GW - 199

GENERAL CORRESPONDENCE

YEAR(S):

1998-1995

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

Jennifer A. Salisbury
CABINET SECRETARY

Oil Conservation Div.
Environmental Bureau
2040 S. Pacheco
Santa Fe, NM 87505

Field Inspection Report

Time: 10am-12:30 pm
Date: December 08, 1998

Re: Site/Location: Champion Tech. Inc.
4001 S. Hwy. 18
Hobbs, NM 88240

Subject: Discharge Plan (GW-199) Inspection

Originating Party: Wayne Price-NMOCD Santa Fe
Gary Wink-OCD Hobbs

Wayne Price

Other Parties: Tommy Morrison-Champion
Alan Childs-Champion

Agenda: Facility tour-(notes & pictures); Sampling; Record review- (leaks & spills, clean-ups or site assessments, waste disposal practices); & Closing interview.

Findings:

Facility tour consisted of a walk through of the facility with Champion personnel Mr. Tommy Morrison and Alan Childs. Pictures were taken along with notes and sketches for the different process areas. The following areas were inspected and noted for any possible problems and/or deficiencies:

Laboratory area:

1. Hazardous Waste drum was being stored without proper containment. Picture #3.
2. Lab wastewater retain drums are being stored without proper containment. Picture #4.
3. The two above waste streams are not included in the Discharge Plan as a process area. OCD questioned how this co-mingling of lab waste can be considered a well treatment product rather than being treated as a waste. Mr. Morrison indicated they use it as treater truck flush water.

Empty drum rinsate & staging area: Picture #5.

1. There is visual signs of spillage in this area. The secondary containment device had oily liquids in it.
2. There was one drum not properly contained.
3. This area is in close proximity to an off-site fresh water stock pond.
4. This waste stream is not included in the Discharge Plan as a process area.
5. OCD questioned how this co-mingling of many products can be considered a well treatment product rather than being treated as a waste. Champion's Mr. Morrison thought they have an MSDS for this and a product bulletin.

Field Tank Return & Wash-out area: Picture #6.

1. This area is not identified in the Discharge Plan as a process area or waste stream.
2. OCD questioned how this co-mingling of many products can be considered a well treatment product rather than being treated as a waste. Mr. Morrison indicated they use it as treater truck flush water.

Slow Moving Product drum storage area: Picture #7.

1. Drums were being stored without proper containment.
2. Some drums had no labels or were deteriorated where they could not be identified.

Product drum storage area: Pictures #8,9,16,17,18,& 19.

1. Drums were being stored without proper containment.
2. OCD noted yellow stained soils west of the warehouse (see sketch). OCD requested information from both Mr. Morrison and Mr. Childs concerning this area as to the identity and/or history of this area. They indicated they had no knowledge present or past of this area. OCD marked location to be sampled. Pictures #17,18,19-22.

Bulk Tank Load/un-load facility Area: Pictures #10.

1. It was noted that there is an abandoned water well under this facility.

Drums of Waste (seven). Picture #11.

1. Drums were being stored without proper containment.
2. Drums had no labels.
3. OCD questioned how waste was generated and the contents. Champion manager Mr. Morrison indicated it was from a clean-up performed pursuant to a letter of violation issued them by the NMED-HRMB. Three drums were hazardous and four were non-hazardous.

Warehouse Area:

1. Drums were being stored without proper containment. Picture #14 (no curbs or berms)
2. Waste collection area inside of warehouse (picture #12). Liquid and solid waste streams are not identified in discharge plan. Noted were drums of contaminated adsorbent materials, cut-up contaminated plastic buckets, drums of oily liquid waste with no identification, batteries and used oil filters.

Water Wells:

There are three water wells on site, one well has been covered with the new bulk tank pad, another well located in the northwest corner of property and a new well located just south of the office/lab area (see sketch). OCD requested information from both Mr. Morrison and Mr. Childs concerning these wells as to why they were abandoned and/or any history concerning them. They indicated they had no knowledge present or past as to why they were abandoned.

Sampling: OCD sampled the water from the new well. Sample was taken from office break room facet and ID# 9812081151. Another sample was collected from the yellow stained soil area and ID# 9812081209.

Records Review:

1. OCD requested information concerning any internal or external reporting of leaks, spills, releases, etc. Mr. Morrison indicated they have not had any leaks, spills, releases and no information was available.

2. OCD requested information concerning the NMED Notice of Violation, site assessment and clean-up activities. Mr. Morrison indicated he would have to get approval from his corporate office to provide that since it is a company policy. Mr. Morrison did provide a cover sheet and table of contents to the site assessment performed (attached).

3. OCD requested information pertaining to any waste generated as a result of any recent clean-ups. Mr. Morrison provided a copy of a letter dated 12/03/98 from Ralph Corry (Champion) to Mr. Mike Le Scouarnec of NMED-HRMB describing the analytical results of the seven waste drums and where they are to be disposed of.

Closing interview:

OCD instructed Mr. Morrison not to dispose of any NON-Hazardous Oil field Waste unless he receives permission from OCD.

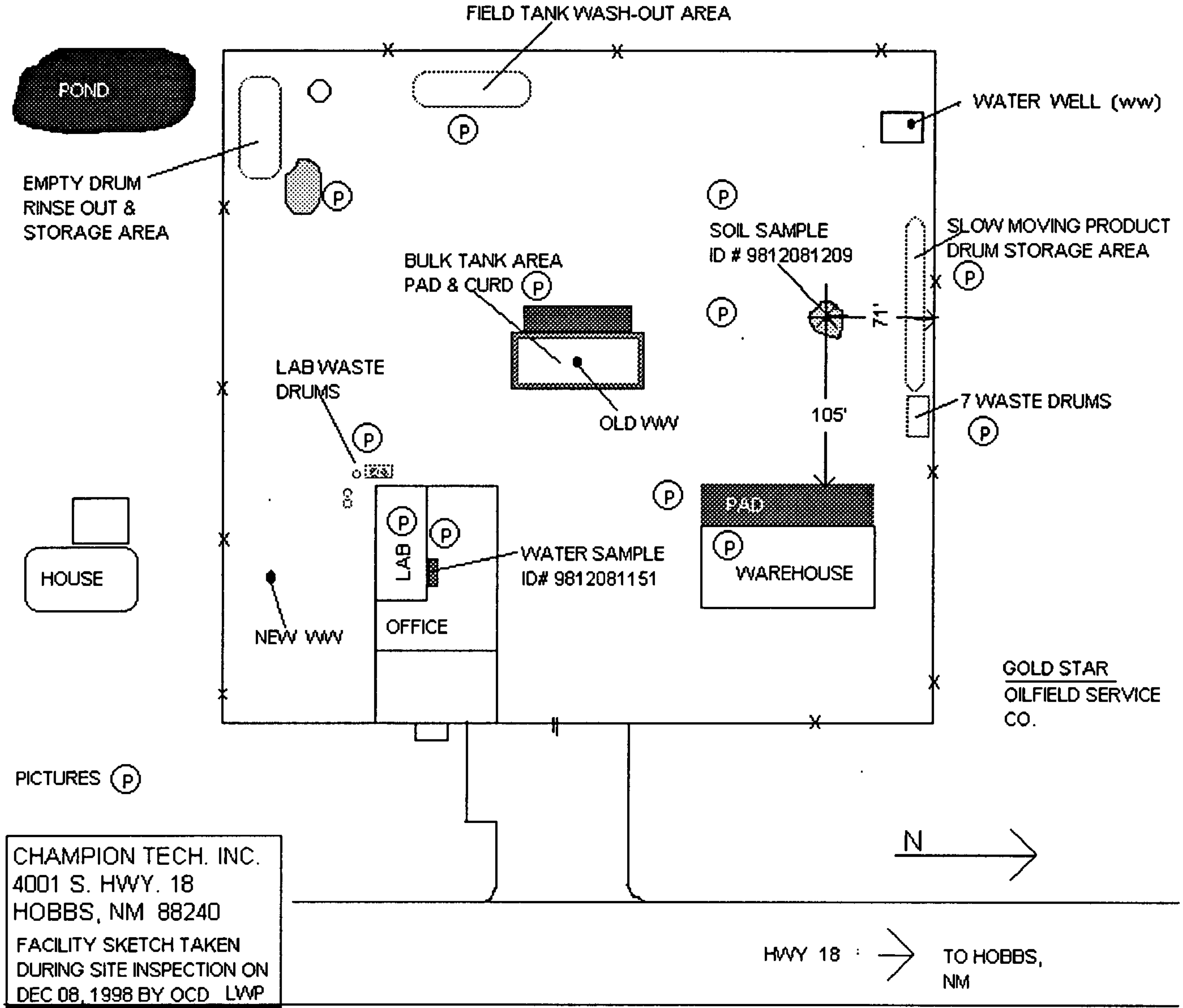
All Waste that is classified as Hazardous, OCD instructed Mr. Morrison to deal with the NMED-HRMB.

OCD noted the following as possible deficiencies of their Discharge Plan.

1. **Drums were being stored without proper containment.**
2. **Failure to report pursuant to OCD Rule 116 & WQCC requirements.**
3. **Possible improper classification or identification of some waste streams.**

attachments-
1. **Photos Taken: enclosed with sketch of facility.**
2. Field notes & Chain-of-Custody info.
3. Champion Letter 12/03/98
4. Philip Services site assessment info.

CC: Chris Williams-OCD District I
Champion Tech. Inc.-Hobbs Facility



CHAMPION TECH. INC.
4001 S. HWY. 18
HOBBS, NM 88240
FACILITY SKETCH TAKEN
DURING SITE INSPECTION ON
DEC 08, 1998 BY OCD LWP

GW-199 NO SCALE

New Mexico Oil Conservation Div. (NMOCD)

December 8, 1998

Site Inspection: Champion Tech. Inc.
4001 S. Hwy. 18
Hobs, NM 88240

Type of Inspection: Discharge Plan GW-199
Inspectors: Wayne Price-NMOCD
Gary Wink-NMOCD
Facility Personnel present: TOMMY MORRISON
ALAN CHICAS

Site Inspection Agenda:

* Facility Tour- notes & pictures

* Record review

NO ONE HAS KNOWLEDGE OF YELLOW STAIN SOIL?

Leaks & Spills — NONE
Clean-up or site assessments — NMED REPORT
Waste disposal — CHROMATE WATER, CHLOR WASTE, LAB RETAIN WATERS, ABSORBANTS, BUCKETS, CLEAN-UP

* Sampling - WATER WELL SPOT IN YARD!

* Closing interview

DP DEFICIENCIES
* DRUMS NOT STORED ON PAC
* WASTE STREAMS NOT LISTED IN D.P.

SAMPLING + EXCAVATION OF CHAMPION TECHNOLOGIES INC HOBBS, NM FACILITY
JUNE 1998
PROJECT 19423
BY
PSC
PHILIP SERVICES
915-563-0118

+ mel seaving ? TOMMY MORRISON

MONDAY 12/07/98 3 pm

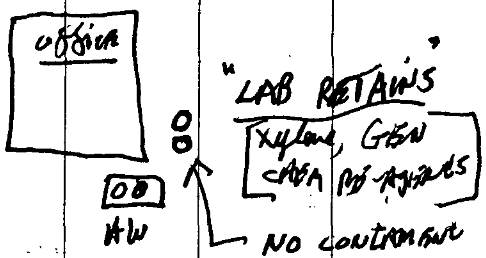
* TELEPHONE Tommy Morrison - CHAMPION
SET-UP SITE INSPECTION for 10AM 12/08/98
HAD MENTIONED CLEANUP BY PHILLIP ENVIRONMENTAL!

CHAMPION TECHNOLOGIES 393-7726
4001 S EUNICE HWY

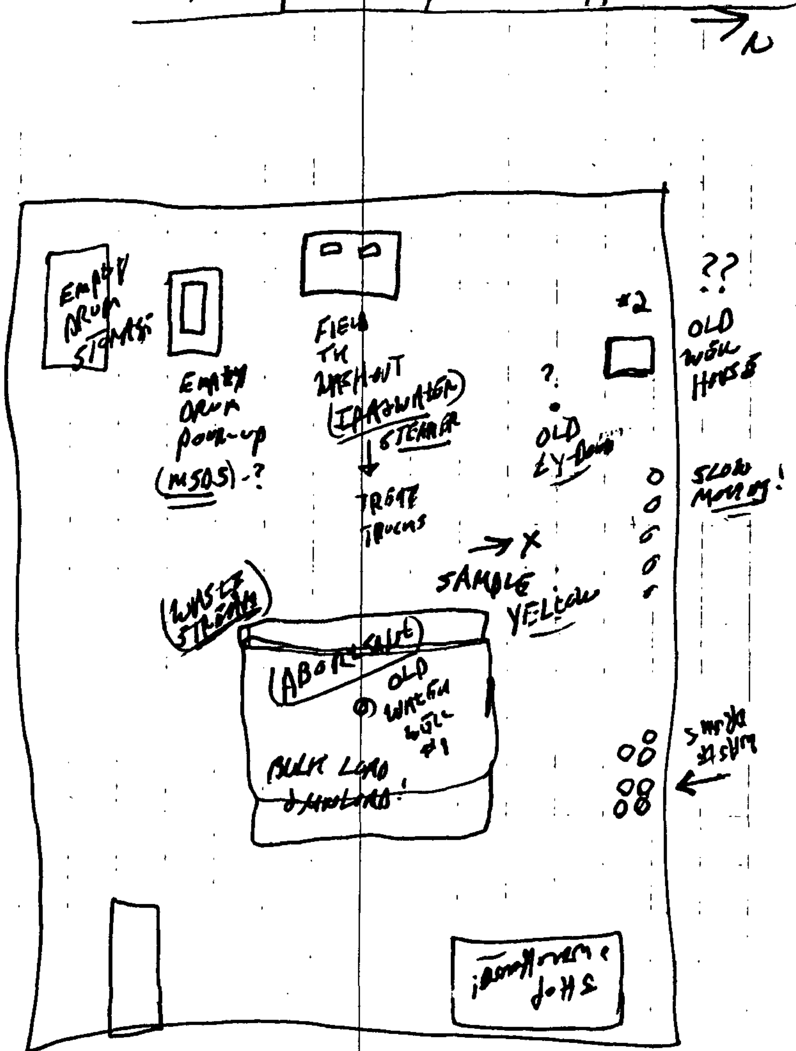
915-661-9195 cell #
1-800-447-3863 pager #

12-8-98 10:20AM
CHAMPION GW-199

ROBERTO [illegible]



CHAMPION YARD - HOBBS

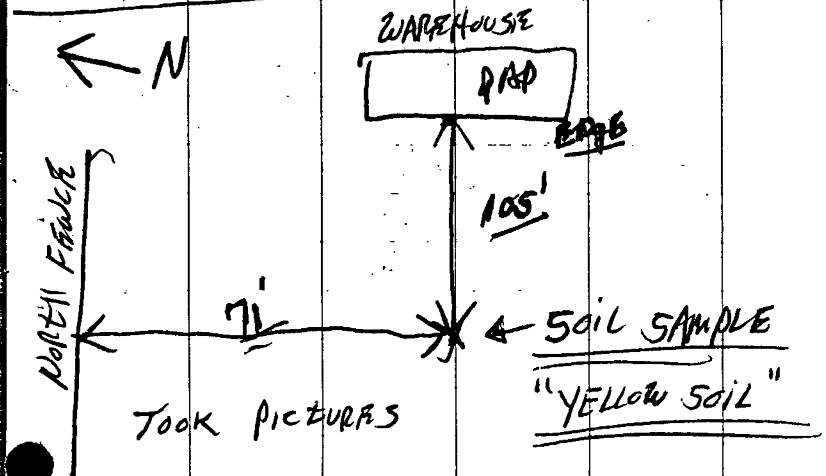


WASTE stream old barrels
plastic

WATER SAMPLE At
OFFICE COFFEE AREA!

9812081151 SAMPLE @ WATER
SINK

9812081209 SOIL IN YARD
Yellow?



American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 12/08/98 PAGE: 1 OF 1

AEN(NM) Accession #:

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:

COMPANY: AMOCO
ADDRESS: 2040 South Pacheco
Santa Fe NM 87505
PHONE: 505 889 7155
FAX:
BILL TO: SAB
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐		8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	[illegible]	NUMBER OF CONTAINERS
[illegible] 1151	12/08/98	11:51 AM	WATER															X				X	X	X							X		13
[illegible]	[illegible]	[illegible]	[illegible]																			X	X	X							X		5

PROJECT INFORMATION

PROJ. NO.: [illegible]
PROJ. NAME: Champion Hubbard
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

[illegible]

RELINQUISHED BY: 1.
Signature: [illegible] Time: [illegible]
Printed Name: [illegible] Date: 12/[illegible]
Company: AMOCO

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Date:
American Enviromental Network (NM), Inc.

COMMONLY REQUESTED GENERAL CHEMISTRY

ABV.	ANALYSES
ALK	Alkalinity (Bicarbonate+Carbonate)
NH4	Ammonia
BOD	Biochemical Oxygen Demand
BR	Bromide
Cl	Chloride
COD	Chemical Oxygen Demand
E.C.	Conductivity
CN	Cyanide, Total
F	Fluoride
N03	Nitrate
N02/N03	Nitrite/Nitrate
N02	Nitrite
TKN	Total Kjaidahl Nitrogen
O-G	Oil-Grease
PH	PH
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
S04	Sulfate
S^{-2}	Sulfide
TOC	Total Organic Carbon
TOX	Total Organic Halide

SW846-UPDATE III DEFINITIONS (6/25/97)

Per EPA methods 8010, 8020, and 8240 have been deleted.
The following test codes and definitions replace these methods:

GC

New Method	Analysis
8021 (BTEX)	Formerly 8020 (BTEX) Compound List
8021 (TCL)	Formerly 8020/8010 Target Compound List
8021 (EDX)	BTEX + EDB, EDC
8021 (HALO)	Formerly 8010 Halogenated Compound List
8021 (CUST)	A partial/customer defined list

GCMS

New Method	Analysis
8260 (TCL)	Formerly 8240 Target Compound List
8260 (FULL)	Full 8260 Compound List
8260 (CUST)	A partial/customer defined list
8260 (LANDFILL)	NM Landfill (WQCC) list

METALS COMMONLY ANALYZED
PRIORITY POLLUTANT LIST (PP) • RCRA • TARGET ANALYTE LIST (TAL)

NAME	SYMBOL	LIST
Aluminum	Al	TAL
Antimony	Sb	PP,TAL
Arsenic	As	RCRA, PP, TAL
Barium	Ba	RCRA, TAL
Beryllium	Be	PP,TAL
Bismuth	Bi	
Boron	B	
Cadmium	Cd	RCRA, PP, TAL
Calcium	Ca	TAL
Chromium	Cr	RCRA, PP, TAL
Cobalt	Co	TAL
Copper	Cu	PP, TAL
Gold	Au	
Iron	Fe	TAL
Lead	Pb	RCRA, PP, TAL
Lithium	Li	
Magnesium	Mg	TAL
Manganese	Mn	TAL
Mercury	Hg	RCRA, PP, TAL
Molybdenum	Mo	
Nickel	Ni	PP, TAL
Potassium	K	TAL
Selenium	Se	RCRA, PP, TAL
Silicon	Si	
Silver	Ag	RCRA, PP, TAL
Sodium	Na	TAL
Strontium	Sr	
Sulfur	S	
Thallium	Tl	PP, TAL
Tin	Sn	
Titanium	Ti	
Uranium	U	
Vanadium	V	TAL
Zinc	Zn	PP, TAL

Pinnacle Laboratories, Inc. 2709-D Pan American Freeway, NE, Albuquerque, NM 87107 (505) 344-3777
Fax: (505) 344-4413

Client: NMOCD
Phone:
Address:

Attention: Wayne Price

Date Needed: 12/4 Time: 3 am/pm
☒ Pick up by Client
☐ Deliver to Client
Kit Prepared by: ☒ Francine
☐ Other

SAMPLE KIT

	PARAMETER	HOLDING TIME	BOTTLE DESCRIPTION			
			WATER-PERSERVATIVE		SOIL-PERSERVATIVE	
Volatiles	624 (8260) / pH 601/602 8010/8020 ____ ____ 504	14 DAYS	___ 2x40ML VOA ___ 2X40ML VOA ___ 2X40ML VOA ___ 2X40ML VOA ___ 2X40ML VOA	$HCL/HgCl_2$ $HCL/HgCl_2$ $HCL/HgCl_2$ $HCL/HgCl_2$ Na2S203	1 1X 4 oz Jar ___ 1X 4 oz Jar ___ 1X 4 oz Jar ___ 1X 4 oz Jar ___ NA	4°c 4°c 4°c 4°c NA
Fuels	8015 (TPH) 8015/8020 418.1	14 DAYS 14 DAYS 28 DAYS	___ 2X40ML VOA ___ 2X40ML VOA ___ 2X500ML AMB.	$HCL/HgCl_2$ $HCL/HgCl_2$ H_2SO_4	___ 1X 4 oz Jar	4°c
Organics	625 (8270) 608 (8080) 615 (8150) 610 (8310) ____	7 DAYS	___ 2 X 1L AMBER	4°c	1 1X4 oz Jar 1	4°c
	TOC TOX	28 DAYS 7 DAYS	___ 1X250ML AMB. ___ 1X250ML AMB.	H_2SO_4 H_2SO_4	___ 1X 4 oz. Jar	4°c
Metals	Cation/Anions - Ca, K, Mg, Na, Br Metals by ICP	6 MONTHS	___ 1X ___ ML PL ___ 1X ___ ML PL ___ 1X ___ ML PL	HNO_3	1 1X 16 oz. Jar	4°c
Gen. Chem.	F, Cl, SO4, TDS, NO2/NO3 Alk, Hard, Conduct.	14 DAYS	___ 1X ___ ML PL ___ 1X ___ ML PL ___ 1X ___ ML PL	4°c	1 1X16 oz. Jar	4°c
	TRIP BLANK	14 DAYS	___ 1x 40ML VOA	$HCL/HgCl_2$	NA	NA
	AIR: ___	3 DAYS	___ 1 X 1L TEDLAR AIR BAG VALVE: STAINLESS STEEL/POLYPROPYLENE			
Meth.	METHANOL PRESERVED		___ 2 X 60 ML Amber Preweighed; 2 X 10ML Methanol Vials; 1 X 2 oz Jar (4-oz Jar for Diesel)			

☐ COC
☐ BLUE ICE
☐ LABELS
☐ SEALS
☐ GLOVES

Pinnacle Laboratories, Inc. 2709-D Pan American Freeway, NE, Albuquerque, NM 87107 (505) 344-3777
Fax (505) 344-4413

Client: NMOCD
Phone:
Address:

Attention: Wayne Price

Date Needed: 12/4 Time: 3 am (pm)
☒ Pick up by Client
☐ Deliver to Client

Kit Prepared by: ☒ Francine
☐ Other

SAMPLE KIT

	PARAMETER	HOLDING TIME	BOTTLE DESCRIPTION WATER-PERSERVATIVE		SOIL-PERSERVATIVE	
Volatiles	624 (8260)	14 DAYS	1 2x40ML VOA	HCL/HgCl2	___ 1X 4 oz Jar	4oc
	601/602		___ 2X40ML VOA	HCL/HgCl2	___ 1X 4 oz Jar	4oc
	8010/8020		___ 2X40ML VOA	HCL/HgCl2	___ 1X 4 oz Jar	4oc
	________		___ 2X40ML VOA	HCL/HgCl2	___ 1X 4 oz Jar	4oc
	____ 504		___ 2X40ML VOA	Na2S203	___ NA	NA
Fuels	8015 (TPH)	14 DAYS	___ 2X40ML VOA	HCL/HgCl2	___	
	8015/8020	14 DAYS	___ 2X40ML VOA	HCL/HgCl2	___ 1X 4 oz Jar	4oc
	418.1	28 DAYS	___ 2X500ML AMB.	H_2SO_4	___	
Organics	625 (8270)		1		___	
	608 (8080)		___		___	
	615 (8150)	7 DAYS	___ 2 X 1L	4oc	___ 1X4 oz Jar	4oc
	610 (8310)		1 AMBER		___	
	________	________	___		___	
	TOC	28 DAYS	___ 1X250ML AMB.	H_2SO_4	___ 1X 4 oz. Jar	4oc
	TOX	7 DAYS	___ 1X250ML AMB.	H_2SO_4	___	
Metals	Cation/Anion - Ca, K, Mg, Na →		1 1X 1000 ML PL		___	
	________	6	___ 1X ____ ML PL	HNO_3	___ 1X 4 oz. Jar	4oc
	Metals by ICP →	MONTHS	1 1X 1000 ML PL		___	
	________					
Gen. Chem.	Bromide		1 1X 500 ML PL		___	
	F, Cl, SO4, TDS, NO2	14 DAYS →	1 1X 1000 ML PL	4oc	___ 1X 4 oz. Jar	4oc
	Alk. Group, Conduct.		___ 1X ____ ML PL		___	
	________					
	NO_3	48hrs.	1 1x 125 ML PL.	H_2SO_4		
	pH		1 1x125 ML PL.	4°C		
	TRIP BLANK	14 DAYS	1 1x 40ML VOA	HCL/HgCl2	NA	NA
	AIR: ____	3 DAYS	___ 1 X 1L TEDLAR AIR BAG VALVE: STAINLESS STEEL/POLYPROPYLENE			
Meth.	METHANOL PRESERVED		___ 2 X 60 ML Amber Preweighed; 2 X 10ML Methanol Vials; 1 X 2 oz Jar (4-oz Jar for Diesel)			

☒ COC Extra Gloves, & COC's, labels
☐ BLUE ICE
☒ LABELS
☒ SEALS
☒ GLOVES

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Company NMOCD

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City HOBBS State NM ZIP 88240

2 Your Internal Billing Reference Information (Optional) (First 24 characters will appear on invoice)

3 To (please print and press hard)

Recipient's Name LAB Phone (505) 344-3777

Company PINNACLE LABORATORIES

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☐ FedEx Express Saver Freight (Up to 3 business days)
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6 Special Handling
Does this shipment contain dangerous goods? ☐ Yes (As per attached Shipper's Declaration) ☐ Yes (Shipper's Declaration not required)
☐ Dry Ice Dry Ice, 9, UN 1845 III ____ x ____ kg. 904 (Dangerous Goods Shipper's Declaration not required)
CA ☐ Cargo Aircraft Only

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(Enter FedEx account no. or Credit Card no. below)

FedEx Account No. 2304-9385.5
Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value*	Total Charges
		$ .00	$

*When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Wayne Price

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

287

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The World On Time

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Champion Technologies, Inc.

P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (281) 431-2561
Fax (281) 431-1655

CERTIFIED MAIL RECEIPT Z 266 064 675

December 3, 1998

Mr. Mike Le Scouarnec
State of New Mexico
Hazardous & Radioactive Materials Division
P.O. Box 26110
Santa Fe, NM 87502

Subject: Letter of Violation
NMD 986674869

Dear Mr. Le Scouarnec:

There are currently seven drums of waste to be disposed from our facility in Hobbs, New Mexico. You had inquired as to how much waste was generated, where it came from, EPA Codes, and the proposed disposal sites. I have put together three charts containing this requested information.

For the actual results, please refer to the Sampling & Excavation of Champion Technologies, Inc., Project 19423 Summary prepared by Phillips Services in June of 1998. The lab sample number is on each page of the analytical analyses in Appendix III.

Champion Technologies, Inc. is now in the process of shipping this material to the TSD facilities noted in the reports.

If you should have any questions, please contact me at the number listed above.

Sincerely,

Ralph Corry

Ralph Corry
Environmental Specialist

RC/rn

Cc: John Tymkowych – State of New Mexico
Clarence Meyer
Allan Childs
Tommy Morrison
Mike Edwards
Mel Davis

rc98-131.doc

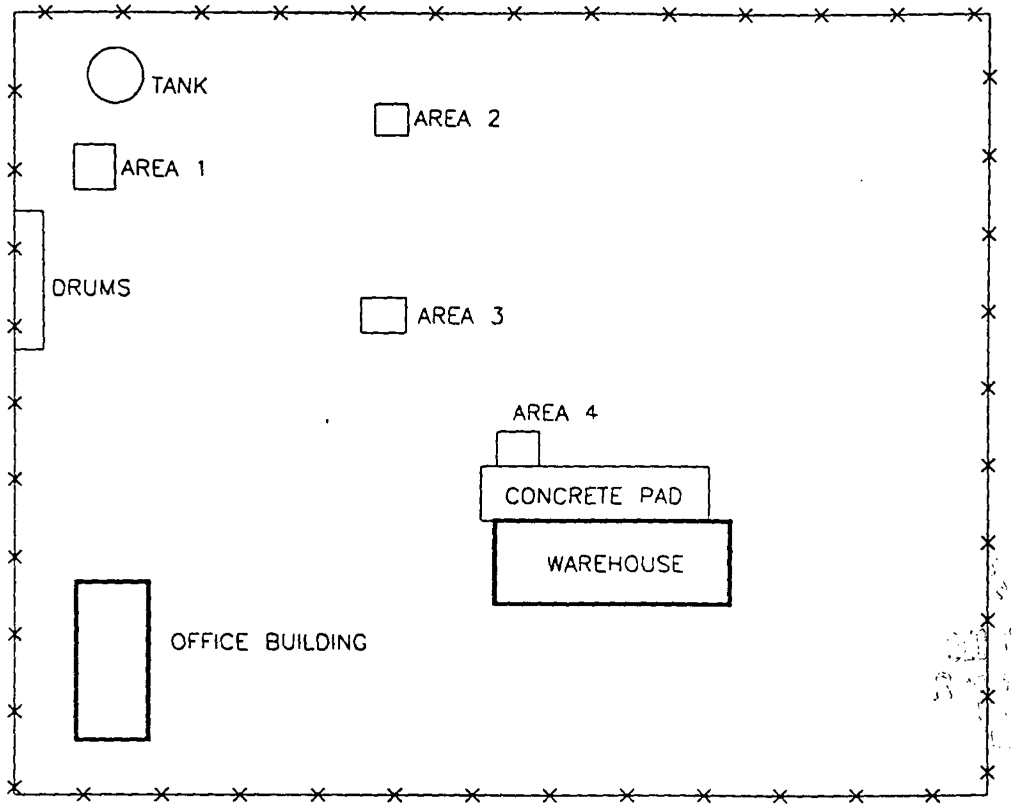
WASTE AS A RESULT OF REMEDIATION

Item#	Lab Sx Number	Sample Type	Analysis Performed	Amount of Waste	Waste Codes	Disposal Sites
9	T96411	Sludge	TCLP*,RCI	1 drum	D003	WCS Andrews, Tx
8,10,11,14, 19	T96412	Composite Soil	TCLP,RCI, BTEX,TPH, Paint Filter	4 drums	N.H.	Controlled Recovery Hobbs, NM
7,12,13,15, 16,17,18	T96413	Composite Liquids	TCLP*,RCI	1 drum	D001 and D002	WCS Andrews, Tx
2	NA	Liquid	Process Knowledge	1 drum	D002	WCS Andrews, Tx

*TCLP, VOA and SVOA only. By process knowledge, no metals, herbicides or pesticides are present.

IN-SITU SAMPLES

Item#	Lab Sx Number	Area on Site Plan	Analysis Performed
8	T96407	1	VOA, SVOA
10	T96408	2	VOA, SVOA
11	T96409 T99314	3 3	VOA, SVOA VOA
19	T96410	4	VOA, SVOA



AREA 1 -	ITEM #8 -	Sx #T96407 (In-Situ Sample)
AREA 2 -	ITEM #10 -	Sx #T96408 (In-Situ Sample)
AREA 3 -	ITEM #11 -	Sx #T96409 (In-Situ Sample) Sx #T99314 (In-Situ Sample)
AREA 4 -	ITEM #19 -	Sx #T96410 (In-Situ Sample)

NOT TO SCALE N

PHILIP SERVICES CORP.	TITLE: SITE PLAN	DWN: TMM	DES.: JK	PROJECT NO.: 19423 CHAMPION TECH. INC. TEXAS
		CHKD: JK	APPD:	
		DATE: 6/9/98	REV.: 0	FIGURE 1

COL. 19423A-001

SAMPLING & EXCAVATION OF CHAMPION TECHNOLOGIES, INC. HOBBS, NEW MEXICO FACILITY

June, 1998

Project 19428

Prepared By

PSC
PHILIP SERVICES

PHILIP SERVICES CORPORATION
7904 Interstate 20 West
Midland, Texas 79706
(915) 563-0118

TABLE OF CONTENTS

1.0 INTRODUCTION

Philip Services (Philip) has completed the oversight of excavation of soils from four areas at the Champion Technologies, Inc. (CTI) facility located at 4001 South Highway 18 in Hobbs, New Mexico. Soil samples from each of the four excavated areas and from one drum containing soil, one drum containing sludge, and one drum containing liquids were collected and submitted for laboratory analysis.

The excavation and sampling were performed at the request of CTI in response to a letter of violation received by CTI from the New Mexico Environment Department (NMED) dated January 30, 1998, following a compliance evaluation inspection of the facility. The letter of violation and CTI's response to that letter are included in this report in **Appendix I.**

2.0 FIELD ACTIVITIES

Philip was on site April 15, 1998, to oversee the excavation of soil from four areas at the facility (Items 8, 10, 11, and 19; NMED letter, CTI response). The locations of the four areas are shown in **Figure 1** and **Appendix II.**

One five-point composite soil sample was collected from each of the four excavated areas and (Areas 1-4) submitted for laboratory analysis to perform a hazardous waste determination as requested by NMED. The soils were excavated by CTI personnel and screened in the field for volatile organic compounds by Philip personnel using a photoionization detector (PID).

The excavated soils were placed into a Department of Transportation (DOT) approved drum. One five-point composite sample consisting of excavated soils from each of the four areas and soil contained in a drum at the facility (Item 14) were submitted for laboratory analysis to perform a hazardous waste determination as requested by NMED.

Two additional samples, one from a drum of liquids (Item 7), and one from a drum of sludge (Item 9), were collected and submitted for laboratory analysis to perform a hazardous waste determination as requested by NMED.

3.0 ANALYTICAL RESULTS

One five-point composite soil sample was collected from each of the four (4) excavated areas and submitted to Trace Analysis, Inc. (Trace) of Lubbock, Texas for analysis of volatiles using EPA method 8260 and semi-volatiles using EPA method 8270. Laboratory results are included in this report in **Appendix III**. All analytes were below detection limits except for 1,2,4-Trimethylbenzene at a concentration of 51 parts per billion (ug/kg) in Area 3 excavation. On May 27, 1998, Philip personnel were on site to overexcavate soils and collect an additional composite soil sample at Area 3. The sample was submitted for analysis of volatiles. All analytical results including 1,2,4- Trimethylbenzene were below detection limits.

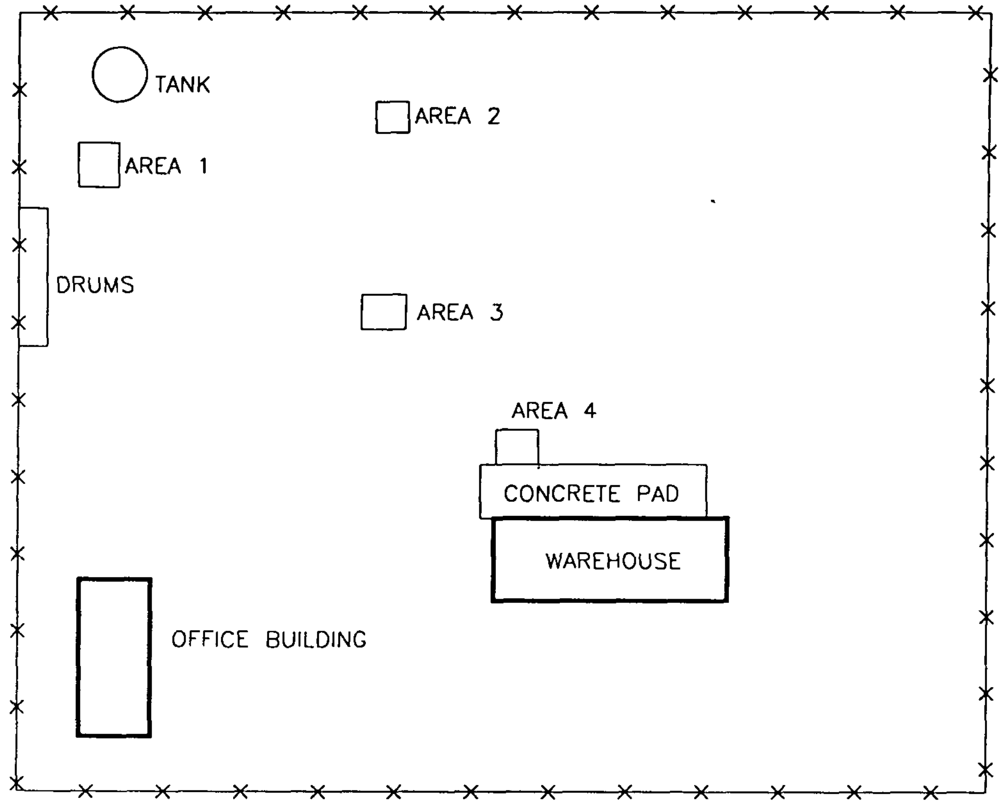
A composite sample, from the four (4) excavated and one (1) drum of soil, was collected and submitted to Trace for analysis of TCLP volatiles and semi-volatiles, RCI, paint filter test using EPA method SW 846-9095, TCLP Metals using EPA method SW 846-1311, 6010B, 7470, benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8021B, and total petroleum hydrocarbons (TPH) using EPA method 418.1. The analyte concentrations were below detection limits for the TCLP volatiles and semi-volatiles. Of the eight (8) TCLP metals analyzed, only Barium was detected with a concentration of 0.28 ppm. The RCI results indicate the soil is a non-reactive, non-corrosive, and non-ignitable with no sulfide or cyanide concentrations detected. In addition, the soils passed the paint filter test. The total BTEX was 2.19 ppm with concentrations of benzene below detection limit, toluene at 0.322 ppm, ethylbenzene at 0.134 ppm, and xylenes at 1.73. The concentration of TPH was 6,900 ppm.

Two samples, one from the drum of liquid and one from the drum of sludge, were collected and submitted to Trace for analysis of TCLP volatiles using EPA method SW 846-1311, 8260, TCLP semi-volatiles using EPA method SW 846-1311, 8270, and RCI using EPA method SW 846-Chapter 7 7.3, Chapter 7 7.2, 1010. The analytical results for the TCLP semi-volatiles and volatiles were below detection limits for both the liquid and sludge sample.

The RCI analytical results indicate the liquid is non-reactive, corrosive, with a pH of 13.2, and has a flashpoint of <70° Farenheight. The sludge is reactive, non-corrosive, non-ignitable, with a pH of 4.3. No cyanides or sulfides were detected in the liquid, however cyanides were detected in the sludge with an analyte concentration of 550 parts per million (ppm).

4.0 WASTE DISPOSITION

Based on the analytical results, the overexcavated soils from the four (4) areas and the drum previously located on site are non-hazardous and can be disposed of at Controlled Recovery Inc. (CRI) of Hobbs, New Mexico. The drum of sludge is reactive and contains cyanides at a concentration of 550 parts per million (above the EPA limit of 250 ppm). The drum of liquid is corrosive. The sludge and the liquid can be disposed of at Waste Control Specialist (WCS) of Andrews, Texas.



NOT TO SCALE N

COL. 19423A-001

PSC PHILIP SERVICES CORP.

TITLE: SITE PLAN	DWN: TMM	DES.: JK	PROJECT NO.: 194	
	CHKD: JK	APPD:	CHAMPION TECH. IN TEXAS	
	DATE: 6/9/98	REV.: 0	FIGURE 1	

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#1. LAB SINK

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#2. LAB AREA- WASTE

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#3. SW CORNER OF LAB BLDG.-HAZ WASTE DRUMS & LAB WASTE WATER DRUMS SHOWN TO THE RIGHT

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

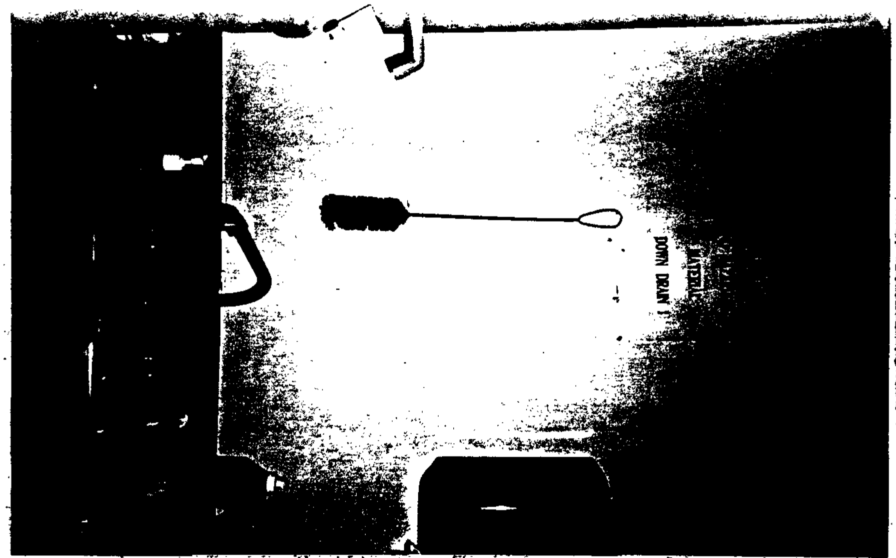
#4. TWO LAB WASTE WATER RETAIN DRUMS

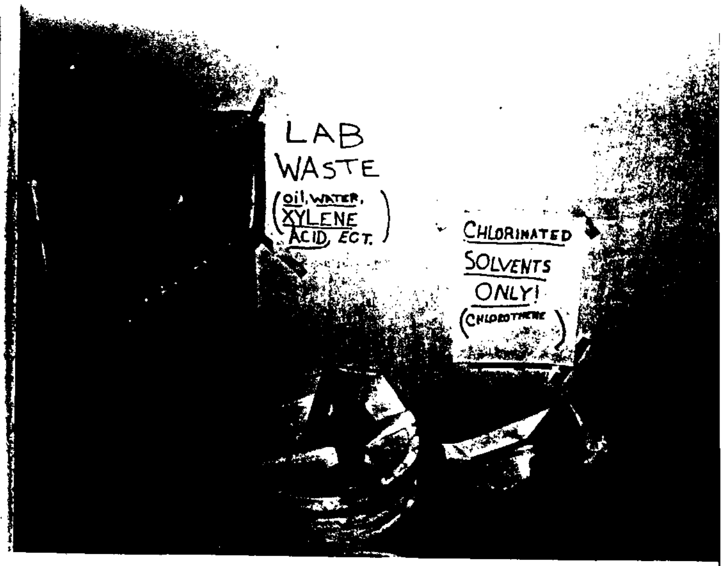
CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

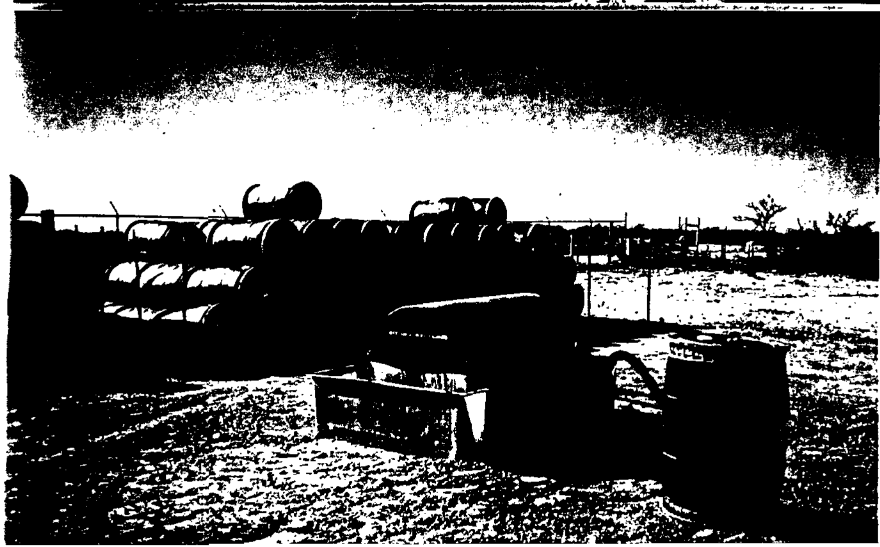
#5. EMPTY DRUM RINSE & STORAGE AREA - VISUAL SOIL STAINS- LOOKING SW

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#6. FIELD TANK WASH-OUT AREA - LOOKING WEST




LAB
WASTE
(oil, water,
XYLENE
ACID, ECT.)
CHLORINATED
SOLVENTS
ONLY!



CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#7. SLOW MOVING PRODUCT DRUMS ALONG THE NORTH PRO-PERTY LINE- LOOKING EAST.

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#8. STORAGE OF CHEMICAL PRODUCT DRUMS, LOCATED WEST OF WAREHOUSE- LOOKING SE.

