Do - 2448

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

Letter of Transmittal

[redacted]

to: **Alameda County Health Care Services Agency**
Environmental Health Services, Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

To the attention of: Mr. Bob Schultz
Phone: (510) 567-6719

from: Patrick Hoban

re: Fuel Leak Site: Sunol Tree Gas Station, 3004 Andrade Road, Sunol

Report Submittal: **Carbon Filtration System Operations and Sampling Report**

date: September 2, 2004

# of Copies	*Date of Documents*	*Description*
1 ea.	September 1, 2004	**Carbon Filtration System Operations and Sampling Report** – MTBE-Impacted Water Well at the T Bear Ranch – 3000 Andrade Road, Sunol

Attached is the hard copy for your files. Report has also been uploaded to the Intranet site.

RO-2448

Weber, Hayes and Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA 95076
(831) 722-3580 Fax: (831) 722-1159

September 1, 2004

Alameda County Health Care Services Agency
Environmental Health Services, Environmental Protection
To the attention of: **Robert Schultz**
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Fuel Leak Site: **Sunol Tree Gas Station, 3004 Andrade Road, Sunol**

Investigation: **Carbon Filtration System Operations and Sampling Report**
- **MTBE-Impacted Water Well at the T Bear Ranch**
- **3000 Andrade Road, Sunol**

EXECUTIVE SUMMARY

Weber, Hayes and Associates (WHA) have prepared this carbon system operations and sampling report on behalf of Alameda County Environmental Health (ACEH). ACEH is managing the characterization and cleanup of this fuel release under a grant from the State Petroleum Underground Storage Tank Cleanup Fund's Emergency, Abandoned, and Recalcitrant (EAR) Account.

This document provides a review of the carbon filtration design specifications, a compilation of laboratory-analyzed water samples obtained to gauge the efficiency of the filtrations system, a record of groundwater extraction from the T Bear well, and a chronological list of the carbon change outs and milestone events. Attachments include:

- Tabulation of carbon treatment system sampling results (Table 1) and a copy of the State-certified laboratory's *Certificate of Analysis* (Appendix A).
- Well head treatment system schematic (Figure 1).
- Charts showing MTBE removal estimates (Figure 2), and groundwater fluctuations resulting from pumping (Figures 3 and 4);
- A copy of the original design criteria and flow chart (Ising's Culligan, Appendix B).
- Copies of field notes, sampling and decontamination protocols, and photos (Appendix C).

Initial filtration system monitoring has shown MTBE to have "broken through" the first set of carbon vessels somewhere between 68-89 days. Following carbon change-out, MTBE breakthrough of the first set of carbon vessels occurred somewhere between 35-76 days. This suggests that the first set of carbon vessels can effectively remove the MTBE for at least 5 weeks prior to breakthrough. Carbon loading of MTBE concentrations did not cause breakthrough of the full treatment system (both sets of carbon vessels), until at least 138 days (4.5 months).

The monitoring results indicate that the existing setup of four, carbon-filled, fiberglass tanks placed in a parallel series configuration appears to be adequately filtering MTBE concentrations. We recommend continued monthly testing of the carbon filtration system to confirm MTBE removal efficiency of the system and continued change-outs and rotation of the carbon tanks so the vessels with the fresh carbon are in the back (discharge) end of the series of following breakthrough (in accordance with ACEH directive dated October 31, 2004).

BACKGROUND

MTBE contamination was initially detected in February 2003 in water collected from the T Bear Ranch drinking water well located approximately 550 feet downgradient from a documented fuel release site (Sunol Tree Gas Station, 3000 Andrade Road). The source of the contamination is from a fuel release discovered at the adjoining gas station property during the April 2002 closure of underground storage tanks (UST). Up to 130 parts per billion (ppb) MTBE has been detected in the T Bear domestic water supply well.

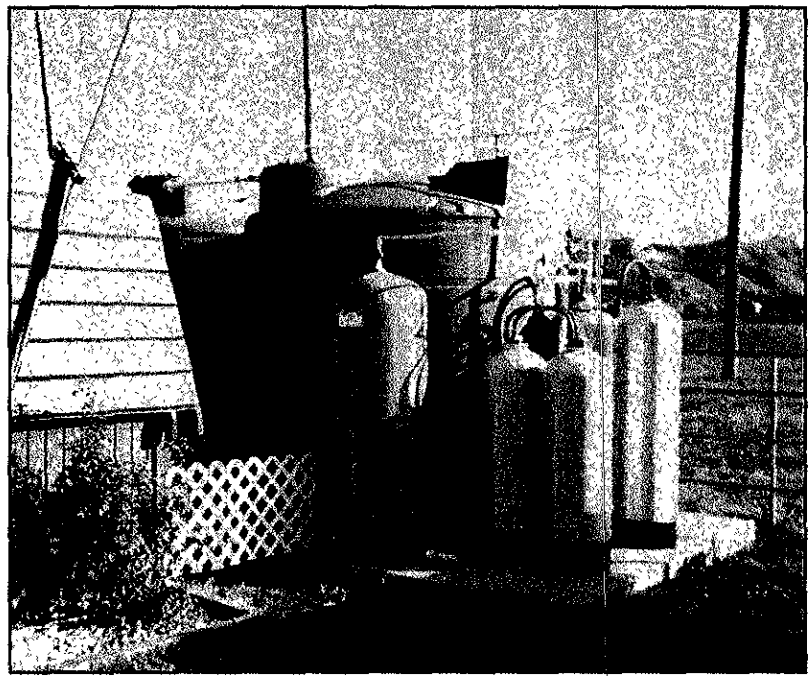
In November 2003, the responsible party for the fuel leak (Murray Kelsoe, Sunol Tree Gas Station) contracted with Earl Ising's Culligan® soft water service to install a non-standard, carbon filtration system designed to remove MTBE-impacted groundwater pumped from the T Bear water well (see Figure 1, Wellhead Treatment System).

Recent video logging of the T Bear well indicates it is a 6-inch diameter, PVC cased well, having slots from approximately 3 feet below the top of the casing (BTOC) to the base of the well that was encountered at a depth of 40-feet BTOC. Static groundwater has been measured to be approximately 7 feet BTOC. Groundwater pumping at the well has historically been activated with demand (pressure tank), but recently has been hooked up to high-low volume float-triggers positioned in one of the new 3,000-gallon, water storage tanks. Transducer monitoring of groundwater in the T Bear well has shown that most of the pumping occurs primarily during daytime hours (see Figures 3 and 4). Flow measurements taken with a totalizing flowmeter has shown pumping rates are generally 7-8 gpm but sometimes reach as high as 14 gpm and an average daily water use rate of 5,100 gallons per day.

SYSTEM DESIGN

The system came on line on November 6, 2003, and was designed to treat a maximum groundwater volume of up to 10,000 gallons per day (average daily pumping volume of 4,000 gpd) and a MTBE concentration of up to 130 parts per billion (ppb). Copies of Insing Culligan's design criteria and a water flow chart are included in Appendix B. The system consisted of:

- A chlorine drip, injection system having a with a 120-gallon retention tank to treat colliform bacteria.



- Four, fiberglass tanks placed in a parallel series configuration. Each fiberglass tank was designed to have a minimum capacity of 5 ft^3 for carbon storage (total of 20 ft^3 of carbon). Culligan estimated that 1.5 ft^3 (approximately 44 lbs) of carbon would be used up for each month of operation (Appendix B).
- Two, 3,000-gallon poly storage tanks equipped with high-low water level switches that trigger pumping.
- A 220 volt, repressurization system motor and pressure tank.
- PVC bi-pass valving for carbon change outs, and sample ports for sampling.

Subsequent changes to the system include:

- A manual on-off switch was added on to facilitate sampling of carbon treated water (May 28, 2004).
- Re-plumbing of the system's distribution piping in order to place the chlorine drip injection after carbon treatment so as to prevent unnecessary chlorine loading of the carbon (June 29, 2004).
- A digital-recording flow meter was installed to monitor daily pumping at the T Bear well (July 12, 2003, re-installed August 13, 2004).

A flow chart of the current well head treatment system is presented as Figure 1.

OPERATIONS MONITORING AND MAINTENANCE

Startup operations for the carbon filtration system occurred on November 6, 2003. Certified laboratory results of tested water samples have been tabulated (see Table 1 in the tables section of this report). The samples were obtained to monitor MTBE-removal efficiency and carbon loading. Samples were obtained from:

1) the pre-filtration sampling port ("Influent"),
2) the sampling port between the two sets of carbon canisters ("Mid"); and
3) the sampling port located at a sampling port positioned at the back end of the 4-canister treatment system ("Effluent-post").

A copy of the testing laboratory's certified results is presented in Appendix A. The following is a summary of sampling and maintenance milestones, which occurred since startup:

Milestone Events & Results
T-Bear Water Well Filtering, Testing, and Monitoring
(All concentrations in parts per billion)

Date	Days Since Carbon Change-out	Milestone	Analytical Results
Nov-6-03	**0 days**	**Culligan installation complete - filtration startup**	
Jan-6' -04	68 days	"Mid" sample showed no carbon breakthrough	- No detections
Jan-27-04	89 days	Initial carbon breakthrough of the first set of carbon vessels. "Mid" sample recorded hit indicating initial MTBE-breakthrough occurred sometime between Jan-6th and Jan-27th (between 68-89 days)	MTBE detected at 1 ppb (no other detections).
May-5-04	202 days	Initial breakthrough of second set of carbon vessels. "Effluent (post)" sample recorded a hit indicating MTBE-breakthrough exiting **both sets** of carbon vessels (a total of 20 cu-ft carbon) occurred sometime between March 9th and May 5th (between 138-202 days).	MTBE detected at 6 ppb after first set of vessels and 2 ppb after the second set (no other detections).
May-25-04	221 days **0 days**	**Carbon change-out of both sets of carbon canisters** (carbon in all 4 individual vessels replaced)	
Jun-22' -04	35 days	"Mid" sample showed no carbon breakthrough	- No detections
Jun-29' -04	40 days	System re-plumbed to have Chlorine injection occur after the carbon treatment to prevent unnecessary loading of the carbon.	
Jun-30-04	--	Trouble-shoot inspection for electrical system tripping which was reported to have started following installation of the filtration system Nov-03 but has appeared to increase recently. Personnel indicate electrical system appears to be maxed out (electrician inspection scheduled)	
Jul-12-04	--	Digital Flow meter installed. Flaw detected in meter so parts sent back to manufacturer. Re-installation on August 13th.	
Jul-19-04	76 days	Initial carbon breakthrough since carbon change-out (May-25). "Mid" sample recorded a hit indicating the initial MTBE-breakthrough occurred sometime between Jun-22nd and Jul-19th (between 35-76 days)	MTBE detected at 17 ppb (no other detections).
Jul-23-04	--	Electrical system inspection by licensed electrician (Gommon Ground Electric, Freemont). Electrical panel is over its rated capacity as a result of the Culligan installation (new repressarization pump). Recommended upgrade to electrical system.	
Aug-2-04	90 days **0 days**	**Carbon change-out of the front set of carbon canisters** (carbon in the front 2 individual vessels replaced & water flow direction was switched over so the back set of carbon is now the lead set.	

Transducer data was collected from the T Bear well to assess daily pumping to the filtration system. The data shows:

- The submersible pump appears to be pumping around 40% of the day (9.5 hrs);
- The pumping appears to be continuous over five to six periods per day (see Figures 2 and 4).
- The average pumping rate during the 9.5 hours of periodic pumping, based on the measured average water consumption of 5,099 gallons per day, is calculated to be 8.9 gpm.
- During pumping, groundwater fluctuations average approximately 1.5 feet of drawdown and near immediate aquifer recovery when the pump is kicked off.

CONCLUSIONS & RECOMMENDATIONS

1. Initial filtration system monitoring has shown MTBE to have "broken through" the first set of carbon vessels somewhere between 68-89 days. Following carbon change-out, MTBE breakthrough of the first set of carbon vessels occurred somewhere between 35-76 days. This suggests that the first set of carbon vessels can effectively remove the MTBE for at least 5 weeks prior to breakthrough

2. Carbon loading of MTBE concentrations did not cause breakthrough of the full treatment system (both sets of carbon vessels), until at least 138 days (4.5 months).

3. Vendors base carbon system sizing on concentration and retention time (5 to 15 minutes). The MTBE concentrations in the groundwater influent are fairly low at the subject site and appear to be decreasing in magnitude (Figure 2). The existing setup of four, fiberglass tanks placed in a parallel series configuration contains a minimum of 5 ft^3 per tank. Based on carbon wetting specifications of similar filtration models, the groundwater contact/retention time within the carbon canisters is approximated 8 minutes based on the average pumping rates at the site (8.9 gpm).

4. Sampling results indicate that the existing setup of four, carbon-filled, fiberglass tanks placed in a parallel series configuration appears to be adequately filtering MTBE concentrations.

We recommend continued monthly testing of the carbon filtration system to confirm MTBE removal efficiency of the system and continued change-out and rotation of the carbon tanks so the vessel with the fresh carbon is in the back (discharge) end of the series of following breakthrough (in accordance with ACEH directive dated October 31, 2004).

LIMITATIONS: Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all others, either expressed or implied. The analysis and conclusions in this

report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modifications of the options expressed herein.

All work has be conducted by and/or under the direct supervision of a geologist registered in the State of California. If you have any questions or comments regarding this workplan, please contact us at our office.

Respectfully submitted,

WEBER, HAYES AND ASSOCIATES
A California Corporation

REGISTERED PROFESSIONAL ENGINEER
CRAIG B. DRIZIN
No. C 054081
Exp. 12-31-05
CIVIL
STATE OF CALIFORNIA

Patrick Hoban
Senior Geologist

Craig Drizin, P.E.
Senior Engineer

Attachments:

Table 1: Tabulation of carbon treatment system sampling results
Figure 1: Well head treatment system schematic
Figure 2: Chart showing MTBE removal estimates
Figure 3: Transducer Chart (T Bear pumping – 2 week record)
Figure 4: Transducer Chart (T Bear pumping – 2 day record)
Appendix A: Entech Analytical Laboratory, *Certificate of Analysis* and Chain of Custody documentation
Appendix B: A copy of the original treatment system design criteria and flow chart (Ising's Culligan)
Appendix C: Field Logs and Protocol and photos

Table 1

Carbon Treatment System Sample Results

T Bear Ranch Domestic Well
3000 Andrade Road, Sunol

All water results in parts per billion (ug/kg)

Investigation	Date	Extracted Groundwater (gallons)	Sample Location (ID#)	Total Petroleum Hydrocarbons as GASOLINE	Volatile Organic Compounds											COMMENTS
					Benzene	Toluene	Ethylbenzene	Xylenes	FUEL OXYGENATES: MTBE (2)	TBA	ETBE	DIPE	TAME	Ethanol		
On-going Carbon Treatment System Testing[1]	Jul-19, 2004 (+76 days after changeout))		Influent	—	ND	ND	ND	ND	**25**	<10	<5	<5	<5	—		Initial breakthrough of MTBE at "mid" following changeout (between 35-76 days)
			Mid	<25	**0.59**	ND	ND	<1	**17**	<10	<5	<5	<5	—		
			Effluent (Post)	<25	ND	ND	ND	<1	<1	<10	<5	<5	<5	—		
	Jun-22, 2004 (+35 days after changeout)	2,315,310	Influent (Pre)	—	ND	ND	ND	<1	**49**	< 10	<5	<5	<5	—		Residual Chlorine = 0.15 ppm (at Retention Tank)
			Mid	—	ND	ND	ND	<1	<1	< 10	<5	<5	<5	—		
	May-21, 2004 (+217 days)	2,146,750	Influent	ND	ND	ND	ND	<1	**43**	<10	<5	<5	<5	—		
			Mid	ND	ND	ND	ND	<1	**3**	<10	<5	<5	<5	—		
			Effluent (Post)	ND	ND	ND	ND	<1	<1	<10	<5	<5	<5	—		
	May-5, 2004 (+202 days)		Influent	ND	ND	ND	ND	ND	**44**	**13**	ND	ND	ND	<50		Initial breakthrough of MTBE at effluent end of carbon system (between 138-202 days)
			Mid	ND	ND	ND	ND	ND	**6**	ND	ND	ND	ND	<50		
			Effluent	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	<50		
	Mar-9, 2004 (+138 days)		Influent	ND - Sample obtained from incorrect sampling port												
			Mid	ND	ND	ND	ND	ND	**3**	**<20**	ND	ND	ND	<100		
			Effluent	ND	ND	ND	ND	ND	ND	**<20**	ND	ND	ND	<100		
	Feb-17, 2004 (+110 days)		Influent	ND - Sample obtained from incorrect sampling port												
			Mid	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	<50		
			Effluent	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<50		
	Jan-27, 2004 (+89 days)		Influent	ND - Sample obtained from incorrect sampling port												Initial breakthrough of MTBE at "mid" following changeout (between 68-89 days)
			Mid	ND	ND	ND	ND	ND	**1**	**<20**	ND	ND	ND	<100		
	Jan-6, 2004 (+68 days)		Influent	ND - Sample obtained from incorrect sampling port												
			Mid	ND	ND	ND	ND	ND	ND	**<20**	ND	ND	ND	<100		
	Dec-2, 2003 (+26 days)		"Hose Bib "	ND	ND	ND	ND	<1	ND	ND	ND	<1.0	ND	—		
	[illegible]															
	Aug-21-03	1,293,740		—	—	—	—	—	—	—	—	—	—	—		
Regulatory Limits for Groundwater (AIs or MCLs) [2]:				Not Established	1	150	300	1,750	13	12	Not Established						
Laboratory's Practical Quantitation Limits (PQL's) [3]:				50	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5		

NOTES:

Bold Print = *Bold Print indicates concentrations are above regulatory Action Levels*
< # = *Detection limit elevated due to sample dilution and compound not detected at or above detection*
ND = *Not detected at or above the lab's practical quantitation limit*
---- = *Sample not analyzed for this compound(s)*

MTBE = Methyl-tert-Butyl Ether
TAME = Tert-amyl methyl ether
ETBE = Ethyl tert-butyl ether
DIPE= Di-isopropyl ether
TBA = Tert-butyl alcohol
EtOH = Ethanol

