	3910.681	48	1720132467	3.788838
11/10/97	3225	23414	44	155	138.089	3910.681	120	1362090094	3.000198
11/12/97	1125	24539	42	145	129.8991	3678.743	27	552501265	1.216963
11/13/97	7235	31774	44	155	138.089	3910.681	60	1612745174	3.552302
11/18/97	8630	40404	45	150	133.2626	3773.996	79	3240674022	7.138049
11/24/97	2895	43299	43	160	142.9402	4048.067	100	1511770992	3.329892
Total								18780527457	41.4

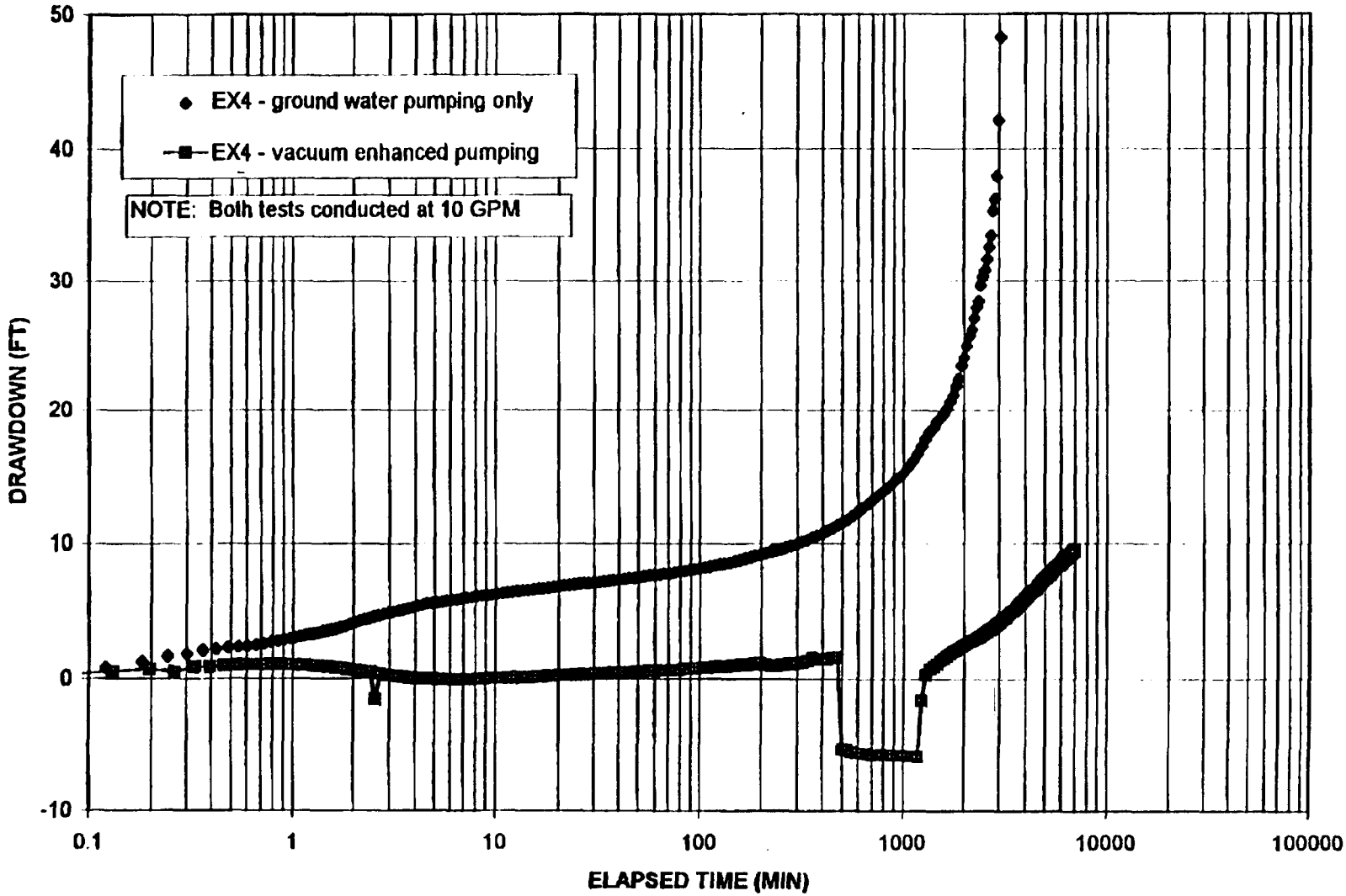
TCE Concentration and Cummulative Mass Removed From Soil Gas at Well 24EX3