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#9. STORAGE OF CHEMICAL PRODUCT DRUMS, LOCATED WEST OF WAREHOUSE- LOOKING SW

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

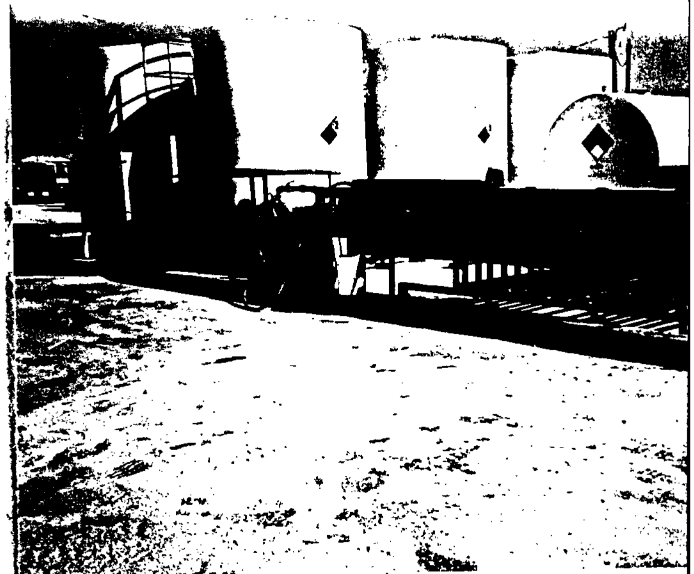
#10. BULK TANK LOAD/UN-LOAD FACILITY- LOOKING NE

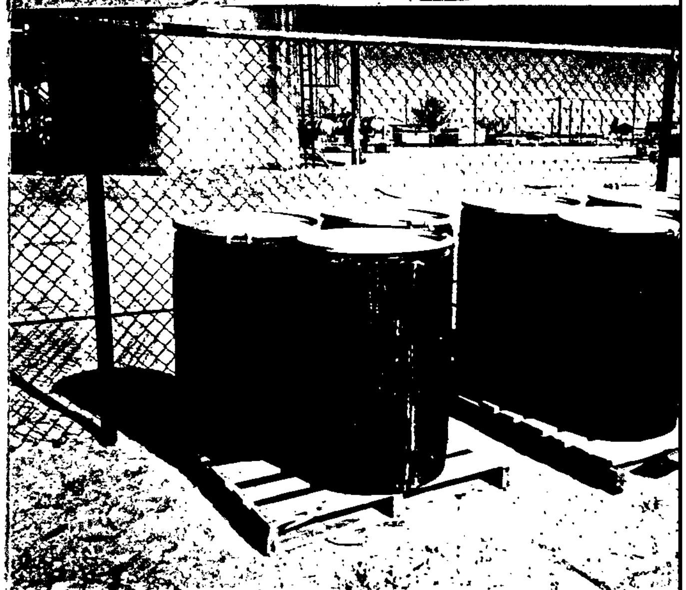
CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

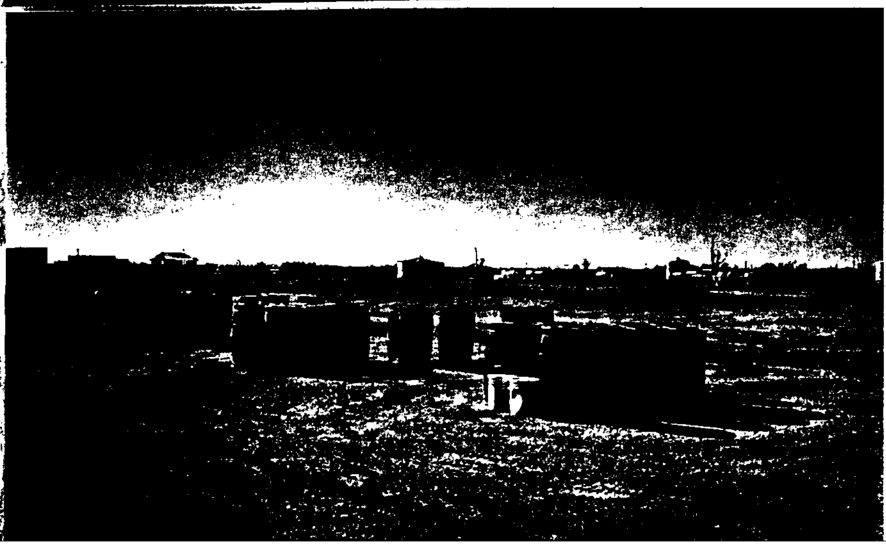
#11. SEVEN DRUMS OF WASTE GENERATED AS A RESULT OF A RECENT NMED-HRMB INSPECTION- LOOKING NN

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 8824
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#12. INSIDE WAREHOUSE-WASTE COLLECTION AREA LOOKING SOUTH







CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#13. INSIDE WAREHOUSE-WASTE COLLECTION AREA
- LOOKING WEST

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#14. WAREHOUSE DRUM STORAGE AREA -LOOKING
NORTH

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#15. OFFICE BREAK ROOM- COLLECTING WATER SAMPLES
SAMPLE ID# 9812081151

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 8824
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#16. PRODUCT DRUM STORAGE AREA WEST OF
WAREHOUSE- LOOKING WEST

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#17. PRODUCT DRUM STORAGE AREA WEST OF
WAREHOUSE- LOOKING EAST

COLLECTED SAMPLE OF YELLOW STAINED SOIL.
SAMPLE ID # 9812081209

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#18. PRODUCT DRUM STORAGE AREA WEST OF
WAREHOUSE- LOOKING NORTH-

#18. COLLECTED SAMPLE OF YELLOW STAINED SOIL.
LOCATION APPROX. 105 FT FROM WEST EDGE OF
WAREHOUSE CONCRETE PAD AND 71 FT SOUTH OF NORTH
FENCE.






CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#19. PICTURE SHOWS YELLOW STAINED SOIL & ROCKS
SAMPLED HERE. LOCATION SAME AS PREVIOUS PICTURE.

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#22 SAME AS 19&20

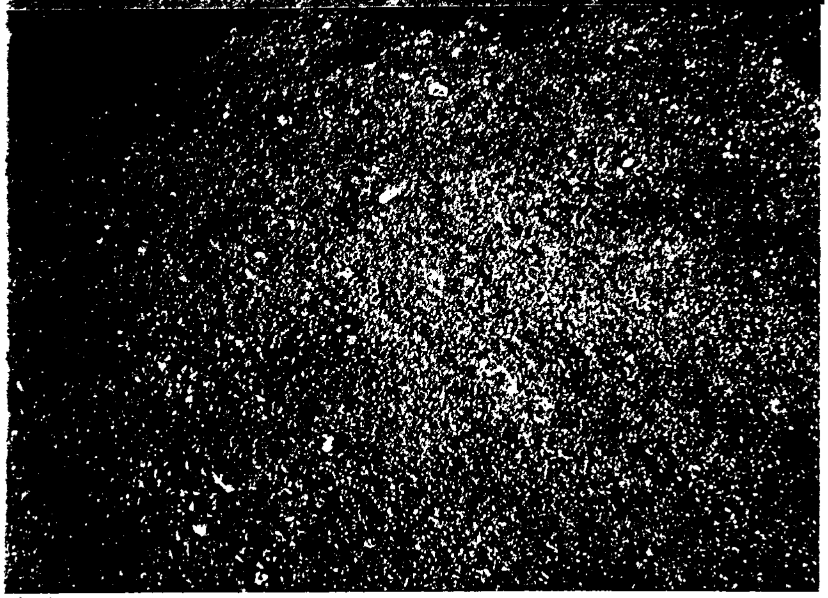
CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#20 PICTURE SHOWS YELLOW STAINED SOIL & ROCKS
SAMPLED HERE. LOCATION SAME AS PREVIOUS PICTURE.

SAMPLE POINT AREA SAME AS PREVIOUS

CHAMPION TECH. INC. 4001 S. HWY. 18 Hobbs, NM 88240
BY: W PRICE & G WINK -OCD DATE: DEC 08, 1998

#21 SAME AS 20.



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Company NMOCD

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Dept./Floor/Suite/Room

City HOBBS State NM ZIP 88240

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6 Special Handling

Does this shipment contain dangerous goods? ☐ Yes (As per attached Shipper's Declaration) ☐ Yes (Shipper's Declaration not required)

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CA ☐ Cargo Aircraft Only

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(Enter FedEx account no. or Credit Card no. below)

FedEx Account No. 2304-9385.5

Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value*	Total Charges
		$ .00	$

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

8 Release Signature *Sign to authorize delivery without obtaining signature*

Wayne Price

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

287

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Rev. Date 5/97 Part #150365 ©1994-97 FedEx PRINTED IN U.S.A. GBFE 8/97

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Definitions On this Airbill, "we," "our" and "us" refer to Federal Express Corporation, its employees, and agents. "You" and "your" refer to the sender, its employees, and agents.

Agreement To Terms By giving us your package to deliver, you agree to all the terms in our current Service Guide, which is available on request. You also agree to those terms on behalf of any third party with an interest in the package. If there is a conflict between the Service Guide and this Airbill, the Service Guide will control. No one is authorized to change the terms of our Agreement.

Responsibility For Packaging And Completing Airbill You are responsible for adequately packaging your goods and properly filling out this Airbill. If you omit the number of packages and/or weight per package, our billing will be based on our best estimate of the number of packages we received and/or an estimated "default" weight per package as determined by us.

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- **FedEx Express Saver Freight:** Up to 3 business-day service to all points in the 48 states; rates are based upon the distance shipped.

Part #150364/150365 • Rev. 5/97

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 1104.00

or cash received on ______________ in the amount of $ 2/27/98

from Champion

for Hobbs GW 199
(Facility Name) (DP No.)

Submitted by: ______________________ Date: ______________

Submitted to ASD by: R Anderson Date: 3/12/98

Received in ASD by: ______________________ Date: ______________

Filing Fee ____ New Facility X Renewal ____

Modification ____ Other ______________________
(specify)

Organization Code 521.07 Applicable FY 98

To be deposited in the Water Quality Management Fund.

Full Payment ____ or Annual Increment X

2-5 of 5

Champion Technologies, Inc.
P.O. BOX 27727
HOUSTON, TEXAS 77227-7727

Frost National Bank
Corpus Christi, Texas 78411

N0035 [redacted]

DATE
2/27/98

CHECK AMOUNT
****1,104.00

ONE THOUSAND ONE HUNDRED FOUR DOLLARS 00*CENTS

PAY TO

NMED
WATER QUALITY MANAGEMENT
OCD

Karen Grimes

VOID AFTER 60 DAYS

[redacted]

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

MAR 9 1998
OIL CONSERVATION DIV

Telephone (281) 431-2561
Fax (281) 431-1655

Certified Receipt Number P 072 792 355

March 3, 1998

Mr. Roger Anderson
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, NM 87505

RE: Discharge Plan Fees GW-199
Hobbs Facility
Lea County, NM

Dear Mr. Anderson:

Attached is Champion's check number 269993 in the amount of $1,104.00 to cover the remaining fee balance for the Hobbs facility discharge plan (GW-199).

Should you have any questions you can contact me at the phone number on this letter.

Sincerely,

Mel K Davis

Melvin K. Davis
Environmental Health & Safety Manager

cc: Hobbs file
Tommy Morrison

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

February 17, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-259-024

Mr. Melvin K. Davis
Champion Technologies, Inc.
P.O. Box 450499
Houston, Texas 77245-0499

Re: Discharge Plan Fees GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mr. Davis:

On May 1, 1996,Champion Technologies, Inc. received, via certified mail, a letter from the New Mexico Oil Conservation Division (OCD) stating that the discharge plan GW-199 for the Hobbs Facility was approved. In that letter it also stated that, in accordance with Water Quality Control Commission Regulation (WQCC) 3114, a $50 filing fee and a $1,380 flat fee were required upon receipt of the approval letter. The $50 filing fee and one installment payment ($276) of the flat fee have been received by the OCD. As of this date, there is a remaining amount of $1,104. The last installment received by the OCD was May 31, 1996. Please submit the remaining $1,104 flat fee in full by March 17, 1998.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

If you have any questions, please contact me at (505)-827-7152 or Mark Ashley at (505) 827-7155.

Sincerely,

Roger Anderson

Roger Anderson
Environmental Bureau Chief

RCA/mwa

cc: OCD Hobbs Office

P 288 259 034

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Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

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PS Form **3800**, April 1995

Champion Technologies, Inc.

P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (713) 431-2561

CERTIFIED RETURN RECEIPT NO. Z 153 537 241

October 11, 1996

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Energy, Minerals and Natural Resource Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

RE: Discharge Plan; Hobbs Facility, Lea County, NM

Dear Mr. Anderson:

Enclosed (Attachment I) is a second analysis for the septic tank laterial at the Hobbs site showing similar results as the first analysis submitted to your office, February 15 , 1996.

It is Champion's opinion, the total chromium is within background levels per the attachment II table and poses little threat to the groundwater. The groundwater is also protected in that the chromium is the salt of a weak acid and must migrate through approximately 15 feet of caleche and another 15-20 feet of soil before entering the groundwater. The caleche is an alkali based soil and will likely capture and hold the chromium much like an ion exchange bed. Champion also has a policy of no disposal of laboratory chemicals down the drains, therefore it is very likely the chromium is naturally occurring or migrated via air and ground from prior use of large amounts of chromium in the region. Attachment II, which is provided by Champion's independent consultant does tend to indicate the total chromium is at levels consistent with background levels for this region.

The analysis also shows minor levels of total arsenic and total barium with the leachable fraction expected to be well below RCRA limits. Champion does not use any of these chemicals at the Hobbs site and has been provided data (attachment II) from an independent consultant indicating these levels are with statistical naturally occurring levels for this region. Based on the data and analysis of the well water, it is unlikely there is any threat to groundwater.

Champion's independent consultant is in the process of compiling a report to further demonstrate Champion's position of little or no impact to the groundwater. It would be appreciated if the OCD would provide input in the selection of additional sampling sites if further analytical work is required.

Should you have any questions call me at the number on this letter.

Sincerely,

Mel K Davis

Melvin K. Davis
Manger
Environmental, Health and Safety

cc: File - Hobbs, NM OCD
Richard Finley
Clarence Meyer

FAX (713) 431-1655
TELEX 762-012

ATTACHMENT I

Hall Environmental
Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins N.E.
Albuquerque, NM 87109
(505)345-3975

8/19/96

Harrison Drilling
3206 Enterprise Dr.
Hobbs, NM 88204

Dear Mr. Allen Childs,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

COPY #1 Scott Hallenbeck

Scott Hallenbeck, Lab Manager

Project: 9607088/Champion Hobbs

Results for sample: Water Well

Date collected: 7/30/96	Date received: 7/30/96
Date extracted: NA	Date analyzed: 7/31/96
Client: Harrison Drilling	
Project Name: Champion Hobbs	HEAL #: 9607088-1
Project Manager: Allen Childs	Sampled by: C. Harrison
Matrix: Aqueous	

Test: EPA 8020

Compound	Result	Units
MTBE	<2.5	PPB (µg/L)
Benzene	<0.5	PPB (µg/L)
Toluene	<0.5	PPB (µg/L)
Ethylbenzene	<0.5	PPB (µg/L)
Total Xylenes	<0.5	PPB (µg/L)

BFB (Surrogate) Recovery = 92%

Dilution Factor = 1

Hall Environmental Analysis Laboratory

Client:	Harrison Drilling	**Project:**	Champion-Hobbs
Address:	3206 Enterprise Dr.	**Project Number:**	
	Hobbs, NM 88240	**Project Manager:**	Allen Childs
		Date Collected:	7/30/96
		Date Received:	7/30/96
Report Date:	8/2/96	**Sample Matrix:**	Aqueous
Analysis Date	8/2/96	**Extraction Date**	8/2/96

Analytical Results - 418.1

Final volume of Freon-113 used (ml)	50
Sample volume (ml)	1000

HEAL ID	Client ID	Absorbance	Dilution	TPH (mg/l)
9607088-1	Water Well	0.007	1	<1.0

QA/QC

Ext Blk 8/2	N/A	-0.002	1	<1.0

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
Blk. Spike 8/2	<1.0	5.0	4.8	96

Sample ID:	Sample Amount	Duplicate	RPD
Blk. Dup. 8/2	<1.0	<1.0	N/A

Sincerely:

Jerry Richardson
Semi-Volatiles Supervisor

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite C Albuquerque, NM 87109
Voice (505) 345-3975, Fax (505) 345-4107

Hall Environmental Analysis Laboratory

Client:	Harrison Drilling	**Project:**	Champion-Hobbs
Address:	3206 Enterprise Dr. Hobbs, NM 88240	**Project Number:**	
		Project Manager:	Allen Childs
		Date Collected:	7/30/96
		Date Received:	7/30/96
Report Date:	8/2/96	**Sample Matrix:**	Soil
Analysis Date:	8/2/96	**Extraction Date**	8/2/96

Analytical Results - 418.1

Final volume of Freon-113 used (ml)	20
Sample weight (g)	10

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/kg)
9607088-2	BH #1 A	-0.002	1	<20
9607088-3	BH #2	-0.003	1	<20

QA/QC

Ext Blk 8/2	N/A	-0.001	1	<20

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
9607088-2	<20	100	96	96

Sample ID:	Sample Amount	Duplicate	RPD
9607088-2	<20	<20	NA

Sincerely:

Jerry Richardson
Semi-Volatiles Supervisor

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite C Albuquerque, NM 87109
Voice (505) 345-3975, Fax (505) 345-4107

Hall Environmental Analysis Laboratory

Client: Harrison Drilling
Address: 3206 Enterprise Dr.
Hobbs, NM 88240

Report Date: August 15,1996

Project: Champion - Hobbs
Project Number:
Project Manager: Allen Childs
Date Collected: 7/30/96
Date Received: 7/30/96
Sample Matrix: Soil & Aqueous

FINAL RESULTS

Analytical Results

Digestion Method: USEPA 3050 & 3020 **Digestion Date:** 7/31/96

HEAL LAB ID	Sample ID	Silver ppm	Arsenic ppm	Barium ppm	Cadmium ppm	Chromium ppm	Mercury ppm
9607088-1	Water Well	<0.01	0.007	<0.5	<0.005	0.08	<0.0002
9607088-2	BH #1A	<0.5	2.5	210	<0.3	7.0	<0.1
9607088-3	BH #2	<0.5	2.3	370	<0.3	6.0	<0.1
9607088-2d	Duplicate	<0.5	2.5	190	<0.3	8.5	<0.1
Method ID		7760	7060	7080	7130	7190	7470
Date Analyzed		8/14/96	8/2/96	8/8/96	8/14/96	8/8/96	8/8/96
MRL Soil		0.5	0.3	30	0.3	1	0.1
MRL Water		0.01	0.005	0.5	0.005	0.02	0.0002

Comments: Soil results based on a as received moisture basis.

HEAL LAB ID	Sample ID	Lead ppm	Selenium ppm				
9607088-1	Water Well	0.080	<0.005				
9607088-2	BH #1A	<5.0	<0.3				
9607088-3	BH #2	<5.0	<0.3				
9607088-2d	Duplicate	<5.0	<0.3				
Method ID		7420	7740				
Date Analyzed		8/14/96	8/1/96				
MRL Soil		5	0.3				
MRL Water		0.002	0.005				

Reviewed by:

Russell H. Zittlosen

Russell H. Zittlosen
Inorganic Laboratory Manager

4901 Hawkins NE, Suite C, Albuquerque, NM 87109
Voice (505)345-3975, Fax (505)345-4107

Results for sample: Trip Blank

Date collected: NA	Date received: 7/30/96
Date extracted: NA	Date analyzed: 7/31/96
Client: Harrison Drilling	
Project Name: Champion Hobbs	HEAL #: 9607088-4
Project Manager: Allen Childs	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8020

Compound	Result	Units
MTBE	<2.5	PPB (µg/L)
Benzene	<0.5	PPB (µg/L)
Toluene	<0.5	PPB (µg/L)
Ethylbenzene	<0.5	PPB (µg/L)
Total Xylenes	<0.5	PPB (µg/L)

BFB (Surrogate) Recovery = 93%

Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 7/31/96
Client: Harrison Drilling	
Project Name: Champion Hobbs	HEAL #: RB 7/31
Project Manager: Allen Childs	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8020

Compound	Result	Units
MTBE	<2.5	PPB (µg/L)
Benzene	<0.5	PPB (µg/L)
Toluene	<0.5	PPB (µg/L)
Ethylbenzene	<0.5	PPB (µg/L)
Total Xylenes	<0.5	PPB (µg/L)

BFB (Surrogate) Recovery = 104%

Dilution Factor = 1

Results for : Matrix Spike/Matrix Spike Duplicate

Date extracted: NA	Date analyzed: 7/31/96
Client: Harrison Drilling	
Project Name: Champion Hobbs	HEAL #: MS/MSD 9607085-4
Project Manager: Allen Childs	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8020

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
MTBE	<2.5	40.0	36.9	92	36.3	91	2
Benzene	<0.5	20.0	19.4	97	19.4	97	0
Toluene	<0.5	20.0	19.7	99	19.4	97	2
Ethylbenzene	<0.5	20.0	19.1	96	19.2	96	1
Total Xylenes	<0.5	60.0	58.5	98	58.7	98	0

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite C
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: HARRISON DRILLING

Project Name: CHAMPION - HOBBS

Address: 3206 ENTERPRISE DR.
HOBBS, NM 88240

Project #:

Project Manager: ALLEN CHILDS

Phone #: (505) 392-6768

Sampler: C. HARRISON

Fax #: (505) 392-9151

Samples Cold? ☑ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative Other	HEAL No.	BTEX + MTBE (602/8020)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	THP (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	Basic Soil Test (PH, EC, SAR, PSA)	8080 Pesticides / PCB's					Air Bubbles or Headspace (Y or N)
7-30	0900	H_2O	WATER WELL		✓			9607098-1	✓			✓					✓									
7-30	0900	SOIL	BH #1 A	BRASS LINER				-2				✓					✓									
7-30	0900	SOIL	BH #2	BRASS LINER				-3				✓					✓									
			Trip Blank					-4	✓																	

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
7-30	1400	C. Harrison	[signature] 7/30
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

ATTACHMENT II

NUMBER: ______ ______

NAME/CODE: [redacted]

CONCENTRATIONS (ppm)

PARAMETER	EPA Sample Numbers	Ambient Background 1. Western U.S. 2.	Ambient Background 1. Eastern U.S. 2.
Matrix Type		Soil	Soil
Aluminum		54,000	33,000
Chromium		38	36
Barium		560	300
Beryllium		0.6	0.6
Cobalt		0	7
Copper		21	14
Iron		20,000	15,000
Nickel		16	13
Manganese		390	290
Zinc		51	36
Boron		22	32
Vanadium		66	46
Silver		<.50	-
Arsenic		6.1	5.4
Antimony		<150	-
Selenium		0.25	0.39
Thallium		-	-
Mercury		0.055	0.096
Tin		<10	<10
Cadmium		<1	<1
Lead		18	14
Ammonia		-	-
Cyanide		-	-
Sulfide		-	-
Station No.			
Sample Station Location			

1. Ambient background concentrations apply only to soil matrix samples. Values obtained from "Geochemistry of Some Rocks, Soils, Plant and Vegetables in the Conterminous United States" Geological Survey Professional Paper

Reference for East/West Division is the 97° W longitudinal line which bisects Region VI.

'Concentration corrected for lab blank concentration

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 5/13/96

or cash received on ____________ in the amount of $ 276.00

from Champion Technologies

for Hobbs GW-199
(Facility Name) (DP No.)

Submitted by: ____________ Date: ____________

Submitted to ASD by: R C Chandler Date: 5/31/96

Received in ASD by: Dyanne Salazar Date: 5-31-96

Filing Fee ____ New Facility X Renewal ____

Modification ____ Other ____________
(specify)

Organization Code 521.07 Applicable FY 96

To be deposited in the Water Quality Management Fund.

Full Payment ____ or Annual Increment X
1 of 5

Champion Technologies, Inc.
P.O. BOX 27727
HOUSTON, TEXAS 77227-7727

Frost National Bank
Corpus Christi, Texas 78411

[redacted]

DATE
5/13/96

CHECK AMOU
$276.00

PAY EXACTLY $***276 DOLLARS AND 00/100**************************

PAY TO

NEW MEXICO OIL CONSERVATION DIVISION

Roberta T. Jones
Karen Grimes

VOID AFTER 60 DAYS

[redacted]

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (713) 431-2561

RECEIVED
MAY 23 1996

CERTIFIED RETURN RECEIPT NO. P 334 055 589

May 20, 1996

Mr. William J. LeMay, Director
Energy, Minerals, and Natural Resources Dept.
Oil Conservation Division (OCD)
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Discharge Plan GW-199, Hobbs Facility

Dear Mr. LeMay:

The signed discharge plan (GW-199) for the Hobbs, NM facility is attached. Payment in the amount of $276.00 by check number 205742 is the first of five annual installments for the discharge plan fee of $1380.00.

Champion Technologies, Inc. is in the process of collecting data to demonstrate to the OCD that material from the septic system at the Hobbs facility is stable and not migrating. This is a condition of item 10 of the discharge plan.

Should you have any questions please contact me at (713) 431-2561.

Sincerely,

Melvin K. Davis

Melvin K. Davis
Manager
Environmental, Health and Safety

Encl: check
File: Hobbs/EPA/OCD

cc: Allan Childs
Clarence Meyer
Gary Spicer

FAX (713) 431-1655
TELEX 762-012

ATTACHMENT TO THE DISCHARGE PLAN GW-199 APPROVAL
CHAMPION TECHNOLOGIES, INC.
HOBBS FACILITY
DISCHARGE PLAN REQUIREMENTS
(May 1, 1996)

1. Payment of Discharge Plan Fees: The $1,380.00 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval.

2. Champion Commitments: Champion will abide by all commitments submitted in the Discharge plan application dated May 19, 1995; and additional information dated August 15, 1995, and February 6, 1996.

3. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad and curb type containment. All empty drums should be stored on their sides with the bungs in place and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets should also be stored on an impermeable pad and curb type containment.

4. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

5. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad.

6. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

7. Tank Labeling: All tanks should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

8. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary

containment and leak-detection into the design. All pre-existing sumps and below-grade tanks must demonstrate integrity on an annual basis. Integrity tests include pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks or sumps.

9. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years there after. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD.

10. Class V Wells: Leach fields and other wastewater disposal systems at OCD regulated facilities which inject fluid other than sewage below the surface but into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. All class V wells will be closed unless, it can be demonstrated that protectable groundwater will not be impacted in the reasonably foreseeable future. Class V wells must be closed through the Santa Fe Office. The OCD allows industry to submit closure plans which are protective of human health/environment, and groundwater as defined by the WQCC, and are cost effective.

    Champion must demonstrate to the OCD that wastes from the septic system at the Hobbs Facility will not at any time migrate to the ground water and cause contamination. Please submit the requested information to the OCD by July 8, 1996. If Champion cannot demonstrate that the ground water will not be impacted, remediation of the septic system will be required.

11. Housekeeping: All systems designed for spill collection/prevention should be inspected to ensure proper operation and to prevent overtopping or system failure.

12. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the OCD Hobbs District Office.

13. Transfer of Discharge Plan: The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

14. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be

submitted for approval by the Director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

15. Conditions accepted by: Charles Hainebach 5/16/96

Company Representative Date

Charles Hainebach, Vice President

Title

ROUTINE INSPECTION AND MAINTENANCE PLAN
(Section X)

Bulk Tank Area: Visual inspection of tanks, valves, piping, and pumps twice weekly. Any leaks should be corrected immediately if possible. If problem calls for outside assistance, Emergency Coordinator will be notified immediately so that corrective action can be taken ASAP.

Drum Storage Area: Drum area is visually inspected on a daily basis. All drums will eventually be stored on cement or in a cemented diked containment area. At which time, inspections will follow the same inspection routine as the bulk tank area. Should a leak be detected, the drum will be placed inside a temporary fiberglass containment box and redrummed or overpacked. All leaks will be reported immediately to the Emergency Coordinator so a determination can be made as to the severity of the ground contamination prior to storage on concrete. If the leak is detected on the cemented area, the drum will again be placed in a temporary fiberglas containment box, and the leak will be absorbed before it reaches a non-cemented area. Drums should always be checked for weak spots (rusted areas) or for the possibility of leaking. For the time being, older drums will be stored on the cemented area.

Remainder of Plant Grounds: The remainder of the plant will be inspected daily to make sure that there are no chemicals left in open top drums or containers. To prevent rain water from filling these open top or cut off containers and thus possibly spilling chemical onto the ground, Champion will simply invert these containers so that they will not hold fluids. In order to do this though, the containers must be empty when inverted. Another remedy to this situation is to cover the open top containers with a tarp or plastic.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 1, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-948

Mr. Joe Schornick
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan GW-199 Approval
Hobbs Facility
Lea County, New Mexico

Dear Mr. Schornick:

The groundwater discharge plan, GW-199, for the Champion Technologies, Inc. (Champion) Hobbs Facility located in the NE/4 SE/4 of Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico, **is hereby approved** under the conditions contained in the enclosed attachment. The application consists of the discharge plan application dated May 19, 1995; and additional information dated August 15, 1995, and February 6, 1996. Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within five working days of receipt of this letter.**

The discharge plan renewal application was submitted pursuant to Section 3106 of the Water Quality Control Commission (WQCC) Regulations. It is approved pursuant to Section 3109.A. Please note Section 3109.F., which provides for possible future amendments or modifications of the plan. Please be advised that approval of this plan does not relieve Champion of liability should operations result in pollution of surface or ground waters, or the environment.

Please be advised that all exposed pits, including lined pits and open top tanks (exceeding 16 feet in diameter) shall be screened, netted, or otherwise rendered nonhazardous to wildlife including migratory birds.

Please note that Section 3104 of the regulations requires that "when a plan has been approved, discharges must be consistent with the terms and conditions of the plan." Pursuant to Section

3107.C. Champion is required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3109.G.4., this approval is for a period of five years. This approval will expire May 1, 2001, and an application for renewal should be submitted in ample time before that date. It should be noted that all discharge plan facilities will be required to submit plans for, or the results of, an underground drainage testing program as a requirement for discharge plan renewal.

The discharge plan renewal application for the Champion Technologies, Inc. Hobbs Facility is subject to WQCC Regulation 3114. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of $50 plus a flat fee of $1,380.00 for oil and gas service companies. The $50 filing fee was received by the OCD on May 18, 1995. The OCD has not received the flat fee of $1,380.00 which may be paid in a single payment due on the date of the discharge plan approval or in five equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval and subsequent installments due on this date of each calendar year.

On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan review.

Sincerely,

William J. LeMay
Director

WJL/mwa
Attachments

xc: OCD Hobbs Office

ATTACHMENT TO THE DISCHARGE PLAN GW-199 APPROVAL
CHAMPION TECHNOLOGIES, INC.
HOBBS FACILITY
DISCHARGE PLAN REQUIREMENTS
(May 1, 1996)

1. Payment of Discharge Plan Fees: The $1,380.00 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval.

2. Champion Commitments: Champion will abide by all commitments submitted in the Discharge plan application dated May 19, 1995; and additional information dated August 15, 1995, and February 6, 1996.

3. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad and curb type containment. All empty drums should be stored on their sides with the bungs in place and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets should also be stored on an impermeable pad and curb type containment.

4. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

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7. Tank Labeling: All tanks should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

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12. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the OCD Hobbs District Office.

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14. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be

submitted for approval by the Director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

15. Conditions accepted by: ______________________ Company Representative ________ Date

______________________ Title

Z 765 962 948

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

April 25, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-939

Mr. Joe Schornick
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mr. Schornick:

On February 6, 1996 the New Mexico Oil Conservation Division (OCD) received your response for additional information regarding Champion Technologies, Inc. (Champion) discharge plan application. In addition to supplying the requested additional information, Champion had several questions about the existing septic system and the classification and disposal of wastes from the Hobbs Facility.

In regards to septic systems, Class IV wells are used to inject hazardous or radioactive wastes into or above a formation that is within one-quarter mile of an underground source of drinking water (USDW) (40 CFR 144.6). Class IV wells are generally prohibited by 40 CFR 144.13. Pursuant to 40 CFR 144.12 the OCD is requiring the complete closure of all Class IV wells.

Class V wells are shallow waste disposal wells which inject a variety of fluids into or above a formation that is within one-quarter mile of a USDW (40 CFR 144.6). They include shallow non-hazardous industrial waste injection wells, septic systems, storm water drainage wells, and assorted other wells. Class V wells are regulated under the authority of Part C of the Safe Water Drinking Act (SWDA) (42 U.S.C. 300h *et seq.*; Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*)

Champion must demonstrate to the OCD that wastes from the septic system at the Hobbs Facility will not at any time migrate to the ground water and cause contamination. Please submit the requested information to the OCD by June 3, 1996.

In regards to conditionally exempt status, a generator is a conditionally exempt small quantity generator in a calender month if he generates no more than 100 Kilograms of hazardous waste in that month (40 CFR 261.5(a)). If the Hobbs Facility is a conditionally exempt small quantity generator, that does not exempt Champion from properly classifying and disposing of wastes generated by the Hobbs Facility (40 CFR 261.5).

If you have any questions, please call Mark Ashley at (505) 827-7155.

Sincerely,

Roger Anderson
Environmental Bureau Chief

xc: OCD Hobbs Office

Z 765 962 939

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PS Form **3800**, March 1993

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

DIVISION RECEIVED 8 52

April 11, 1996

Roger Anderson, Chief
OCD Environmental Bureau
2040 South Pacheco
Santa Fe, NM 87505

Dear Mr. Anderson:

This letter is in response to OCD's referral concerning analytical results found at Champion Technologies (Champion) in Hobbs, NM. Mr. Frank Sanchez, of my staff, recently spoke with Mr. C. Harrison (Harrison Drilling), the person responsible for sampling at Champion. According to Mr. Harrison, samples were obtained of both the septic tank leach field (soil), and of the laboratory wastes (aqueous). Analytical results, based on total metals, of leach field samples showed three metals (As, Ba, Cr) that might be a RCRA concern. Using the 20 times rule (on total metal analysis) for non-aqueous samples to approximate the levels of these metals if TCLP had been run, these metals would appear to be well under TCLP regulatory limits. None of the laboratory waste stream solvent constituents were found in the leach field above laboratory detection limits.

HRMB conducted an inspection of Champion on March 19, 1996 (a copy of the inspection report has been provided to Mr. Mark Ashley). At the time of inspection, laboratory wastes were properly contained and managed while being accumulated for off-site shipment to a RCRA facility. Since the quantity of hazardous waste generated at the facility in one month is very small, several years of accumulation is necessary before enough is accumulated for economical disposal.

HRMB will continue to inspect the facility, and if need be, investigate any future indiscretions or allegations of illegal disposal of hazardous waste constituents at the facility. This is to include the septic tank and leach field system at Champion. At this time, there appears to be no violation related to hazardous waste disposal at Champion.

Should you have any questions on this issue, please contact Mr. Coby Muckelroy at (505) 827-1558 or myself at (505) 827-1557.

Sincerely,

Benito J. Garcia

Benito Garcia, Chief
Hazardous and Radioactive Materials Bureau

cc: Marcy Leavitt, Chief, GWQB
Coby Muckelroy, Program Manager, RCRA Enforcement
Clay Bingham, District Manager, Champion Technologies
Clay Harrison, Harrison Drilling
Mark Ashley, OCD Environmental Bureau
file

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (713) 431-2561

CERTIFIED RETURN RECEIPT NO. P 334 055 551

February 15, 1996

State of New Mexico
Energy, Minerals and Natural Resources Department
2040 South Pacheco
Santa Fe, NM 87505-5472

ATTN: Mark Ashley, OCD Division
RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mark,

Enclosed is the analytical data I promised you in my last letter of February 6. This data includes analysis of two (2) soil samples and two (2) undiluted waste streams. The soil samples were taken adjacent to the septic tank lateral lines at two different depths. The waste samples are taken from what we call the chlorinated waste, and from the metal salt waste.

If I can be of further assistance, please write or give me a call.

Sincerely,

Joe Schornick

Joe Schornick
Environmental Specialist
Champion Technologies, Inc. - Fresno, TX

cc: Mel Davis

FAX (713) 431-1655
TELEX 762-012

Hall Environmental
Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite C
Albuquerque, NM 87109
(505) 345-3975

2/9/96

Harrison Drilling
3206 Enterprise Dr.
Hobbs, NM 88240

Dear Allan Childs,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

Scott Hallenbeck 2/12/96

Scott Hallenbeck, Lab Manager

Russell H Zittlosen

Russell Zittlosen, Inorganics
Lab Manager

Project: 9601024/Champion Technologies, Inc.,Hobbs, NM

Results for sample: BH#1 7.5'- 8.0'

Date collected: 1/6/96	Date received: 1/8/96
Date extracted: NA	Date analyzed: 1/15/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: 9601024-1
Project Manager: Allan Childs	Sampled by: C. Harrison
Matrix: Non-Aqueous	

Test: EPA 8010/8020

Analyte:	Results	Detection Limit	Units
Benzene	nd	<0.05	mg/kg
Bromodichloromethane	nd	<0.01	mg/kg
Bromoform	nd	<0.05	mg/kg
Bromomethane	nd	<0.05	mg/kg
Carbon Tetrachloride	nd	<0.01	mg/kg
Chlorobenzene	nd	<0.01	mg/kg
Chloroethane	nd	<0.01	mg/kg
Chloroform	nd	<0.01	mg/kg
Chloromethane	nd	<0.01	mg/kg
2-Chloroethylvinyl Ether	nd	<0.05	mg/kg
Dibromochloromethane	nd	<0.01	mg/kg
1,3-Dichlorobenzene	nd	<0.01	mg/kg
1,2-Dichlorobenzene	nd	<0.01	mg/kg
1,4-Dichlorobenzene	nd	<0.01	mg/kg
Dichlorodifluoromethane	nd	<0.01	mg/kg
1,1-Dichloroethane	nd	<0.01	mg/kg
1,2-Dichloroethane	nd	<0.01	mg/kg
1,1-Dichloroethene	nd	<0.01	mg/kg
1,2-Dichloroethene (Cis)	nd	<0.01	mg/kg
1,2-Dichloroethene (Trans)	nd	<0.01	mg/kg
1,2-Dichloropropane	nd	<0.01	mg/kg
cis-1,3-Dichloropropene	nd	<0.01	mg/kg
trans-1,3-Dichloropropene	nd	<0.01	mg/kg
Ethylbenzene	nd	<0.05	mg/kg
Dichloromethane	nd	<0.1	mg/kg
1,1,2,2-Tetrachloroethane	nd	<0.01	mg/kg
Tetrachloroethene (PCE)	nd	<0.01	mg/kg
Toluene	nd	<0.05	mg/kg
1,1,1-Trichloroethane	nd	<0.01	mg/kg
1,1,2-Trichloroethane	nd	<0.01	mg/kg
Trichloroethene (TCE)	nd	<0.01	mg/kg
Vinyl Chloride	nd	<0.01	mg/kg
Xylenes (Total)	nd	<0.05	mg/kg
Trichlorofluoromethane	nd	<0.01	mg/kg
MTBE	nd	<0.1	mg/kg

BFB (Surrogate) Recovery = 101 %

BCM (Surrogate) Recovery = 81 %

Results for sample: BH#1 7.5'- 8.0'

Date collected: 1/6/96	Date received: 1/8/96
Date extracted: 1/15/96	Date analyzed: 1/16/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: 9601024-1
Project Manager: Allan Childs	Sampled by: C. Harrison
Matrix: Non-Aqueous	

Test: EPA 418.1

Compound	Result	Units
TPH	160	PPM (mg/kg)

Dilution Factor = 1

Results for sample: BH#1 8.0'-8.5'

Date collected: 1/6/96	Date received: 1/8/96
Date extracted: NA	Date analyzed: 1/15/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: 9601024-2
Project Manager: Allan Childs	Sampled by: C. Harrison
Matrix: Non-Aqueous	

Test: EPA 8010/8020

Analyte:	Results	Detection Limit	Units
Benzene	nd	<0.05	mg/kg
Bromodichloromethane	nd	<0.01	mg/kg
Bromoform	nd	<0.05	mg/kg
Bromomethane	nd	<0.05	mg/kg
Carbon Tetrachloride	nd	<0.01	mg/kg
Chlorobenzene	nd	<0.01	mg/kg
Chloroethane	nd	<0.01	mg/kg
Chloroform	nd	<0.01	mg/kg
Chloromethane	nd	<0.01	mg/kg
2-Chloroethylvinyl Ether	nd	<0.05	mg/kg
Dibromochloromethane	nd	<0.01	mg/kg
1,3-Dichlorobenzene	nd	<0.01	mg/kg
1,2-Dichlorobenzene	nd	<0.01	mg/kg
1,4-Dichlorobenzene	nd	<0.01	mg/kg
Dichlorodifluoromethane	nd	<0.01	mg/kg
1,1-Dichloroethane	nd	<0.01	mg/kg
1,2-Dichloroethane	nd	<0.01	mg/kg
1,1-Dichloroethene	nd	<0.01	mg/kg
1,2-Dichloroethene (Cis)	nd	<0.01	mg/kg
1,2-Dichloroethene (Trans)	nd	<0.01	mg/kg
1,2-Dichloropropane	nd	<0.01	mg/kg
cis-1,3-Dichloropropene	nd	<0.01	mg/kg
trans-1,3-Dichloropropene	nd	<0.01	mg/kg
Ethylbenzene	nd	<0.05	mg/kg
Dichloromethane	nd	<0.1	mg/kg
1,1,2,2-Tetrachloroethane	nd	<0.01	mg/kg
Tetrachloroethene (PCE)	nd	<0.01	mg/kg
Toluene	nd	<0.05	mg/kg
1,1,1-Trichloroethane	nd	<0.01	mg/kg
1,1,2-Trichloroethane	nd	<0.01	mg/kg
Trichloroethene (TCE)	nd	<0.01	mg/kg
Vinyl Chloride	nd	<0.01	mg/kg
Xylenes (Total)	nd	<0.05	mg/kg
Trichlorofluoromethane	nd	<0.01	mg/kg
MTBE	nd	<0.1	mg/kg

BFB (Surrogate) Recovery = 96 %

BCM (Surrogate) Recovery = 86 %

Results for sample: BH#1 8.0'-8.5'

Date collected: 1/6/96	Date received: 1/8/96
Date extracted: 1/15/96	Date analyzed: 1/16/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: 9601024-2
Project Manager: Allan Childs	Sampled by: C. Harrison
Matrix: Non-Aqueous	

Test: EPA 418.1

Compound	Result	Units
TPH	25	PPM (mg/kg)

Dilution Factor = 1

Test: Inorganics

Compound	9601024-1 BH#1 7.5'-8.0'	9511001-8 BH#1 8.0'-8.5'	9601024-1 BH#1 7.5'-8.0' Duplicate	Detection Limit	Units	Method Number	Analysis Date
Total As	4.9	.34 6.8	-	0.5	mg/kg	7061	1/26
Total Ag	<1.0	<1.0	<1.0	1.0	mg/kg	7760	1/31
Total Ba	1,410	1,710	1,350	50	mg/kg	7080	1/31
Total Cd	<0.5	<0.5	<0.5	0.5	mg/kg	7131	1/31
Total Hg	<0.01	<0.01	<0.01	0.01	mg/kg	7470	1/26
Total Cr	7.0	.6 12	7.0	1.0	mg/kg	7191	1/31
Total Pb	<5	<5	<5	5	mg/kg	7421	1/29
Total Se	<0.5	<0.5	-	0.5	mg/kg	7741	1/26
EC	6.52	5.62	ISS	0.1	mmhos	120.1	2/1
pH	8.0	7.9	ISS	-	-	150.0	1/19
W.S Ca	378	320	ISS	0.10	mg/L	215.1	2/6
W.S. Mg	164	158	ISS	0.01	mg/L	242.1	2/6
W.S. Na	408	355	ISS	0.10	mg/L	273.1	2/6
W.S. K	5.40	5.06	ISS	0.05	mg/L	258.1	2/6
W.S. Cl	1,800	1,510	ISS	0.5	mg/L	300.0	1/25
W.S. SO_4	182	219	ISS	1	mg/L	300.0	1/25
W.S. CO_3	<2	<2	ISS	2	*	310.1	1/26
W.S. HCO_3	65	60	ISS	2	*	310.1	1/26
W.S. NO_3	4.6	4.2	ISS	0.3	mg/L	300.0	1/25
W.S.PO_4	<0.1	<0.1	ISS	0.1	mg/L	300.0	1/25

*mg/L $CaCO_3$ equivalent
pH determined from 1 to 1 paste.
EC, Cations and Anions determined from 1 to 1 paste extract.
Water soluble carbonate quantity dependent on soil to water ratio due to calcareous nature of soil.
W.S. = Water Soluble
ISS = Insufficient sample

Results for QC:Reagent Blank

Date extracted: NA	Date analyzed: 1/15/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: RB 1/15
Project Manager: Allan Childs	Sampled by: NA
Matrix: Non-Aqueous	

Test: EPA 8010/8020

Analyte:	Results	Detection Limit	Units
Benzene	nd	<0.05	mg/kg
Bromodichloromethane	nd	<0.01	mg/kg
Bromoform	nd	<0.05	mg/kg
Bromomethane	nd	<0.05	mg/kg
Carbon Tetrachloride	nd	<0.01	mg/kg
Chlorobenzene	nd	<0.01	mg/kg
Chloroethane	nd	<0.01	mg/kg
Chloroform	nd	<0.01	mg/kg
Chloromethane	nd	<0.01	mg/kg
2-Chloroethylvinyl Ether	nd	<0.05	mg/kg
Dibromochloromethane	nd	<0.01	mg/kg
1,3-Dichlorobenzene	nd	<0.01	mg/kg
1,2-Dichlorobenzene	nd	<0.01	mg/kg
1,4-Dichlorobenzene	nd	<0.01	mg/kg
Dichlorodifluoromethane	nd	<0.01	mg/kg
1,1-Dichloroethane	nd	<0.01	mg/kg
1,2-Dichloroethane	nd	<0.01	mg/kg
1,1-Dichloroethene	nd	<0.01	mg/kg
1,2-Dichloroethene (Cis)	nd	<0.01	mg/kg
1,2-Dichloroethene (Trans)	nd	<0.01	mg/kg
1,2-Dichloropropane	nd	<0.01	mg/kg
cis-1,3-Dichloropropene	nd	<0.01	mg/kg
trans-1,3-Dichloropropene	nd	<0.01	mg/kg
Ethylbenzene	nd	<0.05	mg/kg
Dichloromethane	nd	<0.1	mg/kg
1,1,2,2-Tetrachloroethane	nd	<0.01	mg/kg
Tetrachloroethene (PCE)	nd	<0.01	mg/kg
Toluene	nd	<0.05	mg/kg
1,1,1-Trichloroethane	nd	<0.01	mg/kg
1,1,2-Trichloroethane	nd	<0.01	mg/kg
Trichloroethene (TCE)	nd	<0.01	mg/kg
Vinyl Chloride	nd	<0.01	mg/kg
Xylenes (Total)	nd	<0.05	mg/kg
Trichlorofluoromethane	nd	<0.01	mg/kg
MTBE	nd	<0.1	mg/kg

BFB (Surrogate) Recovery = 100 %

BCM (Surrogate) Recovery = 93 %

Results for QC:Reagent Blank

Date extracted: 1/15/96	Date analyzed: 1/16/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: RB 1/15
Project Manager: Allan Childs	Sampled by: NA
Matrix: Non-Aqueous	

Test: EPA 418.1

Compound	Result	Units
TPH	<20	PPM (mg/kg)

Dilution Factor = 1

Results for QC: Matrix Spike / Matrix Spike Dup

Date extracted: NA	Date analyzed: 1/15/96
Client: Harrison Drilling, Inc.	
Project Name: Champion Technologies, Inc.,Hobbs, NM	HEAL #: 9601024-2 MS/MSD
Project Manager: Allan Childs	Sampled by: NA
Matrix: Non-Aqueous	

Test: EPA 8010/8020

Compound	Sample Result	Result Added	Matrix Recov.	MS %	MSD Recov.	MSD %	RPD
Benzene	<0.05	1.00	0.96	96	0.92	92	4
Toluene	<0.05	1.00	0.88	88	0.87	87	1
Ethylbenzene	<0.05	1.00	0.87	87	0.83	83	4
Xylenes	<0.05	3.00	0.97	97	0.93	93	4
trans-1,2-DCE	<0.01	1.00	0.90	90	0.91	91	1
1,1 - DCA	<0.01	1.00	1.05	105	0.98	98	7
1,1,1 - TCA	<0.01	1.00	0.85	85	0.83	83	2
Carbon tet	<0.01	1.00	1.18	118	1.17	117	1
TCE	<0.01	1.00	1.16	116	1.15	115	1
PCE	<0.01	1.00	1.07	107	0.99	99	8

Test: EPA 418.1

Blank Spike:

Compound	Sample	Amount Spiked	Result Recovered	% Recovery
Total Petroleum Hydrocarbons	<20	100	102	102

Sample Duplicate 9601038-8:

Compound	Sample	Sample Duplicate	RPD
Total Petroleum	<20	<20	NA

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
2403 San Mateo NE, Suite P-13
Albuquerque, New Mexico 87110
505.880.1803

Client: HARRISON DRILLING

Project Name: CHAMPION TECHNOLOGIES, INC. HOBBS, NM

Address: 3206 ENTERPRISE DR. HOBBS, NM 88240

Project #: LEACH FIELD #1

Project Manager: ALLAN CHILDS

Phone #: (505) 392 ~~6890~~ 6768

Sampler: CLAIBORNE HARRISON

Fax #: (505) 392-9151

Samples Cold? ☑ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative HgCl2	HCl	Other	HEAL No.	BTEX (Method 602/8020)	BTEX + MTBE (602/8020)	TPH Method 8015 MOD (Gas/Diesel)	BTEX + TPH + MTBE (Gasoline Only)	BTEX + MTBE + TPH (Gas + Diesel)	TPH (Method 418.1)	601/602 Volatiles	EDB (Method 504.1)	EDC	610 (PNA or PAH)	8010/8020/418.1	CATIONS/ANIONS	RCRA 8-METALS TOTAL	Air Bubbles or Headspace (Y or N)
1-6-96	1500	SOIL	BH#1 7.5'-8.0'	Brass Liner				9601024-1	SEE REMARKS										X	X	X	
1-6-96	1500	SOIL	BH#1 8.0'-8.5'	Brass Liner				-2	SEE REMARKS										X	X	X	
1-6-96	1500	SOIL	BH#1 8.0' Composite	8 OZ. JAR					HOLD - DO NOT RUN													
1-6-96	1500	SOIL	BH#1 8.0' Composite	8 OZ. JAR					HOLD - DO NOT RUN													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
1-8-96	10:00	CJ Harrison	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: MAINTAIN METAL EXTRACT FOR 3 MONTHS
WRT Analysis Request, please see enclosed correspondence noting highlighted segment. Call if you have any questions. CJ Harrison