1 = Samples obained on July 19 and June 12 2004 were sampled by Weber Hayes and Associates Remaining samples obtaind by Sequoia Analytical or Cerco Labs
2 = *Water quality goals for groundwater are based on State DHS-established Maximum Contaminant*
3 = *MTBE detections are confirmed by EPA Method #8260*
4 = *The Certified lab reported the TPH as gasoline value is the result of high concentrations of MTBE within the TPH as gasoline quantitation range*

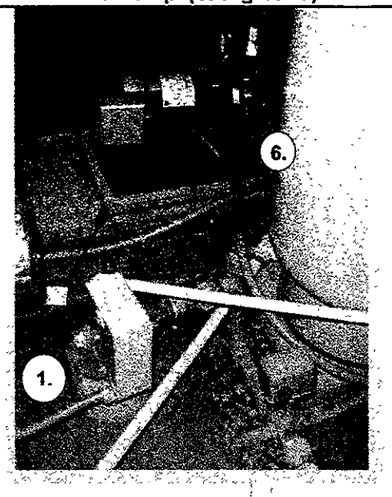
Impacted Groundwater Source:

1. T Bear Ranch Well
   3000 Andrade Road, Sunol
   - 6-inch diameter, PVC, 40 feet deep
   - Screened from 3-to-40 feet bgs
   - Average Groundwater Pumping: 5,099 gallons per day
   - Submersible pump rate (during pumping): approx. 7-9 gpm

Carbon Treatment System Specification

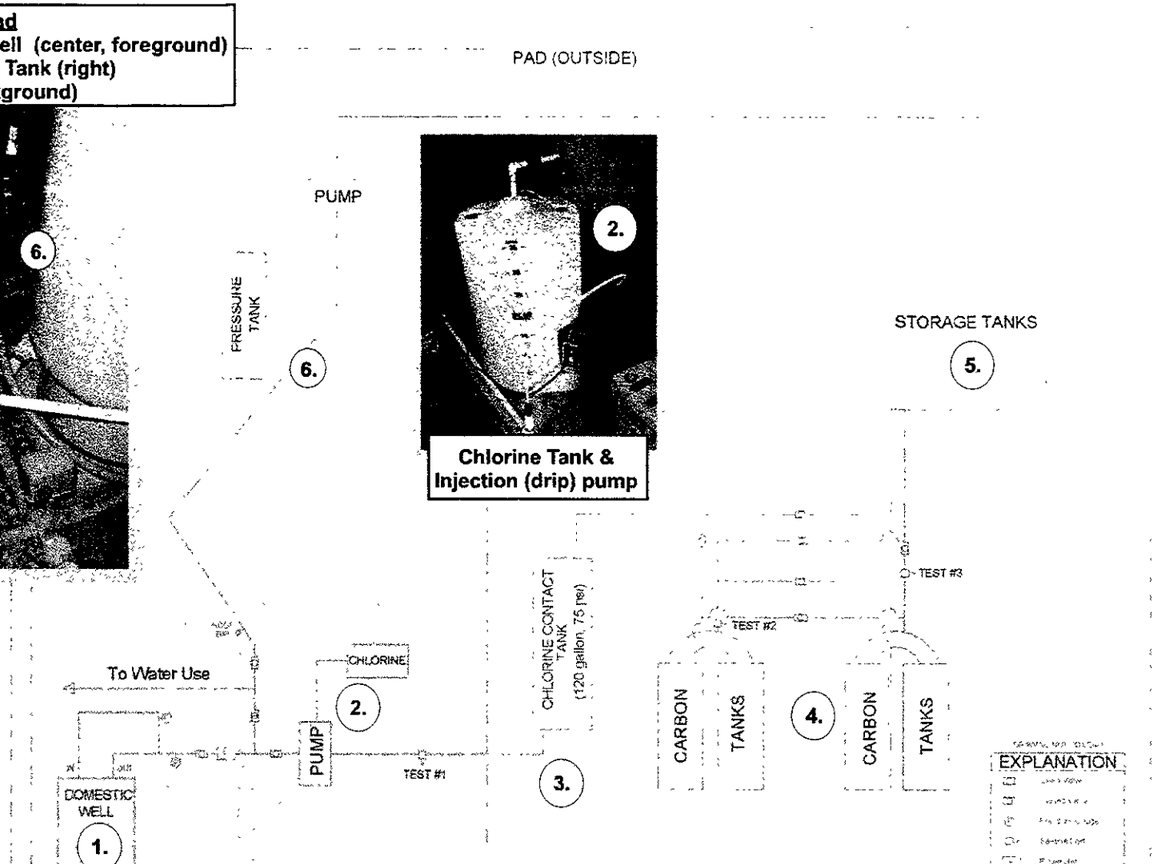
System Design: Ising's Culligan
Livermore, California

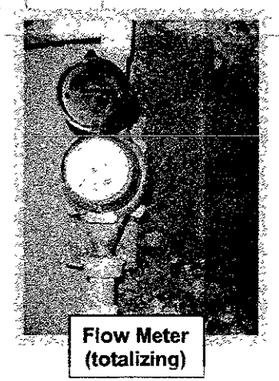
2. Chlorine dilution tank and injection pump
3. Chlorine Retention Tank (120 gal.)
4. Twin fiberglass tanks in series.
   - 1 set has 7 cu ft. carbon capacity
   - 1 set has 5 cu ft. carbon capacity
   + bypass valving for changeouts
5. Two, 3,000 gallon Storage Tanks (poly) with high-low switch to trigger groundwater pumping.
6. Re pressurization System for the Ranch's water distribution system which includes a booster pump and pressure tank.

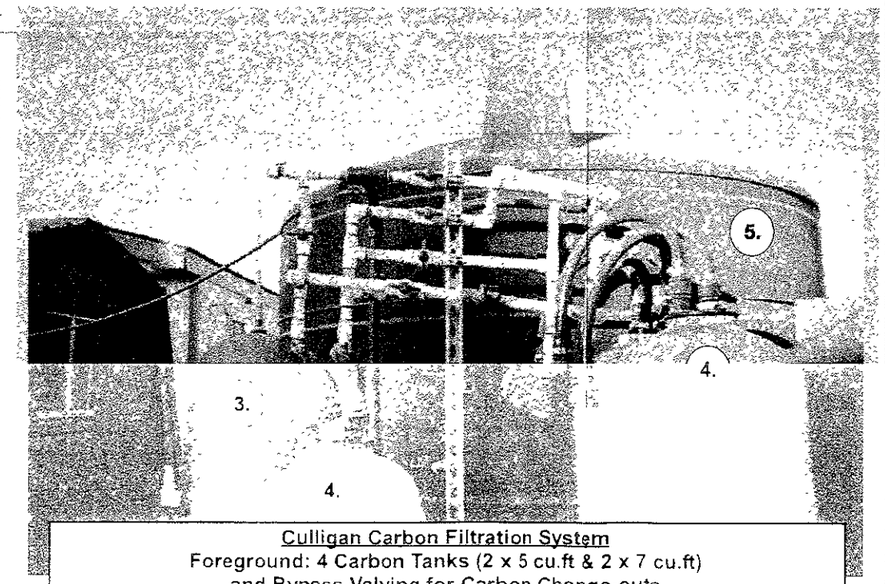


Well Head
6-inch diameter, PVC Water Well (center, foreground)
Re-pressurization Tank (right)
& Pump (background)

Chlorine Tank & Injection (drip) pump







Culligan Carbon Filtration System
Foreground: 4 Carbon Tanks (2 x 5 cu.ft & 2 x 7 cu.ft)
and Bypass Valving for Carbon Change-outs
Background: 3,000-gallon storage tank (grey) & Chlorine Retention Tank (blue)

T Bear Ranch Pump Shed
Foreground: Electrical Panel (center)
Background: Pressure Tank (center) & Chlorine Tank (right)

FIGURE 1 Job # 23003

WELLHEAD TREATMENT SYSTEM
Carbon Filtration System Schematic
T BEAR RANCH WATER WELL
SUNOL TREE GAS STATION FUEL RELEASE
3004 Andrade Road
Sunol, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

Figure 2
T Bear Well
MTBE Concentrations & Cumulative Flow Volume

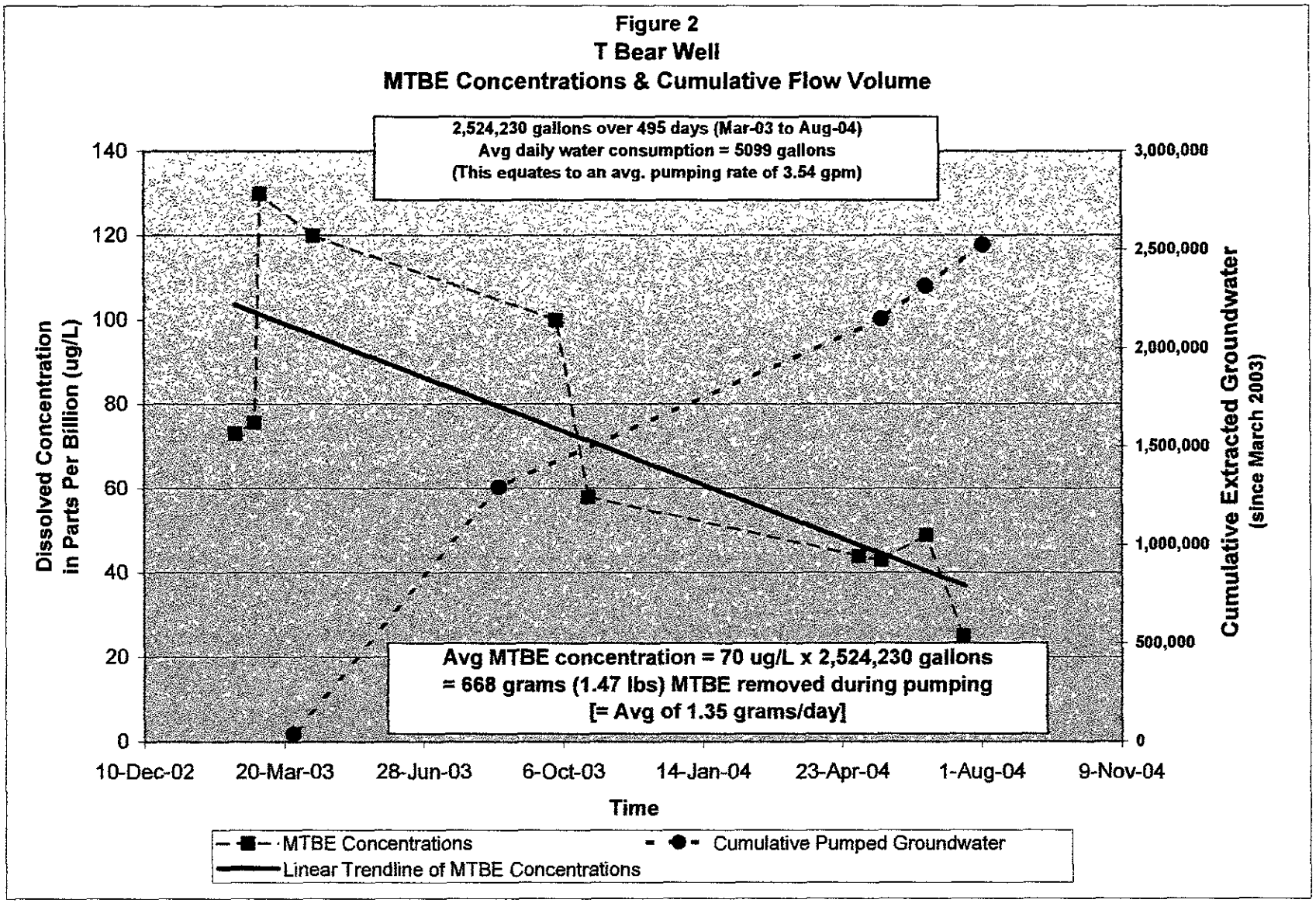


Figure 3

Groundwater Pumping Flutuations & Recovery at theT-Bear Well

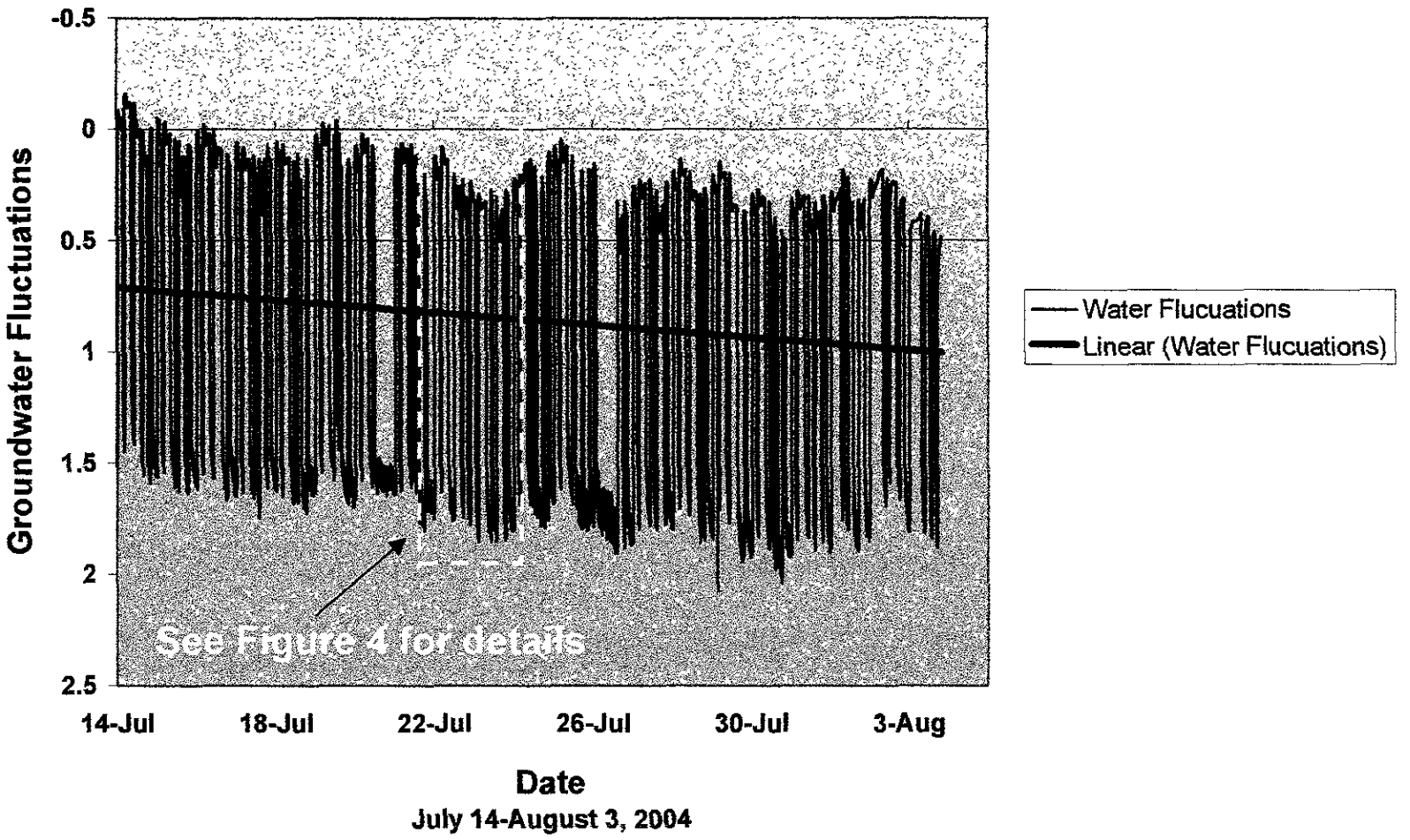
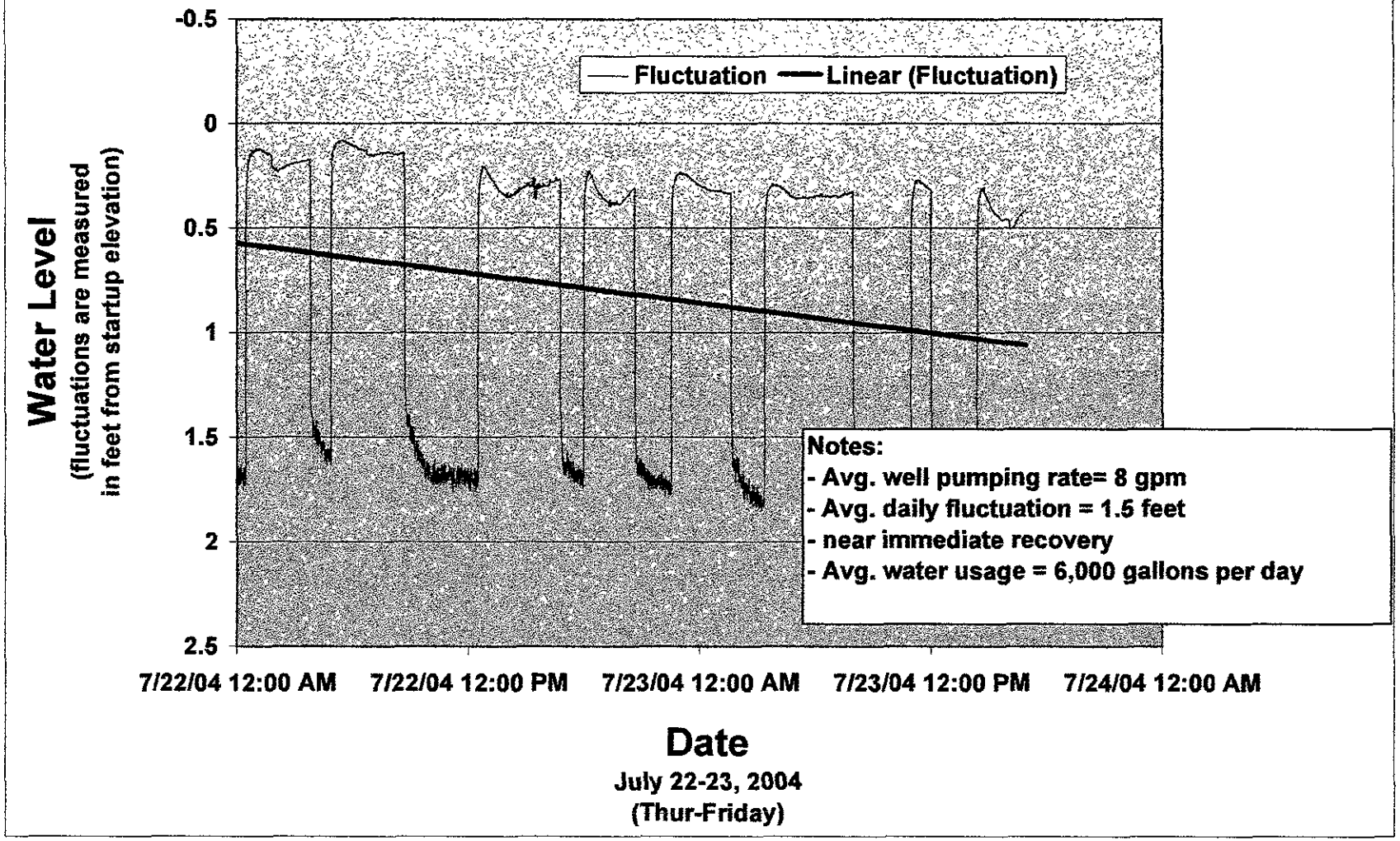


Figure 4

Daily Pumping & Recovery Fluctuation

T Bear Water Well



Weber, Hayes and Associates

APPENDIX A

Entech Analytical Laboratory,
Certificate of Analysis and Chain of Custody documentation.