WORKING DRAFT



WORKING DRAFT

EX4 CONSTANT RATE DRAWDOWN AND VACUUM-ENHANCED DRAWDOWN



01/12/98 12:54 ☎714 654 6392 BECHTEL 002

Plan of Action - January 14 to January 28, 1998
Groundwater Remediation Pilot Testing - Site 24
MCAS El Toro

1. **Continue vacuum-enhanced extraction test at well 24EX4.**
2. **Present sample data from wells 24IN2OB2 and 24EX6OB3.**
3. **Present low flow sampling data from 24EX5 well group to BCT (1/14 meeting).**
4. **Prepare for CPT/HydroPunch sampling at the leading edge of the TCE hot spot (to begin 1/20).**
5. **Prepare for step-drawdown and step-buildup tests at 24EX5 and 24IN2.**

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CTO-142/0170
File Code: 0208

F A X C O V E R S H E E T

DATE: 1/13/987

SUBJECT: SITE 24 PILOT TEST UPDATE, MCAS EL TORO - 14 JANUARY 1998

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	LARRY VITALE	909/782-4998	909/781-6288

cc: Pat Brooks
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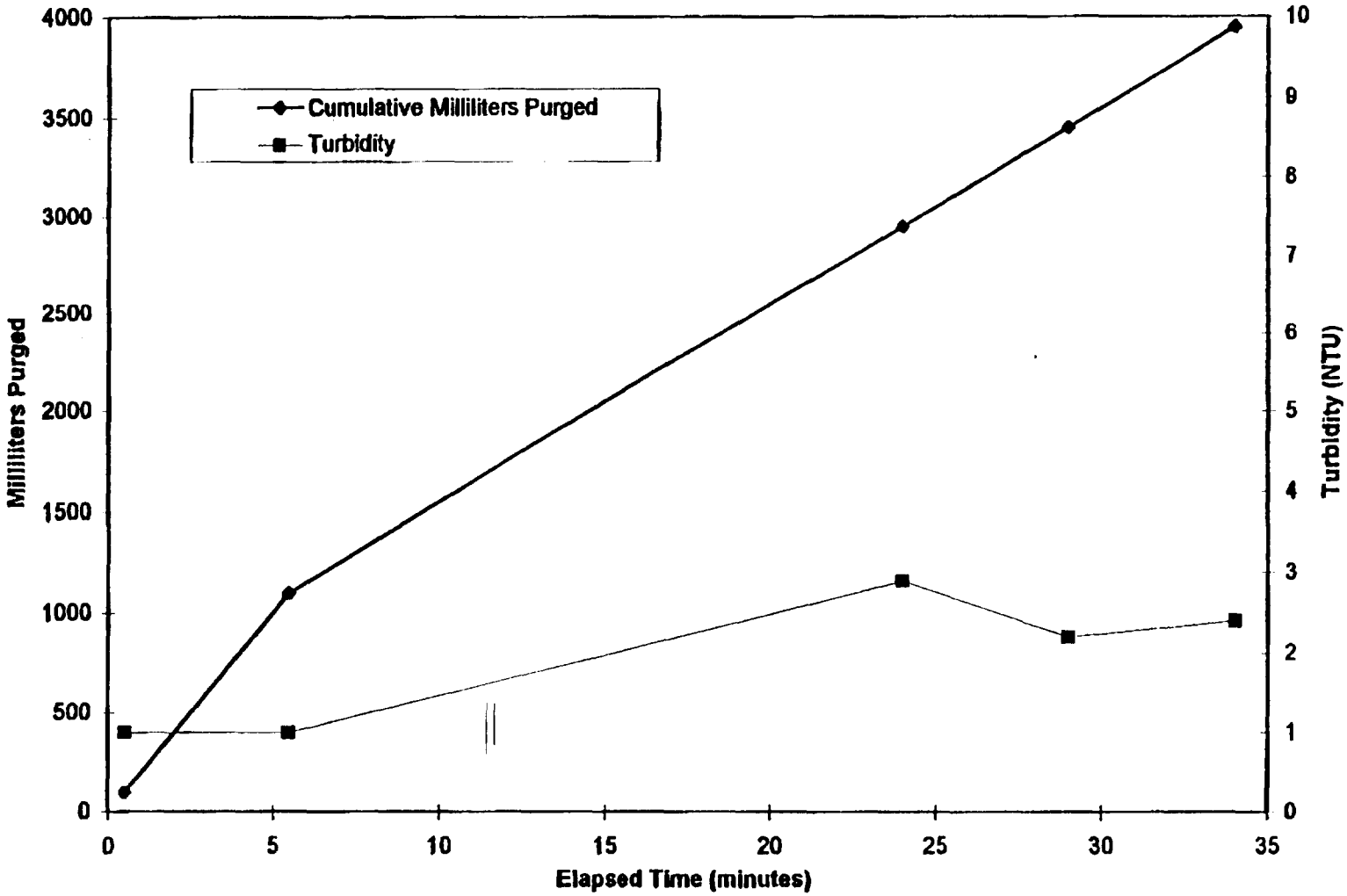
Dante Tedaldi
El Toro File
Document Control