Hall Environmental
Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins N.E.
Albuquerque, NM 87109
(505)345-3975

2/13/96

Harrison Drilling
3206 Enterprise Dr.
Hobbs, NM 88204

Dear Mr. Allan Childs,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

Scott Hallenbeck 2/13/96

Scott Hallenbeck, Lab Manager

Project: 9602004/Champion Technologies

Results for sample: Chlorinated Waste

Date collected: 1/25/96
Date extracted: 2/12/96
Client: Harrison Drilling
Project Name: Champion Technologies
Project Manager: Allan Childs
Matrix: Aqueous

Date received: 2/1/96
Date analyzed: 2/12/96

HEAL #: 9602004-1
Sampled by: A. Childs/S. Seed

Test: EPA 8010/8020

Analyte:	Results	Detection Limit	Units
Benzene	nd	<5,000	PPB (µg/L)
Bromodichloromethane	nd	<2,000	PPB (µg/L)
Bromoform	nd	<10,000	PPB (µg/L)
Bromomethane	nd	<10,000	PPB (µg/L)
Carbon Tetrachloride	nd	<2,000	PPB (µg/L)
Chlorobenzene	nd	<2,000	PPB (µg/L)
Chloroethane	nd	<2,000	PPB (µg/L)
Chloroform	925,000	<2,000	PPB (µg/L)
Chloromethane	nd	<2,000	PPB (µg/L)
2-Chloroethylvinyl Ether	nd	<10,000	PPB (µg/L)
Dibromochloromethane	nd	<2,000	PPB (µg/L)
1,3-Dichlorobenzene	nd	<2,000	PPB (µg/L)
1,2-Dichlorobenzene	nd	<2,000	PPB (µg/L)
1,4-Dichlorobenzene	nd	<2,000	PPB (µg/L)
Dichlorodifluoromethane	nd	<2,000	PPB (µg/L)
1,1-Dichloroethane	nd	<2,000	PPB (µg/L)
1,2-Dichloroethane	520,000	<2,000	PPB (µg/L)
1,1-Dichloroethene	nd	<2,000	PPB (µg/L)
1,2-Dichloroethene (Cis)	nd	<2,000	PPB (µg/L)
1,2-Dichloroethene (Trans)	nd	<2,000	PPB (µg/L)
1,2-Dichloropropane	nd	<2,000	PPB (µg/L)
cis-1,3-Dichloropropene	nd	<2,000	PPB (µg/L)
trans-1,3-Dichloropropene	nd	<2,000	PPB (µg/L)
Ethylbenzene	nd	<5,000	PPB (µg/L)
Dichloromethane	nd	<20,000	PPB (µg/L)
1,1,2,2-Tetrachloroethane	nd	<2,000	PPB (µg/L)
Tetrachloroethene (PCE)	nd	<2,000	PPB (µg/L)
Toluene	nd	<5,000	PPB (µg/L)
1,1,1-Trichloroethane	nd	<2,000	PPB (µg/L)
1,1,2-Trichloroethane	nd	<2,000	PPB (µg/L)
Trichloroethene (TCE)	nd	<2,000	PPB (µg/L)
Vinyl Chloride	nd	<2,000	PPB (µg/L)
Xylenes (Total)	nd	<5,000	PPB (µg/L)
Trichlorofluoromethane	nd	<2,000	PPB (µg/L)
MTBE	nd	<25,000	PPB (µg/L)

BFB (Surrogate) Recovery = 91 %   BCM (Surrogate) Recovery = 102 %
Dilution Factor = 10,000

Results for sample: Chlorinated Waste

Date collected: 1/25/96	Date received: 2/1/96
Date extracted: 2/12/96	Date analyzed: 2/12/96
Client: Harrison Drilling	
Project Name: Champion Technologies	HEAL #: 9602004-1
Project Manager: Allan Childs	Sampled by: A. Childs/S. Seed
Matrix: Aqueous	

Test: EPA 418.1

Compound	Result	Units
TPH	42	PPB (µg/L)

Dilution Factor = 5

Results for sample: Chromate Waste

Date collected: 1/29/96	Date received: 2/1/96
Date extracted: 2/12/96	Date analyzed: 2/12/96
Client: Harrison Drilling	
Project Name: Champion Technologies	HEAL #: 9602004-2
Project Manager: Allan Childs	Sampled by: A. Childs/S. Seed
Matrix: Aqueous	

Test: EPA 8010/8020

Analyte:	Results	Detection Limit	Units
Benzene	nd	<1,250	PPB (µg/L)
Bromodichloromethane	nd	<500	PPB (µg/L)
Bromoform	nd	<2,500	PPB (µg/L)
Bromomethane	nd	<2,500	PPB (µg/L)
Carbon Tetrachloride	nd	<500	PPB (µg/L)
Chlorobenzene	nd	<500	PPB (µg/L)
Chloroethane	nd	<500	PPB (µg/L)
Chloroform	nd	<500	PPB (µg/L)
Chloromethane	nd	<500	PPB (µg/L)
2-Chloroethylvinyl Ether	nd	<2,500	PPB (µg/L)
Dibromochloromethane	nd	<500	PPB (µg/L)
1,3-Dichlorobenzene	nd	<500	PPB (µg/L)
1,2-Dichlorobenzene	nd	<500	PPB (µg/L)
1,4-Dichlorobenzene	nd	<500	PPB (µg/L)
Dichlorodifluoromethane	nd	<500	PPB (µg/L)
1,1-Dichloroethane	nd	<500	PPB (µg/L)
1,2-Dichloroethane	640	<500	PPB (µg/L)
1,1-Dichloroethene	nd	<500	PPB (µg/L)
1,2-Dichloroethene (Cis)	nd	<500	PPB (µg/L)
1,2-Dichloroethene (Trans)	nd	<500	PPB (µg/L)
1,2-Dichloropropane	nd	<500	PPB (µg/L)
cis-1,3-Dichloropropene	nd	<500	PPB (µg/L)
trans-1,3-Dichloropropene	nd	<500	PPB (µg/L)
Ethylbenzene	21,000	<1,250	PPB (µg/L)
Dichloromethane	nd	<5,000	PPB (µg/L)
1,1,2,2-Tetrachloroethane	nd	<500	PPB (µg/L)
Tetrachloroethene (PCE)	nd	<500	PPB (µg/L)
Toluene	88,000	<1,250	PPB (µg/L)
1,1,1-Trichloroethane	nd	<500	PPB (µg/L)
1,1,2-Trichloroethane	nd	<500	PPB (µg/L)
Trichloroethene (TCE)	nd	<500	PPB (µg/L)
Vinyl Chloride	nd	<500	PPB (µg/L)
Xylenes (Total)	110,000	<1,250	PPB (µg/L)
Trichlorofluoromethane	nd	<500	PPB (µg/L)
MTBE	nd	<6,250	PPB (µg/L)

BFB (Surrogate) Recovery = 101% BCM (Surrogate) Recovery = 113 %
Dilution Factor = 2,500

Results for sample: Chromate Waste

Date collected: 1/29/96	Date received: 2/1/96
Date extracted: 2/12/96	Date analyzed: 2/12/96
Client: Harrison Drilling	
Project Name: Champion Technologies	HEAL #: 9602004-2
Project Manager: Allan Childs	Sampled by: A. Childs/S. Seed
Matrix: Aqueous	

Test: EPA 418.1

Compound	Result	Units
TPH	1,100	PPB (μg/L)

Dilution Factor = 100

Hall Environmental Analysis Laboratory

PRELIMINARY REPORT

Client: Harrison Drilling
Address: 3206 Enterprise Dr.
Hobbs, NM 88204

Report Date: 2/9/96

Project: Champion Technologies
Project Number: Hobbs
Project Manager: Allan Childs
Date Collected: 1/25,29/1996
Date Received: 1/31/96
Sample Matrix: Aqueous/Solvent

Total Metal Analyses

Digestion Method: 3020 & 3030
Metals **Units:** PPM (mg/L) **Date Digested:** 2/5,6/96

HEAL LAB ID	Sample ID	Ag	As	Ba	Cd	Cr	Hg	Pb	Se
9602004-1	Chlorinated Waste-Aqueous	0.11	nd	nd	0.012	1.81	nd	0.38	nd
9602004-2	Chromate Waste-Aqueous	0.23	<0.050*	nd	nd	3.88	nd	0.09	0.012
9602004-1	Chlorinated Waste-Solvent	2	nd	nd	nd	nd	nd	nd	nd
9602004-2	Chromate Waste-Solvent	280	nd	nd	nd	nd	nd	nd	nd
9602004-1	Duplicate-Solvent	2	nd	nd	nd	nd	nd	nd	nd
9602004-2	Duplicate-Aqueous	0.18	<0.050*	nd	nd	3.89	nd	0.09	0.015
Method ID		7760	7060	7080	7130	7190	7470	7420	7740
Date Analyzed		2/8/96	2/8/96	2/8/96	2/8/96	2/8/96	2/8&9/96	2/8/96	2/8/96
MRL	Aqueous	0.01	0.005	0.5	0.005	0.02	0.0002	0.10	0.005
MRL	Solvent	0.5	0.3	30	0.3	1	0.01	5.0	0.3

* = High background readings due to sample matrix necessitated higher reporting limit
nd = Not detected, ie below MRL

Anion Analyses

Method: 300.0
Units: PPM (mg/L) **Date Analyzed:** 2/6,7/96

HEAL LAB ID	Sample ID	F	Cl	NO_2-N	Br	NO_3-N	PO_4-P	SO_4
9602004-1	Chlorinated Waste-Aqueous	6	12,300	nd	100	2	318	832
9602004-2	Chromate Waste-Aqueous	130	13,300	nd	103	33	24	30,500
9602004-2	Duplicate-Aqueous	7	12,300	nd	105	2	313	813
MRL		0.05	0.5	0.05	0.1	0.05	0.05	1.0

Other Analytes

Metals **Units:** PPM (mg/L)

HEAL LAB ID	Sample ID	Na	K	Mg	Ca				
9602004-1	Chlorinated Waste-Aqueous	6,000	603	243	905				
9602004-2	Chromate Waste-Aqueous	5,830	468	198	543				
9602004-2	Duplicate-Aqueous	5,890	473	196	546				

Method ID		7770	7610	7450	7140				
Date Analyzed		2/9/96	2/9/96	2/9/96	2/9/96				
MRL		0.05	0.05	0.005	0.10				

Reviewed by:

Russell H. Zittlosen

Russell H. Zittlosen
Inorganic Laboratory Manager

4901 Hawkins NE, Suite C Albuquerque, NM 87109
Voice (505) 345-3975
Fax (505) 345-4107

Results for QC: Matrix Spike/Matrix Spike Dup

Date extracted: NA	Date analyzed: 2/12/96
Client: Harrison Drilling	
Project Name: Champion Technologies	HEAL #: 9602004-1
Project Manager: Allan Childs	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8010/8020

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.5	20.0	20.2	101	20.8	104	3
Toluene	<0.5	20.0	20.4	102	21.2	106	4
1,1-DCE	<0.2	20.0	24.0	120	21.8	109	11
Trans-1,2-DCE	<0.2	20.0	20.4	102	19.8	99	3
1,2-DCA	<0.2	20.0	18.8	94	21.7	108	14
Carbon Tet.	<0.2	20.0	20.0	100	21.6	108	8
TCE	<0.2	20.0	22.8	114	23.2	116	2
PCE	<0.2	20.0	21.1	106	21.6	108	2

Results for QC: Reagent Blank/ Dup/ Spike

Date extracted: 2/12/96	Date analyzed: 2/12/96
Client: Harrison Drilling	
Project Name: Champion Technologies	HEAL #: RB/Dup/Spike 2/12
Project Manager: Allan Childs	Sampled by: NA
Matrix: Aqueous	

Test: EPA 418.1

Reagent Blank 12/29:

Compound	Result	Units
TPH	<20	PPM (mg/kg)

Dilution Factor = 1

9602004-2 Dup:

Compound	Sample Result	Dup Result	RPD
TPH	1,100	1,200	9

9512099-2 Spike

Compound	Sample Result	Amount Added	Amount Recovery	% Recovery
TPH	<1.0	5.0	5.1	102

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite C
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: Harrison Drilling
Clay Harrison

Address: 3206 Enterprise DR.
Hobbs, NM 88204

Phone #: Harrison – 505-392-6768
Champion - 505-393-7726

Fax #: 505-392-9151 Harrison

Project Name: Champion Technologies

Project #: HOBBS

Project Manager: Allan Childs

Sampler: Allan Childs/Sam Seed

Samples Cold? ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: Other	HEAL No.
1-25-96	1030	WATER	CHLORINATED WASTE					9602004-1
1-29-96	0850	WATER	CHROMATE WASTE					-2

ANALYSIS REQUEST

BTEX + MTBE (602/8020)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	THP (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	Basic Soil Test (PH, EC, SAR, PSA)	8080 Pesticides / PCB's			Air Bubbles or Headspace (Y or N)

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
1/29/96	1100	[signature]	[signature]
1/31/96	1200	[signature]	[signature] 2/1

Remarks: ANALYSIS REQ. AS PER PREVIOUS CORRESPONDENCE. [signature]

Form WR-23

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

#5 on LC-84-5

(Plat of 640 acres)

(A) Owner of well HARKIN & HOUSTON, INC.

Street and Number BOX 102

City HOBBS, N.M. L-6733 State

Well was drilled under Permit No. ~~L-6733~~(E) and is located in the SE ¼ NE ¼ SE ¼ of Section 15 Twp. 19 Rge. 38

(B) Drilling Contractor ABBOTT BROS. License No. WD-46

Street and Number BOX 637

City HOBBS, N.M. State

Drilling was commenced NOV. 15, 1970 19

Drilling was completed NOV. 16, 1970 19

Elevation at top of casing in feet above sea level Total depth of well 123'

State whether well is shallow or artesian Depth to water upon completion 50

Section 2

PRINCIPAL WATER-BEARING STRATA

No.	Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation
1	40	123	83	water sand
2				
3				
4				
5				

Section 3

RECORD OF CASING

Dia in.	Pounds ft.	Threads in	Depth Top	Depth Bottom	Feet	Type Shoe	Perforations From	Perforations To
7	23	8	1	123	123	none	50	123

Section 4

RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Diameter Hole in in.	Tons Clay	No. Sacks of Cement	Methods Used

Section 5

PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

No.	Depth of Plug From	Depth of Plug To	No. of Sacks Used

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. L-6733 Use Dom Location No. 19.38.15.4244 424233

Table 3
Water Quality of Water Wells with 1/2 Mile of Pate Trucking Facility
Analytical Results Obtained from the State Engineers Office

Well Owner	Permit No.	Total Depth	Depth to Water	Water Zone	Date Sampled	Well Use	Well Location				Water Quality			
							Township	Range	Section	Location	Chloride	SC	Temperature	TDS
Marroquin, Frank	W-1	100	--	TOG	12/20/79	IRR	T19S	R38E	15	41214	188	1348	--	--
Marroquin, Frank	W-2	100	--	TOG	12/20/79	DOM	T19S	R38E	15	412321	186	1049	--	--
Marroquin, Frank	W-2	100	--	TOG	11/29/84	DOM	T19S	R38E	15	412321	276	1331	--	--
Marroquin, Frank	W-2	100	--	TOG	07/12/90	DOM	T19S	R38E	15	412321	450	1988	--	--
Terry, Johnny	W-3	--	--	TOG	11/29/84	DOM	T19S	R38E	15	412322	284	1602	--	--
Viro-Montes	W-4	--	--	TOG	11/12/84	DOM	T19S	R38E	15	41413	158	1178	--	--
Champion Chemical	W-5	--	--	TOG	11/30/79	DOM	T19S	R38E	15	422444	186	1405	66	--
Champion Chemical	W-6	123	--	TOG	08/17/77	DOM	T19S	R38E	15	424233	504	2370	82	
Champion Chemical	W-6	123	--	TOG	11/29/84	DOM	T19S	R38E	15	424233	372	2208	--	--
Champion Chemical	W-7	142	--	TOG	08/25/65	COM	T19S	R38E	15	42441	830	3110	--	--

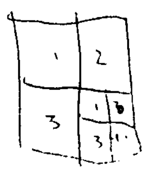
Permit No. is issued by State Engineer. *Where no well completion record was identified in State files a unique number beganing with a "W" was used to reference the well in this report.*

Location uses state number code

Well Use - DOM=Domestic, IRR=Irrigation, COM=Commerical, OWD=Oil well drilling

-- No data available

L-6733



.42 .42

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CHAMPION TECHNOLOGIES, INC.
INSPECTION REPORT

Date of Report:	March 26, 1996
Date of Inspection:	March 19, 1996
Facility:	Champion Technologies, Inc.
EPA ID Number:	NMD 986674869
Ownership:	Corporation
Location:	2 miles south of Hobbs on Hwy. 18 (4001 S. Hwy. 18)
Mailing Address:	P.O. Box 2187 Hobbs, NM 88240
Phone:	(505) 393-7726
Facility Contact:	Clay Bingham, District Manager
Enforcement Letter To:	Clay Bingham, District Manager
Notification Status:	Generator
Current Operating Status:	CESQG
Type of Inspection	Compliance Evaluation Inspection
Participants:	NMED: Frank Sanchez, Dan Fernandez Champion: Robert Middleton, Willie Mackey
Weather:	Overcast, windy, mid-60's
Time of Entry: Time of Exit:	8:45 a.m. 10:15 a.m.

INTRODUCTION

This inspection was conducted as a Compliance Evaluation Inspection (CEI) to fulfill the FY 96 grant agreement. Based on a file review, this facility has never been inspected by the Hazardous Waste Program. The following checklist was completed for this inspection: SQG (pages 1&2).

HISTORY AND NATURE OF BUSINESS

Champion Technologies, Inc. (CTI) occupies a seven acre rectangular plot on the west side of Highway 18. The surface of the grounds is mostly sand with some caliche and asphalt. CTI has been operating in the Hobbs area for 30 years as a satellite of headquarters located in Houston, Texas. They are a chemical distribution company whose products are utilized in oil field production. Chemicals sold by CTI include corrosion inhibitors, scale inhibitors, emulsion breakers, O_2 scavengers, H_2S scavengers and paraffin solvents. The facility employs 14 people.

WASTE STREAMS GENERATED AND HAZARDOUS WASTE MANAGEMENT AREAS

For the most part, chemical wastes are not generated by CTI. Since CTI provides a chemical product service, all leftover products are used in the field or put into stock. Unused stock is collected by CTI facilities nationally, then pooled and distributed as needed. Hazardous waste has not been disposed of over the last three years. Laboratory wastes collected at CTI consist of spent chlorinated solvent (F002) and aqueous waste that contains a very small amount of metal salts such as silver and mercury salts (D011, D009). These laboratory reagents are used in very small concentrations and collected in a glass bottle in the lab, except for the spent solvent which is collected in a 55 gallon drum outside the lab (~25 gallons collected over the last three years). Both alkaline and acid reagents are also used in the lab at a rate of approximately 16 gallons per year. These corrosive wastes are collected in 55 gallon poly drums outside the lab for disposal. Several years is required to generate a sufficient volume of waste for disposal.

Non-hazardous aqueous fluids and oils are sometimes brought in from oil and gas operations are collected in two 55 gallons drums behind the lab for reuse. When 55 gallons or more are collected, these fluids are sucked up by CTI's treater trucks to be used in one of its many chemical treater truck treatments.

These fluids are being used as part of the treatment process or as a preflush for the treatment. Other than that, office debris would be the only other non-hazardous waste stream.

RESULTS OF INSPECTION

An inbrief conference was held with Mr. Middleton and Mr. Mackey. A physical inspection of the facility ensued in which the laboratory, curbed bulk tank area of chemicals, cemented drum storage area, empty drum storage area, warehouse, and an area where chemical containing drums are stored on the ground were looked at. The vehicles operated by CTI are serviced by the International Dealer or Watson Truck & Supply in Hobbs. Oil changes for the vehicles are done by O&S Quick Lube in Hobbs. An outbrief conference was then held in which the inspectors findings were discussed.

RECOMMENDED ACTION

Since no violations were discovered during the inspection, a letter acknowledging the inspection results should be sent to the facility. Also, no apparent LDR violations were noted.

FJS

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (713) 431-2561

RECEIVED
FEB 1996
CONSERVATION DIVISION

February 6, 1996

CERTIFIED RETURN RECEIPT NO. P 334 055 545

State of New Mexico
Energy, Minerals and Natural Resources Department
2040 South Pacheco
Santa Fe, NM 87505-5472

ATTN: Mark Ashley, OCD Division
RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mark,

You will find enclosed most of the information that was requested in you letter to Champion Technologies, Inc., of August 1995. A Section IV has been added to the plan and combined with Section V. This was added to submit the name and address of the landowner of the Hobbs facility. These two (2) pages should be inserted in the plan and Section V text removed.

Also enclosed is a rewritten Section VII and VIII. This rewrite is more in line with the Hobbs waste situation than the previous text. The old Section VII and VIII should be replaced with the new one. The new Section VII and VIII also includes the chemicals used in the laboratory and their useage.

Champion still needs some clarification, though, on a couple of points in you letter. Our first question is why the septic system needs to be classified as a waste disposal well if it is not. Please inform us which EPA rules you are referring to. Also, if we do need to change our classification, how do we go about it?

In your letter you state that "According to EPA RCRA Subtitle C, laboratory wastes are classified as a non-exempt waste and must be tested for hazardous consituents." I might add that according to RCRA Subtitle C, the Hobbs facility is a Conditionally Exempt Small Quantity Generator and exempt from 40 CFR Regulations 262 through 266, 268, and 270. Process knowledge can also be used to classify our waste and is done throughout the country. If New Mexico regulations are different, I hope you will fill me in. If you will read the rewrite of Sections VII and VIII, you will see that the fluids collected to be used in treatments for the oilfield are not wastes at all. These fluids are simply being

returned to where they came which falls under the oil field exemption. We do in fact have laboratory wastes, but they are collected separately, and disposed of properly.
The analytical data that you requested will be forwarded as soon as it is received. I told you over the phone that we would probably receive it during the first week of February, but it will be more likely during the second or third week. I have talked with Scott Hollingbeck with Hall Environmental Labs in Hobbs about the holdup, and he has told me it was because we had to resample. He assured me, though, that they would get me the results by February 9 or very soon thereafter. I will forward them to you when I receive them.

In the meantime, I just wanted to let you know that we're working on your requests. We have changed District Managers in Hobbs, which has probably caused this to take more time than expected. Allan Childs has moved to Midland, Texas, as I understand it, and Clay Bingham is the new District Manager of Hobbs. It is difficult trying to get things done during changes like this. I hope you'll understand.

If I can be of further assistance, please write or give me a call.

Sincerely,

Joe Schornick

Joe Schornick
Environmental Specialist
Champion Technologies, Inc. - Fresno, TX

HOBBS FACILITY WASTE DISPOSAL
(Section VII and VIII)

There has not been any waste (hazardous) disposed of for this facility in the past 2-3 years. Wastes that are collected consist of spent chlorinated solvent waste (in a 55 gallon drum), and aqueous waste that contains very small amounts of metal salts such as silver or mercury salts. These metal salts are collected in the lab in a glass bottle. Since the Hobbs facility is a Conditionally Exempt Small Quantity Generator it takes a few years to generate a sufficient volume of waste for disposal.

The only other waste disposed of is from the bathrooms and the laboratory sink. Wastes from these areas flows into an underground septic tank which is released into the ground through lateral lines.

Aqueous fluids and oils that are brought in from oil and gas operations are collected in two (2) 55 gallon drums behind the lab for reuse. When 55 gallons or more are collected these fluids are sucked up by Champion's treater trucks to be used in one of its many chemical treater truck treatments. These fluids are simply being used as part of the treatment process or as a preflush for the treatment. The fluids collected for downstream use are not wastes.

LABORATORY CHEMICALS USED

Silver Nitrate (.2820N)	2.5 gallons/year
Potassium Hydroxide 45%	1 "
Chloroform	3 "
Iodine (1N)	1 pint/year
Acetic Acid	5 gallons/year
Hydrochloric Acid	10 "
L-Ascorbic Acid	50 grams/year
Antimony Potassium Tartrate	10 "
Ammonium Molybdate	1.5 lbs/year
Ammonium Persulfate	2 "
Bromocresol Purple	750 ml/year
Hydroxy Naphthol Blue	400 grams/year
Hydrogen Peroxide	500 ml/year
Ammonium Hydroxide	2 liters/year
Methyl Purple	250 ml/year
Sodium Acetate	2 pints/year
EDTA	3 gallons/year

CHAMPION TECHNOLOGIES, INC.
HOBBS, N.M., - SITE PLAN
(Section IV & V)

The Oilfield Chemical Distribution Site in Hobbs is owned by Champion Technologies, Inc., in Houston, Texas. The landowner address is 3355 W. Alabama, Suite 400, Houston, TX 77098.

The Champion Technologies, Inc., Hobbs, N.M. Facility, is located approximately 1.7 miles south of Hobbs on Highway 18. The address for the facility is 4001 S. Hwy 18. It occupies a 7 acre rectangular plot on the west side of Highway 18. The surface of the grounds is mostly sand with some caliche and asphalt. The asphalt was left from the previous occupant of this plot.

The Site Plan Map following this description of the facility is numbered and should be referenced with this write-up.

Area 1 - Office and laboratory

Area 2 - Cemented parking area

Area 3 - Curbed bulk tank area of chemicals

Area 4 - Cemented drum storage area for chemicals

Area 5 - Warehouse, office, and change area, with loading dock on east side

Area 6 - Empty drum storage area

Area 7 - Miscellaneous storage area for old tanks and equipment (no chemicals)

Area 8 - Drums of chemicals stored on the ground

Area 9 - Abandoned water well with house

Area 10 - Abandoned water well with house

Area 11 - Water well presently used

The remainder of the grounds is used for equipment storage such as empty storage tanks and treater trucks. The facility is completely enclosed by a chain link fence with an entrance through a gate facing the Highway or through the Office building. The facility is bordered by the Highway on the east side, unoccupied barren land on the west side, a residence and barren land on the south side, and another oilfield service company on the north side.

The grounds of the facility slope down slightly from east to west so that rainwater flows off the property near the northwest corner. There are no surface water bodies in the area or within 1 mile of the facility. Water for the area is supplied by well.

Following this site plan description is a list of chemicals found in Areas 3, 4, and 8. There are no chemicals stored in the warehouse. All chemicals for the facility are stored in areas 3, 4, and 8.

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

[X] Telephone [ ] Personal

Time 1:30PM

Date 1-10-96

Originating Party	Other Parties
MARK ASHLEY	JOE SCHORNICK

Subject: CHAMPION CHEM - HOBBS

Discussion: I WAS RETURNING JOE SCHORNICK CALL FROM 12:35PM 1-10-96. HE WAS CALLING IN REFERENCE TO THE OCD LETTER OF 12-20-95. HE SAID THEY WILL SUBMIT THE ADDITIONAL INFORMATION REQUESTED ON 8-30-95 BY THE OCD. HE SAID THEY WERE CONFUSED ABOUT WHEN TO SUBMIT THE INFORMATION. THEY THOUGHT THEY NEEDED AN APPROVED PLAN FIRST. ALSO, THEIR MANAGEMENT IN HOBBS IS UNDERGOING CHANGES, AND THE CONFUSION WAS NOT CLEARED UP.

Conclusions or Agreements

THEY WILL SUBMIT ALL INFORMATION AS SOON AS POSSIBLE.

Distribution

Signed Mark Ashley

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Z 765 962 917

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

December 20, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-917

Mr. Joe Schornick
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mr. Schornick:

On August 30, 1995 The New Mexico Oil Conservation Division (OCD) requested additional information regarding Champion Technologies discharge plan application. As of this date, Champion Technologies response has not been received by the OCD. If the Hobbs facility continues to have potential or actual effluent or leachate discharges and Champion Technologies wishes to continue operations, Champion Technologies must submit the information requested in the August 30, 1995 letter by February 2, 1996.

If you have any questions, please call Mark Ashley at (505) 827-7155.

Sincerely,

Roger Anderson

Roger Anderson
Environmental Bureau Chief

xc: OCD Hobbs Office

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

August 30, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-758

Mr. Joe Schornick
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mr. Schornick:

On July 24, 1995 The New Mexico Oil Conservation Division (OCD) requested additional information regarding your discharge plan. Your response was received on August 15, 1995. Since that time other questions have arisen for which the following comments and requests for additional information are based.

Section IV: Please disregard the word "disposal" and submit the name and address of the landowner of the facility site.

Section VII: Please describe types and volumes of laboratory chemicals used.

If you wish for the laboratory sink to remain connected to the septic system please provide information to the OCD demonstrating that ground water will not be adversely affected at a point of withdrawal in the foreseeable future. Pursuant to EPA rules, the septic system also needs to be reclassified as a UIC class V industrial waste disposal well.

In order to properly evaluate the contents of the septic system, please take a sample three feet below, and adjacent to, the leech line and test for aromatic and halogenated volatile organic compounds, major cations/anions, heavy metals, TPH and submit to the OCD.

✓ As stated in the discharge plan application, your laboratory wastes are being reused as part of various well treatments. According to EPA RCRA Subtitle C, laboratory wastes are classified as a non-exempt waste and must be tested for hazardous constituents. Please take a sample of the lab wastes prior to dilution with other wastes and test for aromatic and halogenated volatile organic compounds, major cations/anions, heavy metals, TPH and submit to the OCD.

Submittal of the requested information and commitment in a timely fashion will expedite the final review of the application and approval of the discharge plan.

Thank you for your attention to this matter. If you have any questions, please call me at (505) 827-7155.

Sincerely,

Mark Ashley

Mark Ashley
Geologist

xc: Jerry Sexton, OCD Hobbs Office
Wayne Price, OCD Hobbs Office

Z 765 962 758

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

RETURN RECEIPT REQUESTED NO. Z 153 537 198

RECEIVED
AUG 15 1995
Environmental Bureau
Oil Conservation Division

Telephone (713) 431-2561

State of New Mexico
Energy, Minerals and Natural Resources Department
2040 South Pacheco
P.O. Box 6429
Santa Fe, NM 87505-5472

ATTN: Mark Ashley, OCD Division

Dear Mark:

You will find attached a memo from Allan Childs regarding the construction of the chemical containment pad addressed in our Hobbs facility Discharge Plan Application. He also mentions curbing the existing pad behind the shop area. This would add even more space for chemical storage.

I hope this info is sufficient to approve the plan.

Sincerely,

Joe Schornick
Champion Technologies, Inc.
Regulatory Affairs

FAX (713) 431-1655
TELEX 762-012

INTER-OFFICE CORRESPONDENCE

July 31, 1995

TO: Joe Schornick

FROM: Allan Childs

Joe,

As you requested, the following is a proposed time frame on the building and completion of our new cement containment for our bulk facility.

1. October 1, 1995 - Start initial planning and blue prints on new containment. This will be done utilizing our engineering department. The size of the containment will be measured by the amount of chemical needed to be stored in bulk. By waiting until the end of the third quarter, we should have a good idea on what chemicals and how much we need to keep at one time.

2. November 1, 1995 - Submit plans to executive committee for review.

3. January 1, 1996 - Submit plans to OCD and wait on response.

4. April 1, 1996 - Begin construction upon approval of both parties.

The existing containment pad will be utilized for drum storage, making it feasible for all chemicals stored in the Champion Hobbs facility to be contained in case of a leak. Additional curbing will be done around the cement pad in back of shop where this can be used as a containment as well.

I hope this proposed schedule meets your needs. If further information is needed, please contact me at the Hobbs office at 505/393-7726.

Respectfully submitted,

Allan Childs

Allan Childs
Hobbs District Manager

July 24, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-747

Mr. Joe Schornick
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan Requirement GW-199
Hobbs Facility
Lea County, New Mexico

Dear Mr. Schornick:

On January 27, 1995 The New Mexico Oil Conservation Division (OCD) notified you that under the provision of the Water Quality Control Commission (WQCC) Regulations, a discharge plan was required for the Hobbs Facility located in the NE/4 SE/4 of Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. A discharge plan was received by the OCD on May 26, 1995. The following comment and request for additional information is based on the review of this application. Please note that unless otherwise stated, your response shall be received and reviewed by the OCD prior to approval of the application.

Section XI: You stated that in the future you plan on building curb and pad type containment for all chemicals. However, no reference was made in the discharge plan as to when this would be done. Please submit a proposed schedule and method for construction.

Submittal of the requested information and commitment in a timely fashion will expedite the final review of the application and approval of the discharge plan.

If you have any questions regarding this matter, please call me at (505) 827-7155.

Sincerely,

Mark Ashley

Mark Ashley
Geologist

xc: Jerry Sexton, OCD Hobbs Office
Wayne Price, OCD Hobbs Office

Z 765 962 747

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

1/9-

State of New Mexico
Energy Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87501

DISCHARGE PLAN APPLICATION FOR OILFIELD SERVICE FACILITIES

(Refer to OCD Guidelines for assistance in completing the application.)

I. TYPE: Oilfield Chemical Distribution Site

II. OPERATOR: Champion Technologies, Inc.

ADDRESS: P.O. Box 2187, Hobbs, N.M., 88240

CONTACT PERSON: Allan Childs PHONE: (505) 393-7726

III. LOCATION: NE /4 SE /4 Section 15 Township 19S Range 38E
Submit large scale topographic map showing exact location.

IV. Attach the name and address of the landowner of the disposal facility site.
(Does not apply to this facility)

V. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility. (See Write-up)

VI. Attach a description of all materials stored or used at the facility.
(See Write-up)

VII. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included. (See Write-up)

VIII Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
(See Write-up)

IX Attach a description of proposed modifications to existing collection/treatment/disposal systems.
(Does not apply to this facility)

X. Attach a routine inspection and maintenance plan to ensure permit compliance.
(See Write-up)

XI. Attach a contingency plan for reporting and clean-up of spills or releases.
(See write-up)

XII. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water. Depth to and quality of ground water must be included.
(Does not apply)

XIII. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders. (See Write-up)

XIV. CERTIFICATION
I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Joe Schornick Title: Environmental Specialist

Signature: Joe Schornick Date: 5-7-93

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

HOBBS, NEW MEXICO
4001 S. Hwy 18, 88240, District 30
(505) 393-7726

EMERGENCY NUMBER Request for Fire, Sheriff, and Paramedics	**911**
LEPC Lea County 300 N. Turner Hobbs, NM 88240 Attn: David Hooten	**(505) 397-9231**
FIRE DEPARTMENT: Hobbs Fire Department 301 E. White Street Hobbs, NM 88240	**911** **(505) 397-7252**
HOSPITAL: Lea County Regional Hospital 5419 Lovington Hwy. Hobbs, NM 88240	**(505) 392-6581**
NATIONAL RESPONSE CENTER	**(800) 424-8802**
EMERGENCY RESPONSE CENTER	
CHEMTREC	**(800) 424-9300**
CHEMICAL REFERRAL CENTER	**(800) 262-8200**
PLANT/DISTRICT CONTACTS: Allan Childs Robert Middleton 164 Stonecrest Court #50 Hobbs, NM 88240	 **(505) 392-1230**
SUGGESTED LOCAL NUMBERS: Vacuum Truck: AA Oilfield Service Rowland Truckin Wrecker: P&W Wrecker	 **(505) 392-2577** **(505) 397-4994** **(505) 393-3715**

CHAMPION TECHNOLOGIES, INC.
HOBBS, N.M., - SITE PLAN
(Section V)

The Champion Technologies, Inc., Hobbs, N.M. Facility, is located approximately 1.7 miles south of Hobbs on Highway 18. The address for the facility is 4001 S. Hwy 18. It occupies a 7 acre rectangular plot on the west side of Highway 18. The surface of the grounds is mostly sand with some caliche and asphalt. The asphalt was left from the previous occupant of this plot.

The Site Plan Map following this description of the facility is numbered and should be referenced with this write-up.

Area 1 - Office and laboratory

Area 2 - Cemented parking area

Area 3 - Curbed bulk tank area of chemicals

Area 4 - Cemented drum storage area for chemicals

Area 5 - Warehouse, office, and change area, with loading dock on east side

Area 6 - Empty drum storage area

Area 7 - Miscellaneous storage area for old tanks and equipment (no chemicals)

Area 8 - Drums of chemicals stored on the ground

Area 9 - Abandoned water well with house

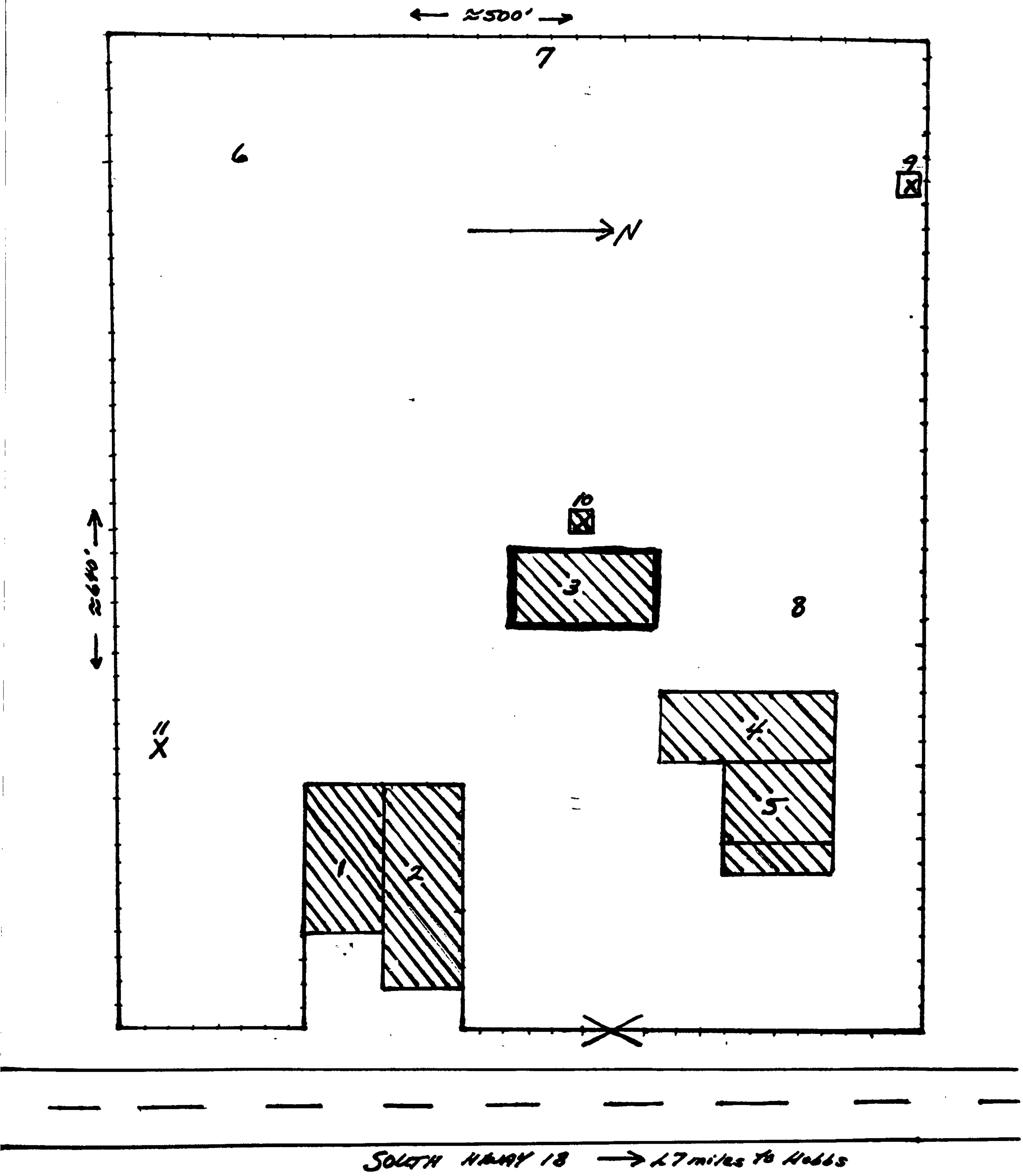
Area 10 - Abandoned water well with house

Area 11 - Water well presently used

The remainder of the grounds is used for equipment storage such as empty storage tanks and treater trucks. The facility is completely enclosed by a chain link fence with an entrance through a gate facing the Highway or through the Office building. The facility is bordered by the Highway on the east side, unoccupied barren land on the west side, a residence and barren land on the south side, and another oilfield service company on the north side.

The grounds of the facility slope down slightly from east to west so that rainwater flows off the property near the northwest corner. There are no surface water bodies in the area or within 1 mile of the facility. Water for the area is supplied by well.

Following this site plan description is a list of chemicals found in Areas 3, 4, and 8. There are no chemicals stored in the warehouse. All chemicals for the facility are stored in areas 3, 4, and 8.



← ≈500' →
7
6
9
N
10
3
8
≈640'
11
X
4
5
1
2
SOUTH HWAY 18 → 17 miles to Hobbs

AREA 3 - BULK CHEMICALS
(Section VI)

3 - 2,000 Gallon steel tanks (Scortron GR-89, Cortron R-2438, Cortron R-2437)

1 - 3,000 Gallon steel tank (Xylene)

3 - 4,000 Gallon steel tanks (Cortron R-2239, Cortron R-2264, Scortron G-38)

17- 750 Gallon steel tanks (Xylene, Cortron R-2239, Scortron GR-89, 4 tanks of Cortron R-2263, 2 empty tanks, 2 tanks of Emulsotron X-690S, 2 tanks of Flexoil FM-74, 4 tanks of Cortron R-2437)

2 - 750 Gallon fiberglass tanks (Gyptron T-131, 1 tank empty)

1 - 410 Gallon fiberglass tank (Cortron R-2264)

1 - 4000 Gallon poly tank (Gyptron T-131)

4 - 2,000 Gallon fiberglass tanks (2 tanks of Cortron R-2263, Cortron R-2438, Brine)

Description of chemicals

Cortrons: Corrosion inhibitors for the oilfield that normally consist of Imidazolines, amines, fatty acids, and various organic solvents. Sometimes the solvent is water. The organic solvents are usually mixed alcohols or heavy aromatic naphthas.

Scortrons: Combination scale and corrosion inhibitors that normally consist of the same things found in corrosion with the addition of phosphonates, amides, and bisulfites.

Gyptrons: Scale treating compounds for the oilfield that are used either to prevent scale from forming or removing it. This line normally consists of products based on water soluble phosphonates either in the neutralized or unneutralized form.

Emulsotrons: Chemicals for treating oilfield oil and water emulsions which normally consist of surfactants in an organic solvent such as heavy aromatic naphtha.

Flexoils: Paraffin treating compounds for the oilfield. Normally consists of high molecular weight polymers in an organic solvent such as xylene, toluene, or heavy aromatic naphtha.

Flotrons: Paraffin treating compounds for the oilfield that generally consist of surfactants in either aqueous or organic solvent. Solvents for organic blends are heavy aromatic naphtha or xylene, etc. Aqueous blends consist of water, methanol, or isopropanol as the solvent system.

Gas Treat: Amine based chemicals for treating sour gas.

Foamatrons: Blends much like Surfatrons chemistry.

Defoamers: Organic solvent based chemicals for preventing or removing foam problems in the oilfield.

Bactrons: Bacteriocides for treating oilfield corrosion problems. These normally consist of aldehyde or quaternary amine chemistry.

Cleartrons: Used for water clarification in the oilfield to remove residual amounts of oil from water. These chemicals normally consist of polymers in a aqueous solvent system.

HOBBS FACILITY WASTE DISPOSAL
(Section VII and VIII)

The only waste that is disposed of from this site is sewage from the office and warehouse areas. Sewage from these two buildings flows into an underground septic tank which is dispersed into the ground through lateral lines. The wastes that flow into the septic system are nothing more than what would be disposed of from a household.

The waste from the laboratory area of the office building is collected into 55 gallon drums behind the building. One of these drums is for aqueous wastes and the other for organic wastes. Neither of these is considered "waste",though, because they both are reused. The aqueous wastes are sucked up by our treater trucks and used alongside our corrosion treatments in the oilfield. The organic wastes are shipped to be reused in a finished product in Odessa, Texas. The same is true for the waste generated when cleaning the empty drums in the empty drum storage area (Section 6). Again, we hesitate to refer to any of these as wastes because they are reused.

There has not been any waste (hazardous) disposed of for this facility in the past 2-3 years.

ROUTINE INSPECTION AND MAINTENANCE PLAN
(Section X)

Bulk Tank Area: Visual inspection of tanks, valves, piping, and pumps twice weekly. Any leaks should be corrected immediately if possible. If problem calls for outside assistance, Emergency Coordinator will be notified immediately so that corrective action can be taken ASAP.

Drum Storage Area: Drum area is visually inspected on a daily basis. All drums will eventually be stored on cement or in a cemented diked containment area. At which time, inspections will follow the same inspection routine as the bulk tank area. Should a leak be detected, the drum will be placed inside a temporary fiberglass containment box and redrummed or overpacked. All leaks will be reported immediately to the Emergency Coordinator so a determination can be made as to the severity of the ground contamination prior to storage on concrete. If the leak is detected on the cemented area, the drum will again be placed in a temporary fiberglas containment box, and the leak will be absorbed before it reaches a non-cemented area. Drums should always be checked for weak spots (rusted areas) or for the possibility of leaking. For the time being, older drums will be stored on the cemented area.

Remainder of Plant Grounds: The remainder of the plant will be inspected daily to make sure that there are no chemicals left in open top drums or containers. To prevent rain water from filling these open top or cut off containers and thus possibly spilling chemical onto the ground, Champion will simply invert these containers so that they will not hold fluids. In order to do this though, the containers must be empty when inverted. Another remedy to this situation is to cover the open top containers with a tarp or plastic.

SPILL/LEAK PREVENTION AND REPORTING PROCEDURES
CONTINGENCY PLAN
(Section XI)

The Hobbs facility handles chemicals in bulk and in drum quantities. The bulk tanks are set in a cemented, curbed area to handle leakage or spills within the curbed area. Should a leak occur in the piping or in one of the bulk tanks, it can normally be controlled by shutting off valves or by transferring chemical to another tank or truck for temporary storage. Champion has personnel that observe this area everyday.

Loading of the bulk tanks is through hoses and fittings from a bulk truck. The connection to the bulk tanks is located inside the curbed area. The truck connection is not. Normal procedure calls for a bucket or pail to be placed under the truck connection to catch any leaks.

Drummed chemicals are stored both on cement and the ground. Some are stored on wooden pallets and some are not. While it is known that this is not the best possible way to handle these drummed chemicals, Champion believes that future site plans will remedy the current situation. These plans call for building a new cemented, diked area, so that the bulk tank farm can be transferred onto it. The old, or present curbed area, could then be used to store the drummed chemicals. A more immediate remedy would be to make sure all chemicals are at least stored on wooden or possibly drainage pallets to contain leaks and get them off the ground.

EMERGENCY COORDINATOR

The emergency coordinator for the Hobbs facility is Allan Childs who is also the District Manager for the Hobbs District. While Mr. Childs is frequently away from the site to take care of company business, he can still be reached by car phone or beeper. His office has on file (hardcopy) a MSDS for every chemical stored on its site. He also has access to a computer MSDS if needed. The coordinator is familiar with this plan and the appropriate response should a significant leak or spill of a hazardous chemical occur. He also has the authority to commit the resources necessary to carry out the plan or response. Whenever there is an imminent or actual emergency situation, the emergency coordinator will immediately:

1) Evaluate the situation and stop the leak or spill if it can be done without risk to health and well being.