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Aaron Bierman
Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076

Certificate ID: 39707 - 7/29/2004 5:07:18 PM

Order: 39707
Project Name: T-Bear Ranch - Carbon Treatment System Testing (Pre / Mid / Post)
Project Number: 23027

Date Collected: 7/19/2004
Date Received: 7/19/2004
P.O. Number: 23027

ADDITIONAL ANALYSIS REPORT

Note: Sample PRE taken off hold per client request.

On July 19, 2004, sample was received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Method	Comments
Liquid	8260Petroleum	EPA 8260B	8260Petroleum=Btex+Oxy's. No Ethanol
	TPH as Gasoline - GC/MS	GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call me at 408-588-0200.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 7/29/2004
Date Received: 7/19/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Lab # : 39707-001 **Sample ID:** PRE **Matrix:** Liquid **Sample Date:** 7/19/2004 2:17 PM

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/28/2004	WMS1040728
Toluene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/28/2004	WMS1040728
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/28/2004	WMS1040728
Xylenes, Total	ND		1	1	1	µg/L	N/A	N/A	07/28/2004	WMS1040728
Methyl-t-butyl Ether	25		1	1	1	µg/L	N/A	N/A	07/28/2004	WMS1040728
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/28/2004	WMS1040728
tert-Butanol (TBA)	ND		1	10	10	µg/L	N/A	N/A	07/28/2004	WMS1040728
Diisopropyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/28/2004	WMS1040728
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/28/2004	WMS1040728

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	95.8	64 - 125
Dibromofluoromethane	108.8	23 - 172
Toluene-d8	99.4	70 - 134

Analyzed by: TFulton - 07/28/2004
Reviewed by: MTU - 07/29/04

Method: GC-MS

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	37		1	25	25	µg/L	N/A	N/A	07/28/2004	WMS1040728

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	113.0	64 - 125
Dibromofluoromethane	102.4	23 - 172
Toluene-d8	106.7	70 - 134

Analyzed by: TFulton - 07/28/2004
Reviewed by: MTU - 07/29/04

*** TPH as Gasoline reported value is a result of a high concentration of MTBE present in the TPH as Gasoli

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

QC Batch ID: WMS1040728
Matrix: Liquid
Date of Analysis: 7/28/2004

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Diisopropyl Ether	ND	1	5	5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylene, m+p	ND	1	1	1	µg/L
Xylene, o	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	100.5	64 - 125
Dibromofluoromethane	107.0	23 - 172
Toluene-d8	99.1	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Laboratory Control Spike / Duplicate Results

QC Batch ID: WMS1040728

Date of Analysis: 7/28/2004

Method EPA 8260B | **Liquid** | **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.5	20.0	17.87	LCS	7/28/2004	**89.4**			60 - 132
Benzene	<0.5	20.0	21.03	LCS	7/28/2004	**105.2**			77 - 154
Chlorobenzene	<0.5	20.0	19.67	LCS	7/28/2004	**98.4**			66 - 141
Methyl-t-butyl Ether	<1	20.0	21.28	LCS	7/28/2004	**106.4**			58 - 127
Toluene	<0.5	20.0	18.58	LCS	7/28/2004	**92.9**			47 - 137
Trichloroethene	<0.5	20.0	19.62	LCS	7/28/2004	**98.1**			57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**97.1**	64 - 125
Dibromofluoromethane	**105.6**	23 - 172
Toluene-d8	**94.5**	70 - 134

1,1-Dichloroethene	<0.5	20.0	17.97	LCSD	7/28/2004	**89.8**	**0.6**	25	60 - 132
Benzene	<0.5	20.0	21.64	LCSD	7/28/2004	**108.2**	**2.9**	25	77 - 154
Chlorobenzene	<0.5	20.0	19.97	LCSD	7/28/2004	**99.8**	**1.5**	25	66 - 141
Methyl-t-butyl Ether	<1	20.0	22.04	LCSD	7/28/2004	**110.2**	**3.5**	25	58 - 127
Toluene	<0.5	20.0	19.08	LCSD	7/28/2004	**95.4**	**2.7**	25	47 - 137
Trichloroethene	<0.5	20.0	20.01	LCSD	7/28/2004	**100.1**	**2.0**	25	57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**96.7**	64 - 125
Dibromofluoromethane	**105.1**	23 - 172
Toluene-d8	**94.4**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

QC Batch ID: WMS1040728
Matrix: Liquid
Date of Analysis: 7/28/2004

Method: GC-MS

Parameter	Result	DF	PQL	PQLR	Units
TPH as Gasoline	ND	1	25	25	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	118.5	64 - 125
Dibromofluoromethane	100.7	23 - 172
Toluene-d8	106.4	70 - 134

Quality Control - Laboratory Control Spike / Duplicate Results

QC Batch ID: WMS1040728
Date of Analysis: 7/28/2004

Method GC-MS Liquid Conc. Units: µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	250.0	242.99	LCS	7/28/2004	97.2			65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	117.9	64 - 125
Dibromofluoromethane	101.7	23 - 172
Toluene-d8	105.3	70 - 134

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	250.0	248.3	LCSD	7/28/2004	99.3	2.2	25	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	118.7	64 - 125
Dibromofluoromethane	100.2	23 - 172
Toluene-d8	105.8	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Aaron Bierman
Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076

Certificate ID: 39707 - 7/23/2004 1:08:02 PM

Order:	39707	**Date Collected:**	7/19/2004
Project Name:	T-Bear Ranch	**Date Received:**	7/19/2004
Project Number:	23027	**P.O. Number:**	23027

Certificate of Analysis - Final Report

On July 19, 2004, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Method	Comments
Liquid	8260Petroleum	EPA 8260B	8260Petroleum=Btex+Oxy's ONLY No Ethanol for all samples
	PDF	PDF	
	TPH as Gasoline - GC/MS	GC-MS	Gas by GCMS

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call me at 408-588-0200.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 7/23/2004
Date Received: 7/19/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Lab # : 39707-002 **Sample ID:** MID **Matrix:** Liquid **Sample Date:** 7/19/2004 2:25 PM

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	0.59		1	0.5	0.5	µg/L	N/A	N/A	07/21/2004	WMS2040721
Toluene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/21/2004	WMS2040721
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/21/2004	WMS2040721
Xylenes, Total	ND		1	1	1	µg/L	N/A	N/A	07/21/2004	WMS2040721
Methyl-t-butyl Ether	17		1	1	1	µg/L	N/A	N/A	07/21/2004	WMS2040721
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/21/2004	WMS2040721
tert-Butanol (TBA)	ND		1	10	10	µg/L	N/A	N/A	07/21/2004	WMS2040721
Diisopropyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/21/2004	WMS2040721
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/21/2004	WMS2040721

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.9	64 - 125
Dibromofluoromethane	113.3	23 - 172
Toluene-d8	102.0	70 - 134

Analyzed by: TFulton - 07/21/2004
Reviewed by. MTU - 07/23/04

Method: GC-MS

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	25	µg/L	N/A	N/A	07/21/2004	WMS2040721

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.7	64 - 125
Dibromofluoromethane	122.5	23 - 172
Toluene-d8	99.9	70 - 134

Analyzed by: TFulton - 07/21/2004
Reviewed by: MTU - 07/23/04

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 7/23/2004
Date Received: 7/19/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Lab # : 39707-003 **Sample ID:** POST **Matrix:** Liquid **Sample Date:** 7/19/2004 2:30 PM

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/22/2004	WMS2040721
Toluene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/22/2004	WMS2040721
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	N/A	07/22/2004	WMS2040721
Xylenes, Total	ND		1	1	1	µg/L	N/A	N/A	07/22/2004	WMS2040721
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	N/A	07/22/2004	WMS2040721
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/22/2004	WMS2040721
tert-Butanol (TBA)	ND		1	10	10	µg/L	N/A	N/A	07/22/2004	WMS2040721
Diisopropyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/22/2004	WMS2040721
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	N/A	N/A	07/22/2004	WMS2040721

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.9	64 - 125
Dibromofluoromethane	114.0	23 - 172
Toluene-d8	101.6	70 - 134

Analyzed by: TFulton - 07/22/2004
Reviewed by: MTU - 07/23/04

Method: GC-MS

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	25	µg/L	N/A	N/A	07/22/2004	WMS2040721

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.9	64 - 125
Dibromofluoromethane	123.4	23 - 172
Toluene-d8	99.8	70 - 134

Analyzed by: TFulton - 07/22/2004
Reviewed by: MTU - 07/23/04

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Validated by: MTU - 07/22/04

QC Batch ID: WMS2040721
Matrix: Liquid
Date of Analysis: 7/21/2004

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Diisopropyl Ether	ND	1	5	5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylene, m+p	ND	1	1	1	µg/L
Xylene, o	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	97.6	64 - 125
Dibromofluoromethane	109.3	23 - 172
Toluene-d8	103.3	70 - 134

Quality Control - Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 07/22/04

QC Batch ID: WMS2040721
Date of Analysis: 7/21/2004

Method EPA 8260B — Liquid — Conc. Units: µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.5	20.0	20.878	LCS	7/21/2004	104.4			60 - 132
Benzene	<0.5	20.0	22.311	LCS	7/21/2004	111.6			77 - 154
Chlorobenzene	<0.5	20.0	20.313	LCS	7/21/2004	101.6			66 - 141
Methyl-t-butyl Ether	<1	20.0	22.371	LCS	7/21/2004	111.9			58 - 127
Toluene	<0.5	20.0	20.136	LCS	7/21/2004	100.7			47 - 137
Trichloroethene	<0.5	20.0	22.156	LCS	7/21/2004	110.8			57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	104.0	64 - 125
Dibromofluoromethane	112.9	23 - 172
Toluene-d8	99.6	70 - 134

1,1-Dichloroethene	<0.5	20.0	19.583	LCSD	7/21/2004	97.9	6.4	25	60 - 132
Benzene	<0.5	20.0	21.565	LCSD	7/21/2004	107.8	3.4	25	77 - 154
Chlorobenzene	<0.5	20.0	19.206	LCSD	7/21/2004	96.0	5.6	25	66 - 141
Methyl-t-butyl Ether	<1	20.0	21.622	LCSD	7/21/2004	108.1	3.4	25	58 - 127
Toluene	<0.5	20.0	19.395	LCSD	7/21/2004	97.0	3.7	25	47 - 137
Trichloroethene	<0.5	20.0	21.747	LCSD	7/21/2004	108.7	1.9	25	57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	100.5	64 - 125
Dibromofluoromethane	112.6	23 - 172
Toluene-d8	100.5	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Validated by: MTU - 07/22/04

QC Batch ID: **WMS2040721**
Matrix: Liquid
Date of Analysis: 7/21/2004

Method: GC-MS

Parameter	Result	DF	PQL	PQLR	Units
TPH as Gasoline	ND	1	25	25	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	97.7	64 - 125
Dibromofluoromethane	118.3	23 - 172
Toluene-d8	101.2	70 - 134

Quality Control - Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 07/22/04

QC Batch ID: WMS2040721
Date of Analysis: 7/21/2004

Method GC-MS — **Liquid** — **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<25	250.0	259.6	LCS	7/21/2004	103.8			65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	98.1	64 - 125
Dibromofluoromethane	117.4	23 - 172
Toluene-d8	100.8	70 - 134

TPH as Gasoline	<25	250.0	267.8	LCSD	7/21/2004	107.1	3.1	25	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	99.0	64 - 125
Dibromofluoromethane	113.4	23 - 172
Toluene-d8	101.8	70 - 134

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: [redacted] T-BEAR RANCH / 23027

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

Sampler: Aaron Bierman

Date: 7.19.04

LABORATORY: Entech Analytical Laboratory

TURNAROUND TIME: (Standard Five-Day) 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: NA

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS				REQUESTED ANALYSIS								
										Total Petroleum Hydrocarbons			Volatile Organics			Additional Analysis		
						40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	TPH-gasoline, BTEX & MTBE 8260 by EPA Method# ~~8015Mod/8020~~	1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	~~Total Suspended Solids~~ HOLD	Total Dissolved Solids	Metals: Al, Ar, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, Nitrate as N
NA	PRE	NA	7-19-04	217	H_2O	x5			23707-001									
	MID	NA	7-19-04	225	H_2O	x5			002			X			X	X		
	POST	NA	7-19-04	230	H_2O	x5			003			X			X			

RELEASED BY:

1.) [signature] 7/19/04 Date & Time 5:00 pm

2.) _____ _____

3.) _____ _____

4.) _____ _____

5.) _____ _____

RECEIVED BY:

1.) [signature] Date & Time 7/19/04 1705

2.) _____ _____

3.) _____ _____

4.) _____ _____

5.) _____ _____

SAMPLE CONDITION: (circle 1)

Ambient	(Refrigerated)	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

[ ] *If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.*

[ ] *For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.*

[ ] *Please use MDL (Minimum Detection Limit) for any diluted samples.*

-Please send certified results via *.pdf to laboratory@weber-hayes.com.

- THESE SAMPLES REPRESENT THE JULY CARBON SAMPLING EVENT

[signature] 7/23 pm

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

CHANGE ORDER FORM

Date Requested: 7-23-04
Date Needed: 7-30-04
Client: WHA

Workorder #: 39707
Project Name or #: T-Bear Ranch
Ordered by: Pat Adams

Laboratory ID#	Client ID#	Matrix	Change Requested
39707-001	Pre	W	Run Sample #1 for 8260 Petroleum
			BTEX Oxy's only (Gas by GCMS

Comments: 5-Day TAT

Due: 7/30/04

Date Test Added: 7/23/04
Test Added By: [signature]

Distribution:
Original in the Workorder Folder. Accounting and all involved departments must get a copy of this form.

Environmental Analysis Since 1983

F:\Change Order Form.xls

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PAGE 1 OF 1

PROJECT NAME AND JOB #: [redacted] T-BEAR RANCH / 23027

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

ELECTRONIC DELIVERABLE FORMAT: ☐ YES ☒ NO

LABORATORY: Entech Analytical Laboratory

TURNAROUND TIME: (Standard Five-Day) 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: NA

Sampler: Aaron Bierman

Date: 7-19-04

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	TPH-gasoline, BTEX & MTBE 8260 by EPA Method# ~~8015M & 8020~~	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: ~~Total~~ Suspended Solids HOLD	Total Dissolved Solids	Metals: Al, Ar, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, Nitrate as N
NA	PRE	NA	7-19-04	217	H_2O	x5			23107-001									
																X		
	MID	NA	7-19-04	225	H_2O	x5			002			X			X			
	POST	NA	7-19-04	230	H_2O	x5			003			X			X			

RELEASED BY:

1.) [signature] 7/19/04 Date & Time 5:00 pm

2.) _____ Date & Time _____

3.) _____ Date & Time _____

4.) _____ Date & Time _____

5.) _____ Date & Time _____

RECEIVED BY:

1.) [signature] Date & Time 7/19/04 1705

2.) _____ Date & Time _____

3.) _____ Date & Time _____

4.) _____ Date & Time _____

5.) _____ Date & Time _____

SAMPLE CONDITION: (circle 1)

Ambient	(Refrigerated)	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

☐ If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.

☐ For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.

☐ Please use MDL (Minimum Detection Limit) for any diluted samples

-Please send certified results via *.pdf to laboratory@weber-hayes.com.