Number of pages including cover sheet: 4

Message:

Enclosed are turbidity values versus volume of water purged for the low-flow sampling event. Graphs are included for 24EX5, 24EX5OB1, and 24EX5OB2.

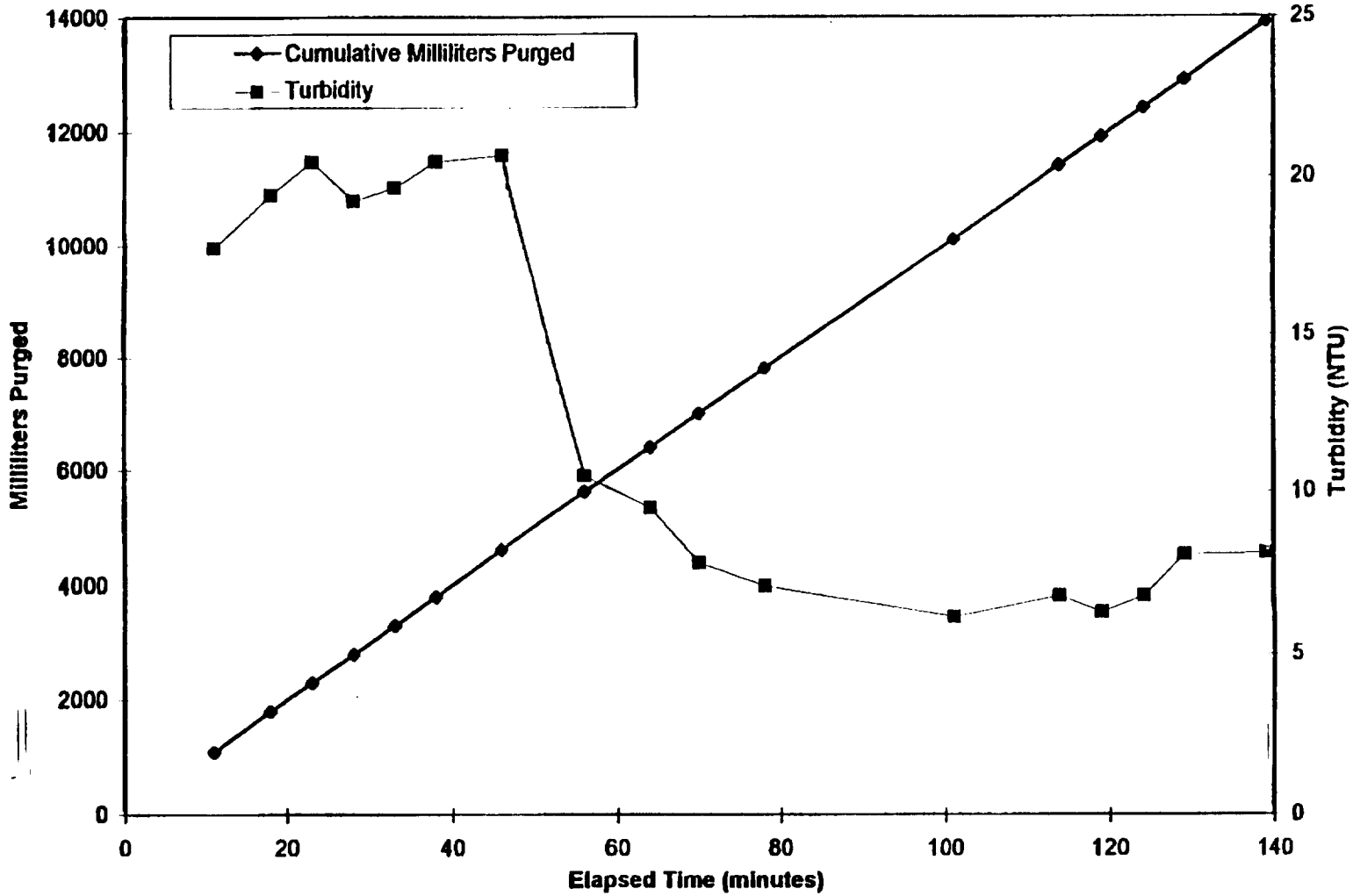
24EX5 Micropurge Groundwater Sampling Turbidity and Total Milliliters



EX5 micropurged at a rate of 100 ml/min.