2) If it is a small leak or spill that can be handled by the Champion personnel on site, then it should be removed from the ground by shovel or the appropriate equipment and absorbent.

3) If the spill or leak is considered a significant one and judged to be a threat to the surrounding area, outside help should be called in with heavy equipment to build earthen berms to contain any runoff.

4) Determine if the RQ of the material has been reached and if it has endangered the health and well being of the public or the environment.

5) Contact Champion's Regulatory Department for help or to report the incident.

6) Notify the appropriate Local, State, and National authorities (agencies), including the OCD Director at (505) 827-7131.

7) After spill or leak has been stopped, begin steps to remediate affected areas.

MISCELLANEOUS SITE INFORMATION
(Section XIII)

The well record for the latest water well that was drilled at the Hobbs facility is attached to this plan. It shows that after you drill 1 foot you reach caliche, and the driller's log shows caliche for the next 20 feet. While caliche is not cement, it is a fairly hard and impermeable surface itself. A spill or leak is not going to penetrate far if attended to properly. Caliche can also act as an absorbent because of the clays that are intermixed.

There are many water wells in the immediate area of the Hobbs facility. All water is supplied by well in the surrounding area and there are residences and other companies located nearby. All wells are used by the entity that owns the well. It is not for public supply. The well for the Hobbs facility pumps water from a depth of 44 to 133 feet that consists primarily of sand and sandstone. An analysis of the well water is attached. A chemical spill or leak would have to penetrate more than 40 feet of caliche and sandstone to reach the ground water. If this plan is followed and future improvements are made to the facility like adding another cemented diked containment area, the Hobbs facility should hardly ever be a threat to contaminate ground water.

Flooding is not a problem. Stormwater normally exits the property as quickly as it accumulates. Sometimes is does rain hard enough to have standing water on the property, but this is not to say that the property is flooding. The only reason that Champion might want to take measures to control runoff is in case there is a significant spill or leak from a onsite tanker or in the bulk tank farm area. This would only apply in the situation where there is rain and a large amount of chemical on the ground or in a diked area that might runover onto the ground.

The Hobbs facility is actually a very simple operation. There are no surface impoundments, pits, or areas where fluids are allowed to evaporate from the ground. With some facility improvements in the near future, such as the construction of a new cemented diked containment area and the plugging of the two (2) non functional water wells, the Hobbs operation will essentially eliminate most of the possibilities for seapage contamination. It is also believed that groundwater contamination is reduced to nil if this plan is followed and good prevention common sense is used by the Hobb's personnel.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 495145
SAMPLE RECEIVED 4-24-95
RESULTS REPORTED 4-26-95

TO: Mr. Robert Middleton
P. O. Box 2187, Hobbs, NM 88240

COMPANY Champion Technologies, Inc. LEASE
FIELD OR POOL
SECTION BLOCK SURVEY COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Drinking water - taken @ Hobbs laboratory.
NO. 2
NO. 3
NO. 4
REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0025			
pH When Sampled				
pH When Received	7.00			
Bicarbonate as HCO_3	244			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	520			
Calcium as Ca	168			
Magnesium as Mg	24			
Sodium and/or Potassium	138			
Sulfate as SO_4	86			
Chloride as Cl	376			
Iron as Fe	0.04			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	1,036			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	6.11			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Nitrate, as N	1.4			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By [signature]
Waylan C. Martin, M.A.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

) Owner of well Jim Spradley Owner's Well No. ______

Street or Post Office Address P.O. Box 2187

City and State Hobbs, N.M. 88240

:ll was drilled under Permit No. L-10,322 and is located in the:

a. ______ ¼ SE ¼ ~~NW~~ NE¼ ¼ SE ¼ of Section ~~17~~ 15 Township 19S Range 38E N.M.P.M.

b. Tract No. ______ of Map No. ______ of the ______

c. Lot No. ______ of Block No. ______ of the ______
Subdivision, recorded in Lea County.

d. X= ______ feet, Y= ______ feet, N.M. Coordinate System ______ Zone in
the ______ Grant.

) Drilling Contractor Alan Eades License No. WD-1044

ldress 1200 E. Bender, Hobbs, N.M. 88240

:illing Began 4-13-93 Completed 4-13-93 Type tools Rotary Size of hole 8 in.

evation of land surface or ______ at well is ______ ft. Total depth of well 133 ft.

ompleted well is [X] shallow [ ] artesian. Depth to water upon completion of well 44 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
44	133	89	Sand & Sandstone Stringers sandstone, Sand & Gravel	35

Section 3. RECORD OF CASING

Diameter	Pounds	Threads	Depth in Feet	Length		Perforations

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		
0	1	1	Top Soil
1	21	20	Caliche
21	23	2	SaNDSTONE
23	44	21	Caliche & Sandy Clay
44	120	76	Sand & Sandstone Stringers
120	124	4	Sandstone
124	138	14	Sand & Gravel

DATE: May-1-95

HOBBS INVENTORY

AREAS 4 & 8
(Drum Chemicals)

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
CORTRON RA-10	10008				R-133	#3
CORTRON RU-14	10012					
CORTRON R-2255	10033	~~4~~ 7				
CORTRON RU-126	10041	4				
CORTRON R-129	10048	~~5~~ 6				
CORTRON RU-127	10055	4				
CORTRON RH-144	10062	3				
CORTRON RH-67	10074					
CORTRON R-2286	10148					
CORTRON RN-63	10162	5				
CORTRON R-2319	10297	3				
CORTRON RN-165	10348	14				
CORTRON RH-147	10362	3				
CORTRON R-2239	10363		2,250			
CORTRON RU-128	10400	1				
CORTRON RU-142	10416					
CORTRON RN-178	10480	~~4~~ 27				
CORTRON RN-186	10490	6				
CORTRON R-2437	10511		570			
CORTRON R-2263	10564		3,800			
CORTRON R-2264	10565		890			
CORTRON RN-187	10642	2				
CORTRON RN-190	10646	2				
CORTRON R-2400	10647	~~4~~ 5				
CORTRON RU-189	10694	3				
CORTRON RN-97	10766	16				
CORTRON RN-99	10770	8				
CORTRON R-228	10785	1				
CORTRON RDF-134	10844	10				
CORTRON RN-176	10963	1				

HOBBS INVENTORY

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
CORTRON RU-178	10979	7			R-2378 = 4	
RUSTRON Q-20	11019	1				
CORTRON R-2438	11045	2	1,100			
CORTRON R-2440	11048	4				
CORTRON RU-206	11069					
CORTRON RU-205	11073	5				
RUSTRON Q-28	11080					
RP-100	11083	2				
CORTRON RU-216	11113	10				
CORTRON RN-240	11149	4				
CORTRON RN-241	11150	5				

HOBBS INVENTORY

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
GYPTRON TK	20000	15			T 219	14
GYPTRON TC-30	20003	27				
GYPTRON TSD	20030	17				
GYPTRON T-130	20045	4				
GYPTRON T-133	20051	12				
GYPTRON T-55	20119	2				
GYPTRON T-27	20127	2				
GYPTRON TA-13	20144	4				
GYPTRON T-96	20173	3				
GYPTRON T-97	20174	13				
GYPTRON T-57	20176	5				
GYPTRON T-59	20179	6				
GYPTRON T-67	20180	9				
GYPTRON T-114	20191	7				
GYPTRON T-131	20198		800			
GYPTRON T-124	20199	7				
GYPTRON T-141	20221	6				
GYPTRON T-160	20262	5				
GYPTRON TC-37	20289	8				
GYPTRON T-85	20309	1				
GYPTRON T-242	20338	2				
GYPTRON T-164	20838	3				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	BULK	ORDERED
FLOTRON M-25	30013				IPA	1
FLOTRON M-24	30026	3				
FLOTRON M-78	30033	5				
FLOTRON M-157	30067	4				
FLOTRON M-45	30103	5				
FLOTRON MN-53	30114	22				
FLEXOIL FM-70	30124	10				
FLOTRON M-75	30128					
FLEXOIL FM-74	30143	14	Empty			
FLOTRON M-118	30149	7				
FLOTRON M-129	30164	2				
FLEXOIL FM-94	30170	11				
FLEXOIL FM-96	30171	8				
FLOTRON M-136	30180	3				
FLEXOIL FM-102	30183	4				
FLEXOIL FM-113	30199	1				
FLOTRON MG-51	30203	2				
FLOTRON M-152	30215	12				
FLOTRON M-154	30216	4				
FM 100	30176	2				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	BULK	ORDERED
SCORTRON GR-46	40000	3				
SCORTRON GV-50	40007	2				
SCORTRON G-37	40054	4				
SCORTRON G-39	40057					
SCORTRON G-38	40060		1,006			
SCORTRON GR-77	40072					
SCORTRON GR-85	40079	13				
SCORTRON GR-89	40089	13	220			
SCORTRON GR-100	40105	12				
SCORTRON GR-103	40123	9				
GAS TREAT 114	40139	10				
GAS TREAT 115	40144	4				
SCORTRON GR-67	40303	1				
SCORTRON GR-72	40305	4				
SCORTRON GR-99	40306	6				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
SURFATRON DN-71	50000	2				
SURFATRON DP-61	50001	3	120			
SURFATRON DT-28	50006	16				
SURFATRON DW	50007	5				
SURFATRON DP-63	50008	7				
SURFATRON DT-45	50027	8				
SURFATRON DT-40	50111	4				
SURFATRON DN-83	50134	11				
ACIDTRON DP-77MX	50145	10				
SURFATRON DP-84	50148					
SURFATRON DP-85	50149	1				
SURFATRON DN-89	50152	12				
SURFATRON DN-87	50153	1				
SURFATRON DN-92	50157	4				
SURFATRON DN-98	50180	11				
SURFATRON DN-100	50182	2				
SURFATRON DQ-48	50201	2				
SURFATRON DQ-60	50206	3				
SURFATRON DT-72	50220	6				
SURFATRON DT-73	50221	4				
SURFATRON DN-109	50227	4				
SURFATRON DP-99	50231	5				
SURFATRON DP-101	50237	2				
SURFATRON DT-77	50257	6				
SURFATRON DT-78	50262	3				
SURFATRON DP-108B	50266	4				
SURFATRON DK-406	50901	6				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
FOAMATRON V-12	60000	1				
DEFOAMER V-111	60038	5				
FOAMATRON V-26	60052	7				
DEFOAMER V-124	60063	1				
FOAMATRON V-39	60070	~~3~~ 6				
DEFOAMER V-116	62004					
BACTRON K-31	70002	4				
BACTRON K-24	70025	1				
K-31 W	7647	2				

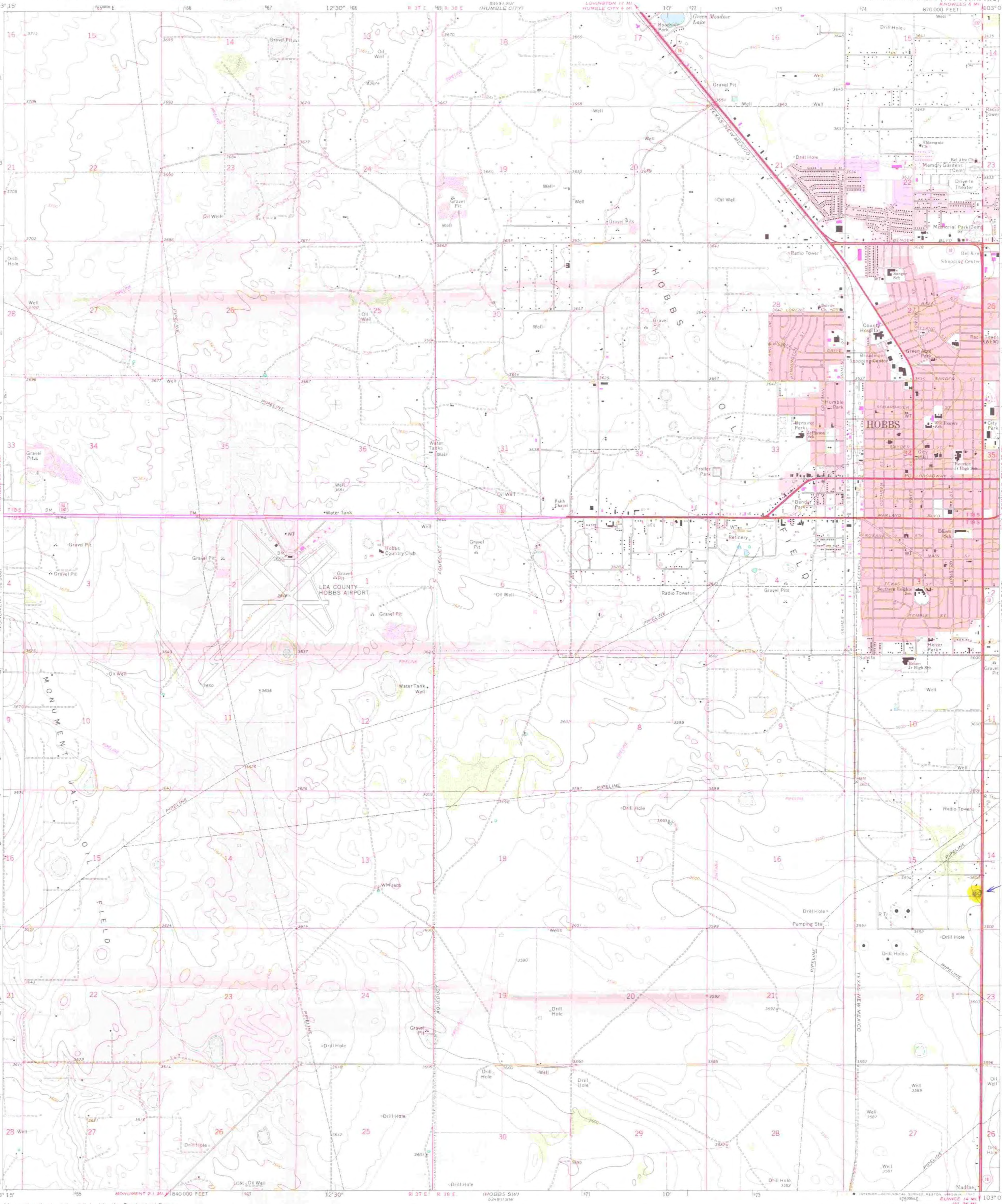
CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	BULK	ORDERED
EMULSOTRON X-512	80001	11			XZ 1058	1
EMULSOTRON X-690	80005	3				
EMULSOTRON X-690S	80007		120			
EMULSOTRON X-512S	80060	5				
EMULSOTRON X-185	80067	3				
EMULSOTRON X-405	80071	8				
EMULSOTRON X-166	80119	6				
EMULSOTRON XB-80F	80130	3				
EMULSOTRON XA-739	80136	7				
EMULSOTRON X-203	80221	9				
CLEARTRON ZB-116	80242	2				
EMULSOTRON XA-34	80251	5				
EMULSOTRON X-512KWS	80274					
EMULSOTRON X-690SB3	80302	4				
EMULSOTRON X-283	80421	7			X 405 M40	- 2
EMULSOTRON X-290	80435	3				
EMULSOTRON X-290S	80436	2				
EMULSOTRON X-299	80507	1				
EMULSOTRON X-304	80512	3				
EMULSOTRON X-352	80573	1				
EMULSOTRON X-357	80587	2				
EMULSOTRON X-370	80672	1				
EMULSOTRON X-385	80760	3				
EMULSOTRON X-512B5	80798	6				
CLEARTRON ZB-78	80866	2				
EMULSOTRON X-299B5	80869	4				
EMULSOTRON XA-293B	80936	6				
EMULSOTRON X-435	80961	21				
EMULSOTRON XF-421	80962	6				
EMULS. X-405/M-40	80975					
EMULSOTRON X-909	80983	7				
EMULSOTRON X-299FS	81085	7				
EMULSOTRON X-290SB3	81087	12				
EMULS. X-331/M-35	81088	3				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
EMULSOTRON X-166SB3	81089	14				
EMULSOTRON X-436	81103	7			X-839 = 1	
EMULSOTRON X-453	81109	9				
EMULSOTRON X-474	81140	3				
EMULSOTRON X-453B5	81145	8				
EMULSOTRON XM-435	81158					
EMULSOTRON XM-385	81163	4				
CLEARTRON ZB-86	81165					
EMULSOTRON XA-34B3	81253	10				
EMULSOTRON X-283B5	81257	3				
EMULSOTRON XD-702	81284	7				
EMULSOTRON XZ-409	81334					
CLEARTRON ZB-46	81356	3				
EMULSOTRON XM-418	81375	~~6~~7				
EMULSOTRON XM-299	81376	1				
EMULSOTRON X-177B5	81529	1				
EMULSOTRON X-793	81575	2				
EMULSOTRON X-787	81576	1				
EMULSOTRON X-798	81584	1				
EMULSOTRON X-415B5	81597	4				
EMULSOTRON X-805	81598	6				
EMULSOTRON X-815	85051	3				
CLEARTRON ZB-137	85109	2				
EMULSOTRON X-830B5	85126	4				
EMULSOTRON X-798B5	85148	2				
CLEARTRON ZB-102	85169	5				
CLEARTRON ZB-167	85221	4				
CLEARTRON ZB-168	85224	5				
EMULSOTRON X-827B5	85233	3				
EMULSOTRON XR-960	85271	3				

CHEMICAL	IBM #	CURRENT DRUMS	CURRENT BULK	NEED TO ORDER DRUMS	NEED TO ORDER BULK	ORDERED
EMULSOTRON XT-810	85299				X-1021 =	2
EMULSOTRON XA-807	85394					
EMULSOTRON XR-249	85486	2				
EMULSOTRON XR-747	85490	1				
EMULSOTRON XZ-1058	88098					
EMULSOTRON XZ-1063	88136	4				
CODE-7		5				
METHANOL	90004	10				
IPA	90005					
CAUSTIC SODA	90006					
ETHYLENE GLYCOL	90007	2				
XYLENE	90009		1,200			
TRIETHYLENE GLYCOL	90014	8				
BLEACH	91024	4				
QS-125	91082					
SS-124	91084					

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HOBBS WEST QUADRANGLE
NEW MEXICO–LEA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Planimetry by photogrammetric methods from aerial photographs taken 1967. Topography by planetable surveys 1969.

Polyconic projection. 1927 North American datum
10,000-foot grid based on New Mexico coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

To place on the predicted North American Datum 1983 move the projection lines 9 meters south and 44 meters east as shown by dashed corner ticks

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

GAYLORD STICKLE CO. & ASSOC., INC.
AUTHORIZED AGENTS FOR U.S.G.S.
Houston, TX (713) 529-8471

NEW MEXICO
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, all weather, hard surface	Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface	Unimproved road, fair or dry weather
U. S. Route	State Route

HOBBS WEST, N. MEX.
N3237.5—W10307.5/7.5

1969
DMA 5349 II NW—SERIES V881

Champion Technologies, Inc.
P.O. BOX 450499
HOUSTON, TEXAS 77245-0499

Telephone (713) 431-2561

CERTIFIED RETURN RECEIPT: P 989 486 958

RECEIVED

CONSERVATION DIVISION

May 23 , 1995

Energy Minerals and Natural Resources Department
Oi l Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Dear Sirs:

Enclosed are two Discharge Plan Applications for Oil Field Service Facilities for facilities located in Hobbs and Farmington. Also enclosed are checks number 166840 and 166842 for payment of the filing fee for the Hobbs and Farmington facilities. Patricio W. Sanchez, who inspected the Farmington facility, suggested in a letter of April 25, 1995, that the Farmington application be filed in conjunction with the Hobbs permit application.

Sincerely,

David H. Drake

David H. Drake
Manager, Regulatory Affairs

FAX (713) 431-1655
TELEX 762-012

cc: State of New Mexico
District I
Oil Conservation Division
P.O. Box 1940
Hobbs, NM 88241-1980

Certified Return Receipt: Z 153 537 170

State of New Mexico
District III
Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

Certified Return Receipt: Z 153 537 169

Allan Childs - Hobbs
Richard Steph - Farmington

enc.

drake\182-95

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 5/18/95,

or cash received on June 26, 1995 in the amount of $ 50.00

from Champion Tech

for Hobbs GW-199

(Facility Name) (DP No.)

Submitted by: ______ Date: ______

Submitted to ASD by: Roger Anderson Date: 7/10/95

Received in ASD by: DO Date: 7-11-95

Filing Fee ✓ New Facility ____ Renewal ____

Modification ____ Other ______
(specify)

Organization Code 521.07 Applicable FY 96

To be deposited in the Water Quality Management Fund.

Full Payment ____ or Annual Increment ____

Champion Technologies, Inc.
P.O. BOX 27727
HOUSTON, TEXAS 77227-7727

Frost National Bank
Corpus Christi, Texas 78411

[redacted]

DATE
5/18/95

CHECK AMO
$50.00

**************FIFTY DOLLARS AND 00/100***************

PAY TO

NMED
P.O. BOX 2088
Santa Fe, NM 87504-2088

VOID AFTER 60 DAYS

[redacted]

Champion Technologies, Inc.

5/18/95 Vendor#N0035 Check#[redacted]
05-9094 Check Amount $50.00

GW 199 - Hobbs

RECEIVED
~~JUL 07 1995~~
June 26, 95
Environmental Bureau
Oil Conservation Division

5/18/95 Vendor#N0035 Check#[redacted]
05-9094 Check Amount $50.00

Champion Technologies, Inc.
P.O. BOX 27727
HOUSTON, TEXAS 77227-7727

Frost National Bank
Corpus Christi, Texas 78411

[redacted]

DATE
5/18/95

CHECK AMOUNT
$50.00

**************FIFTY DOLLARS AND 00/100***************

PAY TO

NMED
P.O. BOX 2088
Santa Fe, NM 87504-2088

VOID AFTER 60 DAYS

[redacted]

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-19) - National Propane Corporation, Robert W. Berry, P.O. Box 2067, Cedar Rapids, Iowa 52406-2067 has submitted an application for renewal of its previously approved discharge plan for its Loco Hills brine discharge facility located in the NW/4 SE/4, Section 22, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico. National Propane proposes continuation of brine discharges to an existing 2.44 million gallon plastic-lined storage pond. The brine discharge is the result of propane injection to three salt domes. The brine is reinjected to the salt domes when propane extraction is desired. Ground water most likely to be affected in the event of accidental discharge is at a depth of approximately 10,000 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-199) - Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Txas 77245-0499, has submitted a discharge plan application for its Hobbs oilfield chemical distribution site located in the NE/4 SE/4, Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD apporved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 44 feet with a total dissolved solids concentration of approximatley 1,036 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-199-1) - Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Farmington oilfield chemical distribution site located in Section 12, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at depth of approximately 59 feet with a total dissolved solids concentration of approximately 730 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya being duly sworn declares and says that he is Classified Advertising manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 1 times, the first publication being of the 9th day of June, 1995, and the subsequent consecutive publications on ______, 1995

Bill Tafoya

Sworn and subscribed to before me, a notary Public in and for the County of Bernalillo and State of New Mexico, this 9th day of June 1995

NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 5-20-98

Megan Garcia

PRICE $47.23

Statement to come at end of month.

CLA-22-A (R-1/93) ACCOUNT NUMBER C80932

OK

Affidavit of Publication

No. 15137

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 days consecutive weeks on the same day as follows:

First Publication June 9, 1995

Second Publication

Third Publication

Fourth Publication

Subscribed and sworn to before me this 21st day of June 1995

Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1996

Copy of Publication

LEGAL NOTICE

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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(GGW-199) Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Hobbs oil field checmical distribution site located in the NE/4 SE/4, Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offiste disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 44 feet with a total dissolved solids concentration of approximately 1,036 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-199-1) - Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Farmington oilfield chemical distribution site located in Section 12, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 59 feet with a total dissolved solids concentration of approximately 750 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Divison at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Divison shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submtted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the

hearing
GIVEN
Mexico
missio
co, on
1995.
STA

SEAL
Publish
Press,
1995.

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Notice Of Publication

~~and numbered~~ .... ~~in the~~

.... ~~Court of Lea~~

~~County, New Mexico~~ was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, ~~once each week on the same day of the week~~, for one (1) day ~~consecutive weeks~~, beginning with the issue of

June 6, 19 95

and ending with the issue of

June 6, 19 95

And that the cost of publishing said notice is the sum of $ 61.20

which sum has been (Paid) ~~(Assessed)~~ as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 16th

day of June, 19 95

Jean Sevier

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 19 98

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND
NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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(GW-199)-Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Hobbs oilfield chemical distribution site located in the NE/4 SE/4, Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 44 feet with a total dissolved solids concentration of approximately 1,036 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

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GIVEN under the Seal of New Mexico Oil Conservation

Z 765 963 389

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Artesia Daily Press	
Street and No. P.O. Drawer 179	
P.O., State and ZIP Code Artesia, NM 88210	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

State of New Mexico
MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

New Mexico DRUG FREE It's a State of Mind!

SS

8210

MANAGER

RE: NOTICE OF PUBLICATION

ned notice one time immediately on receipt of this request. Please ny error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. Publisher's affidavit in duplicate.
2. Statement of cost (also in duplicate.)
2. CERTIFIED invoices for prompt payment.

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than June 9, 1995.

Sincerely,

Sally Martinez

Sally E. Martinez
Administrative Secretary

Attachment

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PS Form **3800**, March 1993

State of New Mexico
MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

New Mexico DRUG FREE It's a State of Mind!

ADER *RE: NOTICE OF PUBLICATION*

88260

MANAGER

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We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than June 9 *, 1995.*

Sincerely,

Sally E. Martinez
Administrative Secretary

Attachment

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PS Form **3800,** March 1993

State of New Mexico
MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

New Mexico DRUG FREE It's a State of Mind!

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co 87103

MANAGER

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Please publish the notice no later than June 9, 1995.

Sincerely,

Sally Martinez
Sally E. Martinez
Administrative Secretary

Attachment

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MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

New Mexico DRUG FREE It's a State of Mind!

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co 87401

' *MANAGER*

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Immediately upon completion of publication, please send the following to this office:

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Sincerely,

Sally Martinez

Sally E. Martinez
Administrative Secretary

Attachment

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-19) - National Propane Corporation, Robert W. Berry, P.O. Box 2067, Cedar Rapids, Iowa 52406-2067, has submitted an application for renewal of its previously approved discharge plan for its Loco Hills brine discharge facility located in the NW/4 SE/4, Section 22, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico. National Propane proposes continuation of brine discharges to an existing 2.44 million gallon plastic-lined storage pond. The brine discharge is the result of propane injection to three salt domes. The brine storage pond contains a secondary plastic liner and a leak detection system. The brine is reinjected to the salt domes when propane extraction is desired. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 75 feet with a total dissolved solids concentration of approximately 10,000 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-199) - Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Hobbs oilfield chemical distribution site located in the NE/4 SE/4, Section 15, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 44 feet with a total dissolved solids concentration of approximately 1,036 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-199-1) - Champion Technologies, Inc., Joe Schornick, P.O. Box 450499, Houston, Texas 77245-0499, has submitted a discharge plan application for its Farmington oilfield chemical distribution site located in Section 12, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. All wastes generated will be stored in closed top above ground storage tanks prior to offsite disposal or recycling at an OCD approved site. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 59 feet with a total dissolved solids concentration of

approximately 750 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 31th day of May, 1995.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

New Mexico DRUG FREE It's a State of Mind!

January 27, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-812

Mr. David Drake
Manager-Environmental and Regulatory Affairs
Champion Technologies, Inc.
P.O. Box 450499
Houston, TX 77245-0499

RE: Discharge Plan Requirement
Hobbs Facility
Lea County, New Mexico

Dear Mr. Drake:

Under the provision of the Water Quality Control Commission (WQCC) Regulations, you are hereby notified that the filing of a discharge plan is required for the Hobbs Facility located in Lea County, New Mexico.

The notification of discharge plan requirement is pursuant to Section 3-104 and 3-106 of the WQCC regulations. The discharge plan, defined in Section 1.101.P of the WQCC regulations should cover all discharges of effluent or leachate at the facility site or adjacent to the facility site. Included in the plan should be plans for controlling spills and accidental discharges at the facility, including detection of leaks in buried underground tanks and\or piping.

Pursuant to Section 3-106.A, a discharge plan should be submitted for approval to the OCD Director within 120 days of receipt of this letter. Three copies of the discharge plan should be submitted.

A copy of the regulations have been provided for your convenience. Also provided was an OCD guideline for the preparation of discharge plans at oil & gas service companies. The guideline addresses berming of tanks, curbing and paving of process areas susceptible to leaks or spills and the disposition of any solid wastes.

The discharge plan is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of fifty (50) dollars plus the flat rate of one thousand, three hundred and eighty ($1380) dollars for oil & gas service companies. The fifty (50) dollar filing fee is due when the discharge plan is submitted. The flat rate fee is due upon approval of the discharge plan.

Please make all checks payable to: **NMED Water Quality Management** and addressed to the OCD Santa Fe office.

If there are any questions on this matter, please feel free to contact Mark Ashley at 827-7155 or Roger Anderson at 827-7152.

Sincerely,

William J. LeMay
Director

WJL/mwa

XC: OCD Hobbs Office

Z 765 962 812

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PS Form **3800**, March 1993

March 24, 2005

GW-199

Mr. Dean Sibert
Global Director, QHSE Affairs
Champion Technologies
3355 West Alabama # 400
Houston, TX 77098

RE: Abatement Plan (AP-14)
Stage 2 Abatement Plan
Status Update Letter to Comprehensive Status Report
Champion Facility, Hobbs, NM GW-199

Mr. Sibert:

NOVA Safety and Environmental (NOVA), on behalf of Champion Technologies (Champion) is pleased to submit this Status Update Letter to the Comprehensive Status Report (CSR) prepared by Environmental Technology, Inc (ETGI). This letter is intended as a summary of activities conducted at the Champion facility located in Hobbs, New Mexico since submittal of the CSR dated March, 2003 to the New Mexico Oil Conservation Division (NMOCD). Site activities were conducted to address the NMOCD letter dated August 5, 2003 and to maintain groundwater monitoring activities. For reference, a site map is provided as Figure 1.

NOVA
safety and environmental

This Status Update Letter specifically addresses the following activities:

- Backfilling of Areas 2 and 3 and clay cap installation at Area 2;
- Removal of chloride-impacted soil from areas associated with sample locations D-34, D-35 and SB-3;
- Hydraulic conductivity of compacted caliche surfaces.
- Plug and Abandonment of buried water well discovered in Area 2;
- Plug and Abandonment of discovered lines from warehouse in Area 2;
- Quarterly groundwater sampling results through the third quarter of 2004;
- Groundwater summary data and trends;
- Installation of monitor well near facility entrance (MW-18)

Backfilling of Area 2 and Area 3

Backfilling of Area 2 and 3 (Figure 1) commenced on September 3, 2003. Caliche fill was placed into the excavations in twelve to eighteen-inch lifts. Water was applied to the caliche backfill and lifts to enhance compaction. Density readings were collected to demonstrate 90% and greater compaction (Table 1). Clay cap installation in Area 2 commenced on September 12, 2003 at seven feet below ground surface (bgs). It was placed in 6-inch lifts and water was added to the clay and compacted. Density readings were collected at the 6-foot and 5-foot depths during clay cap installation. The clay cap was graded into a convex form to promote shedding off of infiltration water from Area 2. The clay cap was then covered with an additional five feet of compacted caliche fill. The surface of the excavation was graded to the adjacent ground elevation to promote stormwater run-off via sheet flow. Backfill and compaction of Area 2 and 3 was completed on September 24, 2003.

Excavation of Locations D-34, D-35 and SB-3

Elevated chloride concentrations associated with sample locations D-34, D-35 and SB-3 were excavated on September 19, 2003. Confirmation soil samples were collected and analyzed for chlorides (Figure 2). The analytical results for sample D-34 and Sample D-35 indicated chloride concentrations of 15,000 mg/kg and 1380 mg/kg at 8 feet bgs respectively. After additional excavation of D-34 area to 13 feet bgs and re-sampling, the analytical results for sample SD-34-13 indicated chloride concentrations at 14,300 mg/kg. On October 1, 2003 this area was excavated down to 18 feet bgs and a confirmation sample collected. The sample results for SD-34-18 indicated chloride concentrations at 11,900 mg/kg. On October 2, 2003 this area was further excavated to 20 feet bgs and a confirmation sample collected. The sample results for SD-34-20 indicated chloride concentrations at 9030 mg/kg. Laboratory analytical reports for chloride investigation/confirmation can be found in Attachment 2. This excavation was terminated at 20 feet bgs due to refusal of the backhoe bucket after encountering an extremely indurated caliche horizon similar to the base of the excavation in Area 2.

An assessment of the chlorides in this area was completed by installing soil borings and collecting soil samples for chloride analysis. On November 20, 2003 four soil borings (SB-65—SB-68) were completed outside of the excavated area associated with sample location D-34 (Figure 2). Soil boring logs are located in Attachment 4. Three soil samples were collected from each of the borings to determine if chloride had migrated below the indurated caliche horizon encountered at 20 feet bgs. Analytical results indicate chloride concentrations ranged from 166-580 mg/kg at 20 feet bgs (Table 2). Chloride concentrations below this depth are all less than 100mg/kg. Based on these results it can be concluded that chloride concentrations associated with sample location D-34 are limited to a depth of 20 feet or less. During all assessment activities, no subsurface water or moist zones were encountered.

The area associated with Area 5, sample SB-3 was excavated to a depth of 2 feet bgs and confirmation samples collected that yielded chloride concentrations at 2850 and 3680 mg/kg (Figure 2). This excavation southeast of monitor well MW-13 was backfilled with caliche material and compacted. Excavated material is presently stockpiled on plastic, onsite.

Compacted Caliche Surface

Three soil samples were collected from the compacted caliche surface that covers the yard (Figure 3). These samples were submitted for permeability, moisture and dry weight analyses on August 25, 2003, September 5, 2003, and September 10, 2003. The permeability results for the sample collected on August 25, 2003, was 1.39E-04 cm/sec, September 5, 2003, 4.56E-5cm/sec and the September 10, 2003 sample indicated 1.46E-04 cm/sec. Field density test completed in the yard showed dry density readings of 98.4% and 101.1%. Laboratory test results are found in Attachment 1. This data indicates there are currently unmodified areas in the yard that do not meet NMOCD permeability criteria requirements (hydraulic conductivity <1.0E-5 or slightly higher).

Buried Water Well and Lines in Area 2

On August 13, 2003, a water sample was collected from the water well discovered beneath the bulk storage containment during excavation of Area 2. The water well was gauged and sampled for chemicals of concern. The analysis illustrates no significant impact to groundwater (Attachment 3). Cadmium at 0.012 mg/l and Manganese at 0.286 mg/l were above the New Mexico Water Quality Control Commission (NMWQCC) standards. This data was submitted to the NMOCD with a request to plug and abandon the water well. The request was granted. On September 3, 2003, ETGI removed the well casing to the extent possible, filled the open borehole with a cement grout and welded a cap on top of the remaining casing.

All lines discovered entering the Area 2 excavation from the warehouse were removed. Additional discovered lines entering the Area 2 excavation from beneath the remaining containment area were packed with bentonite grout and pinched closed.

Quarterly Groundwater Monitoring

Quarterly groundwater sampling was conducted on November 4^{th} –5^{th}, 2003, March 17^{th}, May 16, June 24^{th}, August 11 and October 5^{th}-6^{th}, 2004 Analytical reports are provided in Attachment 3. The data indicates that dissolved chromium concentrations remain above NMWQCC standards of 0.05 mg/l in monitor wells MW-4 and MW-13. During the June and October, 2004 sampling event, monitor wells MW-10 and MW-14 also display chromium concentrations above the NMWQCC standards. The on-site and off-site domestic water wells continue to be non-detect for dissolved chromium. Summary data for dissolved chromium and chloride concentrations in groundwater are provided as Table 3 and 4.

A groundwater gradient map was constructed from the most recent monitoring data (October 5-6, 2004) and is provided as Figure 4. A groundwater concentration map for chloride and dissolved chromium was constructed from this data and is provided as Figure 5. Groundwater elevation data is provided as Table 5.

Installation of Monitor Well(s)

Monitor well MW-18 was installed near the east entrance to the facility on November 17, 2003 (Figure 1). Twenty (20) feet of screen was installed between fifty (50) and seventy (70) feet bgs. A boring log and monitor well completion schematic is located in Attachment 4. Monitor well MW-18 will monitor groundwater conditions at the eastern (down-gradient) perimeter of the site. The last sampling event (October 5-6, 2004) at monitor well MW-12 which is located approximately 100 feet west (up-gradient) of MW-18, had a dissolved chromium concentration of 0.019 mg/l and monitor well MW-18 had a dissolved chromium concentration of 0.025 mg/l.

Soil cuttings generated during drilling activities were placed with the stockpile of excavated material from the area associated with the excavation of sample location D-34. This material will need to be appropriately treated or disposed.

Chromium Source Investigation

An NMOCD approved workplan to investigate an additional chromium source on the southern side of the Champion property has been initiated. This investigation involves installation of temporary piezometers to determine the up-gradient boundary of the chromium plume observed in monitor wells MW-4, MW-13 and MW-14. This activity commenced on November 18th , 2003. Two temporary piezometers had been installed prior to the notification by Champion to temporarily cease all field activities. Piezometer boring log schematics are located in Attachment 4.

Chromium Treatment Pilot Test

A pilot test to determine radius of influence for groundwater injection treatment was initiated. The pilot test was terminated prior to conclusion at the request of Champion.

Slug and Pump Test Report

Slug and Pump tests were conducted on the Champion property to determine hydraulic conductivity in the saturated zone. A slug test was performed initially to gather data to establish pumping rates for a planned short-term aquifer pump test. The average hydraulic conductivity as determined from the slug and pump tests was 6.9 ft/day. The program used for data analysis was AquiferTest v. 3.5. A complete report on slug and pump test results is provided as Attachment 5.

Sincerely,

Todd K Choban

Todd K Choban
Vice-President Technical Services
NOVA Safety and Environmental

Enclosures:

Enclosures:

Figures:

Figure 1	Site Plan
Figure 2	Chloride Confirmation Sample Locations
Figure 3	Yard Permeability Sample Locations
Figure 4	Groundwater Gradient Map (10/5/04)
Figure 5	Groundwater Concentration Map (10/5/04)

Tables:

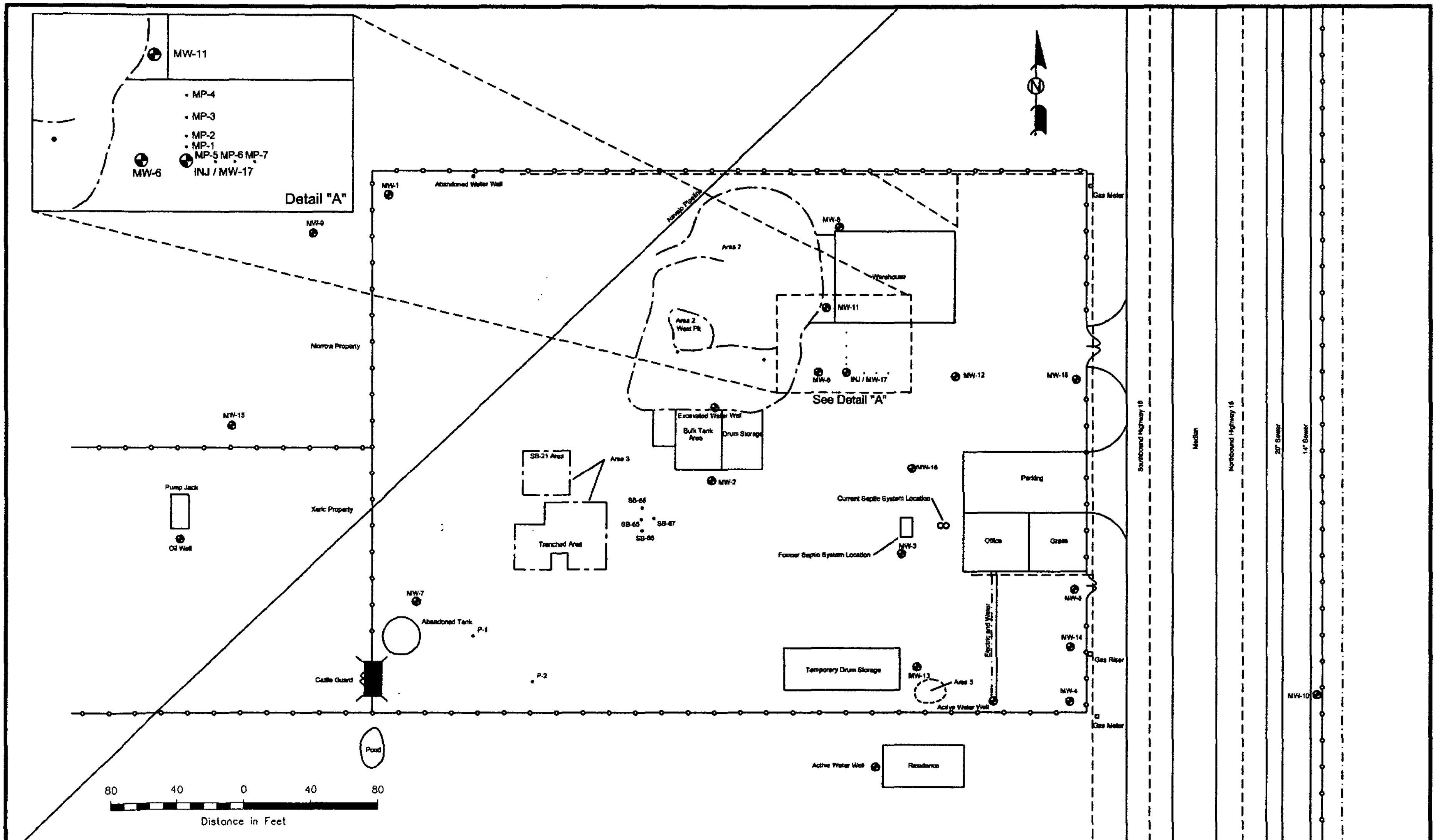
Table 1	Laboratory Compaction Test Results.
Table 2	Summary of Chloride Confirmation Samples.
Table 3	Summary of Dissolved Chromium Concentrations in Monitor Wells and Water Wells.
Table 4	Summary of Chloride Concentrations in Monitor Wells and Water Wells.
Table 5	Groundwater Elevations.

Attachments:

Attachment 1	Compaction and Permeability Test Results.
Attachment 2	Analytical Reports of Soil Confirmation Samples
Attachment 3	Analytical Reports for Monitor Wells, Water Wells and Excavated Wells
Attachment 4	Monitor Wells, Soil Borings, Piezometer Boring Logs and Completion Details
Attachment 5	Report on Slug Test and Pump Test

Enclosures
Volume 1 of 2

Figures



Legend

Former Excavation	Utility Pole Location
Fence	Overhead Utility Line
MW-1 Monitor Well	P-1 Piezometer Location
Pipeline	SB-65 Soil Boring Location

Figure 1

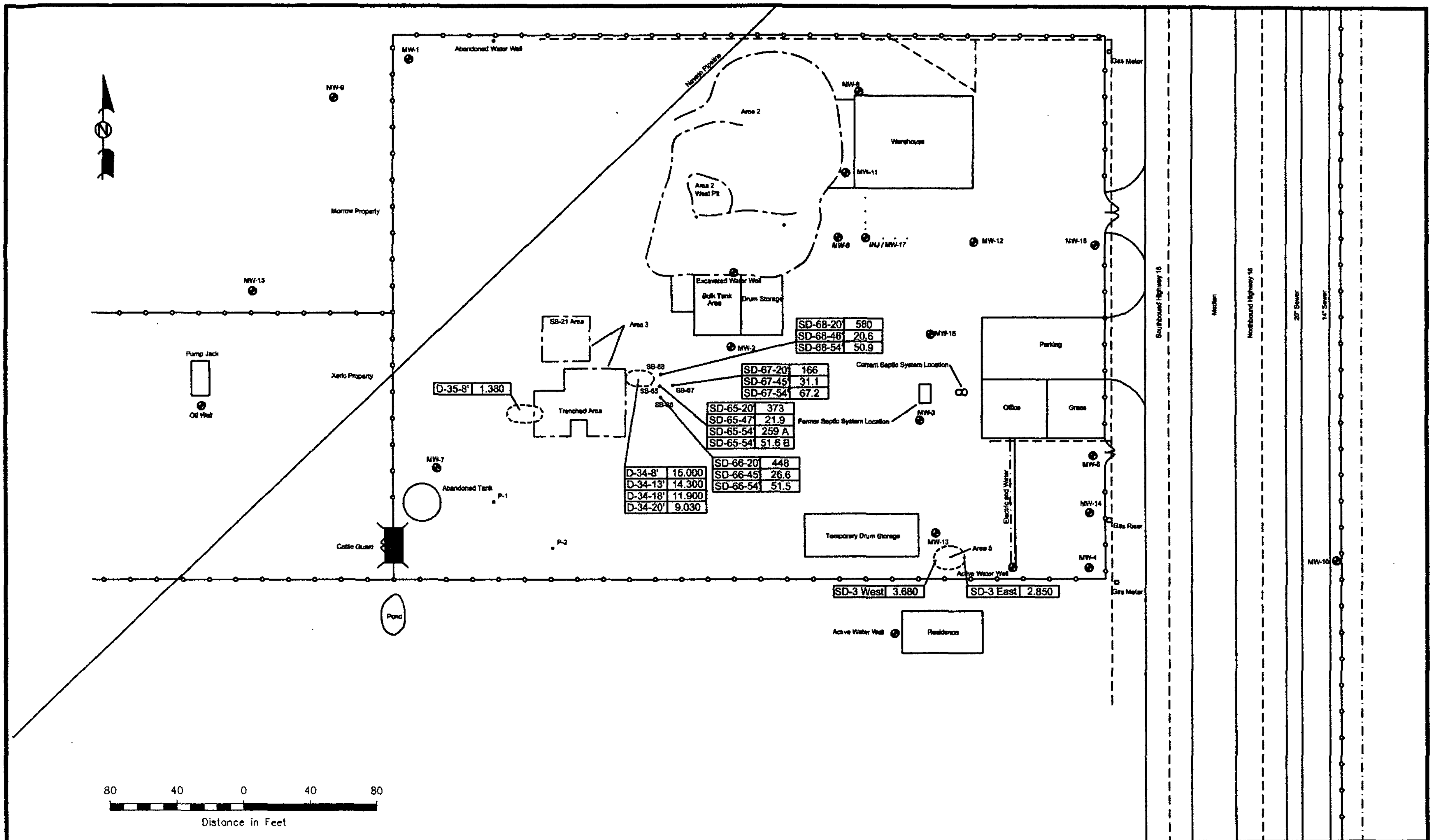
Site Plan

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80'	Prep By: cds	Checked By: TKC
August 13, 2004		



Legend

Former Excavation		Utility Pole Location	SD-35-8' 1.380	Sample Location and Chloride Concentration	
Fence		Overhead Utility Line			
MW-1 Monitor Well	P-1	Piezometer Location	259 A	Sample analyzed by Environmental Labs of Texas, Inc.	
Pipeline	SB-65	Soil Boring Location	51.6 B	Sample analyzed by Trace Analysis, Inc.	