- THESE SAMPLES REPRESENT THE JULY CARBON SAMPLING EVENT

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Aaron Bierman
Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076

Certificate ID: 39417 - 6/29/2004 5:32:49 PM

Order: 39417
Project Name: T-Bear Ranch
Project Number: 23027 - Carbon Filter System Testing (6-22-04)

Date Collected: 6/22/2004
Date Received: 6/22/2004
P.O. Number: 23027

Certificate of Analysis - Final Report

On June 22, 2004, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Method	Comments
Liquid	8260Petroleum	EPA 8260B	8260Petroleum=Oxy's+Btex ONLY. No Ethanol
	Chlorine, Residual	EPA 330 5	
	PDF	PDF	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call me at 408-588-0200.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 6/29/2004
Date Received: 6/22/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39417-001 **Sample ID:** PRE **Matrix:** Liquid **Sample Date:** 6/22/2004 9:10 AM

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	6/23/2004	WMS110752	EPA 8260B
Toluene	ND		1	0 5	0.5	µg/L	6/23/2004	WMS110752	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	6/23/2004	WMS110752	EPA 8260B
Xylenes, Total	ND		1	1.	1	µg/L	6/23/2004	WMS110752	EPA 8260B
Methyl-t-butyl Ether	49		1	1	1.	µg/L	6/23/2004	WMS110752	EPA 8260B
Ethyl-t-butyl Ether	ND		1	5.	5.	µg/L	6/23/2004	WMS110752	EPA 8260B
tert-Butanol (TBA)	ND		1	10.	10.	µg/L	6/23/2004	WMS110752	EPA 8260B
Diisopropyl Ether	ND		1	5	5.	µg/L	6/23/2004	WMS110752	EPA 8260B
tert-Amyl Methyl Ether	ND		1	5	5.	µg/L	6/23/2004	WMS110752	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.1	64 - 125
Dibromofluoromethane	98.6	23 - 172
Toluene-d8	111.0	70 - 134

Analyzed by: Xbian - 6/23/2004
Reviewed by: MTU - 06/24/04

Days from sampling to analysis: 1

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 6/29/2004
Date Received: 6/22/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39417-002 **Sample ID:** MID **Matrix:** Liquid **Sample Date:** 6/22/2004 9:00 AM

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0 5	µg/L	4/23/2004	WMS110752	EPA 8260B
Toluene	ND		1	0 5	0 5	µg/L	4/23/2004	WMS110752	EPA 8260B
Ethyl Benzene	ND		1	0 5	0.5	µg/L	4/23/2004	WMS110752	EPA 8260B
Xylenes, Total	ND		1	1.	1	µg/L	4/23/2004	WMS110752	EPA 8260B
Methyl-t-butyl Ether	ND		1	1.	1	µg/L	4/23/2004	WMS110752	EPA 8260B
Ethyl-t-butyl Ether	ND		1	5.	5.	µg/L	4/23/2004	WMS110752	EPA 8260B
tert-Butanol (TBA)	ND		1	10	10.	µg/L	4/23/2004	WMS110752	EPA 8260B
Diisopropyl Ether	ND		1	5	5.	µg/L	4/23/2004	WMS110752	EPA 8260B
tert-Amyl Methyl Ether	ND		1	5.	5.	µg/L	4/23/2004	WMS110752	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	102.0	64 - 125
Dibromofluoromethane	93.4	23 - 172
Toluene-d8	112.0	70 - 134

Analyzed by. Xbian - 4/23/2004
Reviewed by. MTU - 06/24/04

Days from sampling to analysis: <1

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Aaron Bierman

Date: 6/29/2004
Date Received: 6/22/2004
Project Name: T-Bear Ranch
Project Number: 23027
P.O. Number: 23027
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39417-004 **Sample ID:** **Retention Tank** **Matrix:** Liquid **Sample Date:** 6/22/2004 9:15 AM

Parameter	Result	Flag	DF	PQL	PQLR	Units	Prep Date	Analysis Date	QC Batch ID	Method
Chlorine, Residual	0 15		1	0.1	0 1	mg/L		6/22/2004	WRESCL040622	EPA 330 5

Analyzed by: Rlazaro - 6/22/2004
Reviewed by DQUEJA - 06/22/04

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)

DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Analyzed by XBIAN -6/23/2004
Entered by: XBIAN - 06/24/04
Validated by: MTU - 06/24/04

QC Batch ID: WMS110752
Matrix: Liquid
Date of Analysis: 6/23/2004

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
1,2-Dibromoethane (EDB)	ND	1	0.5	0.5	µg/L
1,2-Dichloroethane	ND	1	0.5	0.5	µg/L
Benzene	ND	1	0.5	0.5	µg/L
Diisopropyl Ether	ND	1	5	5	µg/L
Ethanol	ND	1	100	100	µg/L
Ethyl Benzene	ND	1	0.5	0 5	µg/L
Ethyl-t-butyl Ether	ND	1	5	5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**98.9**	64 - 125
Dibromofluoromethane	**89.8**	23 - 172
Toluene-d8	**113.0**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Laboratory Control Spike / Duplicate Results

Analyzed by. XBIAN -6/23/2004
Reviewed by: MTU - 06/24/04

QC Batch ID: WMS110752
Date of Analysis: 6/23/2004

Method EPA 8260B — **Liquid** — **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	ND	20.0	16.6	LCS	6/23/2004	**83.0**			60 - 132
Benzene	ND	20.0	20	LCS	6/23/2004	**100.0**			77 - 154
Chlorobenzene	ND	20 0	19.1	LCS	6/23/2004	**95.5**			66 - 141
Methyl-t-butyl Ether	ND	20.0	19	LCS	6/23/2004	**95.0**			58 - 127
Toluene	ND	20.0	19 5	LCS	6/23/2004	**97.5**			47 - 137
Trichloroethene	ND	20.0	18 7	LCS	6/23/2004	**93.5**			57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**104.0**	64 - 125
Dibromofluoromethane	**89.9**	23 - 172
Toluene-d8	**106.0**	70 - 134

1,1-Dichloroethene	ND	20.0	17 3	LCSD	6/23/2004	**86.5**	**4.1**	25	60 - 132
Benzene	ND	20 0	20.8	LCSD	6/23/2004	**104.0**	**3.9**	25	77 - 154
Chlorobenzene	ND	20.0	19 9	LCSD	6/23/2004	**99.5**	**4.1**	25	66 - 141
Methyl-t-butyl Ether	ND	20.0	19 5	LCSD	6/23/2004	**97.5**	**2.6**	25	58 - 127
Toluene	ND	20.0	20 6	LCSD	6/23/2004	**103.0**	**5.5**	25	47 - 137
Trichloroethene	ND	20.0	19.5	LCSD	6/23/2004	**97.5**	**4.2**	25	57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**102.0**	64 - 125
Dibromofluoromethane	**89.2**	23 - 172
Toluene-d8	**108.0**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Matrix Spike / Duplicate Results

Analyzed by: XBIAN -6/23/2004
Reviewed by. MTU - 06/24/04

QC Batch ID: WMS110752
Date of Analysis: 6/23/2004

Method EPA 8260B Liquid Conc. Units: µg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 39417-002									
Benzene	ND	20 0	21.3962	MS	6/23/2004	**107.0**			73 - 134
Methyl-t-butyl Ether	ND	20.0	20 4979	MS	6/23/2004	**102.5**			42 - 157
Toluene	ND	20.0	20.4999	MS	6/23/2004	**102.5**			79 - 117

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**104.1**	64 - 125
Dibromofluoromethane	**89.1**	23 - 172
Toluene-d8	**104.1**	70 - 134

MSD SampleNumber: 39417-002									
Benzene	ND	20 0	22.0624	MSD	6/23/2004	**110.3**	**3.1**	25	73 - 134
Methyl-t-butyl Ether	ND	20.0	21 0517	MSD	6/23/2004	**105.3**	**2.7**	25	42 - 157
Toluene	ND	20 0	21.0086	MSD	6/23/2004	**105.0**	**2.5**	25	79 - 117

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	**100.8**	64 - 125
Dibromofluoromethane	**85.8**	23 - 172
Toluene-d8	**106.2**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Analyzed by: PCASILANG -6/22/2004
Entered by: PCASILANG - 06/22/04
Validated by: DQUEJA - 06/22/04

QC Batch ID: WRESCL04062
Matrix: Liquid
Date of Analysis: 6/22/2004

Method: EPA 330.5

Parameter	Result	DF	PQL	PQLR	Units
Chlorine, Residual	ND	1	0.1	0.1	mg/L

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Laboratory Control Spike / Duplicate Results

Analyzed by PCASILANG -6/22/2004
Reviewed by DQUEJA - 06/22/04

QC Batch ID: WRESCL040622
Date of Analysis: 6/22/2004

Method EPA 330.5 **Liquid** **Conc. Units:** mg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Chlorine, Residual	ND	0.2498	0.2514	LCS	6/22/2004	**100.6**			75 - 125
Chlorine, Residual	ND	0.2498	0 2535	LCSD	6/22/2004	**101.5**	**0.8**	25	75 - 125

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Matrix Spike / Duplicate Results

Analyzed by: PCASILANG -6/22/2004
Reviewed by: DQUEJA - 06/22/04

QC Batch ID: WRESCL040622
Date of Analysis: 6/22/2004

Method EPA 330.5 Liquid **Conc. Units:** mg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 39417-004									
Chlorine, Residual	0 15	0 2	0 3222	MS	6/22/2004	**86.1**			75 - 125
MSD SampleNumber: 39417-004									
Chlorine, Residual	0.15	0.2	0 3576	MSD	6/22/2004	**103.8**	**10.4**	25	75 - 125

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PAGE OF

PROJECT NAME AND JOB #: T-Bear Ranch / 23027

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

Sampler: ~~Aaron Bierman~~ Pat Hoban

Date: 6/22/04

LABORATORY: Entech Analytical Laboratory

TURNAROUND TIME: [Standard Five-Day] 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: NA

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	BTEX ~~MTBE~~ by EPA Method# 8260	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: Total Suspended Solids	Chloride ~~Dissolved Solids~~	Metals Al, Ar, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, Nitrate as N	
	PRE	port	6/22/04	9:10		2						X			X				21407-001
	MID	port	"	9am		2						X			X				002
	POST	port	"	9:05		2						X			X				003
	Retention Tank	port	"	9:15			1										X		004

RELEASED BY: Pat Hoban — Date & Time: 6/22/04

RECEIVED BY: Jmadiedo — Date & Time: 6/22/04 1120

SAMPLE CONDITION: (circle 1)

1)	Ambient	(Refrigerated)	Frozen
2)	Ambient	Refrigerated	Frozen
3.)	Ambient	Refrigerated	Frozen
4.)	Ambient	Refrigerated	Frozen
5.)	Ambient	Refrigerated	Frozen

NOTES:

[ ] *If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections*

[ ] *For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260*

[X] *Please use MDL (Minimum Detection Limit) for any diluted samples*

-Please send certified results via *.pdf to laboratory@weber-hayes.com.

Fuel oxygenates + BTEX

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PAGE OF

PROJECT NAME AND JOB #: T-Bear Ranch / 23027

LABORATORY: Entech Analytical Laboratory

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Blanman

TURNAROUND TIME: Standard Five-Day | 24hr Rush | 48hr Rush | 72hr Rush

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

GLOBAL I.D.: NA

Sampler: Pat Hoban

Date: 6/22/04

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	BTEX by EPA Method# 8260	Volatile Organics: 1,2-DCA by EPA Method 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: Total Suspended Solids	Chloride by Method# Alkalinity Soluble	Metals: Al, As, Cd, Cr, Cu, Fe, Pb, Ni, Se, Zn, Hg (Mercury as H
	PEG	port	6/22/04	9:10		2						X			X			
	MID	port	"	9am		2						X			X			
	POST	port	"	9:05		2						X (1)			X (1)			
	Retention Tank	port	"	9:15			1										X	

RELEASED BY:

1.) Pat Hoban — Date & Time: 6/22/04

2.)

3.)

4.)

5.)

RECEIVED BY:

1.) Entech — Date & Time: 6/22/04 1120

2.)

3.)

4.)

5.)

SAMPLE CONDITION: (circle 1)

Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

[ ] If MTBE is detected by EPA Method 8120, please confirm detections by EPA Method 8260 with a maximum detection limit of 5 ug/L, and report only confirmed 8260 detections.

[ ] For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.

[X] Please use MDL (Minimum Detection Limit) for any diluted samples.

Please send certified results via *.pdf to laboratory@weber-hayes.com.

Fuel oxygenates + BTEX

(1.) = Analyze "POST" sample only if there is a detection in the "MID" sample.

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Pat Hoban
Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076

5/28/2004

Order:	39065	**Date Collected:**	5/21/2004
Project Name:	T. Bear Ranch	**Date Received:**	5/21/2004
Project Number:	System Check	**P.O. Number:**	System Check

Certificate of Analysis - Final Report

On May 21, 2004, samples were received under documented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method	Comments
Liquid	8260Petroleum Gas/BTEX/MTBE	EPA 8260B EPA 8015 MOD (Purgeable) EPA 8020	Please Report MTBE
	PDF	PDF	

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Pat Hoban

Date: 5/28/2004
Date Received: 5/21/2004
Project Name: T. Bear Ranch
Project Number: System Check
P.O. Number: System Check
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39065-001 **Sample ID:** **PRE** **Matrix:** Liquid **Sample Date:** 5/21/2004 11:15 A

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	5/24/2004	WGC43116	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.6	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Xylenes, Total	ND		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020
Methyl-t-butyl Ether	42		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.2	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	43		1	1	1	µg/L	5/26/2004	WMS110703	EPA 8260B
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B
tert-Butanol (TBA)	ND		1	10	10	µg/L	5/26/2004	WMS110703	EPA 8260B
Diisopropyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101.0	64 - 125
Dibromofluoromethan	98.2	23 - 172
Toluene-d8	106.0	70 - 134

Analyzed by: Xbian - 5/26/2004
Reviewed by. MTU - 05/27/04
Approved by: GGUEORGUIEVA - 05/27/04
Days to analysis: 5

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Pat Hoban

Date: 5/28/2004
Date Received: 5/21/2004
Project Name: T. Bear Ranch
Project Number: System Check
P.O. Number: System Check
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39065-002 **Sample ID:** MID **Matrix:** Liquid **Sample Date:** 5/21/2004 11:20 A

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	5/24/2004	WGC43116	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	94.8	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Xylenes, Total	ND		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020
Methyl-t-butyl Ether	3.2		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	102.9	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	2.9		1	1	1	µg/L	5/27/2004	WMS110705	EPA 8260B
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	5/27/2004	WMS110705	EPA 8260B
tert-Butanol (TBA)	ND		1	10	10	µg/L	5/27/2004	WMS110705	EPA 8260B
Diisopropyl Ether	ND		1	5	5	µg/L	5/27/2004	WMS110705	EPA 8260B
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	5/27/2004	WMS110705	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	105.0	64 - 125
Dibromofluoromethan	96.0	23 - 172
Toluene-d8	107.0	70 - 134

Analyzed by: Xbian - 5/27/2004
Reviewed by: MTU - 05/28/04
Approved by: GGUEORGUIEVA - 05/28/04
Days to analysis: 6

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076
Attn: Pat Hoban

Date: 5/28/2004
Date Received: 5/21/2004
Project Name: T. Bear Ranch
Project Number: System Check
P.O. Number: System Check
Sampled By: Client

Certified Analytical Report

Laboratory ID: 39065-003 **Sample ID:** POST **Matrix:** Liquid **Sample Date:** 5/21/2004 11:30 A

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	5/24/2004	WGC43116	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.4	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L	5/24/2004	WGC43116	EPA 8020
Xylenes, Total	ND		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020
Methyl-t-butyl Ether	ND		1	1	1	µg/L	5/24/2004	WGC43116	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.1	65 - 135

Analyzed by: JAMES - 5/24/2004
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04
Days to analysis: 3

Parameter	Result	Flag	DF	PQL	PQLR	Units	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	5/26/2004	WMS110703	EPA 8260B
Ethyl-t-butyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B
tert-Butanol (TBA)	ND		1	10	10	µg/L	5/26/2004	WMS110703	EPA 8260B
Diisopropyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B
tert-Amyl Methyl Ether	ND		1	5	5	µg/L	5/26/2004	WMS110703	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.0	64 - 125
Dibromofluoromethan	95.0	23 - 172
Toluene-d8	107.0	70 - 134

Analyzed by: Xbian - 5/26/2004
Reviewed by: MTU - 05/27/04
Approved by: GGUEORGUIEVA - 05/27/04
Days to analysis: 5

ND = Not Detected at or above the PQL
PQL = Practical Quantitation Limit (No Dilution)
DF = Dilution Factor
PQLR = Practical Quantitation Limit for Reporting (Includes Dilution)

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Prep Batch ID:
Prep Date:

Entered by: JHSIANG - 05/24/04
Validated by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04

QC Batch ID: WGC43116
Matrix: Liquid
Date of Analysis: 5/24/2004

Method: EPA 8015 MOD. (Purgeable)

Parameter	Result	DF	PQL	PQLR	Units
TPH as Gasoline	ND	1	50	50	µg/L

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	98.0	65 - 135

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Prep Batch ID:
Prep Date:

Entered by: JHSIANG - 05/24/04
Validated by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04

QC Batch ID: WGC43116
Matrix: Liquid
Date of Analysis: 5/24/2004

Method: EPA 8020

Parameter	Result	DF	PQL	PQLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	101.2	65 - 135

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Laboratory Control Spike / Duplicate Results

Prep Batch ID:

Prep Date:

Data entry by: JHSIANG - 05/24/04
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04

QC Batch ID: WGC43116
Date of Analysis: 5/24/2004
Matrix: Liquid

Method EPA 8015 MOD. (Purgeable)

Conc. Units: µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	ND	250.0	240.2	LCS	5/24/2004	**96.1**			65 - 135
Surrogate		**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene		**80.5**		65 - 135					
TPH as Gasoline	ND	250.0	220.6	LCSD	5/24/2004	**88.2**	**8.5**	25	65 - 135
Surrogate		**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene		**90.0**		65 - 135					

Method EPA 8020

Conc. Units: µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	ND	8 0	7 61	LCS	5/24/2004	**95.1**			65 - 135
Ethyl Benzene	ND	8.0	7.74	LCS	5/24/2004	**96.8**			65 - 135
Methyl-t-butyl Ether	ND	8.0	6.84	LCS	5/24/2004	**85.5**			65 - 135
Toluene	ND	8.0	7.17	LCS	5/24/2004	**89.6**			65 - 135
Xylenes, total	ND	24.0	23.4	LCS	5/24/2004	**97.5**			65 - 135
Surrogate		**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene		**107.6**		65 - 135					
Benzene	ND	8.0	7.54	LCSD	5/24/2004	**94.3**	**0.9**	25	65 - 135
Ethyl Benzene	ND	8.0	7.82	LCSD	5/24/2004	**97.8**	**1.0**	25	65 - 135
Methyl-t-butyl Ether	ND	8.0	6.83	LCSD	5/24/2004	**85.4**	**0.1**	25	65 - 135
Toluene	ND	8.0	7.27	LCSD	5/24/2004	**90.9**	**1.4**	25	65 - 135
Xylenes, total	ND	24.0	23.8	LCSD	5/24/2004	**99.2**	**1.7**	25	65 - 135
Surrogate		**Surrogate Recovery**		**Control Limits (%)**					
4-Bromofluorobenzene		**101.2**		65 - 135					

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Matrix Spike / Duplicate Results

Prep Batch ID:

Prep Date:

Data entry by: JHSIANG - 05/25/04
Reviewed by: MTU - 05/25/04
Approved by: GGUEORGUIEVA - 05/25/04

QC Batch ID: WGC43116
Date of Analysis: 5/24/2004
Matrix: Liquid

Method EPA 8015 MOD. (Purgeable)