EX5MP.XLSturb-gallons

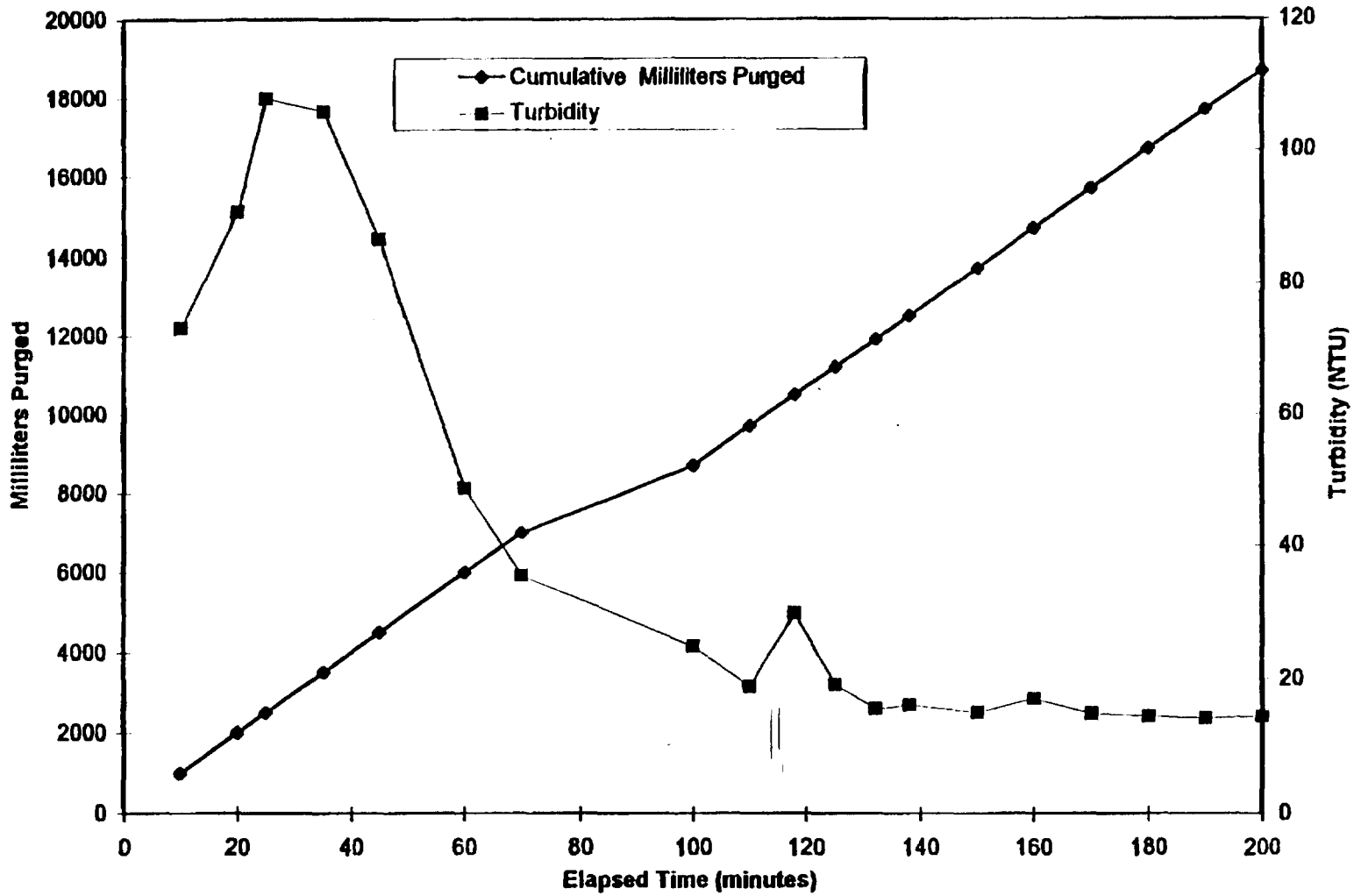
24EX5OB1 Micropurge Groundwater Sampling Turbidity and Total Milliliters



EX5OB1 micropurged at a rate of 100 ml/min.

EX5OB1MP.XLSturb-gallons

24EX5OB2 Micropurge Groundwater Sampling Turbidity and Total Milliliters



EX5OB2 micropurged at a rate of 100 ml/min.

EX5OB2MP.XLSturb-gallons