Figure 2
Chloride Concentration Sample Locations
Champion Technologies, Inc. Hobbs Facility
Hobbs, NM

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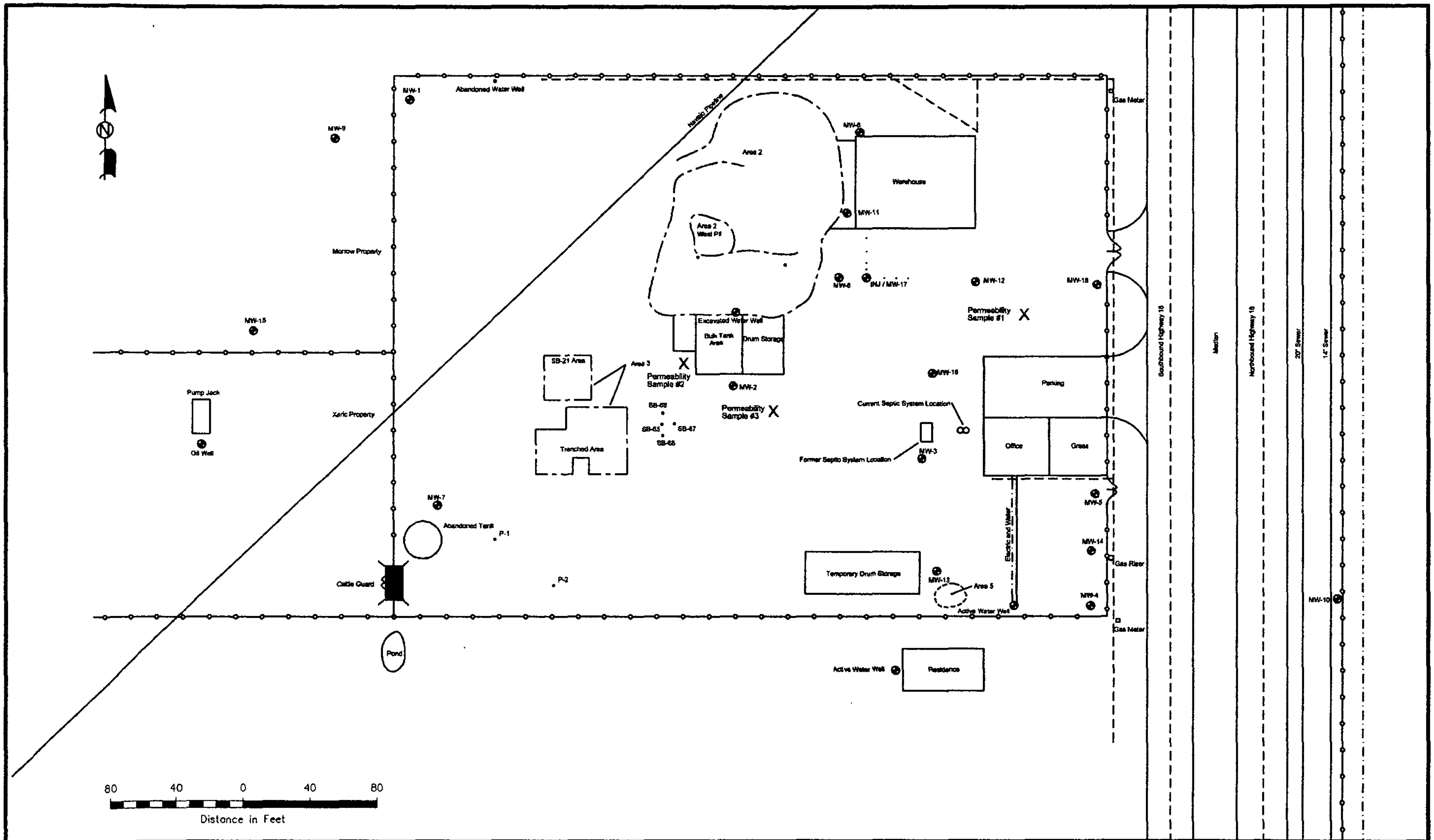
NOVA safety and environmental

Scale: 1" = 80'	Prep By: cds	Checked By: TKC
August 13, 2004		



Legend

- Former Excavation
- Fence
- MW-1 Monitor Well
- Pipeline
- Utility Pole Location
- Overhead Utility Line
- P-1 Pizometer Location
- SB-65 Soil Boring Location
- X Permeability Sample Location

Figure 3

Yard Permeability Sample Locations

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

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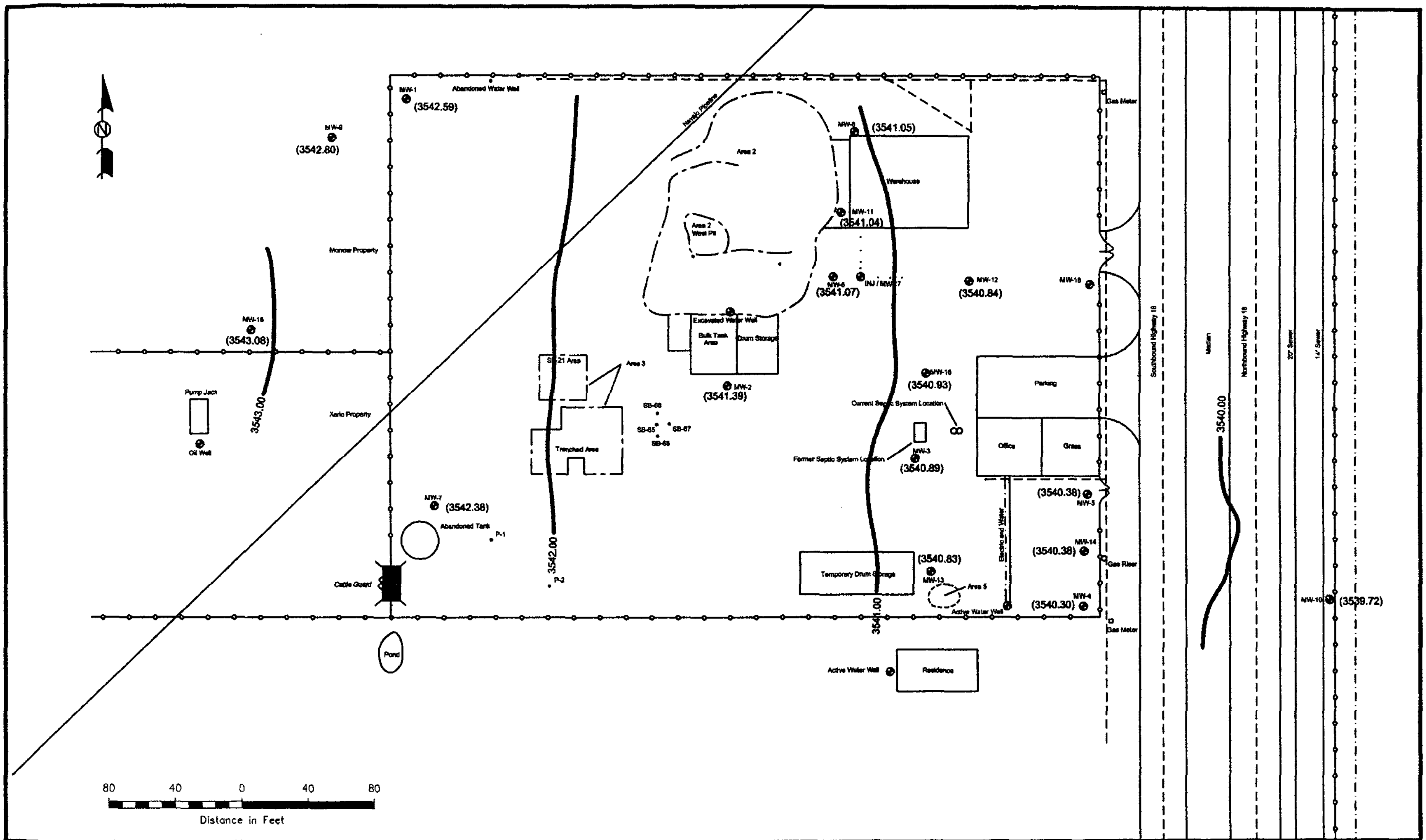
Scale: 1" = 80'	Prep By: cds	Checked By: TKC
August 13, 2004		



Legend

- Former Excavation
- Fence
- MW-1 Monitor Well
- Pipeline
- Utility Pole Location
- Overhead Utility Line
- P-1 Piezometer Location
- SB-65 Soil Boring Location
- (3541.94) Groundwater Elevation in Feet above Mean Sea Level
- Groundwater Elevation Contour

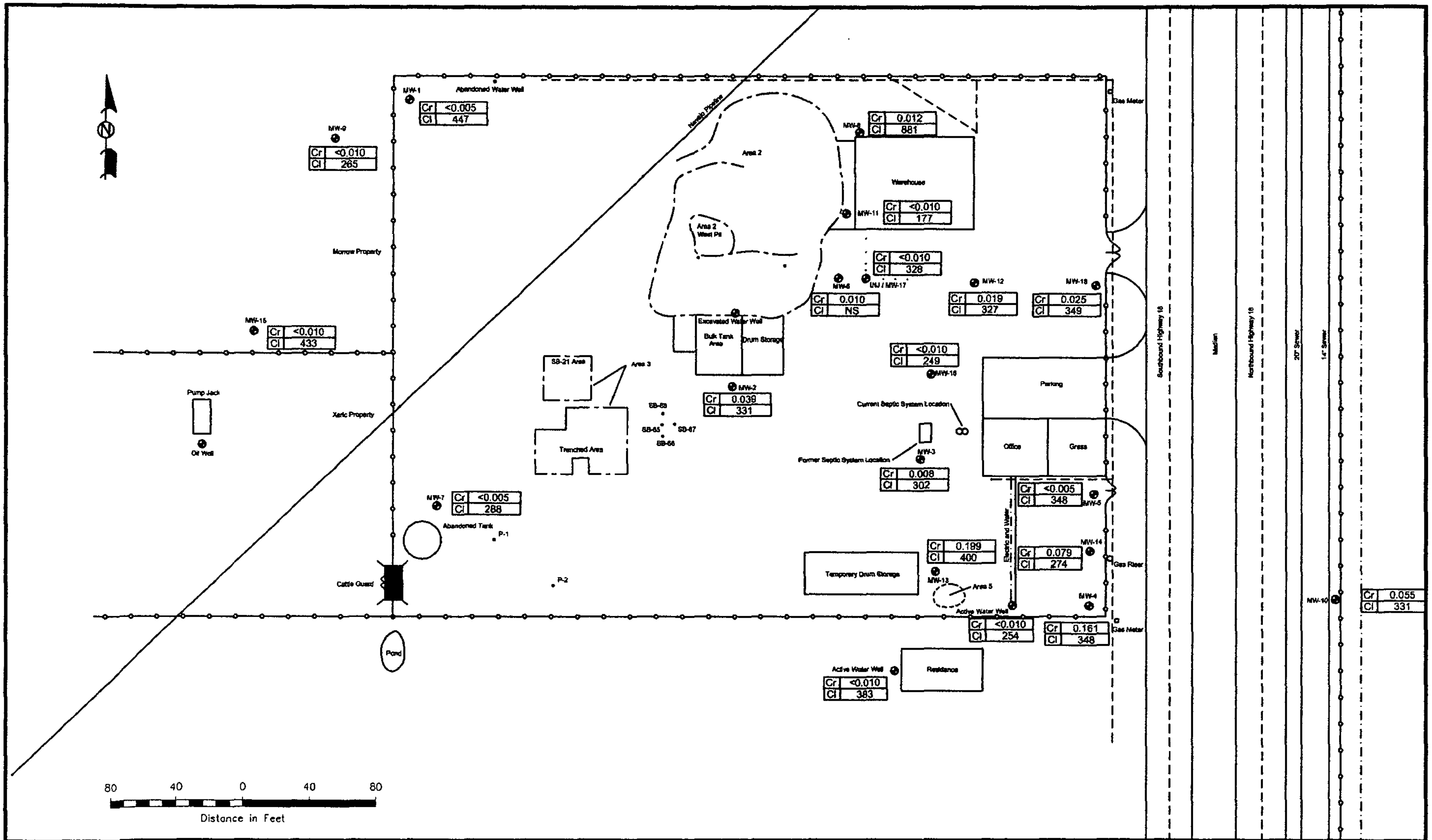
Figure 4

Groundwater Gradient Map
10/5/04

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

Scale: 1" = 80'	Prep By: cds	Checked By: TKC
November 14, 2004		



Legend

- Extent of Excavation
- Fence
- MW-1 Monitor Well
- Pipeline
- Utility Pole Location
- Overhead Utility Line
- P-1 Piezometer Location
- SB-65 Soil Boring Location

Cr	<0.005
Cl	295

Dissolved Chromium Concentration on October 5, 2004
Chloride Concentration on October 5, 2004

Figure 5
Groundwater Concentration Map (October 5, 2004)

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

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NOVA safety and environmental

Scale: 1" = 80' | Prep By: cde | Checked By: TKC

August 17, 2004

Tables

TABLE 1. Champion Technologies Laboratory Compaction Test Results							
DATE	TEST #	LOCATION	DEPTH	DRY DENSITY	CONTROL DENSITY	MATERIAL	% Moisture
9/5/03	SG-1	Pit-20'S	15'±bfs	100.8	106.3	sandy caliche	14.1
9/8/03	SG-2	Large pit-30' S	13.5bfs	98.1	106.3	sandy caliche	11.6
9/9/03	SG-3	Large pit-50' N	12'bfs	96.3	106.3	sandy caliche	11.2
9/9/03	SG-4	Small pit-30' W	4'bfs	97.9	106.3	sandy caliche	10
9/9/03	*SG-5	Roadway-350' W	finished sg	94.1	*116.1	sandy caliche	4.9
9/10/03	SG-6	N.pit-10' S	9.5'bfs	92.9	106.3	sandy caliche	16.1
9/10/03	SG-7	N.pit-15' N	11'bfs	90.7	106.3	sandy caliche	10.4
9/11/03	SG-8	Sample site #2	finished sg	98.4	116.1	sandy caliche	5.6
9/11/03	SG-9	Sample site #1	finished sg	101.1	116.1	sandy caliche	4.4
9/16/03	SG-10	Large pit-25' E	7'bfs	95.8	106.3	sandy caliche	11.6
9/16/03	SG-11	Large pit-30'N	7'bfs	96.0	106.3	sandy caliche	10.2
9/16/03	SG-12	Large pit-50' E	6'bfs	97.6	110.5	red clay	10.6
9/17/03	SG-13	Large pit-25' N	5'bfs	98.5	110.5	red clay	13.3
9/17/03	SG-14	Large pit-50' S	5'bfs	100.4	110.5	red clay	16.1
9/19/03	SG-15	Large pit-15' S	3'bfs	94.8	106.3	sandy caliche	10.0
9/23/03	SG-16	Large pit-20' N	2'bfs	96.6	106.3	sandy caliche	8.4
9/23/03	SG-17	Large pit-50' S	2'bfs	97.5	106.3	sandy caliche	9.8
9/24/03	SG-18	Large pit-30' N	1'bfs	95.0	106.3	sandy caliche	14.1
9/26/03	SG-19	Large pit-25' S	finished sg	102.6	106.3	sandy caliche	12.8
9/26/03	SG-20	Large pit-25' N	finished sg	99.3	106.3	sandy caliche	14.4
9/29/03	SG-21	Large pit-40' W	finished sg	105.0	106.3	sandy caliche	9.7

NOTE:

* Control Density was 116.1
bfs=below finished subgrade
finished sg=finished subgrade

Table 2. Summary of Chloride Confirmation Samples

SAMPLE DATE	SAMPLE LOCATION	SAMPLE TYPE	CHLORIDE
09/19/03	SD-34	SOIL	15000
	SD-35	SOIL	1380
	SD-3 East	SOIL	2850
	SD-3 West	SOIL	3680
09/26/03	SD-34-13'	SOIL	14300
10/01/03	SD-34 18"	SOIL	11900
10/07/03	SB-34-20'	SOIL	9030
11/19/03	SB-65 (20')	SOIL	373
	SB-65 (47')	SOIL	21.9
11/20/03	SB-65 (54') [1]	SOIL	259
	SB-65 (54')	SOIL	51.6
	SB-66 (20')	SOIL	448
	SB-66 (45')	SOIL	26.6
	SB-66 (54')	SOIL	51.5
	SB-67 (20')	SOIL	166
	SB-67 (45')	SOIL	31.1
	SB-67 (54')	SOIL	67.2
	SB-68 (20')	SOIL	580
	SB-68 (46')	SOIL	20.6
11/21/03	SB-68 (54')	SOIL	50.9

Chloride 9253/6020

1 Env lab of Texas

Table 3. Summary of Dissolved Chromium Concentrations in Monitor Wells and Water Wells

		First Quarter 03	Second Quarter 03	Third Quarter 03	Fourth Quarter 03	First Quarter 04	Second Quarter 04	Third Quarter 04
Sample Location	Matrix	2/19/2003	5/16/2003	8/11/2003	11/4-5/2003	3/17/2004	6/24/2004	10/5-6/04
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW-1	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-2	Water	0.013	0.036	0.040	0.022	0.012	0.026	0.039
MW-3	Water	0.012	0.011	<0.010	0.010	<0.010	<0.005	0.008
MW-4	Water	**0.271**	**0.201**	**0.187**	**0.161**	**0.163**	**0.117**	**0.161**
MW-5	Water	<0.011	0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-6	Water	**0.097**	0.031	**0.057**	0.038	NS	<0.005	0.010
MW-7	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-8	Water	<0.011	0.024	0.025	0.019	0.012	0.008	0.012
MW-9	Water	<0.011	<0.010	0.010	<0.010	<0.010	<0.005	<0.01
MW-10	Water	0.016	0.022	0.022	0.021	0.048	**0.055**	**0.055**
MW-11	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-12	Water	0.020	0.016	0.023	0.016	0.013	0.021	0.019
MW-13	Water	**0.151**	**0.158**	**0.191**	**0.180**	**0.179**	**0.166**	**0.199**
MW-14	Water	<0.011	0.030	0.035	0.024	0.034	**0.055**	**0.079**
MW-15	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-16	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-17	Water					<0.010	<0.005	<0.01
MW-18	Water					**0.220**	0.017	0.025
Champion's Water Well	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
Resident's Water Well	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01

Concentrations in bold exceed NMWQCC Standards

NS - Not Sampled

Table 4. Summary of Chloride Concentrations in Monitor Wells and Water Wells

Sample Location	Matrix	First Quarter 03 2/19/2003 mg/l	Second Quarter 03 5/16/2003 mg/l	Third Quarter 03 8/11/2003 mg/l	Fourth Quarter 03 11/4-5/2003 mg/l	First Quarter 04 3/17/2004 mg/l	Second Quarter 04 6/24/2004 mg/l	Third Quarter 04 10/5-6/04 mg/l
MW-1	Water	**435**	**65**	**381**	**369**	**419**	**475**	**447**
MW-2	Water	**384**	**331**	**316**	227	201	**304**	**331**
MW-3	Water	**658**	**510**	**359**	**432**	223	**313**	**302**
MW-4	Water	**485**	**363**	**384**	**360**	**326**	**545**	**348**
MW-5	Water	**476**	**329**	**430**	**432**	**377**	**389**	**348**
MW-6	Water	**533**	**328**	**431**	**462**	NS	NS	NS
MW-7	Water	**255**	205	242	179	199	**290**	**288**
MW-8	Water	**397**	**324**	**370**	**327**	**447**	**664**	**881**
MW-9	Water	**332**	**299**	**329**	**263**	199	**295**	**265**
MW-10	Water	**355**	**316**	**351**	**339**	**335**	**402**	**331**
MW-11	Water	**298**	**256**	**413**	248	**270**	197	177
MW-12	Water	**353**	**280**	**350**	**344**	**327**	**379**	**327**
MW-13	Water	**332**	**296**	**340**	**310**	**322**	**355**	**400**
MW-14	Water	**342**	**279**	**299**	**269**	**260**	**258**	**274**
MW-15	Water	221	205	165	174	185	127	**433**
MW-16	Water	**474**	**362**	**410**	**322**	**266**	235	249
MW-17	Water					**301**	224	**328**
MW-18	Water					**333**	**291**	**349**
Champion's Water Well	Water	347	**258**	**295**	**377**	240	236	**254**
Resident's Water Well	Water	479	**383**	**397**	**299**	**382**	**397**	**383**

NS - Not Sampled

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
MW-1	8/2/2002	3594.44	50.74	3543.70
	8/22/2002		50.75	3543.69
	9/20/2002		50.94	3543.50
	10/21/2002		50.96	3543.48
	11/13/2002		51.01	3543.43
	2/18/2003		51.22	3543.22
	11/4/2003		52.25	3542.19
	6/24/2004		52.56	3541.88
	10/5/2004		51.85	3542.59
MW-2	8/2/2002	3598.40	56.30	3542.10
	8/22/2002		56.42	3541.98
	9/20/2002		60.00	3538.40
	10/21/2002	*3602.78	60.08	3542.70
	2/18/2003		60.29	3542.49
	11/4/2003		61.31	3541.47
	6/24/2004		61.73	3541.05
	10/5/2004		61.39	3541.39
MW-3	8/2/2002	3599.49	56.81	3542.68
	8/22/2002		56.84	3542.65
	9/20/2002		57.02	3542.47
	10/21/2002		57.09	3542.40
	11/13/2002		57.06	3542.43
	2/18/2003		57.31	3542.18
	11/4/2003		58.44	3541.05
	6/24/2004		58.82	3540.67
	10/5/2004		58.60	3540.89
MW-4	8/2/2002	3599.40	57.13	3542.27
	8/22/2002		57.17	3542.23
	9/20/2002		57.37	3542.03
	10/21/2002		57.45	3541.95
	11/13/2002		57.47	3541.93
	2/18/2003		57.61	3541.79
	11/4/2003		58.76	3540.64
	6/24/2004		59.21	3540.19
	10/5/2004		59.10	3540.30

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
MW-5	8/2/2002	3599.28	56.97	3542.31
	8/22/2002		57.00	3542.28
	9/20/2002		57.19	3542.09
	10/21/2002		57.28	3542.00
	2/18/2003		57.50	3541.78
	11/4/2003		58.63	3540.65
	6/24/2004		59.02	3540.26
	10/5/2004		58.90	3540.38
MW-6	8/2/2002	3599.20	56.38	3542.82
	8/22/2002		56.44	3542.76
	9/20/2002	*3603.56	60.98	3542.58
	10/21/2002		61.04	3542.52
	11/13/2002		61.08	3542.48
	2/18/2003		61.30	3542.26
	11/4/2003		62.68	3540.88
	6/24/2004		62.73	3540.83
	10/5/2004		62.49	3541.07
MW-7	8/2/2002	3596.91	53.16	3543.75
	8/22/2002		53.28	3543.63
	9/20/2002		53.40	3543.51
	10/21/2002		53.46	3543.45
	11/13/2002		53.51	3543.40
	2/18/2003		53.70	3543.21
	11/4/2003		54.67	3542.24
	6/24/2004		54.97	3541.94
	10/5/2004		54.53	3542.38
MW-8	8/2/2002	3602.68	59.87	3542.81
	8/22/2002		59.98	3542.70
	9/20/2002		60.12	3542.56
	10/21/2002		60.18	3542.50
	2/18/2003		60.38	3542.30
	11/4/2003		61.50	3541.18
	6/24/2004		61.90	3540.78
	10/5/2004		61.63	3541.05
MW-9	8/2/2002	3597.00	53.15	3543.85

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
	8/22/2002		53.12	3543.88
	9/20/2002		53.34	3543.66
	10/21/2002		53.37	3543.63
	2/18/2003		53.61	3543.39
	11/4/2003		54.63	3542.37
	6/24/2004		54.97	3542.03
	10/5/2004		54.20	3542.80
MW-10	10/16/2002	3600.84	59.38	3541.46
	10/21/2002		59.37	3541.47
	2/18/2003		59.61	3541.23
	11/4/2003		60.75	3540.09
	6/24/2004		61.13	3539.71
	10/5/2004		61.12	3539.72
MW-11	10/16/2002	3599.63	57.09	3542.54
	10/21/2002		57.12	3542.51
	2/18/2003		57.35	3542.28
	11/4/2003		58.46	3541.17
	6/24/2004		58.84	3540.79
	10/5/2004		58.59	3541.04
MW-12	10/16/2002	3602.80	60.42	3542.38
	10/21/2002		60.45	3542.35
	2/18/2003		60.66	3542.14
	11/4/2003		61.80	3541.00
	6/24/2004		62.18	3540.62
	10/5/2004		61.96	3540.84
MW-13	10/16/2002	3602.68	60.28	3542.40
	10/21/2002		60.39	3542.29
	11/13/2002		60.35	3542.33
	2/18/2003		60.52	3542.16
	11/4/2003		61.71	3540.97
	6/24/2004		62.08	3540.60
	10/5/2004		61.85	3540.83
MW-14	10/16/2002	3599.23	57.17	3542.06

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
	10/21/2002		57.24	3541.99
	2/18/2003		57.43	3541.80
	11/4/2003		58.56	3540.67
	6/24/2004		58.98	3540.25
	10/5/2004		58.85	3540.38
MW-15	10/16/2002	3597.06	53.26	3543.80
	10/21/2002		53.31	3543.75
	11/13/2002		53.35	3543.71
	2/18/2003		53.56	3543.50
	11/4/2003		54.55	3542.51
	6/24/2004		54.87	3542.19
	10/5/2004		53.98	3543.08
MW-16	10/16/2002	3602.56	60.11	3542.45
	10/21/2002		60.17	3542.39
	11/13/2002		60.19	3542.37
	2/18/2003		60.38	3542.18
	11/4/2003		61.50	3541.06
	6/24/2004		61.88	3540.68
	10/5/2004		61.63	3540.93
MW-17	6/24/2004		62.19	Not Surveyed
	10/5/2004		61.95	Not Surveyed
MW-18	6/24/2004		61.99	Not Surveyed
	10/5/2004		61.82	Not Surveyed

* Top of Casing raised on 9/18/02

Attachments

Attachment 1
Compaction and Permeability Laboratory Test Reports

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	Material:	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 5, 2003	Depth:	15'± Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-1	Pit - 20' S. & 15' E. of the NW Corner	100.8	14.1	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5719

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: [signature] SET

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 8, 2003

Depth: 13 1/2' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-2	Large Pit - 30' S. & 15' E. of the NW Corner	98.1	11.6	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5757

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 9, 2003

Depth: See Below

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-3	Large Pit - 50' N. & 50' E. of the SW Corner	96.3	11.2	12' Below Finished Subgrade
SG-4	Small Pit - 30' W. & 50' N. of the SE Corner	97.9	10.0	4' Below Finished Subgrade
*SG-5	Champion Yard Roadway - 350' W. of Entrance Gate - Centerline	94.1	4.9	Finished Subgrade

Control Density: 106.3
* 116.1
ASTM: D 698

Optimum Moisture: 16.0%
*11.4

Required Compaction: 90%

Lab No.: 03 5763-5765

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 11, 2003

Depth: See Below

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-6	N. Pit - 10' S. & 30' E. of the NW Corner	92.9	16.1	9 1/2' Below Finished Subgrade
SG-7	N. Pit - 15' N. & 12' W. of the SE Corner	90.7	10.4	11' Below Finished Subgrade

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5801-5802

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 16, 2003

Depth: 7' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-10	Large Pit - 25' E. & 25' S. of the NW Corner	95.8	11.6	
SG-11	Large Pit - 30' N. & 15' W. of the SE Corner	96.0	10.2	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5827-2828

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: [signature] S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Red Clay

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 16, 2003

Depth: 6' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-12	Large Pit - 50' E. & 50' S. of the NW Corner	97.6	10.6	

Control Density: 110.5
ASTM: D 698

Optimum Moisture: 16.6 %

Required Compaction: 95%

Lab No.: 03 5848

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Red Clay

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 17, 2003

Depth: 5' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-13	Large Pit - 25' N. & 30' E. of the SW Corner	98.5	13.3	
SG-14	Large Pit - 50' S. & 50' W. of the NE Corner	100.4	16.1	

Control Density: 110.5
ASTM: D 698

Optimum Moisture: 16.6 %

Required Compaction: 95%

Lab No.: 03 5890-5891

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] SET

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 19, 2003

Depth: 3' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-15	Large Pit - 15' S. & 20' W. of the NE Corner	94.8	10.0	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5916

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	Material:	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 23, 2003	Depth:	2' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-16	Large Pit - 20' N. & 10' W. of the SE Corner	96.6	8.4	
SG-17	Large Pit - 50' S. & 30' W. of the NE Corner	97.5	9.8	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5937-5938

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: SET

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 24, 2003	**Depth:**	1' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-18	Large Pit - 30' N. & 75' W. of the SE Corner	95.0	14.1	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5944

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 26, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-19	Large Pit - 25' S. & 25. E. of the NW Corner	102.6	12.8	
SG-20	Large Pit - 30' N. & 15' W. of the SE Corner	99.3	14.4	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 6038-6039

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 29, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-21	Small Pit - 40' W. & 35' N. of the SE Corner	105.0	9.7	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 6047

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 11, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-8	Sample Site # 2	98.4	5.6	
SG-9	Sample Site # 1	101.1	4.4	

Control Density: 116.1
ASTM: D 698

Optimum Moisture: 11.4%

Required Compaction:

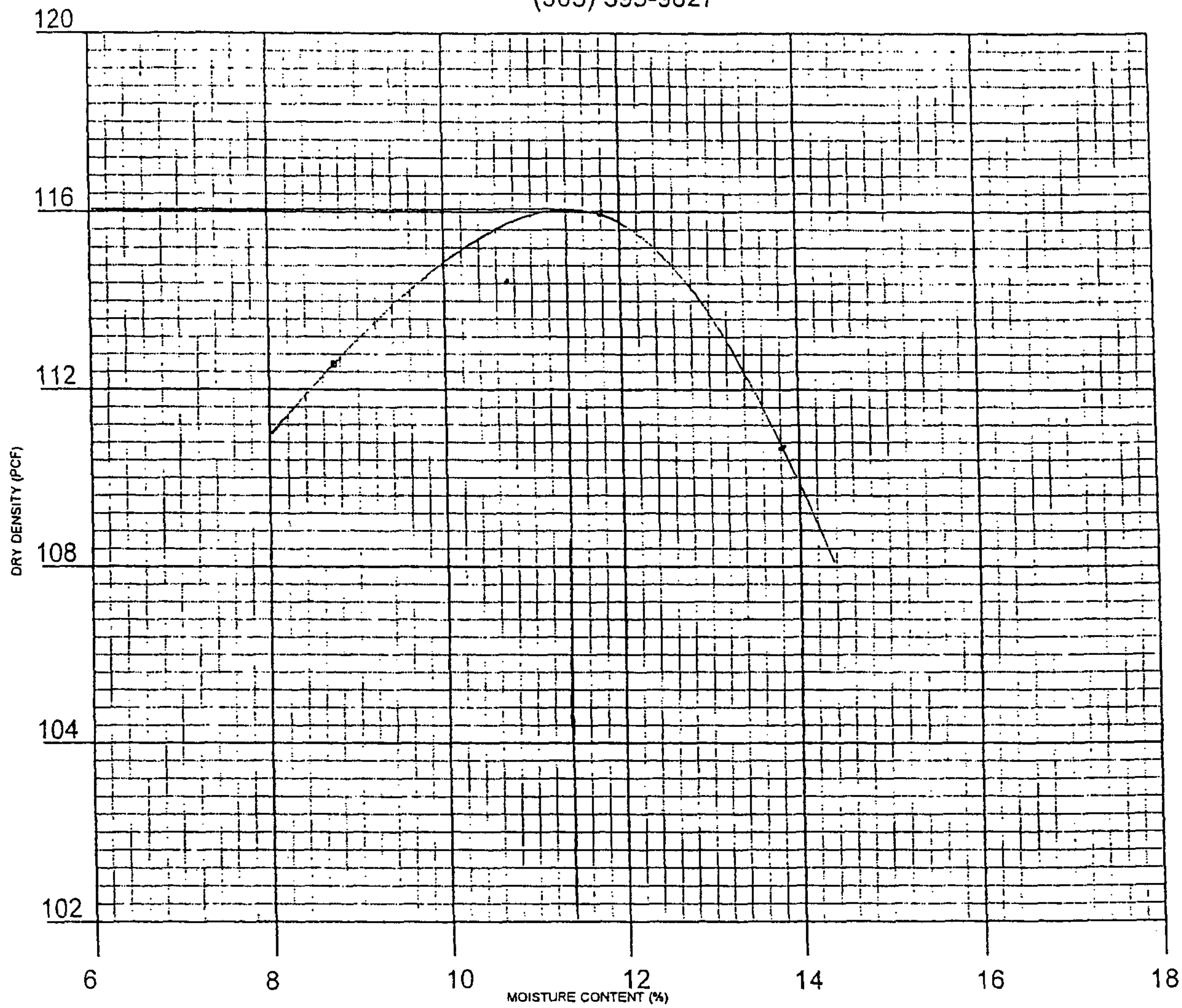
Lab No.: 03 5803-5804

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: SET

PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES ST.
HOBBS, NM 88240
(505) 393-9827



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Surface Sample from Yard Near Front Gate

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

ATTERBERG: LL ___ PI ____ Delivered 8/25/03

DATE: 8/26/03 LAB NO. 03 5604-5606

DRY WEIGHT LB/CU. FT. 116.1 MOISTURE CONTENT % 11.4

SIEVE ANALYSIS - % PASSING
Permeability : 1.39E-04 cm/sec. Test Performed at 94.8% Compaction -11.4% Moisture

PETTIGREW and ASSOCIATES

COPIES: Env. Tech

BY: S.E.T.

PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES ST.
HOBBS, NM 88240
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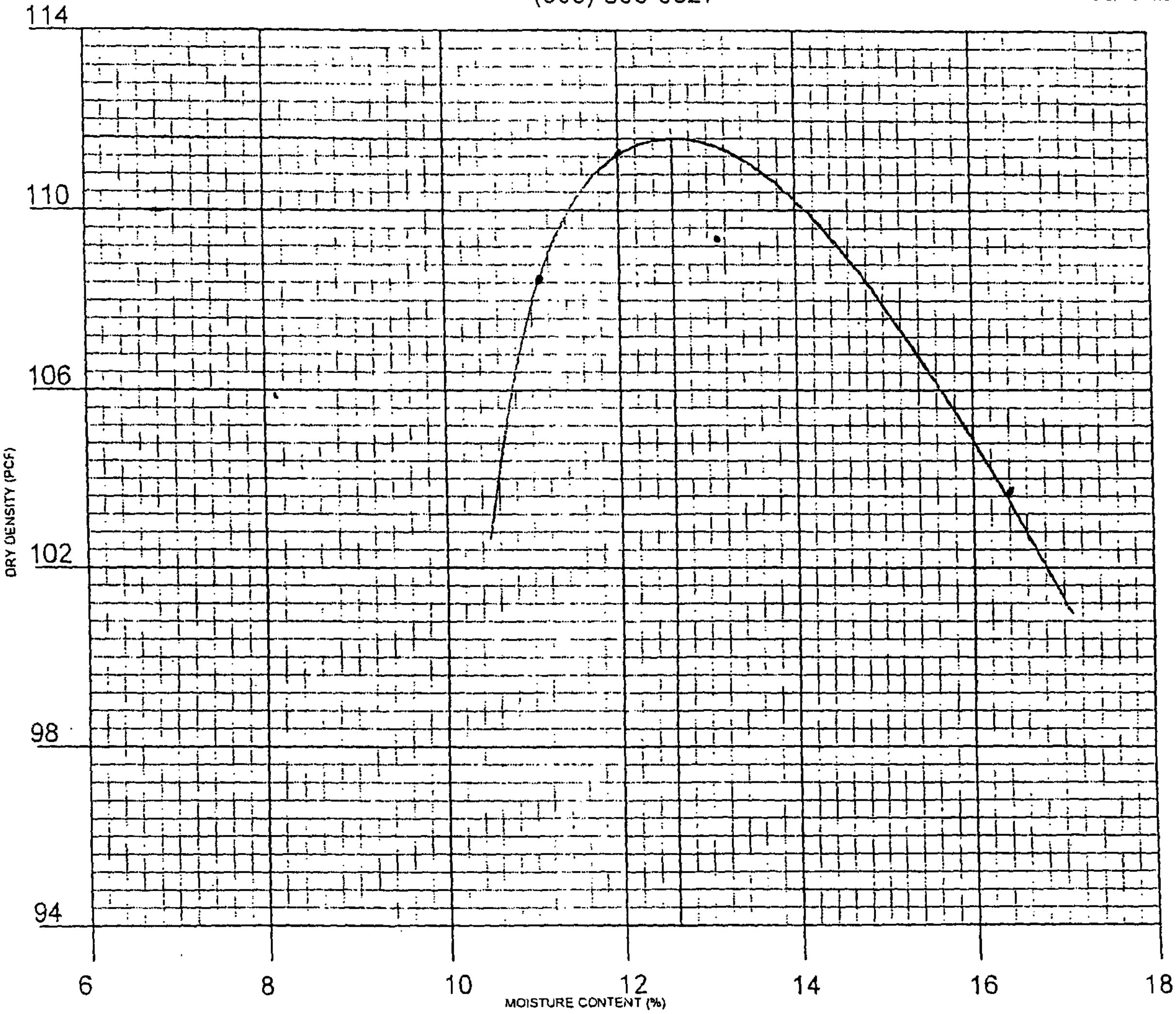
AASHTO R18



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Permeability Sample # 2

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

Delivered 9/5/03

ATTERBERG: LL ____ PI _____

DATE: 9/8/03 LAB NO. 03 5766-5768

DRY WEIGHT LB/CU. FT. 111.6 MOISTURE CONTENT % 12.6

Permeability : 4.56E-05 cm/sec.
Test Performed at 95.6% Compaction -9.0% Moisture

PETTIGREW and ASSOCIATES

COPIES: Env. Tech

BY: S.E.T.

PETTIGREW and ASSOCIATES, P.A.
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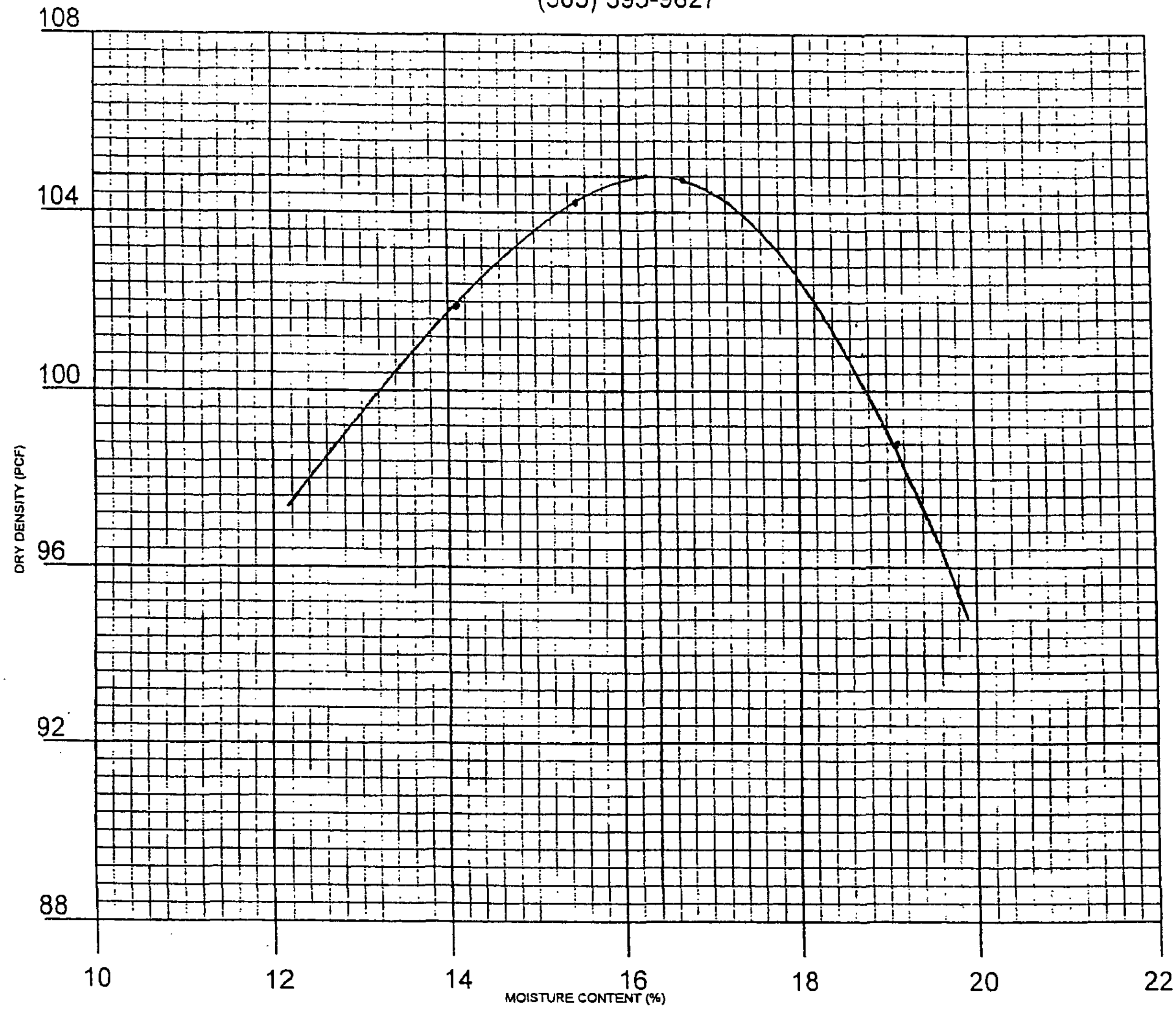
HOBBS, NM 88240
(505) 393-9827



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Permeability Sample # 3

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Delivered 9/10/03

DATE: 9/12/03 LAB NO. 03 5798-5800

DRY WEIGHT LB/CU. FT. 104.8 MOISTURE CONTENT % 16.4

Permeability : 1.46E-04 cm/sec
Test Performed at 95.1% Compaction - 16.2% Moisture

PETTIGREW and ASSOCIATES

COPIES: Env. Tech

BY: S.E.T.

Attachment 2
Analytical Reports for Soil Confirmation Samples

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: September 24, 2003

Work Order: 3092310

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
17920	SD-34	soil	2003-09-19	10:55	2003-09-23
17921	SD-35	soil	2003-09-19	11:30	2003-09-23
17922	SD-3 East	soil	2003-09-19	13:01	2003-09-23
17923	SD-3 West	soil	2003-09-19	13:05	2003-09-23

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 17920 - SD-34

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		15000	mg/Kg	1000	1.00

Sample: 17921 - SD-35

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1380	mg/Kg	100	1.00

Sample: 17922 - SD-3 East

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2850	mg/Kg	500	1.00

Sample: 17923 - SD-3 West

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3680	mg/Kg	500	1.00

Matrix Blank (1) QC Batch: 4573

Parameter	Flag	Result	Units	RL
Chloride		18.3	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	30.0	30.1	mg/Kg	1	12.5	18.3	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2670	2640	mg/Kg	100	12.5	1380	103	1	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2003-09-24

Standard (CCV-1) QC Batch: 4573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.3	98	90 - 110	2003-09-24

Page____of____

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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3092310

Company Name: Environmental Technology Group Inc.
Phone #: @ 432 520 1139
Address: (Street, City, Zip) 4600 W. Wall 79703
Fax #: 520-4310
Contact Person: Chan Patel
Invoice to: (If different from above) Champion
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides					Turn Around Time if different from standard	Hold
17920	SD-34	1			X							X		9-19-03	10:55																X					*	
21	SD-35	1			X							X		9-19-03	11:30																X					*	
22	SD-3 East	1			X							X		9-19-03	1:01																X					*	
23	SD-3 West	1			X							X		9-19-03	1:05																X					*	

Relinquished by: Date: 9-22-03 Time: 2:31
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Date: 9-23-03 Time: 11:14

LAB USE ONLY
Intact (Y) N
Headspace Y / N
Temp 2°
Log-in Review

REMARKS:
* 24 hour turnaround on all samples please.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM 80 903 112 376-1

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: September 30, 2003

Work Order: 3092902

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
18434	SD-34-13'	Soil	2003-09-26	10:08	2003-09-29

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 18434 - SD-34-13'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4730	Date Analyzed:	2003-09-30	Analyzed By:	JSW
Prep Batch:	4247	Date Prepared:	2003-09-29	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		14300	mg/Kg	1000	1.00

Matrix Blank (1) QC Batch: 4730

Parameter	Flag	Result	Units	RL
Chloride		16.8	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4730

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	28.9	29.3	mg/Kg	1	12.5	16.8	97	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4730

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	26700	26700	mg/Kg	1000	12.5	14300	99	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4730

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.4	99	90 - 110	2003-09-30

Standard (CCV-1) QC Batch: 4730

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.2	98	90 - 110	2003-09-30

Page ____ of ____

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TraceAnalysis, Inc.

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El Paso, Texas 79932
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Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3092902

Company Name: Environmental Technology Group Inc.
Phone #: (915) 522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703
Fax #: (432) 520-4320
Contact Person: Chan Patel
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion Yard
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides					Turn Around Time if different from standard	Hold
18434	SD-34-13'	1			X							X		9-26-03	10:48																X					X	

Relinquished by: Date: 9-26-03 Time: 2:27
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Date: 9-27-03 Time: 1035

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 3°
Log-in Review MA

REMARKS: Need 24 hour turnaround on sample.

☐ Check If Special Reporting Limits Are Needed

Carrier # Bus 9031124025

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: October 3, 2003

Work Order: 3100209

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
18683	SD-34 18'	soil	2003-10-01	12:45	2003-10-02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 18683 - SD-34 18'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4826	Date Analyzed:	2003-10-03	Analyzed By:	JSW
Prep Batch:	4333	Date Prepared:	2003-10-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		11900	mg/Kg	1000	1.00

Matrix Blank (1) QC Batch: 4826

Parameter	Flag	Result	Units	RL
Chloride		17.5	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4826

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	29.5	29.7	mg/Kg	1	12.5	17.5	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4826

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	22800	22900	mg/Kg	1000	12.5	11900	87	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.2	98	90 - 110	2003-10-03

Standard (CCV-1) QC Batch: 4826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.8	110	90 - 110	2003-10-03

Page 1 of 1

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Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 114 (.3100209

Company Name: ETGI
Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 WEST WALL, MIDLAND TX. 79703
Fax #: 432-520-4310

Contact Person: TODD CHODAN

Invoice to:
(If different from above)

Project #: CH-2100
Project Name: CHAMPION TECHNOLOGY YARD

Project Location: HOBBS, N.M.
Sampler Signature: Ross Anderson

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE 2003	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	CHLORIDES					Turn Around Time if different from standard	Hold
18683	SD-34 18 FT.	1	4oz		X							X		10/1	12:45																X					X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Ross Anderson	10-1-03	3:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki King	10-2-03	10:29

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 4°c
Log-in Review

REMARKS: 24 HR TURNAROUND PLEASE.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNT/UTO 903 172 433-3

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: October 10, 2003

Work Order: 3100819

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
19007	SB-34-20'	soil	2003-10-07	09:35	2003-10-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 19007 - SB-34-20'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4974	Date Analyzed:	2003-10-10	Analyzed By:	JSW
Prep Batch:	4446	Date Prepared:	2003-10-09	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9030	mg/Kg	500	1.00

Matrix Blank (1) QC Batch: 4974

Parameter	Flag	Result	Units	RL
Chloride		15.0	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4974

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	26.3	26.2	mg/Kg	1	12.5	15	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4974

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	19700	19800	mg/Kg	1000	12.5	8500	90	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4974

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2003-10-10

Standard (CCV-1) QC Batch: 4974

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.5	92	90 - 110	2003-10-10

Page____of____

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TraceAnalysis, Inc.