Conc. Units: µg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 39065-003									
TPH as Gasoline	ND	250.0	221.4	MS	5/24/2004	**88.6**			65 - 135

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**90.3**	65 - 135

MSD SampleNumber: 39065-003									
TPH as Gasoline	ND	250.0	248.0	MSD	5/24/2004	**99.2**	**11.3**	25	65 - 135

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**86.6**	65 - 135

Method EPA 8020

Conc. Units: µg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 39065-003									
Benzene	ND	2.812	2.26	MS	5/24/2004	**80.4**			65 - 135
Ethyl Benzene	ND	3.67	2.95	MS	5/24/2004	**80.4**			65 - 135
Methyl-t-butyl Ether	ND	26.34	25.5	MS	5/24/2004	**96.8**			65 - 135
Toluene	ND	16.43	13.75	MS	5/24/2004	**83.7**			65 - 135
Xylenes, total	ND	19.54	16.14	MS	5/24/2004	**82.6**			65 - 135

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**100.9**	65 - 135

MSD SampleNumber: 39065-003									
Benzene	ND	2.812	2.46	MSD	5/24/2004	**87.5**	**8.5**	25	65 - 135
Ethyl Benzene	ND	3.67	3.23	MSD	5/24/2004	**88.0**	**9.1**	25	65 - 135
Methyl-t-butyl Ether	ND	26.34	27.87	MSD	5/24/2004	**105.8**	**8.9**	25	65 - 135
Toluene	ND	16.43	15.08	MSD	5/24/2004	**91.8**	**9.2**	25	65 - 135
Xylenes, total	ND	19.54	17.64	MSD	5/24/2004	**90.3**	**8.9**	25	65 - 135

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**104.0**	65 - 135

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Prep Batch ID:
Prep Date:

Entered by: XBIAN - 05/26/04
Validated by: MTU - 05/27/04
Approved by: GGUEORGUIEVA - 05/27/04

QC Batch ID: WMS110703
Matrix: Liquid
Date of Analysis: 5/26/2004

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
1,2-Dibromoethane (EDB)	ND	1	0.5	0.5	µg/L
1,2-Dichloroethane	ND	1	0.5	0.5	µg/L
Benzene	ND	1	0.5	0.5	µg/L
Diisopropyl Ether	ND	1	5	5	µg/L
Ethanol	ND	1	100	100	µg/L
Ethyl Benzene	ND	1	0.5	0 5	µg/L
Ethyl-t-butyl Ether	ND	1	5	5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	5	µg/L
tert-Butanol (TBA)	ND	1	10	10	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate	Surrogate Recovery	Control Limits (%
4-Bromofluorobenzene	**104.0**	64 - 125
Dibromofluoromethane	**90.7**	23 - 172
Toluene-d8	**109.0**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Laboratory Control Spike / Duplicate Results

Prep Batch ID:

Prep Date:

Data entry by: XBIAN - 05/26/04
Reviewed by. MTU - 05/27/04
Approved by: GGUEORGUIEVA - 05/27/04

QC Batch ID: WMS110703
Date of Analysis: 5/26/2004
Matrix: Liquid

Method EPA 8260B **Conc. Units:** µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	ND	20.0	16.0083	LCS	5/26/2004	**80.0**			60 - 132
Benzene	ND	20.0	19.4791	LCS	5/26/2004	**97.4**			77 - 154
Chlorobenzene	ND	20.0	18.6761	LCS	5/26/2004	**93.4**			66 - 141
Methyl-t-butyl Ether	ND	20.0	16 8819	LCS	5/26/2004	**84.4**			58 - 127
Toluene	ND	20.0	18.8014	LCS	5/26/2004	**94.0**			47 - 137
Trichloroethene	ND	20 0	18.8481	LCS	5/26/2004	**94.2**			57 - 159

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**104.7**	64 - 125
Dibromofluoromethane	**90.4**	23 - 172
Toluene-d8	**102.9**	70 - 134

1,1-Dichloroethene	ND	20.0	16.1235	LCSD	5/26/2004	**80.6**	**0.7**	25	60 - 132
Benzene	ND	20.0	19.6445	LCSD	5/26/2004	**98.2**	**0.8**	25	77 - 154
Chlorobenzene	ND	20.0	19.2221	LCSD	5/26/2004	**96.1**	**2.9**	25	66 - 141
Methyl-t-butyl Ether	ND	20.0	17.0396	LCSD	5/26/2004	**85.2**	**0.9**	25	58 - 127
Toluene	ND	20.0	19.1448	LCSD	5/26/2004	**95.7**	**1.8**	25	47 - 137
Trichloroethene	ND	20.0	19.2034	LCSD	5/26/2004	**96.0**	**1.9**	25	57 - 159

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**108.8**	64 - 125
Dibromofluoromethane	**90.6**	23 - 172
Toluene-d8	**103.4**	70 - 134

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Matrix Spike / Duplicate Results

Prep Batch ID:

Prep Date:

Data entry by: XBIAN - 05/27/04
Reviewed by. MTU - 05/27/04
Approved by: GGUEORGUIEVA - 05/27/04

QC Batch ID: WMS110703
Date of Analysis: 5/26/2004
Matrix: Liquid

Method EPA 8260B

Conc. Units: µg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 39054-001									
Benzene	ND	20.0	22.2719	MS	5/26/2004	**111.4**			73 - 134
Methyl-t-butyl Ether	ND	20.0	21.4804	MS	5/26/2004	**107.4**			42 - 157
Toluene	ND	20.0	21.2443	MS	5/26/2004	**106.2**			79 - 117

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**102.3**	64 - 125
Dibromofluoromethane	**100.9**	23 - 172
Toluene-d8	**108.8**	70 - 134

MSD SampleNumber: 39054-001									
Benzene	ND	20.0	21.054	MSD	5/26/2004	**105.3**	**5.6**	25	73 - 134
Methyl-t-butyl Ether	ND	20.0	20.1669	MSD	5/26/2004	**100.8**	**6.3**	25	42 - 157
Toluene	ND	20.0	20.8163	MSD	5/26/2004	**104.1**	**2.0**	25	79 - 117

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	**102.3**	64 - 125
Dibromofluoromethane	**99.1**	23 - 172
Toluene-d8	**108.1**	70 - 134

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: T-Bear Ranch - System Check

SEND CERTIFIED RESULTS TO: Pat Hoban

ELECTRONIC DELIVERABLE FORMAT: ☐ YES ☐ NO

Sampler: Pat H

Date: 5/21/04

LABORATORY: ENTECH

TURNAROUND TIME: (Standard ~~Five-Day~~) 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: n/a

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: Extractable Fuel-Scan	Purgeable Fuel Scan	Gasoline & BTEX-MTBE by EPA Method# 8015M-&-8020	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis	Title 22 General, Physical and Inorganic Minerals	
N/A	PRE	grab	5/21/04	11:15		3						X			X		39265-001	
	MID	"		11:20		3						X			X		002	
	POST	"		4:30		3						X			X		003	

RELEASED BY:

1.) Pat Hoban
2.) [illegible]
3.)
4.)
5.)

Date & Time

1.) 5/21/04
2.) 5/21/04 1100
3.)
4.)
5.)

RECEIVED BY:

1.)
2.) [illegible]
3.)
4.)
5.)

Date & Time

1.) 5/21/04 1310
2.) 5/21/04 1710
3.)
4.)
5.)

SAMPLE CONDITION: (circle 1)

1.)	Ambient	(Refrigerated)	Frozen
2.)	Ambient	Refrigerated	Frozen
3.)	Ambient	Refrigerated	Frozen
4.)	Ambient	Refrigerated	Frozen
5.)	Ambient	Refrigerated	Frozen

NOTES:

☐ *If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.*

☐ *For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260*

☒ *Please use MDL (Minimum Detection Limit) for any diluted samples.*

ADDITIONAL COMMENTS

- Please produce and e-mail an EDF of these results to frances@weber-hayes.com.

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: T-Bear Ranch - System Check

SEND CERTIFIED RESULTS TO: Pat Hobun

ELECTRONIC DELIVERABLE FORMAT: [X] YES [ ] NO

Sampler: Pat H

Date: 5/21/04

LABORATORY: ENTECH

TURNAROUND TIME: Standard Five-Day 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: na

24 hr

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: Extractable Fuel-Scan	Purgeable Fuel Scan	Gasoline & BTEX-MTBE by EPA Method# 8015M-&-8020	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis	Title 22: General, Physical and Inorganic Minerals	
NA	PRE	grab	5/21/04	11:15		3						X			X		39765-001	
	MID	"		14:20		3						X			X			002
	POST	"		4:30		3						X			X			003

RELEASED BY:	Date & Time	RECEIVED BY:	Date & Time
1.)	5/21/04 1610		5/21/04 1310
2.)	5/21/04 1610		5/21/04 1710
3.)			
4.)			
5.)			

SAMPLE CONDITION: (circle 1)

Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

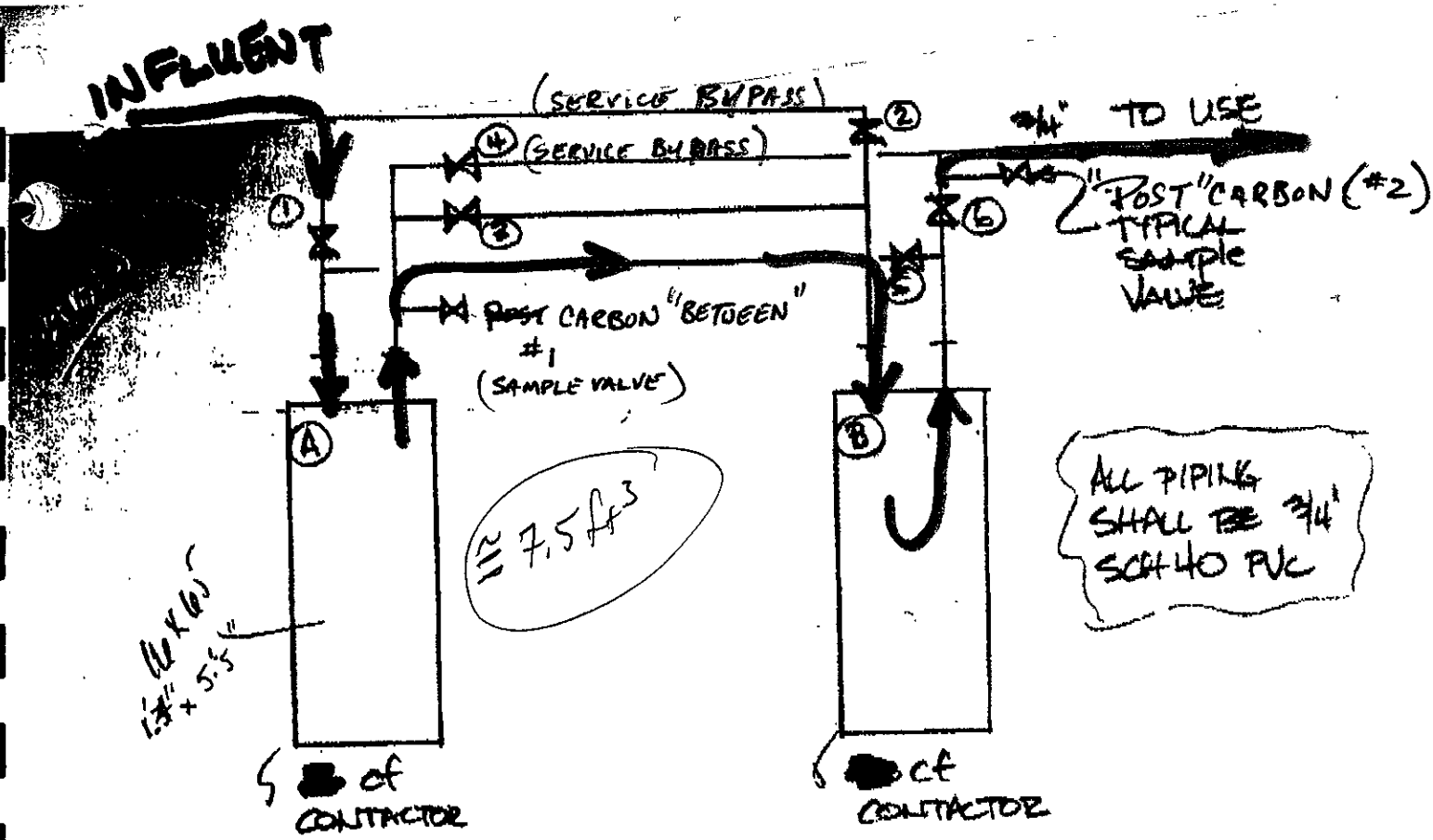
- [ ] *If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections*
- [ ] *For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.*
- [X] *Please use MDL (Minimum Detection Limit) for any diluted samples.*

ADDITIONAL COMMENTS

- Please produce and e-mail an EDF of these results to frances@weber-hayes.com.

APPENDIX B

A copy of the original treatment system design criteria and flow chart
(Ising's Culligan)



NOTES

- FILL EACH CONTACTOR WITH [redacted] cf MIX OF ~~GRANULAR FILTRASORB 600 CARBON~~

SCENARIO	VALVE POSITION 1	2	3	4	5	6
1. NORMAL, THRU (A), THEN (B)	O	X	O	X	X	O
2. SERVICE (BYPASS) (A)	X	O	X	X	X	O
3. THRU (B), THEN THRU (A)	X	O	X	O	O	X
(4) SERVICE (BYPASS) (B)	O	X	X	O	X	X

[redacted]

ENGR [redacted] 7/10/00

CHECK

Page 2 of 2

[redacted] 2005 Railroad Ave Livermore CA email:

September 17, 2003

Jeff Lawson
RE: 3000 Andrade Sunol, CA

Dear Mr. Lawson,

In response to Pat Hoban, Weber, Hayes & Assoc., I contacted Calgon Carbon Corporation and presented to them the system we recommended. Kim Thompson, 412-787-6815, recommended that we utilize the Fitrasorb 600 carbon to eliminate the possibility of TBA, tert butyl alcohol, bleedthru. (TBA is a by product when MTBE is removed from the water)

Based on 10,000 gallons per day and a 130 ppb level of MTBE, you will exhaust 8.9 lbs of Filtasorb 600 per day. Based on the current water usage reports the property is utilizing an average of 4000 gallons per day with a high of 10,000 gallons. Utilizing these figures an estimate of 1.5 cu ft of carbon will be used per month.

By utilizing a twin tank system in a parallel series configuration you will have 10 cu ft of carbon in each set. I would recommend that you initially test monthly until an established pattern is formed.

I look forward to doing business with you. If you have additional questions please call me at 925-447-3717

Stuart Dennis
Director of Sales

1st vessel breakthrough

$5\ ft^3$ carbon $\approx$ 145 lbs carbon
at usage rate of 3.9 lb/day
the carbon should be good for $\approx$ 37 days

What's the conversion

$\sim$ 29 lbs carbon = $1\ ft^3$

$\therefore$ $1.5\ ft^3 \cong 43.5$ lbs. Carbon

$\frac{43.5}{3.9} = 11.15$ days

Ising's Culligan

Ising's Culligan
2252 Railroad Ave
Livermore CA

Phone: 1-800-208-2007
FAX: 1-925-447-3717
email:

September 11, 2003

Sunol Tree Gasoline
3004 Andrade
Sunol, CA

RE: Water Treatment System at 3000 Andrade Rd.

Dear Murray,

After reevaluation of the water usage at the T-Bear Ranch at 3000 Andrade Rd, Sunol,Ca., we recommend the following equipment which will give a 10gpm flow rate with the ability to provide 14,400 gallons of water per day.

Chlorine Injection System w/120gal. Retention tank	$1,250.00	
2 - 3000 gallon Storage tanks	$4,800.00	
Repressurization System	$2,147.00	
4 - 5cu.Ft. Fiberglass tanks	$8,430.00	= 2107 ea.
Installation	$2,600.00	

You will need to provide a concrete pad, 10 ft X 20 ft X 6" with a minimum of 3/8" rebar reinforcement. We will also need 220 electric for the Repressurization system. We will inject chlorine into the water supply at well head then through a 120 gal. Retention tank to reduce bacteria's. Next the water will go through the MTBE Reduction Carbon tanks, then to the storage tanks to Repressurization and into service.

We do recommend a monthly test for the bacteria and a quarterly or 6 month test for the MTBE'S. When tank #1 tests positive for MTBE'S it will need to be replaced. Tank #2 will become tank #1. The cost of the replacement tank will be at the current rate. Today's cost is $2230.00. The customer will be responsible for the disposal of the exhausted tanks.

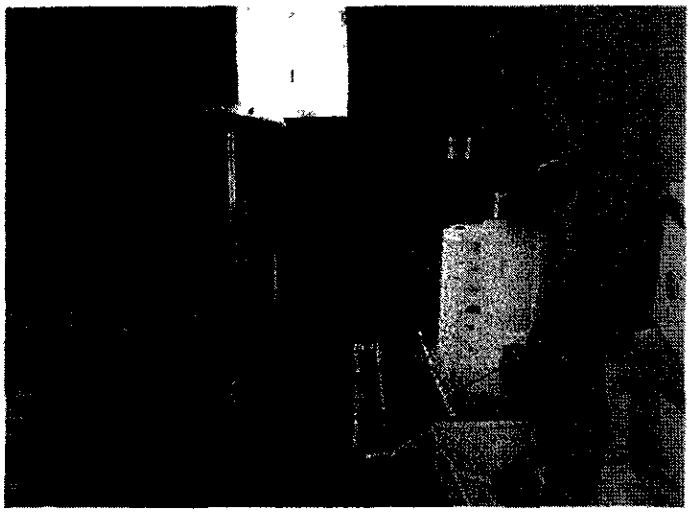
I look forward to doing business with you. If you have additional questions please call me at 925-447-3717.