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Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3100819

Company Name: ENVIRONMENTAL TECH GROUP INC. Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 W. WALL MIDLAND, TX. 79703 Fax #: 432-520-4320

Contact Person: CHAN PATEL

Invoice to:
(If different from above)

Project #: CH-2100 Project Name: CHAMPION YARD

Project Location: HOBBS Sampler Signature: [signature]

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: 2003 DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	CHLORIDES	Turn Around Time if different from standard	Hold
19007	SB-34-20'	1			X							X		10-7	9:35																X	X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	10-7-03	12:45pm			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			[signature]	10-8-03	10:27

LAB USE ONLY
Intact (Y) N
Headspace Y / N
Temp 4°c
Log-in Review MA

REMARKS: NEED 24 HOUR TURNAROUND ON SAMPLE

☐ Check If Special Reporting Limits Are Needed

Carrier # FNMHO 903-112 482-8

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: December 4, 2003

Work Order: 3112613

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
22245	P-1 (55')	soil	2003-11-18	11:10	2003-11-26
22248	P-2 (57')	soil	2003-11-18	03:55	2003-11-26
22249	SB-65 (20')	soil	2003-11-19	03:19	2003-11-26
22250	SB-65 (47')	soil	2003-11-19	16:08	2003-11-26
22251	SB-65 (54')	soil	2003-11-20	07:30	2003-11-26
22252	SB-66 (20')	soil	2003-11-20	08:35	2003-11-26
22253	SB-66 (45')	soil	2003-11-20	09:26	2003-11-26
22254	SB-66 (54')	soil	2003-11-20	10:00	2003-11-26
22255	SB-67 (20')	soil	2003-11-20	11:05	2003-11-26
22256	SB-67 (45')	soil	2003-11-20	13:05	2003-11-26
22258	SB-67 (54')	soil	2003-11-20	14:45	2003-11-26
22259	SB-68 (20')	soil	2003-11-20	14:50	2003-11-26
22260	SB-68 (46')	soil	2003-11-20	15:58	2003-11-26
22261	SB-68 (54')	soil	2003-11-21	08:15	2003-11-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 9 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 22245 - P-1 (55')

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	6127	Date Analyzed:	2003-12-04	Analyzed By:	RR
Prep Batch:	5442	Date Prepared:	2003-12-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		2.83	mg/Kg	1	2.50

Sample: 22248 - P-2 (57')

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	6127	Date Analyzed:	2003-12-04	Analyzed By:	RR
Prep Batch:	5442	Date Prepared:	2003-12-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		3.48	mg/Kg	1	2.50

Sample: 22249 - SB-65 (20')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		373	mg/Kg	10	1.00

Sample: 22250 - SB-65 (47')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		21.9	mg/Kg	5	1.00

Sample: 22251 - SB-65 (54')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		51.6	mg/Kg	5	1.00

Sample: 22252 - SB-66 (20')

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 6081 | Date Analyzed: 2003-12-02 | Analyzed By: JSW
Prep Batch: 5437 | Date Prepared: 2003-12-02 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		448	mg/Kg	10	1.00

Sample: 22253 - SB-66 (45')

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 6081 | Date Analyzed: 2003-12-02 | Analyzed By: JSW
Prep Batch: 5437 | Date Prepared: 2003-12-02 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		26.6	mg/Kg	5	1.00

Sample: 22254 - SB-66 (54')

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 6081 | Date Analyzed: 2003-12-02 | Analyzed By: JSW
Prep Batch: 5437 | Date Prepared: 2003-12-02 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		51.5	mg/Kg	5	1.00

Sample: 22255 - SB-67 (20')

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 6081 | Date Analyzed: 2003-12-02 | Analyzed By: JSW
Prep Batch: 5437 | Date Prepared: 2003-12-02 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		166	mg/Kg	10	1.00

Sample: 22256 - SB-67 (45')

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 6081 | Date Analyzed: 2003-12-02 | Analyzed By: JSW

Prep Batch: 5437 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		31.1	mg/Kg	5	1.00

Sample: 22258 - SB-67 (54')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6081 Date Analyzed: 2003-12-02 Analyzed By: JSW
Prep Batch: 5437 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		67.2	mg/Kg	5	1.00

Sample: 22259 - SB-68 (20')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		580	mg/Kg	50	1.00

Sample: 22260 - SB-68 (46')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		20.6	mg/Kg	5	1.00

Sample: 22261 - SB-68 (54')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		50.9	mg/Kg	5	1.00

Matrix Blank (1) QC Batch: 6081

Parameter	Flag	Result	Units	RL
Chloride		17.8	mg/Kg	1

Matrix Blank (1) QC Batch: 6082

Parameter	Flag	Result	Units	RL
Chloride		17.5	mg/Kg	1

Method Blank (1) QC Batch: 6127

Parameter	Flag	Result	Units	RL
Total Chromium		<2.50	mg/Kg	2.5

Laboratory Control Spike (LCS-1) QC Batch: 6081

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	31.2	31.1	mg/Kg	1	12.5	17.8	107	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 6082

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride [1]	31.3	31.4	mg/Kg	1	12.5	17.5	110	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 6127

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	10.3	10.2	mg/Kg	1	10.0	<0.0125	103	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6081

continued ...

[1] Duplicate is still within RPD limits.

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	135	135	mg/Kg	5	12.5	67.2	108	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6082

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1250	1230	mg/Kg	50	12.5	580	107	2	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6127

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	13.5	13.2	mg/Kg	1	10.0	2.83	107	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 6081

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.7	102	90 - 110	2003-12-02

Standard (CCV-1) QC Batch: 6081

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.1	105	90 - 110	2003-12-02

Standard (ICV-1) QC Batch: 6082

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.0	104	90 - 110	2003-12-03

Standard (CCV-1) QC Batch: 6082

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.1	105	90 - 110	2003-12-03

Standard (ICV-1) QC Batch: 6127

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/Kg	1.00	0.984	98	90 - 110	2003-12-04

Standard (CCV-1) QC Batch: 6127

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/Kg	1.00	1.03	103	90 - 110	2003-12-04

Work Order: 3112613
Champion

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3112613

Company Name: ENVIRONMENTAL TECHNOLOGY GROUP, INC.
Phone #: (432) ~~(505)~~ 522-1139

Address: (Street, City, Zip) 4600 W. WALL ST., MIDLAND, TX 79703
Fax #: (432) 520-4310

Contact Person: TODD CHOBAN

Invoice to: (If different from above)

Project #: CH 2100
Project Name: CHAMPION TECHNOLOGIES, INC.

Project Location: HOBBS YARD
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	SAMPLING: TIME
22243	P-1 (22')	1	4oz		X							X		11-18-03	9:50
44	P-1 (45')	1	4oz		X							X		11-18-03	10:30
45	P-1 (55')	1	4oz		X							X		11-18-03	11:10
46	P-2 (20')	1	4oz		X							X		11-18-03	14:30
47	P-2 (49')	1	4oz		X							X		11-18-03	3:43
48	P-2 (57')	1	4oz		X							X		11-18-03	3:55
49	SB-65 (20')	1	4oz		X							X		11-18-03	3:19
50	SB-65 (47')	1	4oz		X							X		11-19-03	4:08
51	SB-65 (54')	1	4oz		X							X		11-20-03	7:30
52	SB-66 (20')	1	4oz		X							X		11-20-03	8:35
53	SB-66 (45')	1	4oz		X							X		11-20-03	9:26

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Cl⁻ 300.0	Turn Around Time if different from standard	Hold
22243					X													X
44					X													X
45					X													
46					X													X
47					X													X
48					X													
49																X		
50																X		
51																X		
52																X		
53																X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	11/25/03				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki [signature]	11-26-03	9:44

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4
Log-in Review

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Carrier # TNT NO 903 1336534

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 02 of 02

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El Paso, Texas 79932
Tel (915) 585-3443
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1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3112613

Company Name: ~~Environmental Technologies~~ Group, Inc. Phone #: (432) 522-1139

Address: (Street, City, Zip) 4600 W. Wall St., Midland, TX 79703 Fax #: (432) 520-4310

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: CH 2100 Project Name: Champion Technologies, Inc.

Project Location: Hobbs Yard Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Cl⁻ 300.0	Turn Around Time if different from standard	Hold
22254	SB-66(54')	1	4oz		X							X		11-20-03	10:00																X		
55	SB-67(20')	1	4oz		X							X		11-20-03	11:05																X		
56	SB-67(45')	1	4oz		X							X		11-20-03	13:05																X		
57	SB-67(49.0)	1	4oz		X							X		11-20-03	13:20																X		
58	SB-67(54')	1	4oz		X							X		11-20-03	14:45																X		
	~~SB-68~~																																
59	SB-68(20')	1	4oz		X							X		11-20-03	14:50																X		
60	SB-68(46')	1	4oz		X							X		11-20-03	15:58																X		
61	SB-68(54')	1	4oz		X							X		11-21-03	8:15																X		

Relinquished by: Date: 11/25/03 Time: Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received at Laboratory by: Vicki Ann Date: 11-26-03 Time: 9:48

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 4 °
Log-In Review

REMARKS:

☐ Check if Special Reporting Limits Are Needed

Carrier # TN MAO 903 133 6534

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

ANALYTICAL REPORT

Prepared for:

Todd Choban
Environmental Technology Group, Inc.
P.O. Box 4845
Midland, TX 79704

Project:	Champion Technologies
PO#:	CH2100
Order#:	G0308061
Report Date:	12/05/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS
SAMPLE WORK LIST

Environmental Technology Group, Inc.		Order#:	G0308061
P.O. Box 4845		Project:	CH2100
Midland, TX 79704		Project Name:	Champion Technologies
915-520-4310		Location:	Hobbs, NM Yard

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0308061-01	SB-65 (54')	SOIL	11/20/03 7:30	11/26/03 10:25	4 oz glass	ice

Lab Testing:

Chloride

Rejected: No

Temp 3.5 C

ENVIRONMENTAL LAB OF TEXAS
ANALYTICAL REPORT

Todd Choban
Environmental Technology Group, Inc.
P.O. Box 4845
Midland, TX 79704

Order#: G0308061
Project: CH2100
Project Name: Champion Technologies
Location: Hobbs, NM Yard

Lab ID: 0308061-01
Sample ID: SB-65 (54')

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	259	mg/kg	1	0.50	300.0	12/4/03	RKT

Approval:
Raland K. Tuttle, Lab Director, QA Officer   Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit   N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0308061

BLANK Recovery	SOIL Pct (%) SOIL	LAB-ID # RPD	Concentr.	Sample	Concentr	Spike	QC Test	Result
Chloride-mg/kg		0007645-01			<0.50			

CONTROL Recovery	SOIL Pct (%) SOIL	LAB-ID # RPD	Concentr.	Sample	Concentr	Spike	QC Test	Result
Chloride-mg/kg		0007645-02		0.5	0.54	108.%		

DUPLICATE Recovery	SOIL Pct (%) SOIL	LAB-ID # RPD	Concentr.	Sample	Concentr	Spike	QC Test	Result
Chloride-mg/kg		0308061-01	259		281		8.1%	

SRM Recovery	SOIL Pct (%) SOIL	LAB-ID # RPD	Concentr.	Sample	Concentr	Spike	QC Test	Result
Chloride-mg/kg		0007645-04		1	0.94	94.%		

Attachment 3
Analytical Reports for Monitor Wells, Water Wells and Excavated Wells

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: May 30, 2003

Work Order: 3051906

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
7693	MW-1	water	2003-05-16	12:13	2003-05-17
7694	MW-2	water	2003-05-16	13:43	2003-05-17
7695	MW-3	water	2003-05-16	13:36	2003-05-17
7696	MW-4	water	2003-05-16	14:17	2003-05-17
7697	MW-5	water	2003-05-16	12:20	2003-05-17
7698	MW-6	water	2003-05-16	14:04	2003-05-17
7699	MW-7	water	2003-05-16	12:28	2003-05-17
7700	MW-8	water	2003-05-16	12:34	2003-05-17
7701	MW-9	water	2003-05-16	12:44	2003-05-17
7702	MW-10	water	2003-05-16	13:49	2003-05-17
7703	MW-11	water	2003-05-16	12:50	2003-05-17
7704	MW-12	water	2003-05-16	13:56	2003-05-17
7705	MW-13	water	2003-05-16	14:11	2003-05-17
7706	MW-14	water	2003-05-16	13:13	2003-05-17
7707	MW-15	water	2003-05-16	13:18	2003-05-17
7708	MW-16	water	2003-05-16	13:29	2003-05-17
7709	Champion's Water Well	water	2003-05-16	08:20	2003-05-17
7710	Resident's Water Well	water	2003-05-16	08:30	2003-05-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 7693 - MW-1

Analysis: Chloride (IC)
QC Batch: 1753
Prep Batch: 1585

Analytical Method: E 300.0
Date Analyzed: 2003-05-21
Sample Preparation: 2003-05-20

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**265**	mg/L	10	0.500

Sample: 7693 - MW-1

Analysis: Cr, Dissolved
QC Batch: 1820
Prep Batch: 1524

Analytical Method: S 6010B
Date Analyzed: 2003-05-27
Sample Preparation: 2003-05-20

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7694 - MW-2

Analysis: Chloride (IC)
QC Batch: 1753
Prep Batch: 1585

Analytical Method: E 300.0
Date Analyzed: 2003-05-21
Sample Preparation: 2003-05-20

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**331**	mg/L	50	0.500

Sample: 7694 - MW-2

Analysis: Cr, Dissolved
QC Batch: 1820
Prep Batch: 1524

Analytical Method: S 6010B
Date Analyzed: 2003-05-27
Sample Preparation: 2003-05-20

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0360**	mg/L	1	0.0100

Sample: 7695 - MW-3

Analysis: Chloride (IC)
QC Batch: 1753
Prep Batch: 1585

Analytical Method: E 300.0
Date Analyzed: 2003-05-21
Sample Preparation: 2003-05-20

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

continued ...

sample 7695 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**510**	mg/L	50	0.500

Sample: 7695 - MW-3

Analysis: Cr, Dissolved
QC Batch: 1820
Prep Batch: 1524

Analytical Method: S 6010B
Date Analyzed: 2003-05-27
Sample Preparation: 2003-05-20

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0110**	mg/L	1	0.0100

Sample: 7696 - MW-4

Analysis: Chloride (IC)
QC Batch: 1753
Prep Batch: 1585

Analytical Method: E 300.0
Date Analyzed: 2003-05-21
Sample Preparation: 2003-05-20

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**363**	mg/L	50	0.500

Sample: 7696 - MW-4

Analysis: Cr, Dissolved
QC Batch: 1820
Prep Batch: 1524

Analytical Method: S 6010B
Date Analyzed: 2003-05-27
Sample Preparation: 2003-05-20

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.201**	mg/L	1	0.0100

Sample: 7697 - MW-5

Analysis: Chloride (IC)
QC Batch: 1753
Prep Batch: 1585

Analytical Method: E 300.0
Date Analyzed: 2003-05-21
Sample Preparation: 2003-05-20

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**329**	mg/L	50	0.500

Sample: 7697 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0100**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		**0.0990**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**328**	mg/L	50	0.500

Sample: 7698 - MW-6

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0310**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	1725	Date Analyzed:	2003-05-20	Analyzed By:	JG
Prep Batch:	1555	Sample Preparation:	2003-05-20	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**26.2**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		**1.21**	μg/L	1	1.00
1,1,1-Trichloroethane		**1.31**	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		**3.38**	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**14.4**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00

continued . . .

sample 7698 continued...

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.2	μg/L	1	50.0	104	70 - 130
Toluene-d8		52.6	μg/L	1	50.0	105	70 - 130
4-Bromofluorobenzene (4-BFB)		45.7	μg/L	1	50.0	91	70 - 130

Sample: 7699 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**205**	mg/L	10	0.500

Sample: 7699 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7700 - MW-8

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**324**	mg/L	50	0.500

Sample: 7700 - MW-8

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0240**	mg/L	1	0.0100

Sample: 7701 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**299**	mg/L	10	0.500

Sample: 7701 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7702 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**316**	mg/L	10	0.500

Sample: 7702 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0220**	mg/L	1	0.0100

Sample: 7703 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**256**	mg/L	10	0.500

Sample: 7703 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7703 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	1709	Date Analyzed:	2003-05-20	Analyzed By:	BP
Prep Batch:	1535	Sample Preparation:	2003-05-20	Prepared By:	BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.3	mg/L	0.1	150	129	83 - 174

Sample: 7703 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	1725	Date Analyzed:	2003-05-20	Analyzed By:	JG
Prep Batch:	1555	Sample Preparation:	2003-05-20	Prepared By:	JG

sample 7703 continued...

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52	µg/L	1	50.0	104	70 - 130
Toluene-d8		52.2	µg/L	1	50.0	104	70 - 130
4-Bromofluorobenzene (4-BFB)		45.1	µg/L	1	50.0	90	70 - 130

Sample: 7704 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**280**	mg/L	10	0.500

Sample: 7704 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0160**	mg/L	1	0.0100

Sample: 7704 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	1709	Date Analyzed:	2003-05-20	Analyzed By:	BP
Prep Batch:	1535	Sample Preparation:	2003-05-20	Prepared By:	BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.2	mg/L	0.1	150	128	83 - 174

Sample: 7704 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	1725	Date Analyzed:	2003-05-20	Analyzed By:	JG
Prep Batch:	1555	Sample Preparation:	2003-05-20	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**2.88**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00

continued . . .

sample 7704 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**1.87**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.5	μg/L	1	50.0	105	70 - 130
Toluene-d8		52	μg/L	1	50.0	104	70 - 130
4-Bromofluorobenzene (4-BFB)		45.5	μg/L	1	50.0	91	70 - 130

Sample: 7705 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**296**	mg/L	10	0.500

Sample: 7705 - MW-13

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 1820 Date Analyzed: 2003-05-27 Analyzed By: RR
Prep Batch: 1524 Sample Preparation: 2003-05-20 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.158**	mg/L	1	0.0100

Sample: 7706 - MW-14

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 1752 Date Analyzed: 2003-05-21 Analyzed By: JSW
Prep Batch: 1584 Sample Preparation: 2003-05-20 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**279**	mg/L	10	0.500

Sample: 7706 - MW-14

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 1820 Date Analyzed: 2003-05-27 Analyzed By: RR
Prep Batch: 1524 Sample Preparation: 2003-05-20 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0300**	mg/L	1	0.0100

Sample: 7707 - MW-15

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 1752 Date Analyzed: 2003-05-21 Analyzed By: JSW
Prep Batch: 1584 Sample Preparation: 2003-05-20 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**205**	mg/L	10	0.500

Sample: 7707 - MW-15

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 1820 Date Analyzed: 2003-05-27 Analyzed By: RR
Prep Batch: 1524 Sample Preparation: 2003-05-20 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7708 - MW-16

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 1752 | Date Analyzed: 2003-05-21 | Analyzed By: JSW
Prep Batch: 1584 | Sample Preparation: 2003-05-20 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**362**	mg/L	10	0.500

Sample: 7708 - MW-16

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 1820 | Date Analyzed: 2003-05-27 | Analyzed By: RR
Prep Batch: 1524 | Sample Preparation: 2003-05-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7708 - MW-16

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 1709 | Date Analyzed: 2003-05-20 | Analyzed By: BP
Prep Batch: 1535 | Sample Preparation: 2003-05-20 | Prepared By: BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.1	mg/L	0.1	150	127	83 - 174

Sample: 7708 - MW-16

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 1725 | Date Analyzed: 2003-05-20 | Analyzed By: JG
Prep Batch: 1555 | Sample Preparation: 2003-05-20 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00

continued . . .

sample 7708 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**1.51**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**1.65**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00

continued . . .

sample 7708 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.2	μg/L	1	50.0	104	70 - 130
Toluene-d8		52.3	μg/L	1	50.0	105	70 - 130
4-Bromofluorobenzene (4-BFB)		45.2	μg/L	1	50.0	90	70 - 130

Sample: 7709 - Champion's Water Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**258**	mg/L	10	0.500

Sample: 7709 - Champion's Water Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7710 - Resident's Water Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**383**	mg/L	10	0.500

Sample: 7710 - Resident's Water Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 1709

Parameter	Flag	MDL Result	Units	RL
DRO		1.60	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		21.2	mg/L	0.1	150	141	83 - 174

Method Blank (1) QC Batch: 1725

Parameter	Flag	MDL Result	Units	RL
Bromochloromethane		<0.177	μg/L	1
Dichlorodifluoromethane		<0.208	μg/L	1
Chloromethane (methyl chloride)		<0.134	μg/L	1
Vinyl Chloride		<0.135	μg/L	1
Bromomethane (methyl bromide)		<1.23	μg/L	5
Chloroethane		<0.182	μg/L	1
Trichlorofluoromethane		<0.0610	μg/L	1
Acetone		<5.50	μg/L	10
Iodomethane (methyl iodide)		<0.107	μg/L	5
Carbon Disulfide		<0.0360	μg/L	1
Acrylonitrile		<0.0970	μg/L	1
2-Butanone (MEK)		<0.531	μg/L	5
4-Methyl-2-pentanone (MIBK)		<0.421	μg/L	5
2-Hexanone		<0.168	μg/L	5
trans 1,4-Dichloro-2-butene		<0.517	μg/L	10
1,1-Dichloroethene		<0.136	μg/L	1
Methylene chloride		<0.649	μg/L	5
MTBE		<0.123	μg/L	1
trans-1,2-Dichloroethene		<0.126	μg/L	1
1,1-Dichloroethane		<0.0600	μg/L	1
cis-1,2-Dichloroethene		<0.151	μg/L	1

continued . . .

method blank continued . . .

Parameter	Flag	MDL Result	Units	RL
2,2-Dichloropropane		<0.180	μg/L	1
1,2-Dichloroethane (EDC)		<0.113	μg/L	1
Chloroform		<0.141	μg/L	1
1,1,1-Trichloroethane		<0.116	μg/L	1
1,1-Dichloropropene		<0.0540	μg/L	1
Benzene		0.200	μg/L	1
Carbon Tetrachloride		<0.0790	μg/L	1
1,2-Dichloropropane		<0.111	μg/L	1
Trichloroethene (TCE)		0.310	μg/L	1
Dibromomethane (methylene bromide)		<0.140	μg/L	1
Bromodichloromethane		<0.161	μg/L	1
2-Chloroethyl vinyl ether		<0.388	μg/L	5
cis-1,3-Dichloropropene		<0.0890	μg/L	1
trans-1,3-Dichloropropene		<0.0760	μg/L	1
Toluene		0.440	μg/L	1
1,1,2-Trichloroethane		<0.135	μg/L	1
1,3-Dichloropropane		<0.0990	μg/L	1
Dibromochloromethane		<0.0900	μg/L	1
1,2-Dibromoethane (EDB)		<0.0700	μg/L	1
Tetrachloroethene (PCE)		<0.270	μg/L	1
Chlorobenzene		<0.0540	μg/L	1
1,1,1,2-Tetrachloroethane		<0.0990	μg/L	1
Ethylbenzene		<0.0360	μg/L	1
m,p-Xylene		<0.0940	μg/L	1
Bromoform		<0.0570	μg/L	1
Styrene		<0.0910	μg/L	1
o-Xylene		<0.0960	μg/L	1
1,1,2,2-Tetrachloroethane		<0.125	μg/L	1
2-Chlorotoluene		<0.0570	μg/L	1
1,2,3-Trichloropropane		<0.458	μg/L	1
Isopropylbenzene		<0.0850	μg/L	1
Bromobenzene		<0.106	μg/L	1
n-Propylbenzene		<0.0590	μg/L	1
1,3,5-Trimethylbenzene		<0.0250	μg/L	1
tert-Butylbenzene		<0.107	μg/L	1
1,2,4-Trimethylbenzene		<0.0990	μg/L	1
1,4-Dichlorobenzene (para)		<0.217	μg/L	1
sec-Butylbenzene		<0.0430	μg/L	1
1,3-Dichlorobenzene (meta)		<0.0690	μg/L	1
p-Isopropyltoluene		<0.106	μg/L	1
4-Chlorotoluene		<0.0940	μg/L	1
1,2-Dichlorobenzene (ortho)		<0.100	μg/L	1
n-Butylbenzene		<0.0850	μg/L	1
1,2-Dibromo-3-chloropropane		<0.690	μg/L	5
1,2,3-Trichlorobenzene		<0.135	μg/L	5
1,2,4-Trichlorobenzene		<0.155	μg/L	5
Naphthalene		<0.594	μg/L	5
Hexachlorobutadiene		<0.248	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.5	μg/L	1	50.0	103	70 - 130

continued . . .

method blank continued . . .

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Toluene-d8		52.8	μg/L	1	50.0	106	70 - 130
4-Bromofluorobenzene (4-BFB)		46.4	μg/L	1	50.0	93	70 - 130

Method Blank (1) QC Batch: 1752

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.49	mg/L	0.5

Method Blank (1) QC Batch: 1753

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.49	mg/L	0.5

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Arsenic		<0.00593	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Barium		<0.000343	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Chromium		<0.000660	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Manganese		<0.000275	mg/L	0.025

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Lead		<0.00367	mg/L	0.01

Method Blank (1) QC Batch: 1826

Parameter	Flag	MDL Result	Units	RL
GRO		<0.0261	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.089	mg/L	1	0.100	89	73 - 120
4-Bromofluorobenzene (4-BFB)		0.0844	mg/L	1	0.100	84	78 - 120

Laboratory Control Spike (LCS-1) QC Batch: 1709

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	24.5	24.6	mg/L	0.1	250	<0.190	98	0	68.5 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	23.0	23.0	mg/L	0.1	150	153	153	83 - 174

Laboratory Control Spike (LCS-1) QC Batch: 1725

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	102	99.0	μg/L	1	100	<0.136	102	3	78 - 120	20
Benzene	98.8	99.3	μg/L	1	100	<0.146	99	0	84.2 - 108	20
Trichloroethene (TCE)	94.4	102	μg/L	1	100	<0.117	94	8	85.8 - 106	20
Toluene	97.6	101	μg/L	1	100	<0.0600	98	3	77.2 - 104	20
Chlorobenzene	97.2	100	μg/L	1	100	<0.0540	97	3	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	51.2	38.3	μg/L	1	50.0	102	77	84.2 - 115
Toluene-d8	52.0	53.0	μg/L	1	50.0	104	106	94.6 - 103
4-Bromofluorobenzene (4-BFB)	46.7	46.5	μg/L	1	50.0	93	93	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 1752

continued ...

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.4	mg/L	1	12.5	<1.49	90	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1753

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.3	mg/L	1	12.5	<1.49	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.473	0.468	mg/L	1	0.500	<0.00593	95	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.00	0.994	mg/L	1	1.00	<0.000343	100	1	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.108	0.107	mg/L	1	0.100	<0.000660	108	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.250	0.249	mg/L	1	0.250	<0.000275	100	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.487	0.493	mg/L	1	0.500	<0.00367	97	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1752 Spiked Sample: 7711

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2630	2630	mg/L	100	12.5	1510	90	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1753 Spiked Sample: 7700

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	880	881	mg/L	50	12.5	324	89	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.448	0.432	mg/L	1	0.500	<0.00593	90	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.19	1.19	mg/L	1	1.00	0.099	109	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.130	0.125	mg/L	1	0.100	0.031	99	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.246	0.246	mg/L	1	0.250	0.006	96	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.529	0.515	mg/L	1	0.500	<0.00367	106	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 1820 Spiked Sample: 7702

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.123	0.126	mg/L	1	0.100	0.022	101	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 1709

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	274	110	83 - 174	2003-05-20

Standard (CCV-1) QC Batch: 1709

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	248	99	83 - 174	2003-05-20

Standard (CCV-1) QC Batch: 1725

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	53.0	106	80 - 120	2003-05-20
1,1-Dichloroethene		μg/L	50.0	51.0	102	80 - 120	2003-05-20
Chloroform		μg/L	50.0	46.0	92	80 - 120	2003-05-20
1,2-Dichloropropane		μg/L	50.0	47.0	94	80 - 120	2003-05-20
Toluene		μg/L	50.0	49.0	98	80 - 120	2003-05-20
Chlorobenzene		μg/L	50.0	49.0	98	80 - 120	2003-05-20
Ethylbenzene		μg/L	50.0	51.0	102	80 - 120	2003-05-20

Standard (ICV-1) QC Batch: 1752

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2003-05-21

Standard (CCV-1) QC Batch: 1752

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.3	90	90 - 110	2003-05-21

Standard (ICV-1) QC Batch: 1753

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.3	90	90 - 110	2003-05-21

Standard (CCV-1) QC Batch: 1753

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2003-05-21

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.959	96	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.924	92	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.943	94	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.941	94	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.935	94	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.936	94	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.994	99	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.976	98	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.970	97	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.988	99	90 - 110	2003-05-27

Standard (CCV-2) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.981	98	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1826

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.888	89	85 - 115	2003-05-26

Standard (CCV-1) QC Batch: 1826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.920	92	85 - 115	2003-05-26

C.O.C #45 Page 1 of 2

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
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Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # ~~309~~ 3051906

Company Name: Environmental Technology Group Inc.
Phone #: (915) 522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature: [signature]

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE		SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO ~~GRO~~	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium (Dis)	Lead/Arsenic, Manganese, Barium	VOC		Turn Around Time if different from standard 5day	Hold
7693	mw-1	1		X									X			5-16	1413																X	X				X	
94	mw-2	1		X									X			5-16	1343																X	X				X	
95	mw-3	1		X									X			5-16	1336																X	X				X	
96	mw-4	1		X									X			5-16	1417																X	X				X	
97	mw-5	1		X									X			5-16	1220																X	X				X	
98	mw-6	4 3	5	X									X			5-16	1404			X DRO + GRO													X	X	X	X		X	
99	mw-7	1		X									X			5-16	1228																X	X				X	
7700	mw-8	1		X									X			5-16	1234																X	X				X	
01	mw-9	1		X									X			5-16	1244																X	X				X	
02	mw-10	1		X									X			5-16	1349																X	X				X	
03	mw-11	3		X									X			5-16	1250			X DRO													X	X	*	X		X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	5-16-03				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			PATEL T.H.	5/17/03	10:55 AM

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 3 °
Log-in Review MA

REMARKS:
* If metals (lead, arsenic, manganese, Barium) are detected in MW-6 test for metals in MW-11, MW-12, MW-16

☐ Check If Special Reporting Limits Are Needed

no add'l tests per Todd 5-28-03

Carrier # Bus bill # 903 014 415 8
(GL1 166 130 383 1)

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3051906

Company Name: Environmental Technology Group Inc. Phone #: (915) 522-1139

Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703 Fax #: 432-520-4310

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: CH 2100 Project Name: Champion

Project Location: South of Hobbs Sampler Signature: [signature]

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	Lead, Arsenic, Manganese, Barium	VOC	Turn Around Time if different from standard: 5 days	Hold
04	MW-12	3		X								X		5-16-03	1356			X DRO													X	X	X	X	X	
05	MW-13	1		X								X		5-16-03	1411																X	X			X	
06	MW-14	1		X								X		5-16-03	1313																X	X			X	
07	MW-15	1		X								X		5-16-03	1318																X	X			X	
08	MW-16	3		X								X		5-16-03	1329			X DRO													X	X	X	X	X	
09	Champion's Water Well	1		X								X		5-16-03	820																X	X			X	
10	Resident's Water Well	1		X								X		5-16-03	850																X	X			X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	5-16-03				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			PATEL T.H.	5/17/03	10:55 am

LAB USE ONLY

Intact (Y) / N

Headspace Y / N

Temp 3 °

Log-in Review [initials]

REMARKS: * If metals (lead, arsenic, manganese, barium) are detected in MW-16 test for metals in MW-11, MW-12, MW-16

☐ Check if Special Reporting Limits Are Needed

Carrier # Bus Bill # 903 014 4156

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Report Date: May 30, 2003
CH 2100

Work Order: 3051906
Champion

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: August 20, 2003

Work Order: 3081414

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
15306	Excavated Well	water	2003-08-13	10:50	2003-08-14

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 33 pages and shall not be reproduced except in its entirety, without written approval o: TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 15306 - Excavated Well

Analysis:	Ag, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Silver		<0.0130	mg/L	1	0.0130

Sample: 15306 - Excavated Well

Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	3806	Date Analyzed:	2003-08-15	Analyzed By:	RS
Prep Batch:	3417	Date Prepared:	2003-08-15	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		108	mg/L as CaCo3	1	4.00
Total Alkalinity		108	mg/L as CaCo3	1	4.00

Sample: 15306 - Excavated Well

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.743	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Cations	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3866	Date Analyzed:	2003-08-18	Analyzed By:	BC
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		49.9	mg/L	1	0.500
Dissolved Potassium		5.93	mg/L	1	0.500
Dissolved Magnesium		12.3	mg/L	1	0.500
Dissolved Sodium		116	mg/L	1	0.500

Sample: 15306 - Excavated Well

Analysis:	Cd, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Cadmium		0.0120	mg/L	1	0.00500

Sample: 15306 - Excavated Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Cu, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Copper		<0.0125	mg/L	1	0.0125

Sample: 15306 - Excavated Well

Analysis:	Fe, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Iron		<0.0500	mg/L	1	0.0500

Sample: 15306 - Excavated Well

Analysis:	Hg, Dissolved	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	3857	Date Analyzed:	2003-08-19	Analyzed By:	BC
Prep Batch:	3462	Date Prepared:	2003-08-18	Prepared By:	BC

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Mercury		<0.000200	mg/L	1	0.000200

Sample: 15306 - Excavated Well

Analysis:	Ion Chromatography	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	3756	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3379	Date Prepared:	2003-08-14	Prepared By:	JSW
QC Batch:	3823	Date Analyzed:	2003-08-19	Analyzed By:	JSW
Prep Batch:	3431	Date Prepared:	2003-08-18	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		285	mg/L	10	0.500
Fluoride		<1.00	mg/L	5	0.200
Sulfate		5.25	mg/L	5	0.500

Sample: 15306 - Excavated Well

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.286	mg/L	1	0.0250

Sample: 15306 - Excavated Well

Analysis:	NO2 (Spec)	Analytical Method:	SM 4500-NO2 B	Prep Method:	N/A
QC Batch:	3757	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3380	Date Prepared:	2003-08-15	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrite-N		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	3756	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3379	Date Prepared:	2003-08-14	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 15306 - Excavated Well

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	3830	Date Analyzed:	2003-08-14	Analyzed By:	RS
Prep Batch:	3438	Date Prepared:	2003-08-14	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
pH	1	7.20	s.u.	1	0.00

Sample: 15306 - Excavated Well

Analysis:	Se, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Selenium		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Semivolatiles	Analytical Method:	S 8270C	Prep Method:	S 3510C
QC Batch:	3813	Date Analyzed:	2003-08-18	Analyzed By:	RC
Prep Batch:	3411	Date Prepared:	2003-08-17	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Pyridine		<0.00500	mg/L	0.001	5.00
n-Nitrosodimethylamine		<0.00500	mg/L	0.001	5.00
2-Picoline		<0.00500	mg/L	0.001	5.00
Methyl methanesulfonate		<0.00500	mg/L	0.001	5.00
Ethyl methanesulfonate		<0.00500	mg/L	0.001	5.00

continued ...

[1] received out of holding time

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Phenol		<0.00500	mg/L	0.001	5.00
Aniline		<0.00500	mg/L	0.001	5.00
bis(2-chloroethyl)ether		<0.00500	mg/L	0.001	5.00
2-Chlorophenol		<0.00500	mg/L	0.001	5.00
1,3-Dichlorobenzene (meta)		<0.00500	mg/L	0.001	5.00
1,4-Dichlorobenzene (para)		<0.00500	mg/L	0.001	5.00
Benzyl alcohol		<0.00500	mg/L	0.001	5.00
1,2-Dichlorobenzene (ortho)		<0.00500	mg/L	0.001	5.00
2-Methylphenol		<0.00500	mg/L	0.001	5.00
bis(2-chloroisopropyl)ether		<0.00500	mg/L	0.001	5.00
4-Methylphenol / 3-Methylphenol		<0.00500	mg/L	0.001	5.00
n-Nitrosodi-n-propylamine		<0.00500	mg/L	0.001	5.00
Hexachloroethane		<0.00500	mg/L	0.001	5.00
Acetophenone		<0.00500	mg/L	0.001	5.00
Nitrobenzene		<0.00500	mg/L	0.001	5.00
n-Nitrosopiperidine		<0.00500	mg/L	0.001	5.00
Isophorone		<0.00500	mg/L	0.001	5.00
2-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dimethylphenol		<0.00500	mg/L	0.001	5.00
bis(2-chloroethoxy)methane		<0.00500	mg/L	0.001	5.00
2,4-Dichlorophenol		<0.00500	mg/L	0.001	5.00
1,2,4-Trichlorobenzene		<0.00500	mg/L	0.001	5.00
Benzoic acid		<0.0200	mg/L	0.001	20.0
Naphthalene		<0.00500	mg/L	0.001	5.00
a,a-Dimethylphenethylamine		<0.00500	mg/L	0.001	5.00
4-Chloroaniline		<0.00500	mg/L	0.001	5.00
2,6-Dichlorophenol		<0.00500	mg/L	0.001	5.00
Hexachlorobutadiene		<0.00500	mg/L	0.001	5.00
n-Nitroso-di-n-butylamine		<0.00500	mg/L	0.001	5.00
4-Chloro-3-methylphenol		<0.00500	mg/L	0.001	5.00
2-Methylnaphthalene		<0.00500	mg/L	0.001	5.00
1-Methylnaphthalene		<0.00500	mg/L	0.001	5.00
1,2,4,5-Tetrachlorobenzene		<0.00500	mg/L	0.001	5.00
Hexachlorocyclopentadiene		<0.00500	mg/L	0.001	5.00
2,4,6-Trichlorophenol		<0.00500	mg/L	0.001	5.00
2,4,5-Trichlorophenol		<0.00500	mg/L	0.001	5.00
2-Chloronaphthalene		<0.00500	mg/L	0.001	5.00
1-Chloronaphthalene		<0.00500	mg/L	0.001	5.00
2-Nitroaniline		<0.00500	mg/L	0.001	5.00
Dimethylphthalate		<0.00500	mg/L	0.001	5.00
Acenaphthylene		<0.00500	mg/L	0.001	5.00
2,6-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
3-Nitroaniline		<0.00500	mg/L	0.001	5.00
Acenaphthene		<0.00500	mg/L	0.001	5.00
2,4-Dinitrophenol		<0.0200	mg/L	0.001	20.0
Dibenzofuran		<0.00500	mg/L	0.001	5.00
Pentachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
1-Naphthylamine		<0.00500	mg/L	0.001	5.00
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	0.001	5.00

continued ...

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Naphthylamine		<0.00500	mg/L	0.001	5.00
Fluorene		<0.00500	mg/L	0.001	5.00
4-Chlorophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Diethylphthalate		<0.00500	mg/L	0.001	5.00
4-Nitroaniline		<0.00500	mg/L	0.001	5.00
Diphenylhydrazine		<0.00500	mg/L	0.001	5.00
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	0.001	5.00
Diphenylamine		<0.00500	mg/L	0.001	5.00
4-Bromophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Phenacetin		<0.00500	mg/L	0.001	5.00
Hexachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Aminobiphenyl		<0.00500	mg/L	0.001	5.00
Pentachlorophenol		<0.00500	mg/L	0.001	5.00
Anthracene		<0.00500	mg/L	0.001	5.00
Pentachloronitrobenzene		<0.00500	mg/L	0.001	5.00
Pronamide		<0.00500	mg/L	0.001	5.00
Phenanthrene		<0.00500	mg/L	0.001	5.00
Di-n-butylphthalate		<0.00500	mg/L	0.001	5.00
Fluoranthene		<0.00500	mg/L	0.001	5.00
Benzidine		<0.0150	mg/L	0.001	15.0
Pyrene		<0.00500	mg/L	0.001	5.00
p-Dimethylaminoazobenzene		<0.00500	mg/L	0.001	5.00
Butylbenzylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(a)anthracene		<0.00500	mg/L	0.001	5.00
3,3-Dichlorobenzidine		<0.00500	mg/L	0.001	5.00
Chrysene		<0.00500	mg/L	0.001	5.00
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	0.001	10.0
Di-n-octylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(b)fluoranthene		<0.00500	mg/L	0.001	5.00
Benzo(k)fluoranthene		<0.00500	mg/L	0.001	5.00
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(a)pyrene		<0.00500	mg/L	0.001	5.00
3-Methylcholanthrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,j)acridine		<0.00500	mg/L	0.001	5.00
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,h)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(g,h,i)perylene		<0.00500	mg/L	0.001	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0225	mg/L	0.001	80.0	28	0 - 94
Phenol-d5		0.0135	mg/L	0.001	80.0	17	0 - 67
Nitrobenzene-d5		0.0596	mg/L	0.001	80.0	74	6.75 - 138.7
2-Fluorobiphenyl		0.0650	mg/L	0.001	80.0	81	14.7 - 135
2,4,6-Tribromophenol		0.0586	mg/L	0.001	80.0	73	44.92 - 152
Terphenyl-d14		0.0572	mg/L	0.001	80.0	72	44.49 - 162.36

Sample: 15306 - Excavated Well

Analysis: TDS   Analytical Method: SM 2540C   Prep Method: N/A

QC Batch: 3734 | Date Analyzed: 2003-08-15 | Analyzed By: JSW
Prep Batch: 3360 | Date Prepared: 2003-08-14 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		583.0	mg/L	1	10.00

Sample: 15306 - Excavated Well

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 3747 | Date Analyzed: 2003-08-14 | Analyzed By: BP
Prep Batch: 3372 | Date Prepared: 2003-08-14 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		7.72	mg/L	0.1	150	51	44 - 123

Sample: 15306 - Excavated Well

Analysis: TPH GRO | Analytical Method: S 8015B | Prep Method: S 5030B
QC Batch: 3765 | Date Analyzed: 2003-08-15 | Analyzed By: MT
Prep Batch: 3388 | Date Prepared: 2003-08-15 | Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.103	mg/L	1	0.100	103	73 - 120
4-Bromofluorobenzene (4-BFB)	2	0.0688	mg/L	1	0.100	69	78 - 120

Sample: 15306 - Excavated Well

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 3782 | Date Analyzed: 2003-08-17 | Analyzed By: JG
Prep Batch: 3404 | Date Prepared: 2003-08-17 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00

continued ...

[2] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		6.88	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		<1.00	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00

continued ...

sample 15306 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	μg/L	1	50.0	97	70 - 130
Toluene-d8		48.3	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		48.8	μg/L	1	50.0	98	70 - 130

Sample: 15306 - Excavated Well

Analysis:	Zn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Zinc		<0.0250	mg/L	1	0.0250

Method Blank (1) QC Batch: 3734

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) QC Batch: 3747

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		8.27	mg/L	0.1	150	55	44 - 123

Method Blank (1) QC Batch: 3756

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 3756

Parameter	Flag	Result	Units	RL
Fluoride		<0.200	mg/L	0.2
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 3757

Parameter	Flag	Result	Units	RL
Nitrite-N		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3765

Parameter	Flag	Result	Units	RL
GRO		0.216	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.101	mg/L	1	0.100	101	73 - 120
4-Bromofluorobenzene (4-BFB)	3	0.0658	mg/L	1	0.100	66	78 - 120

Method Blank (1) QC Batch: 3782

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1

continued ...

[3] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

method blank continued ...

Parameter	Flag	Result	Units	RL
Acetophenone		<0.00500	mg/L	5
Nitrobenzene		<0.00500	mg/L	5
n-Nitrosopiperidine		<0.00500	mg/L	5
Isophorone		<0.00500	mg/L	5
2-Nitrophenol		<0.00500	mg/L	5
2,4-Dimethylphenol		<0.00500	mg/L	5
bis(2-chloroethoxy)methane		<0.00500	mg/L	5
2,4-Dichlorophenol		<0.00500	mg/L	5
1,2,4-Trichlorobenzene		<0.00500	mg/L	5
Benzoic acid		<0.0200	mg/L	20
Naphthalene		<0.00500	mg/L	5
a,a-Dimethylphenethylamine		<0.00500	mg/L	5
4-Chloroaniline		<0.00500	mg/L	5
2,6-Dichlorophenol		<0.00500	mg/L	5
Hexachlorobutadiene		<0.00500	mg/L	5
n-Nitroso-di-n-butylamine		<0.00500	mg/L	5
4-Chloro-3-methylphenol		<0.00500	mg/L	5
2-Methylnaphthalene		<0.00500	mg/L	5
1-Methylnaphthalene		<0.00500	mg/L	5
1,2,4,5-Tetrachlorobenzene		<0.00500	mg/L	5
Hexachlorocyclopentadiene		<0.00500	mg/L	5
2,4,6-Trichlorophenol		<0.00500	mg/L	5
2,4,5-Trichlorophenol		<0.00500	mg/L	5
2-Chloronaphthalene		<0.00500	mg/L	5
1-Chloronaphthalene		<0.00500	mg/L	5
2-Nitroaniline		<0.00500	mg/L	5
Dimethylphthalate		<0.00500	mg/L	5
Acenaphthylene		<0.00500	mg/L	5
2,6-Dinitrotoluene		<0.00500	mg/L	5
3-Nitroaniline		<0.00500	mg/L	5
Acenaphthene		<0.00500	mg/L	5
2,4-Dinitrophenol		<0.0200	mg/L	20
Dibenzofuran		<0.00500	mg/L	5
Pentachlorobenzene		<0.00500	mg/L	5
4-Nitrophenol		<0.00500	mg/L	5
2,4-Dinitrotoluene		<0.00500	mg/L	5
1-Naphthylamine		<0.00500	mg/L	5
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	5
2-Naphthylamine		<0.00500	mg/L	5
Fluorene		<0.00500	mg/L	5
4-Chlorophenyl-phenylether		<0.00500	mg/L	5
Diethylphthalate		<0.00500	mg/L	5
4-Nitroaniline		<0.00500	mg/L	5
Diphenylhydrazine		<0.00500	mg/L	5
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	5
Diphenylamine		<0.00500	mg/L	5
4-Bromophenyl-phenylether		<0.00500	mg/L	5
Phenacetin		<0.00500	mg/L	5
Hexachlorobenzene		<0.00500	mg/L	5
4-Aminobiphenyl		<0.00500	mg/L	5
Pentachlorophenol		<0.00500	mg/L	5
Anthracene		<0.00500	mg/L	5

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	RL
Pentachloronitrobenzene		<0.00500	mg/L	5
Pronamide		<0.00500	mg/L	5
Phenanthrene		<0.00500	mg/L	5
Di-n-butylphthalate		<0.00500	mg/L	5
Fluoranthene		<0.00500	mg/L	5
Benzidine		<0.0150	mg/L	15
Pyrene		<0.00500	mg/L	5
p-Dimethylaminoazobenzene		<0.00500	mg/L	5
Butylbenzylphthalate		<0.00500	mg/L	5
Benzo(a)anthracene		<0.00500	mg/L	5
3,3-Dichlorobenzidine		<0.00500	mg/L	5
Chrysene		<0.00500	mg/L	5
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	10
Di-n-octylphthalate		<0.00500	mg/L	5
Benzo(b)fluoranthene		<0.00500	mg/L	5
Benzo(k)fluoranthene		<0.00500	mg/L	5
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	5
Benzo(a)pyrene		<0.00500	mg/L	5
3-Methylcholanthrene		<0.00500	mg/L	5
Dibenzo(a,j)acridine		<0.00500	mg/L	5
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	5
Dibenzo(a,h)anthracene		<0.00500	mg/L	5
Benzo(g,h,i)perylene		<0.00500	mg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0453	mg/L	0.001	80.0	57	0 - 94.7
Phenol-d5		0.0269	mg/L	0.001	80.0	34	0 - 67.64
Nitrobenzene-d5		0.0670	mg/L	0.001	80.0	84	6.75 - 138.7
2-Fluorobiphenyl		0.0719	mg/L	0.001	80.0	90	14.71 - 134.97
2,4,6-Tribromophenol		0.0594	mg/L	0.001	80.0	74	44.92 - 152.29
Terphenyl-d14		0.0716	mg/L	0.001	80.0	90	44.49 - 162.36

Method Blank (1) QC Batch: 3823

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Silver		<0.0130	mg/L	0.013

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Cadmium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Copper		<0.0125	mg/L	0.0125

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Iron		<0.0500	mg/L	0.05

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Selenium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Zinc		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 3857

Parameter	Flag	Result	Units	RL
Dissolved Mercury		<0.000200	mg/L	0.0002

Method Blank (1) QC Batch: 3866

Parameter	Flag	Result	Units	RL
Dissolved Calcium		<0.500	mg/L	0.5
Dissolved Potassium		<0.500	mg/L	0.5
Dissolved Magnesium		<0.500	mg/L	0.5
Dissolved Sodium		0.501	mg/L	0.5

Duplicate (1) QC Batch: 3734

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2998	2810	mg/L	2	6	9.41

Duplicate (1) QC Batch: 3806

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	5.81
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	5.81
Bicarbonate Alkalinity	104	108	mg/L as CaCo3	1	4	5.81

continued ...

duplicate continued ...