Leslie Gardner
Field Account Manager

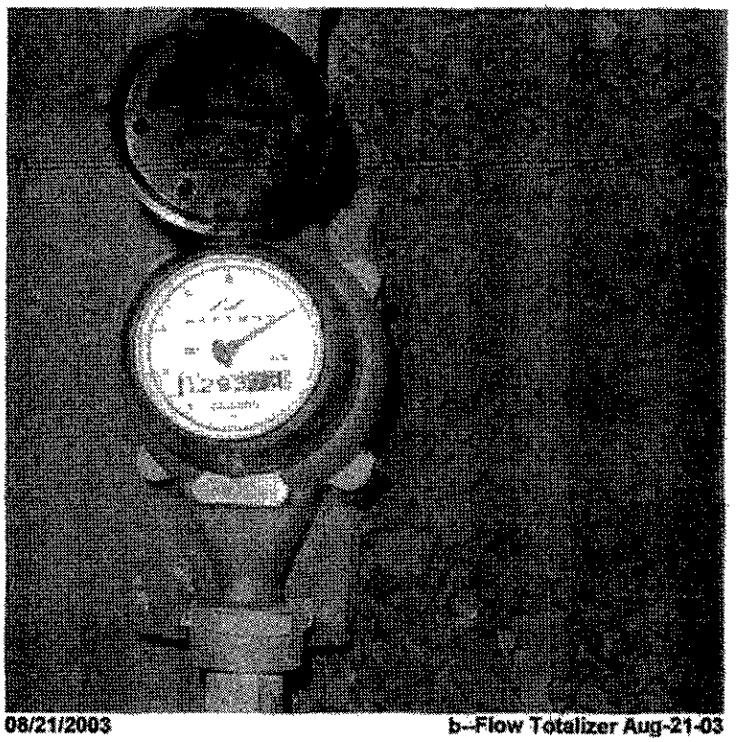
cc: Jeff Lawson, Silicon Valley Law Group

APPENDIX C

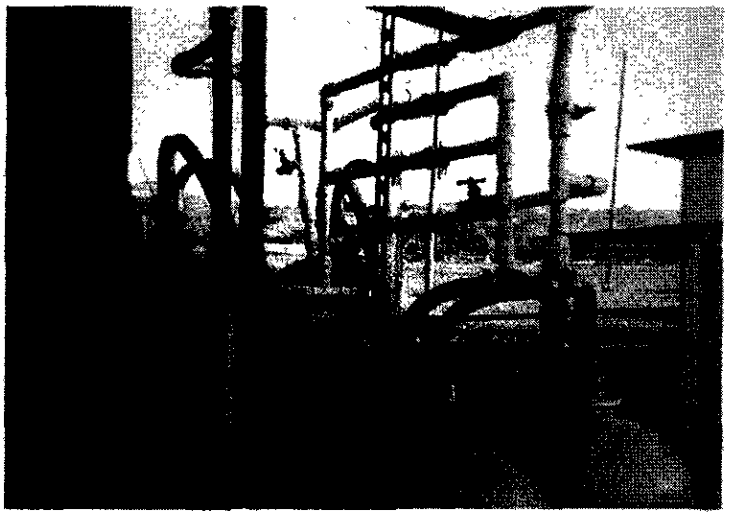
Field Logs, Photos and Protocol



06/22/2004 a--Well Shed



08/21/2003 b--Flow Totalizer Aug-21-03

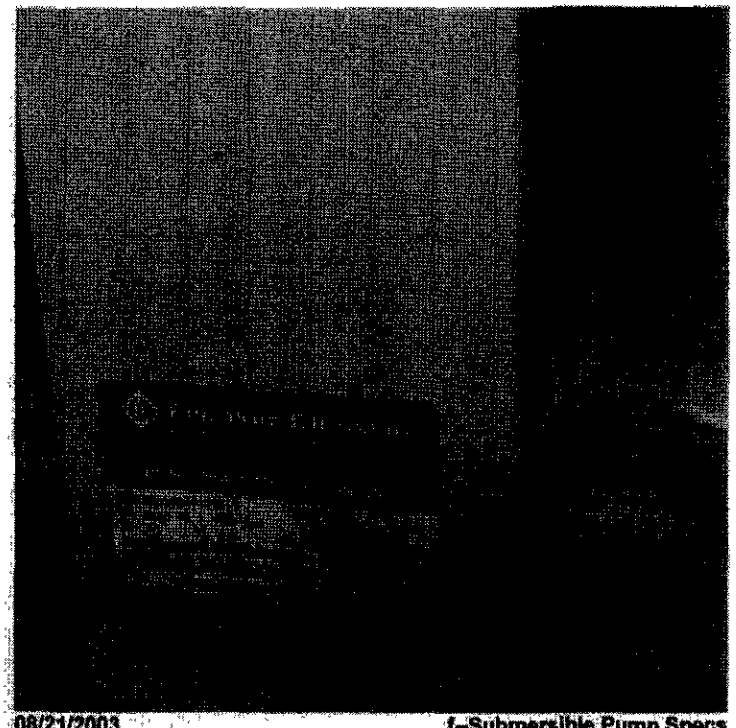


07/27/2004 bipass piping

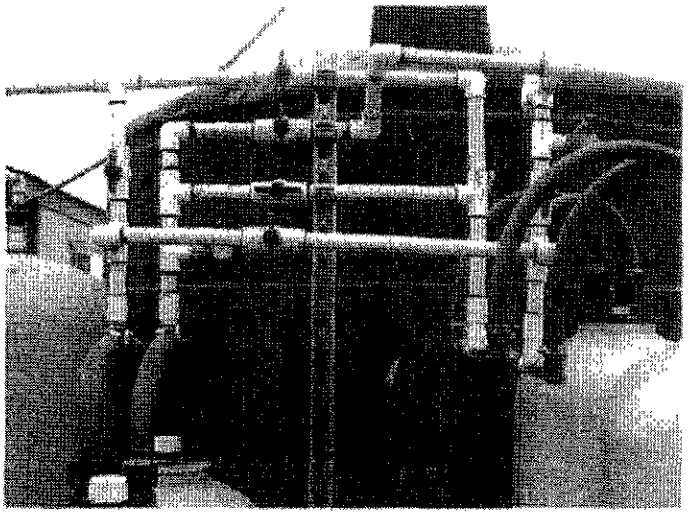
06/22/2004 c--Flow Totalizer Jun-22-04

06/22/2004 d--Chlorine Injection

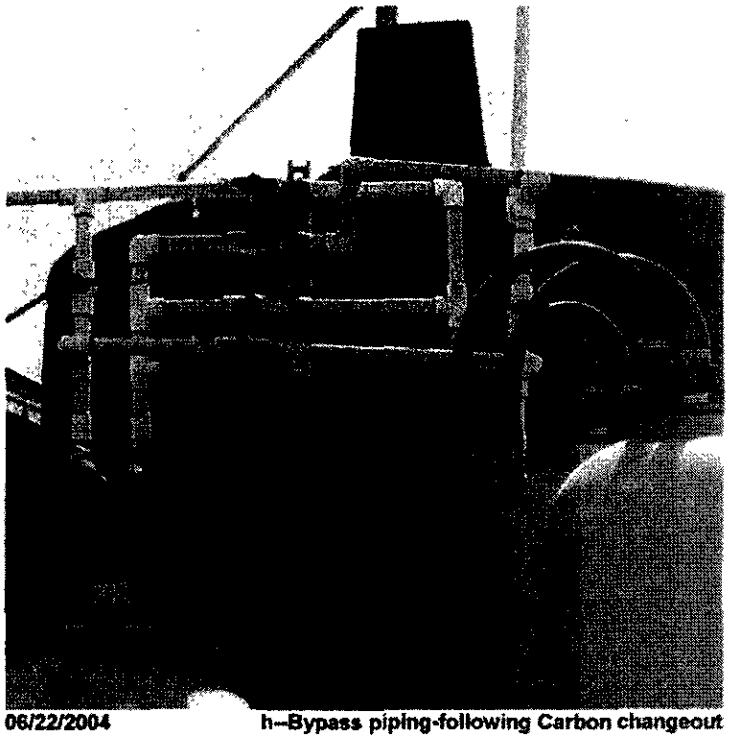
06/22/2004 e--Chlorine Retention Sampling



06/21/2003 f--Submersible Pump Specs

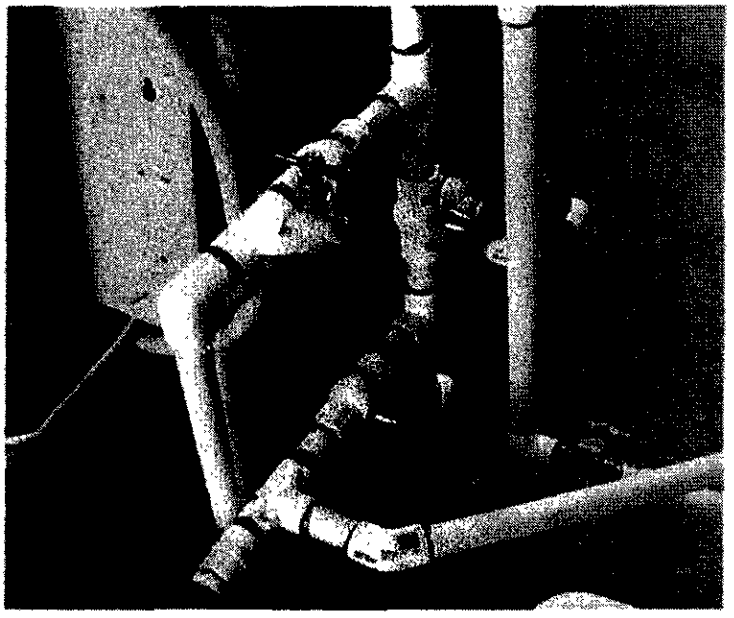


05/21/2004 g--Bypass piping-Initial Setup

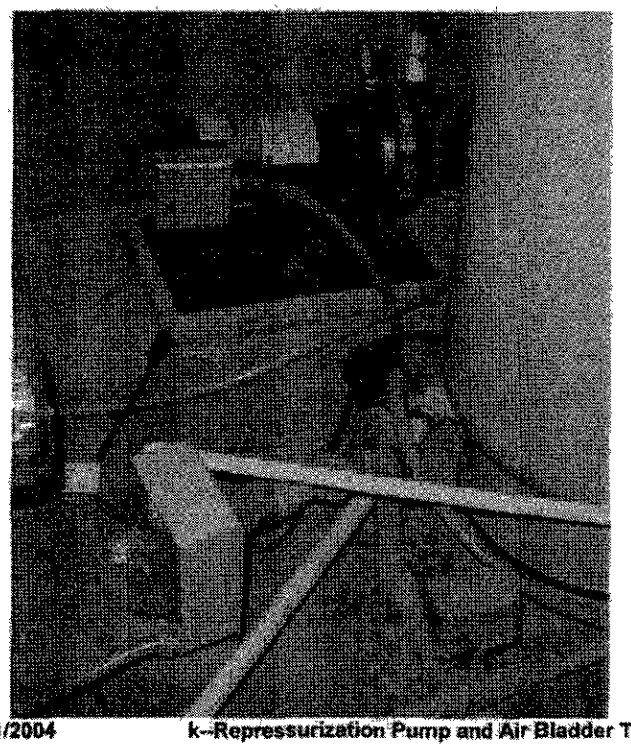


06/22/2004 h--Bypass piping-following Carbon changeout

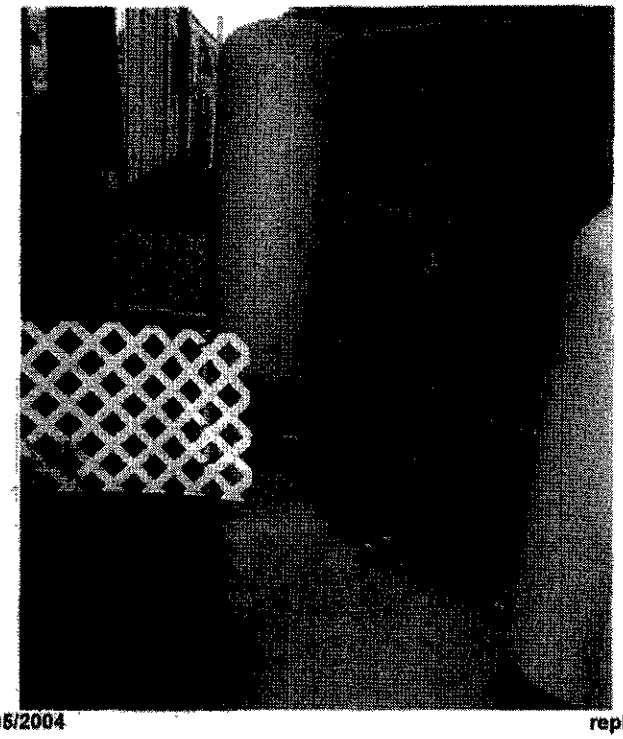
05/21/2004 i--PRE - Sampling Port



06/22/2004 j--POST - Sampling Port

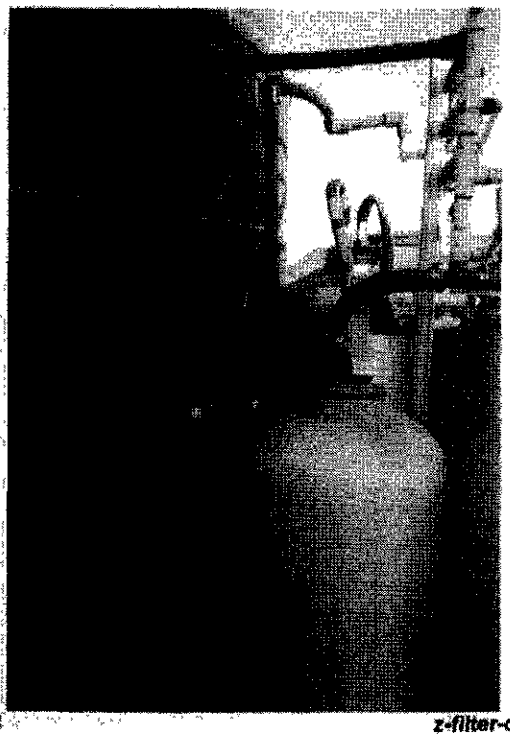


05/21/2004 k--Repressurization Pump and Air Bladder Tank

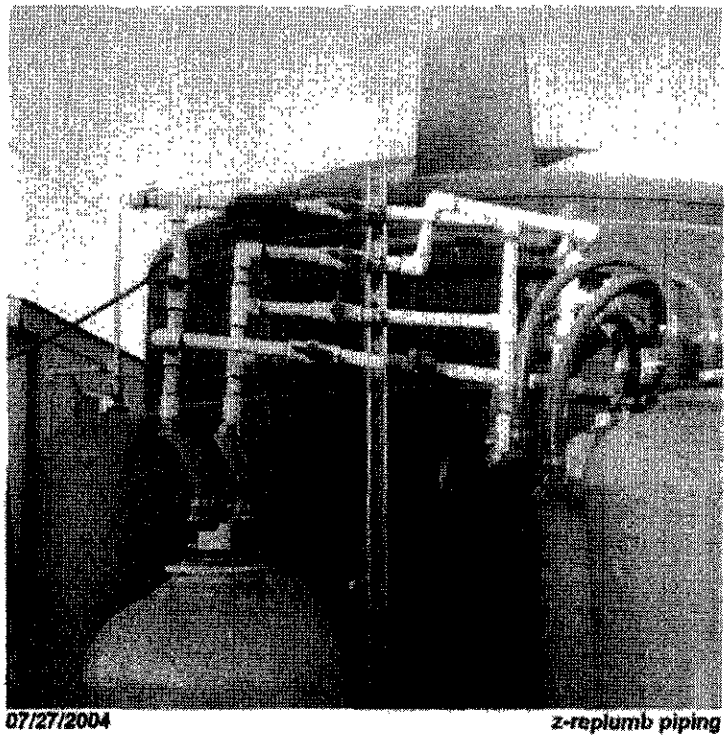


08/05/2004 replumb

08/05/2004 z- shed-back



08/05/2004 z-filter-cannisters



07/27/2004 z-replumb piping

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

INDICATE ATTACHMENTS THAT APPLY
- ___ Site Map
- ___ Data Sheets
- ___ Geologic Logs
- ___ Photo Sheets
- ___ COC's
- ___ Field Tags (sub-contractors)
- ___ Chargeable Materials

Client: **ACEHD**	Date: **August 5, 2004**
Site Location: **3000 Andrade Road, Sunol; T-Bear Ranch**	Study #: **23027.D**
Field Tasks: ☐ Drilling ☐ Sampling ☒ Other (see below): **Piezometer Development and DTW data, Trouble-Shooting Flow Meter**	Weather Conditions: SUNNY, WARMING
Personnel / Company On-Site: ~~AB~~ **Aaron Bierman, (Weber, Hayes and Associates: WHA)** AW	

TIME:

7³⁰ AM LEAVE FOR SITE
8⁴⁰ AM AT SITE
- OBTAIN ROUND OF DEPTH-TO-WATER (DTW) DATA FROM PIEZOMETERS

LOCATION	D.T.W (BTOC)	C.D.
PZ-1a :	10.45'	17'
PZ-1b :	14.68'	46.5
PZ-2a :	6.21' (T-BEAR WELL ON)	29'
PZ-2b :	7.95' (" " ")	49'
PZ-3a :	8.00	21'
PZ-3b :	11.18'	49'

9²⁰ - COMMENCE PIEZOMETER DEVELOPMENT. : CASING VOLUME = 0.04 gal/ft.

: PZ-3a : D.T.W : 8.00'
C.D : 21'
H.W.C : 13'

W_V : 0.52 gal
P_V : 1.56 gal.

9³⁵ - COMMENCE PURGING w/ 1/4" POLY TUBING & CHECK BALL
9⁴⁸ - PURGE DRY : D.T.W @ 19.6' RISING SLOWLY.

PZ-3b : D.T.W : 11.18'
C.D : 49'
H.W.C : 37.82'
W_V : 1.51 gal
P_V : 4.54 gal

10⁰⁵ - COMMENCE PURGING w/ 1/2" O.D. CPVC PIPE w/ CHECK BALL
10¹⁰ - STOP. NOT WORKING WELL. CONVERT TO 1/4" POLY TUBING w/ CHECK BALL
- VERY TURBID, CONTINUE PURGING 5' SCREEN ZONE FROM 44-49' BGL
10⁴⁵ - 5 GALLONS PURGED, LOW TURBIDITY, SOME FINES.
10⁴⁸ - D.T.W IMMEDIATELY FOLLOWING PURGING AT 11.62' DOWN 0.44' FROM STATIC - FAIRLY QUICK RECOVERY.

- BREAK DOWN DEVELOPMENT EQUIPMENT w/ LIQUINOX & DISTILLED WATER RINSE.
- MOBILIZE TO PZ-2 CLUSTER.

AB 8.5.04
Signature of Field Personel & Date

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

INDICATE ATTACHMENTS THAT APPLY
- ___ Site Map
- ___ Data Sheets
- ___ Geologic Logs
- ___ Photo Sheets
- ___ COC's
- ___ Field Tags (sub-contractors)
- ___ Chargeable Materials

Client: **ACEHD**	Date: **August 5, 2004**
Site Location: **3000 Andrade Road, Sunol; T-Bear Ranch**	Study #: **23027.D**
Field Tasks: [ ] Drilling [ ] Sampling [X] Other (see below): **Piezometer Development and DTW data, Trouble-Shooting Flow Meter**	Weather Conditions:
Personnel / Company On-Site: (AB) **Aaron Bierman, (Weber, Hayes and Associates: WHA)** JW	

TIME:

- AT PZ-2 CLUSTER.
- COMMENCE DEVELOPMENT

:PZ-2a: D.T.W.: 6.21'
C.D.: 29'
Hwc: 22.79'
Wv: 0.91 gal
Pv: 2.72 gal.

11[00] - COMMENCE PURGING W/ 1/4" Ø POLY TUBING W/ CHECK BALL.
- SURGE 5' SCREEN SECTION FROM 24-29' BTOC
- VERY TURBID CONTINUE SURGING
- AT 1 GAL. LOW TURBIDITY, CLEAN, TRACE FINES CONTINUE PURGING

11[35] - FINISHED PURGING. ~~D.T.W@~~ PURGED DRY.
D.T.W@ 28.6' BTOC IMMEDIATELY AFTER PURGING.

- PZ-2b: D.T.W@: 7.95'
C.D.: 49'
Hwc: 41.05'
Wv: 1.64 gal
Pv: 4.92 gal.

11[45] - COMMENCE PURGING W/ 1/4" Ø POLY TUBING W/ CHECK-BALL
- VERY TURBID, CLEARING TOWARD END.
- SURGE 5' SCREEN SECTION FROM 44-49' BTOC.

12[10] - FINISHED PURGING. D.T.W IMMEDIATELY AFTER PURGING IS 8.35' BTOC. - RISING QUICKLY.
- DECON EQUIPMENT

12[10] - TROUBLE-SHOOT FLOW-METER W/ GLOBAL WATER & L. KIRKPATRICK. (AB)
- NEW MAGNETIC SWITCH TO BE SENT FROM GLOBAL WATER. (SOMETIMES MAGNET NOT PROPERLY SEATED IN PLASTIC HOUSING MECHANISM)
- CALIBRATION?
- CHECK VOLTAGE: 7.89 TO 8.05 DC VOLTS.
- CHECK OHM'S FOR RESISTANCE. WHEN IN CONTACT - READS 0.5 OHM (CLOSE)
WHEN NOT IN CONTACT - READ ∞ .. (OPEN)
- TOGGLE SWITCH WORKING PROPERLY.

- CALL GLOBAL WATER (KEVIN) DISCUSS HIGH & LOW RAW FIELDS.
- CALIBRATION OUT OF RANGE - NEED TO SEND IN.

12[55] - CURRENT FLOW METER READING @ 83,911 GALLONS.
- DISCONNECT LOGGER FOR SENDING BACK TO GLOBAL WATER.

Signature of Field Personel & Date

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

INDICATE ATTACHMENTS THAT APPLY
- ___ Site Map
- ___ Data Sheets
- ___ Geologic Logs
- ___ Photo Sheets
- ___ COC's
- ___ Field Tags (sub-contractors)
- ___ Chargeable Materials

Client: **ACEHD**	Date: **August 5, 2004**
Site Location: **3000 Andrade Road, Sunol; T-Bear Ranch**	Study #: **23027.D**
Field Tasks: [ ] Drilling [ ] Sampling [X] Other (see below): **Piezometer Development and DTW data, Trouble-Shooting Flow Meter**	Weather Conditions:
Personnel / Company On-Site: **Aaron Bierman, (Weber, Hayes and Associates: WHA)**	

TIME:

(JW) - MOBILIZE TO WELL CLUSTER PZ-1

12[10] PZ-1a: D.T.W.: 10.65'
C.D.: 17'
H_{WC}: 6.35'
W_V: 0.254 gal.
P_V: 0.76 gal on 1 gal.

12[20] - COMMENCE PURGING - PURGE DRY IF POSSIBLE
- TURBID AT ONSET, CLEARING QUICKLY.
- ~~A.F.~~ 1 GALLON, LOW TURBIDITY, TRACE TO NO FINES.
- FINISHED PURGING - PURGED DRY
D.T.W @ 16.8' BTOC - SLOW RECOVERY. -

12[35] - PZ-~~1a~~ 2a: D.T.W: 14.69'
C.D.: 46.5'
H_{WC}: 31.82'
W_V: 1.27 gal
P_V: 3.82 gal.

12[40] - COMMENCE PURGING. -
- PURGED 1 gal. VERY TURBID, CONTINUE PURGING
- APPEARS TO GO DRY?, ALTHOUGH D.T.W. @ 26' BTOC ??
- CONTINUE PURGING, D.T.W @ 31.5' BTOC - RISING.

2[15] pm - FINISHED PURGING - AT END, LOW TURBIDITY, TRACE FINES, MODERATE RECOVERY.

- DECON DEVELOPMENT TOOLS.

- PREP TO INSTALL MINI-TROLL IN SHALLOW PZ, PZ-2a.

3[00] - D.T.W @ PZ-2a - 20.31' TOC - RISING SLOWLY BUT STEADY.
- PROGRAM xd TO START RECORDING @ 3:10 pm (PUMP @ T-BEAR OFF)
- RECORDING INTERVAL 1 MIN.

3[05] - H_2O ABOVE xd: 10.13'
- DEPTH OF xd @ 28.385' BTOC. ☑

(*) 3[10] - D.T.W. @: 17.64' BTOC
- H_2O ABOVE xd: 10.724'
- xd RECORDING
- SINCE H_2O IN PZ-2a IS STILL RECOVERING, WHEN DATA IS DOWNLOADED. - INITIAL # WILL ~~WHEN DOWN~~ BE NEGATIVE VALUES.

3[15] - CLEAN-UP, LEAVE SITE. @ 3:30 pm.

AS
Signature of Field Personel & Date

PMX® WATER METERS

Invensys
Metering Systems

MULTI-JET TYPE MAGNETIC DRIVE COLD WATER METERS
5/8" (DN 15mm), 3/4" (DN 20mm) and 1" (DN 25mm)

DESCRIPTION

APPLICATION: Measurement of cold water where flow is in one direction only; in residential, commercial and industrial services.

CONFORMANCE TO STANDARDS: Invensys PMX Water Meters comply with ANSI/AWWA Standard C708, latest revision. Each meter is tested to insure compliance.

CONSTRUCTION: Invensys PMX Water Meters consist of two basic components: maincase; measuring chamber with register. Maincases are of bronze with externally-threaded spuds. Measuring chambers and Register are made of Polystyrene, Nylon, and Polycarbonate. These materials are corrosion-resistant, tailored thermoplastic material formulated for long-term performance and especially suitable for aggressive water conditions. Maincase Retaining Ring is available in bronze.

REGISTER: The PMX register is a direct drive water lubricated, design which has proven reliable over varying water conditions. The direct drive design eliminates the possibility of magnetic coupling slip. Dirt contamination, tampering and lens fogging problems will not be a problem. Standard register includes a straight-reading, odometer-type totalization display; two hands on the face plate, one showing the tenth's and one showing the hundredth value of the face plate with a low flow (leak) indication. Digital remote reading systems are available for all PMX Water Meters. (See other side of sheet for additional information.)

TAMPER-RESISTANT FEATURE: Because of the unique top entry design, customers are not as likely to remove the head ring to obtain free water. A special tool, available only to water utilities, is required to remove the head ring. Every PMX meter has a seal wire attached so the utility can tell if a customer has tampered with the meter.

DIRECT DRIVE: The PMX features a hydrodynamically cushioned design that eliminates premature wear of components. The impeller is virtually weightless in water and therefore responds to the smallest change in flow rate.

OPERATION: Water flows through the meter's strainer and into the measuring chamber where it drives the impeller. The impeller is supported on both the top and bottom. The bearing in the impeller is of manmade sapphire, and is balanced on a nylon shaft. The upper bearing is located within the register and supports the shaft with minimal resistance. The impeller transmits the rotation to the register which is connected to the register gear train. The register reduces the impeller's rotation into volume totalization unites displayed on the dial face.

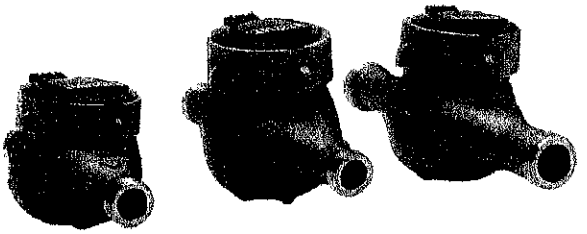
MAINTENANCE: Invensys PMX Water Meters are engineered to provide long-term value and virtually maintenance-free operation. Simplicity of design and precise machining of components allows interchangeability of parts of like-size meters, reduced parts inventory requirements, and ease of maintenance. The register can be removed without relieving the water pressure or removing the case from the installation.

As an alternative to utility repair, Invensys offers maintenance programs to provide factory reconditioning of the main case and replacement component at low fixed prices. See bulletin MJ-399.

CONNECTIONS: Tailpieces/Unions for installing the meters on a variety of pipe types and sizes are available.

GUARANTEE: Invensys PMX Water Meters are backed by "The Invensys Guarantee." Ask your Invensys representative for details or see Bulletin G-500.

SPECIFICATIONS



5/8" PMX® (DN 15mm) | 3/4" PMX® (DN 20mm) | 1" PMX® (DN 25mm)

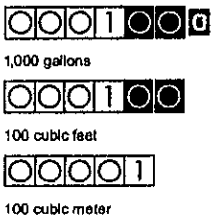
SERVICE	Measurement of cold water with flow in one direction only.
NORMAL OPERATING FLOW RANGE①	5/8" (DN 15mm) size: 1 to 20 gal/min. (0.25 to 4.5 m^3/h) 3/4" (DN 20mm) size: 2 to 30 gal/min. (0.45 to 7.0 m^3/h) 1" (DN 25mm) size: 3 to 50 gal/min. (0.7 to 11.0 m^3/h)
ACCURACY	100% ± 1.5% of actual thru put in normal flow range.
LOW FLOW REGISTRATION	5/8" size: 97% at 1/4 gal/min. (0.06 m^3/h) 3/4" size: 97% at 1/2 gal/min. (0.10 m^3/h) 1" size: 97 at 3/4 gal/min (0.15 m^3/h)
MAXIMUM PRESSURE LOSS	5/8" size: 7.0 psi at 20 gal/min. (0.5 bar at 4.5 m^3/h) 3/4" size: 9.0 psi at 30 gal/min. (0.6 bar at 7.0 m^3/h) 1" size: 7.3 psi at 50 gal/min. (0.5 bar at 11.0 m^3/h)
MAXIMUM OPERATING PRESSURE	150 psi (10.0 bar)
MEASUREMENT ELEMENT	Multi-Jet
REGISTER	Straight reading, hermetically sealed, Direct Drive. Remote reading unit optional.
REGISTRATION	10 gallons, 1 cubic foot or 0.01 m^3 /sweep hand revolution. 10,000,000 gallons, 1,000,000 cubic feet or 10,000 m^3 capacity. 6 odometer wheels.
METER CONNECTIONS②	5/8" (DN 15mm) size: 3/4" (26.44mm) threads 5/8" x 3/4" (DN 15mm x 33mm) size: 1" (33.25) threads 3/4" (DN 20mm) size: 1" (33.25 threads) 3/4" x 1" (DN 20mm x 42mm) size: 1-1/4" (41.91mm) threads 1" (DN 25mm) size: 1-1/4" (41.91mm) threads (All threads are straight pipe, external type, conforming to ANSI B1.20.1)
MATERIALS	Register Lid — synthetic polymer (standard), Bronze (optional) Hinge Pin — Brass Retaining Ring — Bronze *Slip-ring — Polystyrene* Lens — Acrylic Top Seal — Rubber Register — Polystyrene, Nylon, Polycarbonate Measuring chamber — Polystyrene, Nylon, Polycarbonate Strainer — Synthetic polymer Maincase — Bronze Locking Screw — Brass Flat Seal — Fibre Regulating Screw — Acetal

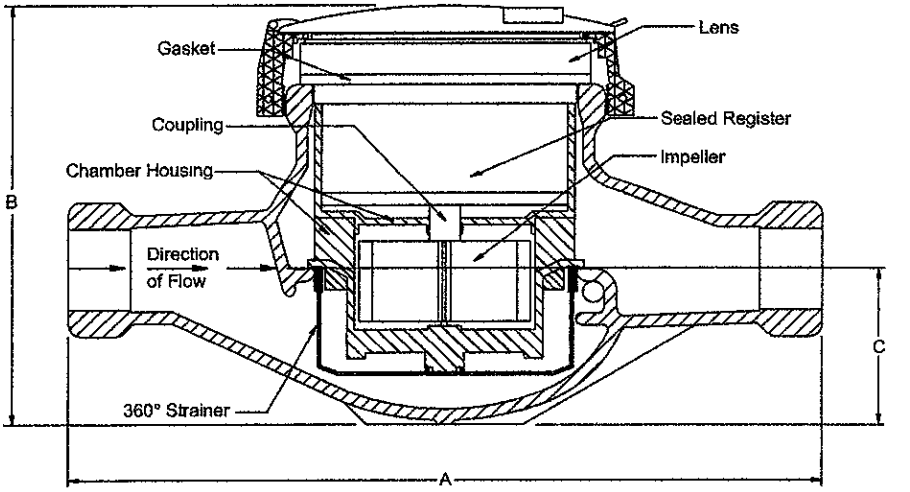
① Maximum rates listed are for intermittent flow only. Maximum continuous flow rates as specified by AWWA are: 5/8" (DN 15mm) —10 gal/min (2.3 m^3/h), 3/4" (DN 20mm) —15 gal/min (3.4 m^3/h) 1" (DN 25mm) — 25 gal/min (5.7 m^3/h)

② Unless otherwise noted, 5/8" size and 5/8" x 3/4" characteristics are identical. (5/8" x 3/4" designates 5/8" with 3/4" connection thread.) Also unless otherwise noted 3/4" size and 3/4" x 1" size characteristics are identical. (3/4" x 1" designates 3/4" with 1" connection thread.)
Metric designation is the normal bore x the outside diameter.

MULTI-JET TYPE MAGNETIC DRIVE COLD WATER METERS

5/8" (DN 15mm), 3/4" (DN 20mm) and 1" (DN 25mm)





Dimensions and Net Weights

Meter Size	A	B	C	Width	Net Weight
5/8" (DN 15mm)	7-1/2" (190mm)	4-3/4" (121mm)	1-5/8" (41mm)	3-3/4" (96mm)	4 lbs (1.8 kg)
5/8" x 3/4" DN 15mm x 33mm)	7-1/2" (190mm)	4-3/4" (121mm)	1-5/8" (41mm)	3-3/4" (96mm)	4 lbs (1.8 kg)
3/4" Short (DN 20mm)	7-1/2" (190mm)	4-3/4" (121mm)	1-5/8" (41mm)	3-3/4" (96mm)	4 lbs (1.8 kg)
3/4" (DN 20mm)	9" (229mm)	4-3/4" (121mm)	1-5/8" (41mm)	3-3/4" (96mm)	4.5 lbs (2 kg)
3/4" x 1" (DN 20mm x 42mm)	9" (229mm)	4-3/4" (121mm)	1-5/8" (41mm)	3-3/4" (96mm)	4.5 lbs (2 kg)
1" (DN 25mm)	10-3/4" (273mm)	5-1/4" (133mm)	2-1/4" (57mm)	5-1/4" (133mm)	7 lbs (3.2 kg)

Reed Switch—For use with all sizes of Invensys PMX Multi-Jet

REMOTE SYSTEMS—Invensys provides a contact closure switch which may be used with any PMX meter and can be connected to many devices which utilize a digital input. By providing a simple contact closure the utility can then decide if touch, phone, radio or a combination of third party AMR devices will fit their needs. The contact closure will provide a pulse with each revolution of the pointer.

The sensor in totally sealed in a plastic housing and filled with a non-toxic gel to prevent moisture intrusion. The reed switch is attached to the PMX lens by four special screws, providing the utility with a effective means to prevent tampering. With simple installation this product can retro installed PMX meters. Using the same sensor for all sizes, means the utility can carry less inventory, and standardize installation procedures.

Although this device is designed for rugged environmental installations it is a highly sensitive electronic sensor and should be handled with care. Once the switch is installed on the meter you can not carry the meter by the harness or use the harness for any reason other then to connect to the AMR device.