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Alkalinity	104	108	mg/L as CaCo3	1	4	5.81

Duplicate (1) QC Batch: 3830

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH [4]	3.70	3.70	s.u.	1	0	0

Laboratory Control Spike (LCS-1) QC Batch: 3747

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.5	27.0	mg/L	0.1	250	<0.230	90	18	86 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	8.38	9.92	mg/L	0.1	150	56	66	44 - 123

Laboratory Control Spike (LCS-1) QC Batch: 3756

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.36	2.33	mg/L	1	2.50	<0.126	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3756

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	2.50	2.38	mg/L	1	2.50	<0.0153	100	5	90 - 110	20
Sulfate	12.5	12.2	mg/L	1	12.5	<0.171	100	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3757

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrite-N	0.0830	0.0813	mg/L	1	0.0800	<0.000820	104	2	95 - 106	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3765

[4] received out of holding time

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	0.933	0.950	mg/L	1	1.00	<0.0261	93	2	78.1 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.104	0.106	mg/L	1	0.100	104	106	73 - 120
4-Bromofluorobenzene (4-BFB) [5][6]	0.0711	0.0705	mg/L	1	0.100	71	70	78 - 120

Laboratory Control Spike (LCS-1) QC Batch: 3782

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	103	101	μg/L	1	100	<0.136	103	2	70 - 130	20
Benzene	101	102	μg/L	1	100	<0.146	101	1	70 - 130	20
Trichloroethene (TCE)	105	108	μg/L	1	100	<0.117	105	3	70 - 130	20
Toluene	100	101	μg/L	1	100	0.09	100	1	70 - 130	20
Chlorobenzene	100	102	μg/L	1	100	<0.0540	100	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	48.9	47.9	μg/L	1	50.0	98	96	70 - 130
Toluene-d8	49.0	49.3	μg/L	1	50.0	98	99	70 - 130
4-Bromofluorobenzene (4-BFB)	50.9	52.2	μg/L	1	50.0	102	104	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 3813

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Phenol	26.7	25.2	mg/L	1	80.0	<0.490	33	6	1 - 56.82	20
2-Chlorophenol	53.1	52.0	mg/L	1	80.0	<1.63	66	2	13.99 - 107.11	20
1,4-Dichlorobenzene (para)	57.6	57.6	mg/L	1	80.0	<1.93	72	0	9.09 - 113.45	20
n-Nitrosodi-n-propylamine	64.4	55.0	mg/L	1	80.0	<2.26	80	16	17.91 - 139.92	20
1,2,4-Trichlorobenzene	62.4	63.7	mg/L	1	80.0	<1.52	78	2	16.63 - 117.68	20
4-Chloro-3-methylphenol	50.8	43.9	mg/L	1	80.0	<1.60	64	14	22.33 - 107.93	20
Acenaphthene	73.0	71.6	mg/L	1	80.0	<1.58	91	2	36.91 - 123.61	20
4-Nitrophenol	25.4	25.0	mg/L	1	80.0	<3.83	32	2	0 - 69.1	20
2,4-Dinitrotoluene	74.4	74.1	mg/L	1	80.0	<2.09	93	0	44.81 - 136.34	20
Pentachlorophenol	63.5	64.7	mg/L	1	80.0	<3.04	79	2	28.5 - 125.7	20
Pyrene	82.0	80.8	mg/L	1	80.0	<1.81	102	1	42.61 - 159.68	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorophenol	48.2	45.7	mg/L	1	80.0	60	57	0 - 94.7
Phenol-d5	34.0	32.5	mg/L	1	80.0	42	41	0 - 67.6
Nitrobenzene-d5	74.2	76.2	mg/L	1	80.0	93	95	6.75 - 139

continued . . .

[5] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.
[6] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorobiphenyl	82.9	82.4	mg/L	1	80.0	104	103	14.7 - 135
2,4,6-Tribromophenol	76.9	77.6	mg/L	1	80.0	96	97	44.9 - 152
Terphenyl-d14	85.5	84.8	mg/L	1	80.0	107	106	44.5 - 162

Laboratory Control Spike (LCS-1) QC Batch: 3823

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.4	12.5	mg/L	1	12.5	<1.49	99	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Silver	0.110	0.111	mg/L	1	0.125	<0.000779	88	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.423	0.516	mg/L	1	0.500	<0.00593	85	20	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.858	0.962	mg/L	1	1.00	<0.000343	86	11	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Cadmium	0.230	0.238	mg/L	1	0.250	<0.000268	92	3	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0950	0.103	mg/L	1	0.100	<0.000660	95	8	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Copper	0.108	0.113	mg/L	1	0.125	<0.00177	86	4	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Iron	0.422	0.480	mg/L	1	0.500	<0.00220	84	13	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.224	0.257	mg/L	1	0.250	<0.000275	90	14	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.415	0.437	mg/L	1	0.500	<0.00367	83	5	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Selenium	0.441	0.472	mg/L	1	0.500	<0.00650	88	7	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Zinc	0.216	0.220	mg/L	1	0.250	<0.00907	86	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3857

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Mercury	0.00113	0.000980	mg/L	1	0.00100	<0.0000360	113	14	86.7 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3866

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	91.7	89.9	mg/L	1	100	<0.183	92	2	85 - 115	20
Dissolved Potassium	95.5	97.5	mg/L	1	100	<0.135	96	2	85 - 115	20
Dissolved Magnesium	90.6	91.1	mg/L	1	100	<0.183	91	0	85 - 115	20
Dissolved Sodium	94.7	93.6	mg/L	1	100	<0.105	95	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3756

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	249	247	mg/L	100	2.50	<12.6	100	1	62.2 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3756

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	193	190	mg/L	100	2.50	11.7	72	2	30.1 - 187	20
Sulfate	2900	2900	mg/L	100	12.5	1640	101	0	69.9 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3757

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrite-N	0.0739	0.0765	mg/L	1	0.0800	<0.000820	92	3	65.9 - 119	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3823

continued ...

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1660	1660	mg/L	100	12.5	594	85	0	32.7 - 136	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Silver	0.127	0.139	mg/L	1	0.125	<0.000779	102	9	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.470	0.445	mg/L	1	0.500	<0.00593	94	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.996	1.02	mg/L	1	1.00	<0.000343	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Cadmium	0.249	0.254	mg/L	1	0.250	<0.000268	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.104	mg/L	1	0.100	<0.000660	101	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Copper	0.100	0.105	mg/L	1	0.125	<0.00177	80	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Iron	0.521	0.548	mg/L	1	0.500	<0.00220	104	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.261	0.263	mg/L	1	0.250	0.021	96	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.578	0.552	mg/L	1	0.500	<0.00367	116	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Selenium	0.376	0.381	mg/L	1	0.500	<0.00650	75	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Zinc	0.544	0.546	mg/L	1	0.250	0.326	87	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3857

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Mercury	0.00147	0.00148	mg/L	1	0.00100	<0.0000360	147	1	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3866

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	140	125	mg/L	1	100	49.9	90	11	75 - 125	20
Dissolved Potassium	103	97.2	mg/L	1	100	5.93	97	6	75 - 125	20
Dissolved Magnesium [7,8]	84.4	79.7	mg/L	1	100	12.3	72	6	75 - 125	20
Dissolved Sodium	226	202	mg/L	1	100	116	110	11	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 3734

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1019	102	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3734

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1002	100	90 - 110	2003-08-15

Standard (ICV-1) QC Batch: 3747

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	238	95	75 - 125	2003-08-14

Standard (CCV-1) QC Batch: 3747

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	225	90	75 - 125	2003-08-14

Standard (ICV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.35	94	90 - 110	2003-08-15

[7] ms recovery out of range due to matrix effect/spiking error, use lcs/lcsd
[8] ms recovery out of range due to matrix effect/spiking error, use lcs/lcsd

Standard (ICV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.42	97	90 - 110	2003-08-15
Sulfate		mg/L	12.5	12.3	98	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.36	94	90 - 110	2003-08-15
Sulfate		mg/L	12.5	12.2	98	90 - 110	2003-08-15

Standard (ICV-1) QC Batch: 3757

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrite-N		mg/L	0.0800	0.0816	102	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3757

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrite-N		mg/L	0.0800	0.0807	101	85 - 115	2003-08-15

Standard (ICV-1) QC Batch: 3765

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.14	114	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3765

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.05	105	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3782

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	49.1	98	80 - 120	2003-08-17
1,1-Dichloroethene		μg/L	50.0	46.4	93	80 - 120	2003-08-17
Chloroform		μg/L	50.0	46.3	93	80 - 120	2003-08-17
1,2-Dichloropropane		μg/L	50.0	48.5	97	80 - 120	2003-08-17
Toluene		μg/L	50.0	49.4	99	80 - 120	2003-08-17
Chlorobenzene		μg/L	50.0	49.5	99	80 - 120	2003-08-17
Ethylbenzene		μg/L	50.0	51.2	102	80 - 120	2003-08-17

Standard (ICV-1) QC Batch: 3806

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2003-08-15
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3806

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2003-08-15
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60.0	70.0	117	80 - 120	2003-08-18
1,4-Dichlorobenzene (para)		mg/L	60.0	57.8	96	80 - 120	2003-08-18
2-Nitrophenol		mg/L	60.0	54.2	90	80 - 120	2003-08-18
2,4-Dichlorophenol		mg/L	60.0	63.4	106	80 - 120	2003-08-18
Hexachlorobutadiene		mg/L	60.0	49.3	82	80 - 120	2003-08-18
4-Chloro-3-methylphenol		mg/L	60.0	61.4	102	80 - 120	2003-08-18
2,4,6-Trichlorophenol		mg/L	60.0	59.4	99	80 - 120	2003-08-18
Acenaphthene		mg/L	60.0	60.1	100	80 - 120	2003-08-18
Diphenylamine		mg/L	60.0	61.4	102	80 - 120	2003-08-18
Pentachlorophenol		mg/L	60.0	67.0	112	80 - 120	2003-08-18
Fluoranthene		mg/L	60.0	58.6	98	80 - 120	2003-08-18
Di-n-octylphthalate		mg/L	60.0	50.7	84	80 - 120	2003-08-18
Benzo(a)pyrene		mg/L	60.0	59.1	98	80 - 120	2003-08-18

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		61.8	mg/L	1	60.0	103	80 - 120
Phenol-d5		67.0	mg/L	1	60.0	112	80 - 120
Nitrobenzene-d5		60.0	mg/L	1	60.0	100	80 - 120
2-Fluorobiphenyl		61.7	mg/L	1	60.0	103	80 - 120
2,4,6-Tribromophenol		56.3	mg/L	1	60.0	94	80 - 120
Terphenyl-d14		55.2	mg/L	1	60.0	92	80 - 120

Standard (ICV-1) QC Batch: 3823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.5	92	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3830

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.00	100	98 - 102	2003-08-14

Standard (CCV-1) QC Batch: 3830

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.00	100	98 - 102	2003-08-14

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Silver		mg/L	0.125	0.123	98	90 - 110	2003-08-1

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.06	106	90 - 110	2003-08-1

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Cadmium		mg/L	1.00	1.04	104	95 - 105	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Copper		mg/L	1.00	0.966	97	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Iron		mg/L	1.00	1.03	103	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.01	101	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.967	97	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Selenium		mg/L	1.00	1.02	102	95 - 105	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Zinc		mg/L	1.00	1.06	106	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Silver		mg/L	0.125	0.129	103	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.09	109	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.08	108	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Cadmium		mg/L	1.00	1.06	106	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.975	98	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Copper		mg/L	1.00	0.923	92	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Iron		mg/L	1.00	0.964	96	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.958	96	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.933	93	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Selenium		mg/L	1.00	0.902	90	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Zinc		mg/L	1.00	0.984	98	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3857

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Mercury		mg/L	0.00100	0.000900	90	80 - 120	2003-08-19

Standard (CCV-1) QC Batch: 3857

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Mercury		mg/L	0.00100	0.000900	90	80 - 120	2003-08-19

Standard (ICV-1) QC Batch: 3866

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	25.0	100	90 - 110	2003-08-18
Dissolved Potassium		mg/L	25.0	26.0	104	90 - 110	2003-08-18
Dissolved Magnesium		mg/L	25.0	24.6	98	90 - 110	2003-08-18
Dissolved Sodium		mg/L	25.0	25.7	103	90 - 110	2003-08-18

Standard (CCV-1) QC Batch: 3866

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	22.9	92	90 - 110	2003-08-18
Dissolved Potassium		mg/L	25.0	24.3	97	90 - 110	2003-08-18
Dissolved Magnesium		mg/L	25.0	23.5	94	90 - 110	2003-08-18
Dissolved Sodium		mg/L	25.0	23.8	95	90 - 110	2003-08-18

COC #78 Page 1 of 1

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TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3081414

Company Name: ETGI
Phone #: (432) 522-1139
Address: (Street, City, Zip) 4600 W. Wall, Midland, Tx 79703
Fax #: (432) 520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs, NM
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/2007	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH							Turn Around Time if different from standard: Rush 24hrs	Hold
153069	Excavated Well	10		X								X		8-13-03	1050																						X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	8-13-03	1510			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki Alvarez	Date: 8-14-03	Time: 10:50

LAB USE ONLY
Intact (Y) N
Headspace Y / (N)
Temp 1°C
Log-in Review

REMARKS:
See Attachment for Analysis Request
Filter samples prior to Analysis for metals

☐ Check if Special Reporting Limits Are Needed

Carrier # TNMTO 903-112-0219

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: November 20, 2003

Work Order: 3110614

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, In

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
20807	MW-1	water	2003-11-04	12:20	2003-11-06
20808	MW-2	water	2003-11-05	08:46	2003-11-06
20809	MW-3	water	2003-11-05	09:04	2003-11-06
20810	MW-4	water	2003-11-04	13:05	2003-11-06
20811	MW-5	water	2003-11-05	09:13	2003-11-06
20812	MW-6	water	2003-11-04	11:40	2003-11-06
20813	MW-7	water	2003-11-04	12:30	2003-11-06
20814	MW-8	water	2003-11-05	08:26	2003-11-06
20815	MW-9	water	2003-11-05	08:14	2003-11-06
20816	MW-10	water	2003-11-05	09:38	2003-11-06
20817	MW-11	water	2003-11-05	08:35	2003-11-06
20818	MW-12	water	2003-11-04	12:45	2003-11-06
20819	MW-13	water	2003-11-04	12:56	2003-11-06
20820	MW-14	water	2003-11-05	09:20	2003-11-06
20821	MW-15	water	2003-11-05	07:50	2003-11-06
20822	MW-16	water	2003-11-05	08:56	2003-11-06
20823	On Site Domestic Well	water	2003-11-04	13:50	2003-11-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a bat basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 32 pages and shall not be reproduced except in its entirety, without written approval o TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 20807 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		369	mg/L	10	0.500

Sample: 20807 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5653	Date Analyzed:	2003-11-11	Analyzed By:	RR
Prep Batch:	5019	Date Prepared:	2003-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20808 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		227	mg/L	10	0.500

Sample: 20808 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5653	Date Analyzed:	2003-11-11	Analyzed By:	RR
Prep Batch:	5019	Date Prepared:	2003-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0220	mg/L	1	0.0100

Sample: 20809 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		432	mg/L	50	0.500

Sample: 20809 - MW-3

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 5653 | Date Analyzed: 2003-11-11 | Analyzed By: RR
Prep Batch: 5019 | Date Prepared: 2003-11-10 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0100	mg/L	1	0.0100

Sample: 20810 - MW-4

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 5576 | Date Analyzed: 2003-11-07 | Analyzed By: JSW
Prep Batch: 4984 | Date Prepared: 2003-11-06 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		360	mg/L	50	0.500

Sample: 20810 - MW-4

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 5653 | Date Analyzed: 2003-11-11 | Analyzed By: RR
Prep Batch: 5019 | Date Prepared: 2003-11-10 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.161	mg/L	1	0.0100

Sample: 20811 - MW-5

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 5576 | Date Analyzed: 2003-11-07 | Analyzed By: JSW
Prep Batch: 4984 | Date Prepared: 2003-11-06 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		432	mg/L	50	0.500

Sample: 20811 - MW-5

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 5653 | Date Analyzed: 2003-11-11 | Analyzed By: RR

Prep Batch: 5019 Date Prepared: 2003-11-10 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis: As, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 5659 Date Analyzed: 2003-11-12 Analyzed By: RR
Prep Batch: 5055 Date Prepared: 2003-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis: Ba, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 5659 Date Analyzed: 2003-11-12 Analyzed By: RR
Prep Batch: 5055 Date Prepared: 2003-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0620	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 5576 Date Analyzed: 2003-11-07 Analyzed By: JSW
Prep Batch: 4984 Date Prepared: 2003-11-06 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		462	mg/L	50	0.500

Sample: 20812 - MW-6

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 5659 Date Analyzed: 2003-11-12 Analyzed By: RR
Prep Batch: 5055 Date Prepared: 2003-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0380	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis: Mn, Dissolved
QC Batch: 5659
Prep Batch: 5055
Analytical Method: S 6010B
Date Analyzed: 2003-11-12
Date Prepared: 2003-11-11
Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 20812 - MW-6

Analysis: Pb, Dissolved
QC Batch: 5659
Prep Batch: 5055
Analytical Method: S 6010B
Date Analyzed: 2003-11-12
Date Prepared: 2003-11-11
Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis: TPH DRO
QC Batch: 5587
Prep Batch: 4996
Analytical Method: Mod. 8015B
Date Analyzed: 2003-11-07
Date Prepared: 2003-11-06
Prep Method: N/A
Analyzed By: BP
Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		9.19	mg/L	0.1	150	61	44 - 123

Sample: 20812 - MW-6

Analysis: TPH GRO
QC Batch: 5573
Prep Batch: 4980
Analytical Method: S 8015B
Date Analyzed: 2003-11-06
Date Prepared: 2003-11-06
Prep Method: S 5030B
Analyzed By: BS
Prepared By: BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		0.294	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1	0.154	mg/L	1	0.100	154	70 - 130
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	70 - 130

Sample: 20812 - MW-6

[1] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		52.9	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.59	μg/L	1	1.00
1,1,1-Trichloroethane		2.25	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		6.53	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		28.1	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00

continued ...

sample 20812 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.5	μg/L	1	50.0	91	70 - 130
Toluene-d8		48.2	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		47.2	μg/L	1	50.0	94	70 - 130

Sample: 20813 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		179	mg/L	10	0.500

Sample: 20813 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20814 - MW-8

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	50	0.500

Sample: 20814 - MW-8

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0190	mg/L	1	0.0100

Sample: 20815 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		263	mg/L	10	0.500

Sample: 20815 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20816 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		339	mg/L	10	0.500

Sample: 20816 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0210	mg/L	1	0.0100

Sample: 20817 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		248	mg/L	10	0.500

Sample: 20817 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20817 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		11.1	mg/L	0.1	150	74	44 - 123

Sample: 20817 - MW-11

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	2	0.147	mg/L	1	0.100	147	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0993	mg/L	1	0.100	99	70 - 130

Sample: 20817 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		9.59	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00

continued ...

[2] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

sample 20817 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.9	μg/L	1	50.0	92	70 - 130
Toluene-d8		47.9	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		46.7	μg/L	1	50.0	93	70 - 130

Sample: 20818 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

continued ...

sample 20818 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		344	mg/L	10	0.500

Sample: 20818 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0160	mg/L	1	0.0100

Sample: 20818 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		9.77	mg/L	0.1	150	65	44 - 123

Sample: 20818 - MW-12

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	[3]	0.151	mg/L	1	0.100	151	70 - 130
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	70 - 130

[3] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Sample: 20818 - MW-12

Analysis: Volatiles
QC Batch: 5702
Prep Batch: 5097

Analytical Method: S 8260B
Date Analyzed: 2003-11-11
Date Prepared: 2003-11-11

Prep Method: S 5030B
Analyzed By: JG
Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		5.16	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.23	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.39	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00

continued ...

sample 20818 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.9	µg/L	1	50.0	92	70 - 130
Toluene-d8		49.6	µg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		46.2	µg/L	1	50.0	92	70 - 130

Sample: 20819 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		310	mg/L	10	0.500

Sample: 20819 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.180	mg/L	1	0.0100

Sample: 20820 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		269	mg/L	10	0.500

Sample: 20820 - MW-14

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0240	mg/L	1	0.0100

Sample: 20821 - MW-15

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		174	mg/L	10	0.500

Sample: 20821 - MW-15

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20822 - MW-16

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		322	mg/L	10	0.500

Sample: 20822 - MW-16

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 5660 | Date Analyzed: 2003-11-12 | Analyzed By: RR
Prep Batch: 5055 | Date Prepared: 2003-11-11 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20822 - MW-16

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 5587 | Date Analyzed: 2003-11-07 | Analyzed By: BP
Prep Batch: 4996 | Date Prepared: 2003-11-06 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.1	mg/L	0.1	150	81	44 - 123

Sample: 20822 - MW-16

Analysis: TPH GRO | Analytical Method: S 8015B | Prep Method: S 5030B
QC Batch: 5573 | Date Analyzed: 2003-11-06 | Analyzed By: BS
Prep Batch: 4980 | Date Prepared: 2003-11-06 | Prepared By: BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	4	0.143	mg/L	1	0.100	143	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0974	mg/L	1	0.100	97	70 - 130

Sample: 20822 - MW-16

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 5702 | Date Analyzed: 2003-11-11 | Analyzed By: JG
Prep Batch: 5097 | Date Prepared: 2003-11-11 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00

continued ...

[4]High surrogate recovery due to prep. ICV/CCV show the method to be in control.

sample 20822 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		2.20	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.18	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00

continued ...

sample 20822 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
1,3,5-Trimethylbenzene		<1.00	$\mu g/L$	1	1.00
tert-Butylbenzene		<1.00	$\mu g/L$	1	1.00
1,2,4-Trimethylbenzene		<1.00	$\mu g/L$	1	1.00
1,4-Dichlorobenzene (para)		<1.00	$\mu g/L$	1	1.00
sec-Butylbenzene		<1.00	$\mu g/L$	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	$\mu g/L$	1	1.00
p-Isopropyltoluene		<1.00	$\mu g/L$	1	1.00
4-Chlorotoluene		<1.00	$\mu g/L$	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	$\mu g/L$	1	1.00
n-Butylbenzene		<1.00	$\mu g/L$	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	$\mu g/L$	1	5.00
1,2,3-Trichlorobenzene		<5.00	$\mu g/L$	1	5.00
1,2,4-Trichlorobenzene		<5.00	$\mu g/L$	1	5.00
Naphthalene		<5.00	$\mu g/L$	1	5.00
Hexachlorobutadiene		<5.00	$\mu g/L$	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.8	$\mu g/L$	1	50.0	92	70 - 130
Toluene-d8		48.6	$\mu g/L$	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		45.8	$\mu g/L$	1	50.0	92	70 - 130

Sample: 20823 - On Site Domestic Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		299	mg/L	10	0.500

Sample: 20823 - On Site Domestic Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5660	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 5573

Parameter	Flag	Result	Units	RL
GRO		0.128	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	5	0.144	mg/L	1	0.100	144	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0996	mg/L	1	0.100	100	70 - 130

Method Blank (1) QC Batch: 5574

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5575

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5576

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5587

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.0	mg/L	0.1	150	93	44 - 123

Method Blank (1) QC Batch: 5653

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

[5] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5660

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5702

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	RL
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-Hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1

continued . . .

method blank continued ...

Parameter	Flag	Result	Units	RL
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.6	μg/L	1	50.0	101	70 - 130
Toluene-d8		48.2	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		47.0	μg/L	1	50.0	94	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 5573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	1.05	1.06	mg/L	1	1.00	<0.0261	105	1	70.7 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.135	0.124	mg/L	1	0.100	135	124	38.9 - 148
4-Bromofluorobenzene (4-BFB)	0.109	0.105	mg/L	1	0.100	109	105	46.1 - 116

Laboratory Control Spike (LCS-1) QC Batch: 5574

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<1.49	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5575

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<1.49	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5576

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	12.1	mg/L	1	12.5	<1.49	97	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5587

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	23.6	26.2	mg/L	0.1	250	0.45	93	10	86 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	13.9	16.1	mg/L	0.1	150	93	107	44 - 123

Laboratory Control Spike (LCS-1) QC Batch: 5653

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.105	0.105	mg/L	1	0.100	<0.000437	105	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.443	0.448	mg/L	1	0.500	<0.00489	89	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.959	0.959	mg/L	1	1.00	<0.000450	96	0	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.244	0.237	mg/L	1	0.250	<0.000297	98	3	85 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.482	0.491	mg/L	1	0.500	<0.00698	96	2	86.1 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5660

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5702

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	94.6	93.8	μg/L	1	100	<0.136	95	1	70 - 130	20
Benzene	101	98.8	μg/L	1	100	0.15	101	2	70 - 130	20
Trichloroethene (TCE)	97.6	95.3	μg/L	1	100	0.18	98	2	70 - 130	20
Toluene	102	100	μg/L	1	100	0.22	102	2	70 - 130	20
Chlorobenzene	102	101	μg/L	1	100	<0.0540	102	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.0	50.1	μg/L	1	50.0	100	100	70 - 130
Toluene-d8	48.1	48.3	μg/L	1	50.0	96	97	70 - 130
4-Bromofluorobenzene (4-BFB)	47.5	47.1	μg/L	1	50.0	95	94	70 - 130

Matrix Spike (MS-1) QC Batch: 5574

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	958	960	mg/L	50	12.5	318	102	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5575

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2003-11-07

Standard (ICV-1) QC Batch: 5575

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2003-11-07

Standard (CCV-1) QC Batch: 5575

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2003-11-07

Standard (ICV-1) QC Batch: 5576

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2003-11-07

Standard (CCV-1) QC Batch: 5576

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2003-11-07

Standard (ICV-1) QC Batch: 5587

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	261	104	75 - 125	2003-11-0[illegible]

Standard (CCV-1) QC Batch: 5587

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	275	110	75 - 125	2003-11-0[illegible]

Standard (ICV-1) QC Batch: 5653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.00	100	90 - 110	2003-11-11

Standard (CCV-1) QC Batch: 5653

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2003-11-11

Standard (ICV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.954	95	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.01	101	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.989	99	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.04	104	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.971	97	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.971	97	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.999	100	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.944	94	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.00	100	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-11-1

Standard (CCV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.980	98	90 - 110	2003-11-1

Standard (CCV-1) QC Batch: 5702

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	44.5	89	80 - 120	2003-11-11
1,1-Dichloroethene		μg/L	50.0	47.1	94	80 - 120	2003-11-11
Chloroform		μg/L	50.0	44.6	89	80 - 120	2003-11-11
1,2-Dichloropropane		μg/L	50.0	45.7	91	80 - 120	2003-11-11
Toluene		μg/L	50.0	45.2	90	80 - 120	2003-11-11
Chlorobenzene		μg/L	50.0	45.4	91	80 - 120	2003-11-11
Ethylbenzene		μg/L	50.0	45.6	91	80 - 120	2003-11-11

COC#116 Page 1 of 1

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110614

Company Name: ETGI Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 W. WAll, Midland, TX 79703 Fax #: 432-520-4310

Contact Person: Todd CRobAD

Invoice to: (If different from above)

Project #: CH 2100 Project Name: Champion

Project Location: Hobb, nm 88240 Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING 2003: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
20807	mw-1	1		X								X		11/4	1220																X	X					
08	mw-2	1		X								X		11/5	846																X	X					
09	mw-3	1		X								X		11/5	9:04																X	X					
10	mw-4	1		X								X		11/4	1305																X	X					
11	mw-5	1		X								X		11/5	9:13																X	X					
12	mw-6	8		X								X		11/4	11:40			X													X	X	X	X	X		
13	mw-7	1		X								X		11/4	1230																X	X					
14	mw-8	1		X								X		11/5	826																X	X					
15	mw-9	1		X								X		11/5	814																X	X					
16	mw-10	1		X								X		11/5	938																X	X					
17	mw-11	8		X								X		11/5	835			X													X	X	X	X	X		

Relinquished by: Date: 11-5-03 Time: 10:00 Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received at Laboratory by: Date: 11-6-03 Time: 10:49

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 2°C
Log-in Review

REMARKS: Filter Metals Prior To Analysis * If metals (Arsenic, lead, barium, Manganese) are detected in mw-6 test for metals in mw-11, mw-12, mw-16

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # TNMHD 903-133 458-7

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COC# 116

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110614

Company Name: ETGI
Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 W. Wall, Midland, TX 79703
Fax #: 432-520-4310

Contact Person: Todd Choban

Invoice to:
(If different from above)

Project #: CH2100
Project Name: Champion

Project Location: Hobbs, NM 88240
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE (2003)	TIME
20818	MW-12	8		X								X		11/4	1245
19	MW-13	1		X								X		11/4	1256
20	MW-14	1		X								X		11/5	9:20
21	MW-15	1		X								X		11/5	7:50
22	MW-16	8		X								X		11/5	8:56
23	On-Site Domestic Well	1		X								X		11/4	1350
	~~Trip Blank~~	2													

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1 TX1005~~ 8015	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
20818			X													X	X	X	*	*		
19																X	X					
20																X	X					
21																X	X					
22			X													X	X	X	*	*		
23																X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	11-5-03	10:00			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki Almy	11-6-03	10:49

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 2°c
Log-In Review

REMARKS: Filter Metals Prior To Analysis, *If metals (Lead, Arsenic, Barium, Manganese) are detected in MW-6, test for Metals in MW-11, MW-12, MW-16

☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 903-133-458-7

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Enclosures
Volume 2 of 2

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: November 12, 2003

Work Order: 3110616

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, In

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
20830	Off Site Domestic Well	water	2003-11-04	13:40	2003-11-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a bat basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 20830 - Off Site Domestic Well

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 5598 | Date Analyzed: 2003-11-10 | Analyzed By: JSW
Prep Batch: 5003 | Date Prepared: 2003-11-07 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		377	mg/L	10	0.500

Sample: 20830 - Off Site Domestic Well

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 5660 | Date Analyzed: 2003-11-12 | Analyzed By: RR
Prep Batch: 5055 | Date Prepared: 2003-11-11 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 5598

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5660

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Laboratory Control Spike (LCS-1) QC Batch: 5598

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.3	12.4	mg/L	1	12.5	<1.49	98	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5660

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5598

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	706	708	mg/L	50	12.5	124	93	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5660

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0940	0.0950	mg/L	1	0.100	<0.00357	94	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 5598

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2003-11-10

Standard (CCV-1) QC Batch: 5598

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2003-11-10

Standard (ICV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.980	98	90 - 110	2003-11-12

COC # 118

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110616

Company Name: ETGI
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. Wall, Midland TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH2100
Project Name: Champion
Project Location: Hobbs, NM 88240
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE (03)	TIME
20830	Off Site Domestic Well	1		X									X		11/4	1340

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Chromium				Turn Around Time if different from standard	Hold
20830																X	X					

Relinquished by: [signature] Date: 11-5-03 Time: 10:00
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: [signature] Date: 11-6-03 Time: 11:03

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 2°C
Log-in Review [initials]

REMARKS: Filter Metal sample prior to Analysis

☐ Check If Special Reporting Limits Are Needed

Carrier # [illegible] 903 133-458-7

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: April 2, 2004

Work Order: 4031927

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
29883	MW-1	water	2004-03-17	12:35	2004-03-19
29884	MW-2	water	2004-03-17	12:46	2004-03-19
29885	MW-3	water	2004-03-17	14:17	2004-03-19
29886	MW-4	water	2004-03-17	14:36	2004-03-19
29887	MW-5	water	2004-03-17	14:27	2004-03-19
29888	MW-17	water	2004-03-17	13:07	2004-03-19
29889	MW-7	water	2004-03-17	12:18	2004-03-19
29890	MW-8	water	2004-03-17	13:30	2004-03-19
29891	MW-9	water	2004-03-17	12:41	2004-03-19
29892	MW-10	water	2004-03-17	15:31	2004-03-19
29893	MW-11	water	2004-03-17	13:25	2004-03-19
29894	MW-12	water	2004-03-17	13:42	2004-03-19
29895	MW-13	water	2004-03-17	14:22	2004-03-19
29896	MW-14	water	2004-03-17	14:31	2004-03-19
29897	MW-15	water	2004-03-17	12:26	2004-03-19
29898	MW-16	water	2004-03-17	14:11	2004-03-19
29899	MW-18	water	2004-03-17	13:57	2004-03-19
29900	Onsite Domestic	water	2004-03-17	15:41	2004-03-19
29901	Off-Site Domestic	water	2004-03-17	15:44	2004-03-19

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 45 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 29883 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		419	mg/L	50	0.500

Sample: 29883 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29884 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		201	mg/L	10	0.500

Sample: 29884 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 29885 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		223	mg/L	10	0.500

Sample: 29885 - MW-3

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29886 - MW-4

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8379 | Date Analyzed: 2004-03-22 | Analyzed By: JSW
Prep Batch: 7471 | Date Prepared: 2004-03-19 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		326	mg/L	10	0.500

Sample: 29886 - MW-4

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.163	mg/L	1	0.0100

Sample: 29887 - MW-5

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8379 | Date Analyzed: 2004-03-22 | Analyzed By: JSW
Prep Batch: 7471 | Date Prepared: 2004-03-19 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		377	mg/L	10	0.500

Sample: 29887 - MW-5

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR

Prep Batch: 7522 Date Prepared: 2004-03-23 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis: As, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 8503 Date Analyzed: 2004-03-25 Analyzed By: RR
Prep Batch: 7522 Date Prepared: 2004-03-23 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis: Ba, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 8503 Date Analyzed: 2004-03-25 Analyzed By: RR
Prep Batch: 7522 Date Prepared: 2004-03-23 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.331	mg/L	1	0.100

Sample: 29888 - MW-17

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 8379 Date Analyzed: 2004-03-22 Analyzed By: JSW
Prep Batch: 7471 Date Prepared: 2004-03-19 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		301	mg/L	10	0.500

Sample: 29888 - MW-17

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 8503 Date Analyzed: 2004-03-25 Analyzed By: RR
Prep Batch: 7522 Date Prepared: 2004-03-23 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.288	mg/L	1	0.0250

Sample: 29888 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.9	mg/L	0.1	150	86	81.8 - 161

Sample: 29888 - MW-17

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		0.900	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1	0.887	mg/L	5	0.200	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2	0.934	mg/L	5	0.200	93	70 - 130

[1] Changed spike amount from 0.1 to 0.2 due to prep. Sample spiked with double amount of surrogate.
[2] Changed spike amount from 0.1 to 0.2 due to prep. Sample spiked with double amount of surrogate.

Sample: 29888 - MW-17

Analysis: Volatiles
QC Batch: 8418
Prep Batch: 7501

Analytical Method: S 8260B
Date Analyzed: 2004-03-22
Date Prepared: 2004-03-22

Prep Method: S 5030B
Analyzed By: JG
Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<10.0	μg/L	10	1.00
Dichlorodifluoromethane		<10.0	μg/L	10	1.00
Chloromethane (methyl chloride)		<10.0	μg/L	10	1.00
Vinyl Chloride		<10.0	μg/L	10	1.00
Bromomethane (methyl bromide)		<50.0	μg/L	10	5.00
Chloroethane		<10.0	μg/L	10	1.00
Trichlorofluoromethane		<10.0	μg/L	10	1.00
Acetone		<100	μg/L	10	10.0
Iodomethane (methyl iodide)		<50.0	μg/L	10	5.00
Carbon Disulfide		18.1	μg/L	10	1.00
Acrylonitrile		<10.0	μg/L	10	1.00
2-Butanone (MEK)		594	μg/L	10	5.00
4-Methyl-2-pentanone (MIBK)		<50.0	μg/L	10	5.00
2-Hexanone		<50.0	μg/L	10	5.00
trans 1,4-Dichloro-2-butene		<100	μg/L	10	10.0
1,1-Dichloroethene		<10.0	μg/L	10	1.00
Methylene chloride		<50.0	μg/L	10	5.00
MTBE		<10.0	μg/L	10	1.00
trans-1,2-Dichloroethene		<10.0	μg/L	10	1.00
1,1-Dichloroethane		<10.0	μg/L	10	1.00
cis-1,2-Dichloroethene		<10.0	μg/L	10	1.00
2,2-Dichloropropane		<10.0	μg/L	10	1.00
1,2-Dichloroethane (EDC)		<10.0	μg/L	10	1.00
Chloroform		<10.0	μg/L	10	1.00
1,1,1-Trichloroethane		<10.0	μg/L	10	1.00
1,1-Dichloropropene		<10.0	μg/L	10	1.00
Benzene		<10.0	μg/L	10	1.00
Carbon Tetrachloride		<10.0	μg/L	10	1.00
1,2-Dichloropropane		<10.0	μg/L	10	1.00
Trichloroethene (TCE)		<10.0	μg/L	10	1.00
Dibromomethane (methylene bromide)		<10.0	μg/L	10	1.00
Bromodichloromethane		<10.0	μg/L	10	1.00
2-Chloroethyl vinyl ether		<50.0	μg/L	10	5.00
cis-1,3-Dichloropropene		<10.0	μg/L	10	1.00
trans-1,3-Dichloropropene		<10.0	μg/L	10	1.00
Toluene		<10.0	μg/L	10	1.00
1,1,2-Trichloroethane		<10.0	μg/L	10	1.00
1,3-Dichloropropane		<10.0	μg/L	10	1.00
Dibromochloromethane		<10.0	μg/L	10	1.00
1,2-Dibromoethane (EDB)		<10.0	μg/L	10	1.00
Tetrachloroethene (PCE)		<10.0	μg/L	10	1.00
Chlorobenzene		<10.0	μg/L	10	1.00
1,1,1,2-Tetrachloroethane		<10.0	μg/L	10	1.00
Ethylbenzene		<10.0	μg/L	10	1.00
m,p-Xylene		<10.0	μg/L	10	1.00
Bromoform		<10.0	μg/L	10	1.00
Styrene		<10.0	μg/L	10	1.00

continued ...

sample 29888 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<10.0	μg/L	10	1.00
1,1,2,2-Tetrachloroethane		<10.0	μg/L	10	1.00
2-Chlorotoluene		<10.0	μg/L	10	1.00
1,2,3-Trichloropropane		<10.0	μg/L	10	1.00
Isopropylbenzene		<10.0	μg/L	10	1.00
Bromobenzene		<10.0	μg/L	10	1.00
n-Propylbenzene		<10.0	μg/L	10	1.00
1,3,5-Trimethylbenzene		<10.0	μg/L	10	1.00
tert-Butylbenzene		<10.0	μg/L	10	1.00
1,2,4-Trimethylbenzene		<10.0	μg/L	10	1.00
1,4-Dichlorobenzene (para)		<10.0	μg/L	10	1.00
sec-Butylbenzene		<10.0	μg/L	10	1.00
1,3-Dichlorobenzene (meta)		<10.0	μg/L	10	1.00
p-Isopropyltoluene		<10.0	μg/L	10	1.00
4-Chlorotoluene		<10.0	μg/L	10	1.00
1,2-Dichlorobenzene (ortho)		<10.0	μg/L	10	1.00
n-Butylbenzene		<10.0	μg/L	10	1.00
1,2-Dibromo-3-chloropropane		<50.0	μg/L	10	5.00
1,2,3-Trichlorobenzene		<50.0	μg/L	10	5.00
1,2,4-Trichlorobenzene		<50.0	μg/L	10	5.00
Naphthalene		<50.0	μg/L	10	5.00
Hexachlorobutadiene		<50.0	μg/L	10	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	μg/L	1	50.0	99	70 - 130
Toluene-d8		49.8	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.3	μg/L	1	50.0	89	70 - 130

Sample: 29889 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		199	mg/L	10	0.500

Sample: 29889 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29890 - MW-8

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8471 | Date Analyzed: 2004-03-24 | Analyzed By: JSW
Prep Batch: 7545 | Date Prepared: 2004-03-23 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		447	mg/L	50	0.500

Sample: 29890 - MW-8

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 29891 - MW-9

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8471 | Date Analyzed: 2004-03-24 | Analyzed By: JSW
Prep Batch: 7545 | Date Prepared: 2004-03-23 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		199	mg/L	10	0.500

Sample: 29891 - MW-9

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29892 - MW-10

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8471 | Date Analyzed: 2004-03-24 | Analyzed By: JSW
Prep Batch: 7545 | Date Prepared: 2004-03-23 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		335	mg/L	10	0.500

Sample: 29893 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.8	mg/L	0.1	150	85	81.8 - 161

Sample: 29893 - MW-11

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.453	mg/L	5	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)		0.474	mg/L	5	0.100	95	70 - 130

Sample: 29893 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	8418	Date Analyzed:	2004-03-22	Analyzed By:	JG
Prep Batch:	7501	Date Prepared:	2004-03-22	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		1.04	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0

continued . . .

sample 29893 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		26.8	µg/L	1	1.00
cis-1,2-Dichloroethene		2.32	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		3.18	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		1.04	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00

continued . . .

sample 29893 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.1	µg/L	1	50.0	98	70 - 130
Toluene-d8		49.8	µg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.3	µg/L	1	50.0	89	70 - 130

Sample: 29894 - MW-12

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29894 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	10	0.500

Sample: 29894 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0130	mg/L	1	0.0100

Sample: 29894 - MW-12

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29894 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.3	mg/L	0.1	150	95	81.8 - 161

Sample: 29894 - MW-12

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.448	mg/L	5	0.100	90	70 - 130
4-Bromofluorobenzene (4-BFB)		0.466	mg/L	5	0.100	93	70 - 130

Sample: 29894 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	8418	Date Analyzed:	2004-03-22	Analyzed By:	JG
Prep Batch:	7501	Date Prepared:	2004-03-22	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00

continued ...

sample 29894 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		6.05	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		1.24	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		3.15	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00

continued . . .

sample 29894 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.9	μg/L	1	50.0	98	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		44.9	μg/L	1	50.0	90	70 - 130

Sample: 29895 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		322	mg/L	10	0.500

Sample: 29895 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.179	mg/L	1	0.0100

Sample: 29896 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		260	mg/L	10	0.500

Sample: 29896 - MW-14

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0340	mg/L	1	0.0100

Sample: 29897 - MW-15

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8434 | Date Analyzed: 2004-03-23 | Analyzed By: JSW
Prep Batch: 7516 | Date Prepared: 2004-03-22 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		185	mg/L	10	0.500

Sample: 29897 - MW-15

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29898 - MW-16

Analysis: Ba, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29898 - MW-16

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8434 | Date Analyzed: 2004-03-23 | Analyzed By: JSW
Prep Batch: 7516 | Date Prepared: 2004-03-22 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		266	mg/L	10	0.500

Sample: 29898 - MW-16

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29898 - MW-16

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29898 - MW-16

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.2	mg/L	0.1	150	88	81.8 - 161

Sample: 29898 - MW-16

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.460	mg/L	5	0.100	92	70 - 130
4-Bromofluorobenzene (4-BFB)		0.485	mg/L	5	0.100	97	70 - 130

Sample: 29898 - MW-16

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	8418	Date Analyzed:	2004-03-22	Analyzed By:	JG
Prep Batch:	7501	Date Prepared:	2004-03-22	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	µg/L	1	1.00
Dichlorodifluoromethane		<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1	1.00
Vinyl Chloride		<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	1	5.00
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		2.83	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		2.71	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00

continued . . .

sample 29898 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.1	μg/L	1	50.0	98	70 - 130
Toluene-d8		49.9	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		43.7	μg/L	1	50.0	87	70 - 130

Sample: 29899 - MW-18

Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	8516	Date Analyzed:	2004-03-25	Analyzed By:	RS
Prep Batch:	7589	Date Prepared:	2004-03-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		302	mg/L as CaCo3	1	4.00
Total Alkalinity		302	mg/L as CaCo3	1	4.00

Sample: 29899 - MW-18

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

continued ...

sample 29899 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29899 - MW-18

Analysis:	Be, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Beryllium		<0.00250	mg/L	1	0.00250

Sample: 29899 - MW-18

Analysis:	Cations	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8540	Date Analyzed:	2004-03-23	Analyzed By:	BC
Prep Batch:	7488	Date Prepared:	2004-03-22	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		130	mg/L	1	0.500
Dissolved Potassium		9.12	mg/L	1	0.500
Dissolved Magnesium		22.6	mg/L	1	0.500
Dissolved Sodium		198	mg/L	1	0.500

Sample: 29899 - MW-18

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		333	mg/L	50	0.500

Sample: 29899 - MW-18

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0220	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis: Ion Chromatography | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8379 | Date Analyzed: 2004-03-22 | Analyzed By: JSW
Prep Batch: 7471 | Date Prepared: 2004-03-19 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Fluoride		2.32	mg/L	5	0.200
Sulfate		177	mg/L	5	0.500

Sample: 29899 - MW-18

Analysis: Mn, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29899 - MW-18

Analysis: NO3 (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 8379 | Date Analyzed: 2004-03-22 | Analyzed By: JSW
Prep Batch: 7471 | Date Prepared: 2004-03-19 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		5.18	mg/L	5	0.200

Sample: 29899 - MW-18

Analysis: Pb, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A

QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 8384 | Date Analyzed: 2004-03-20 | Analyzed By: BP
Prep Batch: 7439 | Date Prepared: 2004-03-19 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.0	mg/L	0.1	150	86	81.8 - 161

Sample: 29899 - MW-18

Analysis: TPH GRO | Analytical Method: S 8015B | Prep Method: S 5030B
QC Batch: 8451 | Date Analyzed: 2004-03-23 | Analyzed By: MS
Prep Batch: 7528 | Date Prepared: 2004-03-23 | Prepared By: MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.453	mg/L	5	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)		0.474	mg/L	5	0.100	95	70 - 130

Sample: 29899 - MW-18

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 8533 | Date Analyzed: 2004-03-24 | Analyzed By: JG
Prep Batch: 7602 | Date Prepared: 2004-03-24 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	µg/L	1	1.00
Dichlorodifluoromethane		<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1	1.00
Vinyl Chloride		<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	1	5.00
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00

continued ...

sample 29899 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		4.78	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.38	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00

continued . . .

sample 29899 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.3	μg/L	1	50.0	97	70 - 130
Toluene-d8		47.6	μg/L	1	50.0	95	70 - 130
4-Bromofluorobenzene (4-BFB)		42.8	μg/L	1	50.0	86	70 - 130

Sample: 29900 - Onsite Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		240	mg/L	10	0.500

Sample: 29900 - Onsite Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29901 - Off-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

continued ...

sample 29901 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		382	mg/L	10	0.500

Sample: 29901 - Off-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Fluoride		<0.200	mg/L	0.2
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8384

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.6	mg/L	0.1	150	91	81.8 - 161

Method Blank (1) QC Batch: 8418

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.2	μg/L	1	50.0	98	70 - 130
Toluene-d8		50.2	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.4	μg/L	1	50.0	89	70 - 130

Method Blank (1) QC Batch: 8434

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8451

Parameter	Flag	Result	Units	RL
GRO		0.115	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	3	0.0256	mg/L	1	0.100	26	44.8 - 160

continued ...

[3] Surrogate skipped in method blank during prep. ICV/CCV and LCS/LCSD show the method to be in control.

method blank continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)	4	0.0297	mg/L	1	0.100	30	44.1 - 133

Method Blank (1) QC Batch: 8471

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.100	mg/L	0.1

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Beryllium		<0.00250	mg/L	0.0025

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 8503

[4] Surrogate skipped in method blank during prep. ICV/CCV and LCS/LCSD show the method to be in control.