ELECTRICAL CHARACTERISTICS:

Contact Rating:	10 Watts
Max. Voltage:	20 Volts
Max. Switching:	0.5 Amps
Resistance(closed):	<10 ohms
Min. On State:	>1 Sec
Max. Frequency:	<5 Hz
Cable:	22 Awg, 2 con. with shield & drain
Length:	15 ft standard

ENVIRONMENTAL CHARACTERISTICS:

Working Temp:	-45°F to 125°F
Humidity:	100%

invensys
Metering Systems

Invensys Metering Systems
P.O. Box 487
450 N. Gallatin Avenue
Uniontown, PA 15401

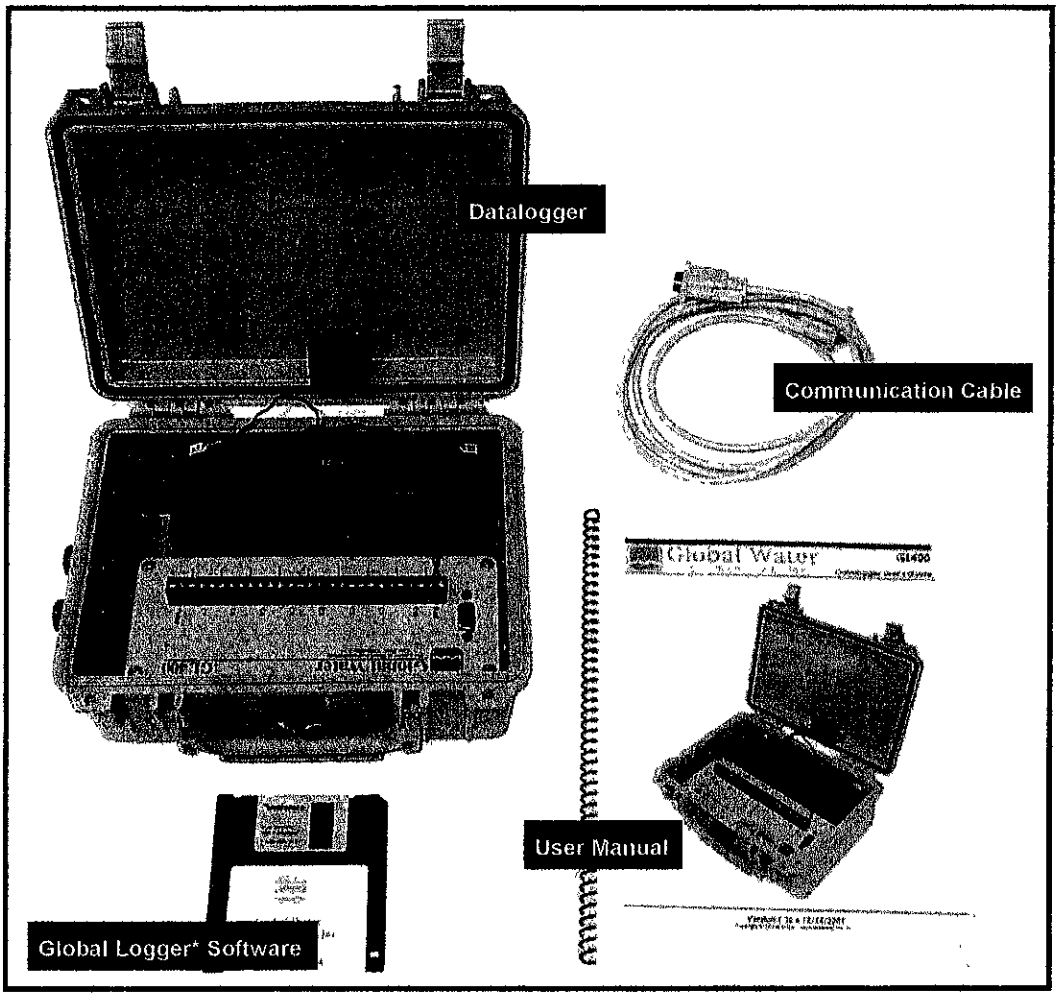
1-800-METER-IT
1-800-638-3748

FAX (Direct to Factory)
Local: (724) 439-7729
Toll Free: 1-800-888-2403

Web site: www.ims.invensys.com
select *North American Water*
Email: h2oinfo@ims.invensys.com

AUTHORIZED INVENSYS DISTRIBUTOR

Package Contents for GL400-1-1



- GL400-1-1 (2-Channel Datalogger)
- User Manual
- Communication Cable (RS232C COM Cable)
- Global Logger Software (3 1/2" Floppy Diskette)

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

INDICATE ATTACHMENTS THAT APPLY
- ___ Site Map
- ___ Data Sheets
- ___ Geologic Logs
- ___ Photo Sheets
- X1 COC's
- ___ Field Tags (sub-contractors)
- ___ Chargeable Materials

Client: **ACHD**	Date: **August 13, 2004**
Site Location: **T-Bear Ranch**	Study #: **24023**
Field Tasks: ☐ Drilling ☐ Sampling ☒ Other (see below): **Re-Installation of Datalogger; Download of T-Bear Well Xd Data; DTW Data**	Weather Conditions: SUNNY
Personnel / Company On-Site: (AB) **Aaron Bierman, (Weber, Hayes and Associates: WHA)**	

TIME:

9:00 LEAVE FOR SITE.

10:00 ONSITE: PUMP CURRENTLY ON, CHLORINATION SYSTEM OPERATING
- MONITOR FLOW:
  - NEPTUNE METER: 8.2 gpm w/ TOTAL VOLUME @: 2,566,970 gal.
  - MASTER METER: 8.3 gpm w/ TOTAL VOLUME @: 118,932 gal.

10:10 INSTALL DATALOGGER, CONNECT METER TO LOGGER, CONNECT SOLAR PANEL.

10:45 PROGRAM DATALOGGER – RECORD "SET-UP" CONDITIONS / CALIBRATION VALUES IN THE GLOBAL WATER LOGGER MANUAL.
- RECORD AT 1 MIN INTERVALS w/ 6 SEC. WARM-UP ON SENSOR, REC. IN TENTHS OF MA/GAL.

10:47 PUMP SWITCHED OFF. – OBTAIN ROUND OF GW LEVELS – STARTING UPGRADIENT.

	D.T.W (FT, BTOC)
11:15 PZ-1a	10.95'
PZ-1b	14.79'
11:19 PZ-3a	8.64'
PZ-3b	11.31'
11:22 PZ-2a	6.53'
PZ-2b	7.95'
~~PZ-2b~~	

11:30 DOWNLOAD T-BEAR xd DATA "GWLEVELS3".xls TO FILE.

11:45 DOWNLOAD PZ-2a xd DATA – NOTE: Recent xd STARTED RECORDING W/ LOW GW IN PIEZ DUE TO DEVELOPMENT OPERATIONS, THEREFORE ALL DATA ARE "NEGATIVE" VALUES, NEED TO MANIPULATE DATA FOR "TRUE" DRAWDOWN
- BASED ON DATA SET – SHALLOW ZONE INFLUENCE IS ~0.4'

12:00 PULL TRANSDUCER, DECON, INSTALL IN PZ-2b.

~~12:15~~ PROGRAM xd IN DEEP PIEZOMETER PZ-2b, INSTALLED 1 FOOT OFF BOTTOM
- 1 MIN INTERVALS
- * PROGRAM FOR START @ 12:40 pm
- D.T.W @ 7.98' BTOC
- HEAD ABOVE xd: 39.935' @ T=0 MIN.

12:45 OBTAIN WATER SAMPLE FROM PURGE WATER TANK, LABEL AS "PURGE WATER"
- COPY OF COC ATTACHED.

12:48 TURN PUMP ON (OVERRIDE) – CALIBRATE FLOW W/ LOGGER & FLOW W/ STOP WATCH @ 9.0 gpm
→ LOGGER W/ METER WORKING PROPERLY. & LOGGER @ 9.0 gpm.

1:00 – LEAVE FOR LAB.

Signature of Field Personel & Date

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: T-Bear Ranch / ~~98027.B~~ 23027.C

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

ELECTRONIC DELIVERABLE FORMAT: ☐ YES ☒ NO

Sampler: Aaron Bierman AB

Date: 8.13.04

LABORATORY: Entech Analytical Laboratory

TURNAROUND TIME: (Standard Five-Day) 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: NA

Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: STEPH: Diesel, Motor Oil with Standard Silica Gel Cleanup	TRPH as TOG with Standard Silica Gel Cleanup	TPH-gasoline + MTBE BTEX by EPA Method# 8260	Volatile Organics: VOCs EPA Method# 8260B	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: PNA's by EPA Method# 8270 SIM	HVOCs by EPA Method# 8270 SIM	LUFT 5 Metals
PURGE WATER	GRAB	8.13.04	1230pm	H2O	X7						X			X			

RELEASED BY:

1.) [signature] Date & Time 8/13/04 @ 1:25pm

2.)

3.)

4.)

5.)

RECEIVED BY:

Date & Time 8/13/04 1325

SAMPLE CONDITION: (circle 1)

Ambient (Refrigerated) Frozen

Ambient Refrigerated Frozen

Ambient Refrigerated Frozen

Ambient Refrigerated Frozen

Ambient Refrigerated Frozen

NOTES:

- If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.
- For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.
- Please use MDL (Minimum Detection Limit) for any diluted samples.

-Please send certified results via *.pdf to laboratory@weber-hayes.com.

FIELD COPY

FIELD COPY

SumoLxls

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: T-Bear Ranch - System Check

SEND CERTIFIED RESULTS TO: Pat Hobin

ELECTRONIC DELIVERABLE FORMAT: [X] YES [ ] NO

Sampler: Pat H

Date: 5/21/04

LABORATORY: ENTECH

TURNAROUND TIME: (Standard Five-Day) 24hr Rush 48hr Rush 72hr Rush

GLOBAL I.D.: n.a.

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: Extractable Fuel-Scan	Purgeable Fuel Scan	Gasoline & BTEX-MTBE by EPA Method# 8015M-S-8020	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis	Title 22: General, Physical and Inorganic Minerals	
NA	PRE	grab	5/21/04	11:15		3						X			X		39765-001	
	MID	"		11:20		3						X			X		002	
	POST	"		4:30		3						X			X		003	

RELEASED BY:

1.) [signature]
2.)
3.)
4.)
5.)

Date & Time: 5/21/04 1605 / 5/21/04 1605

RECEIVED BY:

1.) [signature]
2.)
3.)
4.)
5.)

Date & Time: 5/21/04 1710 / 5/21/04 1710

SAMPLE CONDITION: (circle 1)

Ambient	(Refrigerated)	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

- [ ] If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.
- [ ] For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260
- [X] Please use MDL (Minimum Detection Limit) for any diluted samples.

ADDITIONAL COMMENTS

- Please produce and e-mail an EDF of these results to frances@weber-hayes.com.

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PAGE ____ OF ____

PROJECT NAME AND JOB #: T-Bear Ranch / 23027

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

Sampler: ~~Aaron Bierman~~ Pat Hoban

Date: 6/22/04

LABORATORY: Entech Analytical Laboratory

TURNAROUND TIME: Standard Five-Day | 24hr Rush | 48hr Rush | 72hr Rush

GLOBAL I.D.: NA

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	~~Fuel Oxygenates~~ BTEX ~~MTBE~~ by EPA Method# 8260	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: Total Suspended Solids	~~Chloride~~ ~~Total Dissolved Solids~~	Metals: Al, As, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, Nitrate as N
	PEG	port	6/22/04	9:10		2						X			X			39417-001
	MID	port	"	9 am		2						X			X			002
	POST	port	"	9:05		2						X			X			003
	Retention Tank	port	"	9:15			1										X	004

RELEASED BY:

1.) Pat Hoban — Date & Time 6/22/04

2.) _____

3.) _____

4.) _____

5.) _____

RECEIVED BY:

1.) J Madueño — Date & Time 6/22/04 1120

2.) _____

3.) _____

4.) _____

5.) _____

SAMPLE CONDITION: (circle 1)

Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

[ ] If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections

[ ] For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.

[X] Please use MDL (Minimum Detection Limit) for any diluted samples

~~Please send certified results via *.pdf to laboratory@weber-hayes.com.~~

Fuel oxygenates + BTEX

TBear.xls

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PAGE ____ OF ____

PROJECT NAME AND JOB #: T-Bear Ranch / 23027

LABORATORY: Entech Analytical Laboratory

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

TURNAROUND TIME: Standard Five-Day | 24hr Rush | 48hr Rush | 72hr Rush

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

GLOBAL I.D.: NA

Sampler: ~~Aaron Bierman~~ Pat Hobin

Date: 6/22/04

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	~~Fuel Oxygenates~~ BTEX by EPA Method 8260	Volatile Organics: 1,2-DCA by EPA Methods 8010	Solvents by EPA Methods 8010	Fuel Oxygenates EPA Methods 8260	Additional Analysis: Total Suspended Solids	~~Total~~ Dissolved Solids	Metals: Al, As, Cd, Cr, Cu, Fe, Ni, Se, Zn, Hg, Nitrate as N
	PEG	port	6/22/04	9:10		2						X			X			
	MID	port	"	9am		2						X			X			
	POST	port	"	9:05		2						X (1)			X (1)			
	Retention Test	port	"	9:15			1										X	

RELEASED BY:	Date & Time	RECEIVED BY:	Date & Time
1.) Pat Hobin	6/22/04	Lmedina	6/22/04 1120
2.)			
3.)			
4.)			
5.)			

SAMPLE CONDITION: (circle 1)

Ambient	(Refrigerated)	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

[ ] If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.

[ ] For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method 8260B.

[X] Please use MDL (Minimum Detection Limit) for any diluted samples.

Please send certified results via *.pdf to laboratory@weber-hayes.com.

Fuel oxygenates + BTEX

(1.) = Analyze "POST" sample only if there is a detection in the "MID" sample.

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering

120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

CHAIN -OF-CUSTODY RECORD

PROJECT NAME AND JOB #: [redacted] T-BEAR RANCH / 23027

LABORATORY: Entech Analytical Laboratory

SEND CERTIFIED RESULTS TO: Weber, Hayes and Associates - Attention: Aaron Bierman

TURNAROUND TIME: (Standard Five-Day) 24hr Rush 48hr Rush 72hr Rush

ELECTRONIC DELIVERABLE FORMAT: [ ] YES [X] NO

GLOBAL I.D.: NA

Sampler: Aaron Bierman

Date: 7-19-04

Field Point Name (GeoTracker)	Sample Identification	Sample Depth	Date Sampled	Time Sampled	Matrix	SAMPLE CONTAINERS: 40 mL VOAs (preserved)	1 Liter Amber Jars	___mL Poly Bottle	Liner Acetate or Brass	REQUESTED ANALYSIS: Total Petroleum Hydrocarbons: TEPH: Diesel with Standard Silica Gel Cleanup	Total Recoverable Petroleum Hydrocarbons	TPH-gasoline, BTEX & MTBE 8260 by EPA Method#	Volatile Organics: 1,2-DCA by EPA Method# 8010	Solvents by EPA Method# 8010	Fuel Oxygenates EPA Method# 8260	Additional Analysis: ~~Total~~ Suspended ~~Solids~~ HOLD	Total Dissolved Solids	Metals: Al, Ar, Cd, Cr, Cu, Pb, Ni, Se, Zn, Hg, Nitrate as N
NA	PRE	NA	7-19-04	217	H_2O	x5		39107-001								X		
	MID	NA	7-19-04	225	H_2O	x5		002				X			X			
	POST	NA	7-19-04	230	H_2O	x5		003				X			X			

RELEASED BY:

1.) [signature] 7/19/04 Date & Time 5:00 pm

2.) _____ _____

3.) _____ _____

4.) _____ _____

5.) _____ _____

RECEIVED BY:

1.) [signature] Date & Time 7/19/04 1705

2.) _____ _____

3.) _____ _____

4.) _____ _____

5.) _____ _____

SAMPLE CONDITION: (circle 1)

Ambient	(Refrigerated)	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen
Ambient	Refrigerated	Frozen

NOTES:

- [ ] If MTBE is detected by EPA Method 8020, please confirm detections by EPA Method 8260 with a minimum detection limit of 5 ug/L, and report only confirmed 8260 detections.
- [ ] For MTBE-analyzed samples with non-detectable results (ND) but having elevated detection limits, please confirm by EPA Method #8260.
- [ ] Please use MDL (Minimum Detection Limit) for any diluted samples.

Please send certified results via *.pdf to laboratory@weber-hayes.com.

- THESE SAMPLES REPRESENT THE JULY CARBON SAMPLING EVENT

[signature] 7/23/04

General Field Methodology for:
Groundwater Sampling

Weber, Hayes and Associates' groundwater sampling field methodology is based on procedures specified in the *LUFT Field Manual*. The first step in groundwater sampling is for Weber, Hayes and Associates field personnel to measure the depth-to-groundwater to the nearest hundredth (0.01) of a foot with an electric sounder. If the well appears to be pressurized, or the groundwater level is fluctuating, measurements are made until the groundwater levels stabilize, and a final depth-to-groundwater measurement is taken and recorded. After the depth-to-groundwater is measured, the well is then checked for the presence of a free product with a clear, disposable polyethylene bailer. If free product is present, the thickness of the layer is recorded, and the product is bailed to a sheen. All field data (depth-to-groundwater, well purge volume, physical parameters, and sampling method) are recorded on field data sheets (see attached). Because removing free product may skew the data, wells that contain free product are not used in groundwater elevation and gradient calculations.

After measuring the depth-to-groundwater, each well, starting with the cleanest well (based on analytical results from the last sampling event), is purged with a low flow submersible electric pump. During purging the physical parameters of temperature, conductivity, pH, dissolved oxygen (D.O.) concentration, and Oxidation-Reduction Potential (ORP) of the purge water are monitored with a *QED MP20 Micropurge Flow Through Cell* equipped meter to insure that these parameters have stabilized (are within ~ 15 percent of the previous measurement). The QED MP20 meter is capable of continuously monitoring the physical parameters of the purge water via the flow through cell and providing an alarm to indicate when the physical parameters have stabilized to the users specifications. Purging is determined to be complete (stabilized aquifer conditions reached) after the removal of approximately three to five well volumes of water or when the physical parameters have stabilized. Dissolved oxygen and ORP measurements are used as an indicator of intrinsic bioremediation within the contaminant plume. All field instruments are calibrated before use.

All purge water is stored on site in DOT-approved, 55-gallon drums for disposal by a state-licensed contractor pending laboratory analysis for fuel hydrocarbons.

After purging, the water level in the well is allowed to recover to 80 percent of its original depth before a sample is collected. After water level recovery, a groundwater sample is collected from each well with a new, disposable bailer, and decanted into the appropriate laboratory-supplied sample container(s). The sample containers at this site were 40-ml. vials. Each vial was filled until a convex meniscus formed above the vial rim, then sealed with a Teflon®-septum cap, and inverted to insure that there were no air bubbles or head space in the vial. All samples are labeled in the field and transported in insulated containers cooled with blue ice to state-certified laboratories under proper chain of custody procedures.

All field and sampling equipment is decontaminated before, between, and after measurements or sampling by washing in a Liqui-Nox and tap water solution, rinsing with tap water, and rinsing with distilled water.