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8516

Parameter	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.00	mg/L as CaCo3	4
Total Alkalinity		<4.00	mg/L as CaCo3	4

Method Blank (1) QC Batch: 8533

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1

continued . . .

method blank continued . . .

Parameter	Flag	Result	Units	RL
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	μg/L	1	50.0	97	70 - 130
Toluene-d8		48.5	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		44.0	μg/L	1	50.0	88	70 - 130

Method Blank (1) QC Batch: 8540

Parameter	Flag	Result	Units	RL
Dissolved Calcium		<0.500	mg/L	0.5
Dissolved Potassium		<0.500	mg/L	0.5
Dissolved Magnesium		<0.500	mg/L	0.5
Dissolved Sodium		<0.500	mg/L	0.5

Duplicate (1) QC Batch: 8516

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	36.0	36.0	mg/L as CaCo3	1	0	20
Total Alkalinity	36.0	36.0	mg/L as CaCo3	1	0	4.8

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.7	12.6	mg/L	1	12.5	<0.337	102	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.47	2.48	mg/L	1	2.50	<0.0217	99	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	2.41	2.41	mg/L	1	2.50	<0.0594	96	0	90 - 110	20
Sulfate	12.7	12.7	mg/L	1	12.5	<0.409	102	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8384

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.7	24.4	mg/L	0.1	250	<0.538	91	7	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	13.5	14.8	mg/L	0.1	150	90	99	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 8418

continued . . .

control spikes continued ...

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	105	106	μg/L	1	100	<0.136	105	1	78 - 120	20
Benzene	99.0	97.3	μg/L	1	100	<0.146	99	2	84.2 - 108	20
Trichloroethene (TCE)	96.3	95.9	μg/L	1	100	0.16	96	0	85.8 - 106	20
Toluene	96.4	95.8	μg/L	1	100	0.18	96	1	77.2 - 104	20
Chlorobenzene	102	101	μg/L	1	100	<0.0540	102	1	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	48.2	49.1	μg/L	1	50.0	96	98	84.2 - 115
Toluene-d8	50.6	49.9	μg/L	1	50.0	101	100	94.6 - 103
4-Bromofluorobenzene (4-BFB)	45.5	44.5	μg/L	1	50.0	91	89	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 8434

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.7	12.0	mg/L	1	12.5	<0.337	94	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8451

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	1.03	0.869	mg/L	1	1.00	<0.0261	103	17	68.8 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0935	0.0853	mg/L	1	0.100	94	85	53.5 - 145
4-Bromofluorobenzene (4-BFB)	0.102	0.0994	mg/L	1	0.100	102	99	54.5 - 134

Laboratory Control Spike (LCS-1) QC Batch: 8471

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<0.337	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8503

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Benzene	100	97.3	μg/L	1	100	<0.146	100	3	84.2 - 108	20
Trichloroethene (TCE)	98.9	96.4	μg/L	1	100	<0.117	99	2	85.8 - 106	20
Toluene	100	97.4	μg/L	1	100	0.16	100	3	77.2 - 104	20
Chlorobenzene	103	99.9	μg/L	1	100	<0.0540	103	3	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	47.4	47.8	μg/L	1	50.0	95	96	84.2 - 115
Toluene-d8	48.4	48.2	μg/L	1	50.0	97	96	94.6 - 103
4-Bromofluorobenzene (4-BFB)	45.4	44.5	μg/L	1	50.0	91	89	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 8540

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	88.6	92.4	mg/L	1	100	<0.102	89	4	85 - 115	20
Dissolved Potassium	102	98.2	mg/L	1	100	<0.101	102	4	85 - 115	20
Dissolved Magnesium	88.3	95.3	mg/L	1	100	<0.110	88	8	85 - 115	20
Dissolved Sodium	92.2	92.4	mg/L	1	100	<0.120	92	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	928	928	mg/L	50	12.5	419	81	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	148	148	mg/L	50	2.50	12.7	108	0	79.6 - 109	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride [5][6]	141	144	mg/L	50	2.50	7.6	107	2	84.9 - 104	20
Sulfate	762	765	mg/L	50	12.5	228	85	0	77.8 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[5] matrix difficulties.
[6] matrix difficulties.

Matrix Spike (MS-1) QC Batch: 8434

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2020	2000	mg/L	100	12.5	971	84	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8471

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	976	986	mg/L	50	12.5	447	85	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.486	0.488	mg/L	1	0.500	<0.00860	97	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.00	1.00	mg/L	1	1.00	<0.000984	100	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.0990	mg/L	1	0.100	<0.000437	101	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.234	0.233	mg/L	1	0.250	<0.00296	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.452	0.451	mg/L	1	0.500	<0.00310	90	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.500	0.508	mg/L	1	0.500	<0.00860	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.04	1.04	mg/L	1	1.00	<0.000984	104	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Beryllium	0.0220	0.0220	mg/L	1	0.0250	<0.000532	88	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0970	0.0980	mg/L	1	0.100	<0.000437	97	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.345	0.347	mg/L	1	0.250	0.106	96	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.466	0.464	mg/L	1	0.500	<0.00310	93	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8540

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	215	211	mg/L	1	100	130	85	2	75 - 125	20
Dissolved Potassium	109	108	mg/L	1	100	9.12	100	1	75 - 125	20
Dissolved Magnesium	110	107	mg/L	1	100	22.6	87	3	75 - 125	20
Dissolved Sodium [7,8]	265	256	mg/L	1	100	198	67	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.49	100	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.48	99	90 - 110	2004-03-22
Sulfate		mg/L	12.5	12.8	102	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.47	99	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

[7] ms recovery out of limits due to matrix effect
[8] ms recovery out of limits due to matrix effect

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.40	96	90 - 110	2004-03-22
Sulfate		mg/L	12.5	12.6	101	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8384

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	228	91	68 - 140	2004-03-20

Standard (CCV-1) QC Batch: 8384

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	225	90	68 - 140	2004-03-20

Standard (CCV-1) QC Batch: 8418

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.0	96	80 - 120	2004-03-22
1,1-Dichloroethene		μg/L	50.0	49.0	98	80 - 120	2004-03-22
Chloroform		μg/L	50.0	47.0	94	80 - 120	2004-03-22
1,2-Dichloropropane		μg/L	50.0	50.3	101	80 - 120	2004-03-22
Toluene		μg/L	50.0	49.3	99	80 - 120	2004-03-22
Chlorobenzene		μg/L	50.0	50.4	101	80 - 120	2004-03-22
Ethylbenzene		μg/L	50.0	51.1	102	80 - 120	2004-03-22

Standard (ICV-1) QC Batch: 8434

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-03-23

Standard (CCV-1) QC Batch: 8434

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.7	94	90 - 110	2004-03-23

Standard (ICV-1) QC Batch: 8451

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.916	92	85 - 115	2004-03-23

Standard (CCV-1) QC Batch: 8451

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.964	96	85 - 115	2004-03-23

Standard (ICV-1) QC Batch: 8471

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2004-03-24

Standard (CCV-1) QC Batch: 8471

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-03-24

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.01	101	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.01	101	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.05	105	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Beryllium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.05	105	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Beryllium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8516

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2004-03-25
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8516

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2004-03-25
Total Alkalinity		mg/L as CaCo3	250	244	98	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8533

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	47.1	94	80 - 120	2004-03-24
1,1-Dichloroethene		μg/L	50.0	47.4	95	80 - 120	2004-03-24
Chloroform		μg/L	50.0	45.7	91	80 - 120	2004-03-24
1,2-Dichloropropane		μg/L	50.0	50.1	100	80 - 120	2004-03-24
Toluene		μg/L	50.0	49.8	100	80 - 120	2004-03-24
Chlorobenzene		μg/L	50.0	50.1	100	80 - 120	2004-03-24
Ethylbenzene		μg/L	50.0	50.7	101	80 - 120	2004-03-24

Standard (ICV-1) QC Batch: 8540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	23.8	95	90 - 110	2004-03-23
Dissolved Potassium		mg/L	25.0	23.9	96	90 - 110	2004-03-23
Dissolved Magnesium		mg/L	25.0	23.7	95	90 - 110	2004-03-23
Dissolved Sodium		mg/L	25.0	23.0	92	90 - 110	2004-03-23

Standard (CCV-1) QC Batch: 8540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	23.4	94	90 - 110	2004-03-23
Dissolved Potassium		mg/L	25.0	25.5	102	90 - 110	2004-03-23
Dissolved Magnesium		mg/L	25.0	23.4	94	90 - 110	2004-03-23
Dissolved Sodium		mg/L	25.0	24.4	98	90 - 110	2004-03-23

C.O.C. # 29 Page 1 of 2

TraceAnalysis, Inc.

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4031927

Company Name: Environmental Technology Group Inc.
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland, TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING DATE (2004)	TIME
29883	mw-1	1		X								X		3-17	1235
84	mw-2	1		X								X		3-17	1246
85	mw-3	1		X								X		3-17	1417
86	mw-4	1		X								X		3-17	1436
87	mw-5	1		X								X		3-17	1427
88	mw-017 TF	8		X								X		3-17	1307
89	mw-7	1		X								X		3-17	1218
90	mw-8	1		X								X		3-17	1330
91	mw-9	1		X								X		3-17	1241
92	mw-10	1		X								X		3-17	1531
93	mw-11	8		X								X		3-17	1325

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
29883																X	X					
84																X	X					
85																X	X					
86																X	X					
87																X	X					
88			X													X	X	X	X	X		
89																X	X					
90																X	X					
91																X	X					
92																X	X					
93			X													X	X	X	X	X		

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received at Laboratory by: Vicki [signature] Date: 3-19-04 Time: 12:11

LAB USE ONLY
Intact (Y) N
Headspace Y (N)
Temp 1°c
Log-in Review gr

REMARKS: Filter metals prior to Analysis. If metals (Arsenic, lead, barium, Manganese) are detected in mw-017F Test for metals in mw-11, mw-12, mw-16.

☐ Check If Special Reporting Limits Are Needed

Carrier # Ups 1Z 36-135-278-8

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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C.O.C #29

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4031927

Company Name: ETGI
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W Wall Midland TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
29894	mw-12	8		X								X		3-17	1342
95	mw-13	1		X								X		3-17	1422
96	mw-14	1		X								X		3-17	1431
97	mw-15	1		X								X		3-17	1226
98	mw-16	8		X								X		3-17	1411
99	mw-18	9		X								X		3-17	1357
900	On-Site Domestic	1		X								X		3-17	1541
901	Off-Site Domestic	1		X								X		3-17	1544

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	Anions / Cations	Chloride	Chromium	Vcc	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
29894			X													X	X	X	X	X		
95																X	X					
96																X	X					
97																X	X					
98			X													X	X	X	X	X		
99			X												X	X	X	X	X	X		
900																X	X					
901																X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: [signature]	Date: 3-19-04	Time: 12:11

LAB USE ONLY
Intact Y / N (Y circled)
Headspace Y / N (N circled)
Temp 1°c
Log-in Review MM

REMARKS: Filter metals prior to Analysis
If metals (lead, arsenic, Barium, Manganese) are detected in mw-11, Test for metals in mw-11, mw-12, mw-16

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 7136-135-278-9

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Report Date: April 2, 2004
CH 2100

Work Order: 4031927
Champion

Page Number: 45 of 45
Hobbs

Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: August 20, 2004

Work Order: 4062518

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
37532	MW-1	water	2004-06-24	10:15	2004-06-25
37533	MW-2	water	2004-06-24	11:53	2004-06-25
37534	MW-3	water	2004-06-24	11:40	2004-06-25
37535	MW-4	water	2004-06-24	12:41	2004-06-25
37536	MW-5	water	2004-06-24	13:10	2004-06-25
37537	MW-7	water	2004-06-24	09:57	2004-06-25
37538	MW-8	water	2004-06-24	10:38	2004-06-25
37539	MW-9	water	2004-06-24	10:28	2004-06-25
37540	MW-10	water	2004-06-24	13:41	2004-06-25
37541	MW-11	water	2004-06-24	10:50	2004-06-25
37542	MW-12	water	2004-06-24	11:07	2004-06-25
37543	MW-13	water	2004-06-24	12:07	2004-06-25
37544	MW-14	water	2004-06-24	12:57	2004-06-25
37545	MW-15	water	2004-06-24	09:47	2004-06-25
37546	MW-16	water	2004-06-24	11:27	2004-06-25
37547	MW-17	water	2004-06-24	13:29	2004-06-25
37548	MW-18	water	2004-06-24	11:15	2004-06-25
37549	On-Site Domestic	water	2004-06-24	13:57	2004-06-25

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 34 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 37532 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		475	mg/L	10	0.500

Sample: 37532 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37533 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		304	mg/L	10	0.500

Sample: 37533 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0260	mg/L	1	0.00500

Sample: 37534 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		313	mg/L	10	0.500

Sample: 37534 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37535 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		545	mg/L	10	0.500

Sample: 37535 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.117	mg/L	1	0.00500

Sample: 37536 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		389	mg/L	50	0.500

Sample: 37536 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR

Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37537 - MW-7

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 10678 Date Analyzed: 2004-06-28 Analyzed By: RS
Prep Batch: 9442 Date Prepared: 2004-06-25 Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		290	mg/L	10	0.500

Sample: 37537 - MW-7

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10921 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37538 - MW-8

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 10678 Date Analyzed: 2004-06-28 Analyzed By: RS
Prep Batch: 9442 Date Prepared: 2004-06-25 Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		664	mg/L	50	0.500

Sample: 37538 - MW-8

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10921 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.00800	mg/L	1	0.00500

Sample: 37539 - MW-9

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10678 | Date Analyzed: 2004-06-28 | Analyzed By: RS
Prep Batch: 9442 | Date Prepared: 2004-06-25 | Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		295	mg/L	10	0.500

Sample: 37539 - MW-9

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10921 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37540 - MW-10

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10678 | Date Analyzed: 2004-06-28 | Analyzed By: RS
Prep Batch: 9442 | Date Prepared: 2004-06-25 | Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		402	mg/L	10	0.500

Sample: 37540 - MW-10

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10921 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis: As, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis: Ba, Dissolved
QC Batch: 10922
Prep Batch: 9579

Analytical Method: S 6010B
Date Analyzed: 2004-07-08
Date Prepared: 2004-07-02

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0520	mg/L	1	0.0100

Sample: 37541 - MW-11

Analysis: Chloride (IC)
QC Batch: 10707
Prep Batch: 9469

Analytical Method: E 300.0
Date Analyzed: 2004-06-29
Date Prepared: 2004-06-28

Prep Method: N/A
Analyzed By: JT
Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		197	mg/L	10	0.500

Sample: 37541 - MW-11

Analysis: Cr, Dissolved
QC Batch: 10922
Prep Batch: 9579

Analytical Method: S 6010B
Date Analyzed: 2004-07-08
Date Prepared: 2004-07-02

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis: Mn, Dissolved
QC Batch: 10922
Prep Batch: 9579

Analytical Method: S 6010B
Date Analyzed: 2004-07-08
Date Prepared: 2004-07-02

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.0540	mg/L	1	0.0250

Sample: 37541 - MW-11

Analysis: Pb, Dissolved
QC Batch: 10922
Prep Batch: 9579

Analytical Method: S 6010B
Date Analyzed: 2004-07-08
Date Prepared: 2004-07-02

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.8	mg/L	0.1	150	92	81.8 - 161

Sample: 37541 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		8.96	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00

continued ...

sample 37541 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		53.8	μg/L	1	50.0	108	70 - 130
Toluene-d8		51.0	μg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		43.6	μg/L	1	50.0	87	70 - 130

Sample: 37542 - MW-12

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis: Ba, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0670	mg/L	1	0.0100

Sample: 37542 - MW-12

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 10707 Date Analyzed: 2004-06-29 Analyzed By: JT
Prep Batch: 9469 Date Prepared: 2004-06-28 Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		379	mg/L	50	0.500

Sample: 37542 - MW-12

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0210	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis: Mn, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37542 - MW-12

Analysis: Pb, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR

Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A
QC Batch: 10666 Date Analyzed: 2004-06-25 Analyzed By: BP
Prep Batch: 9412 Date Prepared: 2004-06-25 Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.3	mg/L	0.1	150	89	81.8 - 161

Sample: 37542 - MW-12

Analysis: Volatiles Analytical Method: S 8260B Prep Method: S 5030B
QC Batch: 10797 Date Analyzed: 2004-07-01 Analyzed By: JG
Prep Batch: 9550 Date Prepared: 2004-07-01 Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		11.4	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00

continued ...

sample 37542 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		1.79	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		5.38	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		53.6	µg/L	1	50.0	107	70 - 130
Toluene-d8		50.6	µg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		43.0	µg/L	1	50.0	86	70 - 130

Sample: 37543 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		355	mg/L	10	0.500

Sample: 37543 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.166	mg/L	1	0.00500

Sample: 37544 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		258	mg/L	10	0.500

Sample: 37544 - MW-14

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.00500

Sample: 37545 - MW-15

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		127	mg/L	10	0.500

Sample: 37545 - MW-15

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0470	mg/L	1	0.0100

Sample: 37546 - MW-16

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		235	mg/L	10	0.500

Sample: 37546 - MW-16

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37546 - MW-16

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.4	mg/L	0.1	150	89	81.8 - 161

Sample: 37546 - MW-16

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00

continued ...

sample 37546 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		2.45	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.32	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00

continued ...

sample 37546 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.5	µg/L	1	50.0	109	70 - 130
Toluene-d8		51.0	µg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		43.4	µg/L	1	50.0	87	70 - 130

Sample: 37547 - MW-17

Analysis: As, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		0.0390	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis: Ba, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.100	mg/L	1	0.0100

Sample: 37547 - MW-17

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		224	mg/L	10	0.500

Sample: 37547 - MW-17

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.173	mg/L	1	0.0250

Sample: 37547 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.1	mg/L	0.1	150	88	81.8 - 161

Sample: 37547 - MW-17

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		15.4	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.91	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		8.84	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00

continued ...

sample 37547 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.0	μg/L	1	50.0	108	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		42.4	μg/L	1	50.0	85	70 - 130

Sample: 37548 - MW-18

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0660	mg/L	1	0.0100

Sample: 37548 - MW-18

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A

QC Batch: 10707 Date Analyzed: 2004-06-29 Analyzed By: JT
Prep Batch: 9469 Date Prepared: 2004-06-28 Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		291	mg/L	10	0.500

Sample: 37548 - MW-18

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0170	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis: Mn, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37548 - MW-18

Analysis: Pb, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A
QC Batch: 10666 Date Analyzed: 2004-06-25 Analyzed By: BP
Prep Batch: 9412 Date Prepared: 2004-06-25 Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.6	mg/L	0.1	150	91	81.8 - 161

Sample: 37548 - MW-18

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		7.19	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.11	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.10	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		4.33	μg/L	1	1.00

continued ...

sample 37548 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.3	μg/L	1	50.0	109	70 - 130
Toluene-d8		50.9	μg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		42.6	μg/L	1	50.0	85	70 - 130

Sample: 37549 - On-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		236	mg/L	10	0.500

Sample: 37549 - On-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A

QC Batch: 10922 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Method Blank (1) QC Batch: 10666

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.8	mg/L	0.1	150	92	81.8 - 161

Method Blank (1) QC Batch: 10678

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10707

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10797

Parameter	Flag	Result	Units	RL
Bromochloromethane	1	<1.00	μg/L	1
Dichlorodifluoromethane	2	<1.00	μg/L	1
Chloromethane (methyl chloride)	3	<1.00	μg/L	1
Vinyl Chloride	4	<1.00	μg/L	1
Bromomethane (methyl bromide)	5	<5.00	μg/L	5
Chloroethane	6	<1.00	μg/L	1
Trichlorofluoromethane	7	<1.00	μg/L	1
Acetone	8	<10.0	μg/L	10

continued ...

[1] Acrolein <5.00 μg/L
[2] Allyl Chloride <1.00 μg/L
[3] Vinyl Acetate <5.00 μg/L
[4] Chloroprene <1.00 μg/L
[5] Propionitrile <1.00 μg/L
[6] Methacrylonitrile <1.00 μg/L
[7] Methyl methacrylate <1.00 μg/L
[8] Isobutyl Alcohol <5.00 μg/L

method blank continued ...

Parameter	Flag	Result	Units	RL
Iodomethane (methyl iodide)	9	<5.00	μg/L	5
Carbon Disulfide	10	<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1

continued ...

[9] Ethyl methacrylate <1.00 μg/L
[10] Acetonitrile <5.00 μg/L

method blank continued . . .

Parameter	Flag	Result	Units	RL
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.0	μg/L	1	50.0	104	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		44.7	μg/L	1	50.0	89	70 - 130

Method Blank (1) QC Batch: 10921

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.00500	mg/L	0.005

Laboratory Control Spike (LCS-1) QC Batch: 10666

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.9	22.9	mg/L	0.1	250	<0.538	92	0	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	14.0	13.8	mg/L	0.1	150	93	92	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 10678

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.2	mg/L	1	12.5	<0.337	90	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10707

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.5	12.4	mg/L	1	12.5	<0.337	92	8	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10797

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	106	109	μg/L	1	100	<0.136	106	3	70 - 130	20
Benzene	105	104	μg/L	1	100	<0.146	105	1	70 - 130	20
Trichloroethene (TCE)	104	104	μg/L	1	100	0.14	104	0	70 - 130	20
Toluene	102	101	μg/L	1	100	0.19	102	1	70 - 130	20
Chlorobenzene	104	104	μg/L	1	100	<0.0540	104	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.7	51.4	μg/L	1	50.0	101	103	70 - 130
Toluene-d8	50.2	49.9	μg/L	1	50.0	100	100	70 - 130
4-Bromofluorobenzene (4-BFB)	47.6	45.6	μg/L	1	50.0	95	91	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 10921

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.538	0.488	mg/L	1	0.500	<0.00489	108	10	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.04	1.04	mg/L	1	1.00	<0.000450	104	0	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.270	0.271	mg/L	1	0.250	<0.000297	108	0	85 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

continued ...

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.479	0.503	mg/L	1	0.500	<0.00698	96	5	86.1 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10678

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1200	1200	mg/L	50	12.5	664	86	0	74.3 - 118	20
Chloride	1200	1200	mg/L	50	12.5	664	86	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10707

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	951	956	mg/L	50	12.5	379	92	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10921

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.105	mg/L	1	0.100	<0.00357	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.488	0.504	mg/L	1	0.500	<0.00489	98	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.05	1.05	mg/L	1	1.00	<0.000450	105	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.108	mg/L	1	0.100	<0.00357	106	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.274	0.274	mg/L	1	0.250	<0.000297	110	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.488	0.508	mg/L	1	0.500	<0.00698	98	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 10666

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	224	89	68 - 140	2004-06-25

Standard (CCV-1) QC Batch: 10666

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	230	92	68 - 140	2004-06-25

Standard (ICV-1) QC Batch: 10678

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-28

Standard (CCV-1) QC Batch: 10678

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-28

Standard (ICV-1) QC Batch: 10707

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-29

Standard (CCV-1) QC Batch: 10707

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.4	107	90 - 110	2004-06-29

Standard (CCV-1) QC Batch: 10797

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	46.1	92	80 - 120	2004-07-01
1,1-Dichloroethene		μg/L	50.0	52.4	105	80 - 120	2004-07-01
Chloroform		μg/L	50.0	51.1	102	80 - 120	2004-07-01
1,2-Dichloropropane		μg/L	50.0	53.3	107	80 - 120	2004-07-01
Toluene		μg/L	50.0	52.3	105	80 - 120	2004-07-01
Chlorobenzene		μg/L	50.0	52.5	105	80 - 120	2004-07-01
Ethylbenzene		μg/L	50.0	55.7	111	80 - 120	2004-07-01

Standard (ICV-1) QC Batch: 10921

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10921

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.963	96	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.02	102	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.02	102	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.979	98	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.958	96	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.958	96	90 - 110	2004-07-08

Page 1 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062518

Company Name: Nova Safety + Environmental

Phone #: 432-~~[illegible]~~ 520 - 7720

Address: (Street, City, Zip) 5023 Commerce Midland TX 79703

Fax #: 432-520-7701

Contact Person: Todd Choban

Invoice to:
(If different from above)

Project #: CH 2100

Project Name: Champion

Project Location: Hobbs

Sampler Signature: [signature]

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides, Chromium	Cr	lead, Arsenic, Barium, Arsenic	Remarks	Turn Around Time if different from standard	Hold
37532	mw-1	2		X								X		6-24	1015																X					
33	mw-2	2		X								X		6-24	1153																X					
34	mw-3	2		X								X		6-24	1140																X					
35	mw-4	2		X								X		6-24	1241																X					
36	mw-5	2		X								X		6-24	1310																X					
37	mw-7	2		X								X		6-24	957																X					
38	mw-8	2		X								X		6-24	1038																X					
39	mw-9	2		X								X		6-24	1028																X					
40	mw-10	2		X								X		6-24	1341																X					
41	mw-11	5		X								X		6-24	1050			X													X	X	X	*		
42	mw-12	5		X								X		6-24	1107			X													X	X	X	*		

Relinquished by: [signature] Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: [signature] Date: 6-25-04 Time: 11:07

LAB USE ONLY
Intact Y N
Headspace Y N
Temp 2°c
Log-in Review [initials]

REMARKS: Please Filter all metals
* Prior to Analysis.
Only run wells 11, 12, 16, 18 for metals if detected in mw-17.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM+O 903-069 138-4

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Report Date: August 20, 2004
CH 2100

Work Order: 4062518
Champion

Page Number: 33 of 34
Hobbs

Page 2 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062518

Company Name: Nova Safety + Environmental
Phone #: 432-520-7720
Address: (Street, City, Zip) 5023 Commerce Midland Tx 79703
Fax #: 432-520-7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chlorides Chromium	Ion	Lead Arsenic Barium Manganese	Remarks	Turn Around Time if different from standard	Hold
37547	mw-13	2		X										6-24	1207																X					
44	mw-14	2		X										6-24	1257																X					
45	mw-15	2		X										6-24	947																X					
46	mw-16	5		X										6-24	1127			X													X	X	X	*		
47	mw-17	5		X										6-24	1329			X													X	X	X	*		
48	mw-18	5		X										6-24	1115			X													X	X	X			
49	On-Site Domestic	2		X										6-24	1357																X					
	~~Off-Site Domestic~~			~~X~~										~~6-24~~																	~~X~~					

Relinquished by: Date: 6-24-04 Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Vicki Dlenz Date: 6-25-04 Time: 11:07

LAB USE ONLY
Intact (Y) / N
Headspace Y / (N)
Temp 2°C
Log-in Review

REMARKS: * Please filter all metals prior to analysis.
Only run wells 11, 12, 16, 18 for metals if detected in mw-17.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNMan 903-069-138.4

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: July 9, 2004

Work Order: 4062806

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
37579	Off-Site Domestic	water	2004-06-25	13:25	2004-06-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 37579 - Off-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10896	Date Analyzed:	2004-07-06	Analyzed By:	JT
Prep Batch:	9635	Date Prepared:	2004-07-06	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		397	mg/L	10	0.500

Sample: 37579 - Off-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Method Blank (1) QC Batch: 10896

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10896

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	71.5	71.4	mg/L	5	12.5	12.4	94	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.108	mg/L	1	0.100	<0.00357	106	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 10896

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-07-06

Standard (CCV-1) QC Batch: 10896

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-07-06

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Page____of____

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062806

Company Name: Nova Safety + Environmental
Phone #: 432-520-7720
Address: (Street, City, Zip) 2053 Commerce Midland TX
Fax #: 432-520-7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE		SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides, Chromium					Turn Around Time if different from standard	Hold
37579	Off-Site Domestic	2		X									X			6-25	1325																X						

Relinquished by: Date: 6-25-04 Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Melissa Wayland Date: 6/26/04 Time: 9:40AM

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 3°
Log-in Review MW

REMARKS: Filter all metals prior to analysis.

☐ Check If Special Reporting Limits Are Needed

Carrier # Bus 903 069 143 9

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Report Date: July 9, 2004
CH 2100

Work Order: 4062806
Champion

Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: November 9, 2004

Work Order: 4100807

Project Location: Hobbs
Project Name: Champion
Project Number: Champion

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
45351	MW-1	water	2004-10-05	13:50	2004-10-08
45352	MW-2	water	2004-10-05	14:40	2004-10-08
45353	MW-3	water	2004-10-05	15:35	2004-10-08
45354	MW-4	water	2004-10-05	16:30	2004-10-08
45355	MW-5	water	2004-10-05	17:28	2004-10-08
45356	MW-7	water	2004-10-06	16:01	2004-10-08
45357	MW-8	water	2004-10-06	12:22	2004-10-08
45358	MW-9	water	2004-10-06	17:42	2004-10-08
45359	MW-10	water	2004-10-06	18:36	2004-10-08
45360	MW-11	water	2004-10-06	13:10	2004-10-08
45361	MW-12	water	2004-10-06	10:28	2004-10-08
45362	MW-13	water	2004-10-06	15:18	2004-10-08
45363	MW-14	water	2004-10-05	18:33	2004-10-08
45364	MW-15	water	2004-10-06	16:55	2004-10-08
45365	MW-16	water	2004-10-06	14:15	2004-10-08
45366	MW-17	water	2004-10-06	09:15	2004-10-08
45367	MW-18	water	2004-10-06	11:33	2004-10-08
45368	Onsite Domestic	water	2004-10-06	18:57	2004-10-08
45369	Offsite Domestic	water	2004-10-06	19:23	2004-10-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 35 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 45351 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		447	mg/L	50	0.500

Sample: 45351 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 45352 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		331	mg/L	50	0.500

Sample: 45352 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0390	mg/L	1	0.00500

Sample: 45353 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		302	mg/L	50	0.500

Sample: 45353 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.00800	mg/L	1	0.00500

Sample: 45354 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		348	mg/L	50	0.500

Sample: 45354 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.161	mg/L	1	0.00500

Sample: 45355 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		348	mg/L	50	0.500

Sample: 45355 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR

Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0100	mg/L	1	0.00500

Sample: 45356 - MW-7

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13297 Date Analyzed: 2004-10-13 Analyzed By: WB
Prep Batch: 11749 Date Prepared: 2004-10-13 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		288	mg/L	50	0.500

Sample: 45356 - MW-7

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 13360 Date Analyzed: 2004-10-18 Analyzed By: RR
Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 45357 - MW-8

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13297 Date Analyzed: 2004-10-13 Analyzed By: WB
Prep Batch: 11749 Date Prepared: 2004-10-13 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		881	mg/L	100	0.500

Sample: 45357 - MW-8

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 13360 Date Analyzed: 2004-10-18 Analyzed By: RR
Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.00500

Sample: 45358 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		265	mg/L	50	0.500

Sample: 45358 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45359 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		331	mg/L	50	0.500

Sample: 45359 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.0100

Sample: 45360 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		177	mg/L	10	0.500

Sample: 45360 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45360 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.6	mg/L	0.1	150	97	81.8 - 161

Sample: 45360 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		3.62	μg/L	1	1.00

continued ...

sample 45360 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.6	μg/L	1	50.0	105	70 - 130
Toluene-d8		49.1	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		45.7	μg/L	1	50.0	91	70 - 130

Sample: 45361 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	50	0.500

Sample: 45361 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0190	mg/L	1	0.0100

Sample: 45361 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.3	mg/L	0.1	150	82	81.8 - 161

Sample: 45361 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00

continued ...

sample 45361 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		18.0	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.08	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		2.41	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		8.77	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00

continued ...

sample 45361 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.6	μg/L	1	50.0	109	70 - 130
Toluene-d8		48.5	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		44.5	μg/L	1	50.0	89	70 - 130

Sample: 45362 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		400	mg/L	50	0.500

Sample: 45362 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.199	mg/L	1	0.0100

Sample: 45363 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A

sample 45365 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.22	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		56.7	μg/L	1	50.0	113	70 - 130
Toluene-d8		49.5	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		44.2	μg/L	1	50.0	88	70 - 130

Sample: 45366 - MW-17

Analysis: As, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 13620 | Date Analyzed: 2004-10-28 | Analyzed By: RR
Prep Batch: 11886 | Date Prepared: 2004-10-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis: Ba, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 13620 | Date Analyzed: 2004-10-28 | Analyzed By: RR
Prep Batch: 11886 | Date Prepared: 2004-10-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.102	mg/L	1	0.100

Sample: 45366 - MW-17

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 13295 | Date Analyzed: 2004-10-13 | Analyzed By: WB
Prep Batch: 11750 | Date Prepared: 2004-10-13 | Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		328	mg/L	50	0.500

Sample: 45366 - MW-17

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 13620 | Date Analyzed: 2004-10-28 | Analyzed By: RR
Prep Batch: 11886 | Date Prepared: 2004-10-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.135	mg/L	1	0.0250

Sample: 45366 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.5	mg/L	0.1	150	97	81.8 - 161

Sample: 45366 - MW-17

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00

continued . . .

sample 45366 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		28.9	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		1.31	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		3.65	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		15.9	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00

continued . . .

sample 45366 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.4	μg/L	1	50.0	109	70 - 130
Toluene-d8		49.0	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		44.2	μg/L	1	50.0	88	70 - 130

Sample: 45367 - MW-18

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		349	mg/L	50	0.500

Sample: 45367 - MW-18

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0250	mg/L	1	0.0100

Sample: 45367 - MW-18

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		16.2	mg/L	0.1	150	108	81.8 - 161

Sample: 45367 - MW-18

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		6.64	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.17	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		4.18	μg/L	1	1.00

continued ...

sample 45367 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.3	μg/L	1	50.0	109	70 - 130
Toluene-d8		49.1	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		43.7	μg/L	1	50.0	87	70 - 130

Sample: 45368 - Onsite Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		254	mg/L	10	0.500

Sample: 45368 - Onsite Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A

QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45369 - Offsite Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		383	mg/L	50	0.500

Sample: 45369 - Offsite Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 13186

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	2	11.8	mg/L	0.1	150	79	81.8 - 161

Method Blank (1) QC Batch: 13261

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1

continued ...

[2]Surrogate recovery out of control chart range but within method limits.

method blank continued...

Parameter	Flag	Result	Units	RL
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1

continued...

method blank continued . . .

Parameter	Flag	Result	Units	RL
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.0	μg/L	1	50.0	102	70 - 130
Toluene-d8		49.6	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		46.6	μg/L	1	50.0	93	70 - 130

Method Blank (1) QC Batch: 13295

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13297

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13298

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13360

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.100	mg/L	0.1

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13731

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	RL
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5

continued . . .

method blank continued . . .

Parameter	Flag	Result	Units	RL
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		55.4	µg/L	1	50.0	111	70 - 130
Toluene-d8		49.3	µg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		44.8	µg/L	1	50.0	90	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 13186

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.9	24.1	mg/L	0.1	250	<0.538	92	5	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	3	12.0	12.6	mg/L	0.1	150	80	84	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 13261

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	104	104	µg/L	1	100	<0.136	104	0	70 - 130	20
Benzene	96.5	95.7	µg/L	1	100	0.15	96	1	70 - 130	20
Trichloroethene (TCE)	104	104	µg/L	1	100	<0.117	104	0	70 - 130	20
Toluene	99.9	98.9	µg/L	1	100	0.09	100	1	70 - 130	20
Chlorobenzene	101	99.0	µg/L	1	100	<0.0540	101	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	52.9	51.4	µg/L	1	50.0	106	103	70 - 130
Toluene-d8	51.1	50.5	µg/L	1	50.0	102	101	70 - 130
4-Bromofluorobenzene (4-BFB)	48.6	48.5	µg/L	1	50.0	97	97	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 13295

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	11.9	mg/L	1	12.5	<0.337	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[3] Surrogate recovery out of control chart range but within method limits.

Laboratory Control Spike (LCS-1) QC Batch: 13297

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.8	mg/L	1	12.5	<0.337	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13298

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.9	mg/L	1	12.5	<0.337	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13360

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0960	0.0960	mg/L	1	0.100	<0.00357	96	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.523	0.525	mg/L	1	0.500	<0.00860	105	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.07	1.08	mg/L	1	1.00	<0.000984	107	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.109	0.110	mg/L	1	0.100	<0.000437	109	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.264	0.267	mg/L	1	0.250	<0.00296	106	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.550	0.556	mg/L	1	0.500	<0.00310	110	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13731

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	93.8	93.9	μg/L	1	100	<0.136	94	0	70 - 130	20
Benzene	95.0	95.4	μg/L	1	100	0.18	95	0	70 - 130	20
Trichloroethene (TCE)	89.6	90.7	μg/L	1	100	<0.117	90	1	70 - 130	20
Toluene	92.1	93.0	μg/L	1	100	0.13	92	1	70 - 130	20
Chlorobenzene	92.8	92.5	μg/L	1	100	<0.0540	93	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	53.2	53.8	μg/L	1	50.0	106	108	70 - 130
Toluene-d8	50.5	50.1	μg/L	1	50.0	101	100	70 - 130
4-Bromofluorobenzene (4-BFB)	46.7	46.2	μg/L	1	50.0	93	92	70 - 130

Matrix Spike (MS-1) QC Batch: 13295 Spiked Sample: 45734

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	68.3	67.7	mg/L	5	12.5	10.1	93	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13297 Spiked Sample: 45365

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	836	842	mg/L	50	12.5	249	94	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13298 Spiked Sample: 45355

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	917	957	mg/L	50	12.5	348	91	4	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13360 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.0950	mg/L	1	0.100	<0.00357	101	6	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.537	0.532	mg/L	1	0.500	<0.00860	107	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.01	1.01	mg/L	1	1.00	<0.000984	101	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.101	mg/L	1	0.100	<0.000437	101	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.249	0.251	mg/L	1	0.250	<0.00296	100	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.514	0.516	mg/L	1	0.500	<0.00310	103	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 13186

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	229	92	68 - 140	2004-10-11

Standard (CCV-1) QC Batch: 13186

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	228	91	68 - 140	2004-10-11

Standard (CCV-1) QC Batch: 13261

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.8	98	80 - 120	2004-10-11
1,1-Dichloroethene		μg/L	50.0	49.4	99	80 - 120	2004-10-11
Chloroform		μg/L	50.0	50.1	100	80 - 120	2004-10-11
1,2-Dichloropropane		μg/L	50.0	52.5	105	80 - 120	2004-10-11
Toluene		μg/L	50.0	52.0	104	80 - 120	2004-10-11
Chlorobenzene		μg/L	50.0	52.9	106	80 - 120	2004-10-11
Ethylbenzene		μg/L	50.0	56.2	112	80 - 120	2004-10-11

Standard (ICV-1) QC Batch: 13295

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13295

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13297

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13297

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13298

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13298

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13360

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-10-18

Standard (CCV-1) QC Batch: 13360

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.03	103	90 - 110	2004-10-18

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.993	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.990	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.992	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.990	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.993	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.989	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13731

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.6	97	80 - 120	2004-11-01
1,1-Dichloroethene		μg/L	50.0	52.0	104	80 - 120	2004-11-01
Chloroform		μg/L	50.0	51.1	102	80 - 120	2004-11-01
1,2-Dichloropropane		μg/L	50.0	53.3	107	80 - 120	2004-11-01
Toluene		μg/L	50.0	53.0	106	80 - 120	2004-11-01
Chlorobenzene		μg/L	50.0	52.1	104	80 - 120	2004-11-01
Ethylbenzene		μg/L	50.0	54.1	108	80 - 120	2004-11-01

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Tel (915) 585-3443
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4100807

Company Name: Nova Safety & Environmental
Phone #: 432 520 7720
Address: (Street, City, Zip) ~~[illegible]~~ 2057 Commerce Midland TX
Fax #: 432 520 7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #:
Project Name: Champion
Project Location: Hobbs
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
45351	MW-1	2		X								X		10/5	150
52	MW-2	2		X								X		10/5	240
53	MW-3	2		X								X		10/5	335
54	MW 4	2		X								X		10/5	430
55	MW-5	2		X								X		10/5	528
56	MW-7	2		X								X		10/6	401
57	MW-8	2		X								X		10/6	1222
58	MW-9	2		X								X		10/6	542
59	MW-10	2		X								X		10/6	636
60	MW-11	7		X								X		10/6	110
61	MW-12	7		X								X		10/6	1024

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	[illegible]	VOC	Lead, Arsenic, Barium, Magnesium	Chromium, chlorides	Remarks	Turn Around Time if different from standard	Hold
45351																			X			
52																						
53																						
54																						
55																						
56																						
57																						
58																						
59																						
60			X														X	X		X		
61			X														X	X	V	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	10-7-04	9:24			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki [signature]	10-8-04	9:42

LAB USE ONLY
Intact (Y) / N
Headspace Y / (N)
Temp 2°C
Log-in Review [initials]

REMARKS:
Please Filter metals prior to Analysis Only run wells 11,12,16,18 If detected in MW 17

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM+O 903 260-727-6

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Page 2 of 2

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4100807

Company Name: Nova
Phone #: 432 520 7720
Address: (Street, City, Zip) 2057 Commerce
Fax #: 432 520 7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #:
Project Name: Champion
Project Location: Hobbs N.M.
Sampler Signature: [signature]

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chromium/chlorides	VOC's	Lead, Arsenic, Barium, Magnesium	Ammonia	Turn Around Time if different from standard	Hold
45362	MW-13	2		X								X		10/6	318																X					
63	MW-14	2												10/5	633																					
64	MW-15	2												10/6	455																					
65	MW-16	7												10/6	215			X														X	X	X		
66	MW-17	7												10/6	915			X														X	X	X		
67	MW-18	7												10/6	1133			X														X	X	X		
68	onsite domestic	2												10/6	657																					
69	offsite domestic	2												10/6	733																					

Relinquished by: [signature] Date: 10-7-04 Time: 9:24
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki [signature] Date: 10-8-04 Time: 9:42

LAB USE ONLY
Intact (Y) N
Headspace Y / (N)
Temp 2°C
Log-in Review [initials]

REMARKS: please filter prior to Analysis. Only run wells 11, 12, 16, 18 if detected in MW 17

☐ Check If Special Reporting Limits Are Needed

Carrier # TNMTO 903-260-727-6

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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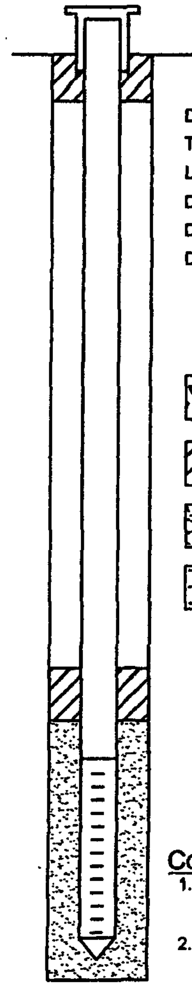
Attachment 4
Monitor Wells, Soil Boring, Piezometer Boring Logs and Completion Details

Piezometer P-1

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0			None	None	Caliche / sand / soil fill material
		0.0	None	None	Caliche: grayish orange, soft, sandy, damp
					Very pale orange, dry at 8'
10		0.0	None	None	
		0.0	None	None	
20		0.0	None	None	
					Hard at 22' - 24'
		0.0	None	None	
30		0.0	None	None	Grayish orange, soft at 30'
		0.0	None	None	Grayish orange, moderately hard, dry at 35'
40		0.0	None	None	
		0.0	None	None	Coarse sand to fine gravel: very pale orange to grayish orange pink, hard, poorly sorted, moderately dense
50		0.0	None	None	Caliche: very pale orange, very hard, dry, moderately sorted
					Platy at 49'
		0.0	None	None	Sand: light brown, very fine grained, well sorted, damp, loose
60		0.0	None	None	
			None	None	
70	TD		None	None	
80					



Piezometer Details

Date Drilled 11-18-03

Thickness of Bentonite Seal 4 ft

Length of PVC Well Screen 15 ft

Depth of PVC Well 68 ft

Depth of Exploratory Well 70 ft

Depth to Groundwater 58 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The Piezometer was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The Piezometer was completed as a temporary monitor well with a temporary surface seal
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Piezometer Log Details

P-1

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

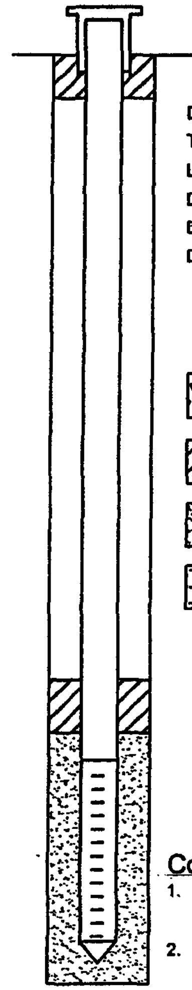
NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS	Checked By: RE
December 30, 2003	

Piezometer P-2

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		0.0	None	None	Caliche / sand / soil fill material
		0.0	None	None	Caliche: moderately brown, soft, damp
10		0.0	None	None	
					Caliche: very pale orange, moderately hard, dry
		0.0	None	None	
20		0.0	None	None	Increasing hardness at 20'
		0.0	None	None	Grayish orange, moderately hard to hard at 25'
30		0.0	None	None	
		0.0	None	None	
					Caliche: grayish orange, moderately hard to hard, dry
40		0.0	None	None	
		0.0	None	None	
50		0.0	None	None	
					Caliche: very pale orange, very hard, dry, platy
		0.0	None	None	Sand: light brown, very fine grained, well sorted, damp
▼		0.0			
60		0.0	None	None	
		0.0	None	None	
70	TD	0.0	None	None	
80					



Piezometer Details

Date Drilled 11-18-03
Thickness of Bentonite Seal 4 ft
Length of PVC Well Screen 15 ft
Depth of PVC Well 68 ft
Depth of Exploratory Well 70 ft
Depth to Groundwater 58 ft

Grout Surface Seal
Bentonite Pellet Seal
Sand Pack
Screen

▼ Indicates the groundwater level measured on date.
⬭ Indicates samples selected for laboratory submittal.
PID *Head-space reading in ppm obtained with a photo-ionization detector.*

Completion Notes

1. The Piezometer was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The Piezometer was completed as a temporary monitor well with a temporary surface seal
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Piezometer Log Details

P-2

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

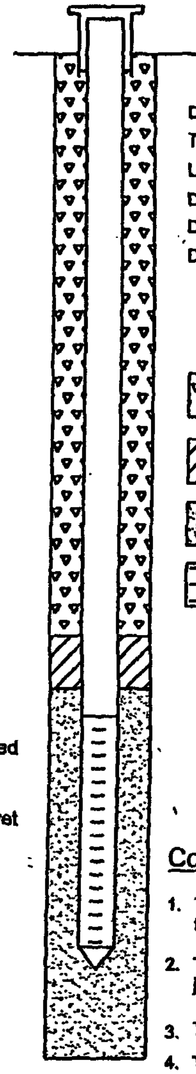
Prep By: CS | Checked By: RE

December 30, 2003

Monitor Well MW-18

Depth (feet)	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		None	None	Caliche / sand / soil fill material
	0.0	None	None	Caliche: grayish orange, soft, damp, trace of sand
10	0.0	None	None	
	0.0	None	None	Color change to pale orange at 15'
20	0.0	None	None	Sand drops out at 20'
	0.0	None	None	
30	0.0	None	None	
	0.0	None	None	Caliche: very pale orange, moderately hard
40	0.0	None	None	Caliche: grayish orange, moderately hard, slightly sandy
	0.0	None	None	
50	0.0	None	None	Caliche: very pale orange to white, hard, dry
	0.0	None	None	Sandy caliche: very pale orange, moderately hard, very fine grained sand
60	0.0	None	None	Sand: light brown, very fine grained, well sorted, loose, damp to wet
	0.0	None	None	
70				
80				

Soil Columns — TD



Monitor Well Log Details

Date Drilled 11-17-03
Thickness of Bentonite Seal 4 ft
Length of PVC Well Screen 20 ft
Depth of PVC Well 69.2 ft
Depth of Exploratory Well 78 ft
Depth to Groundwater 59 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitor well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Monitor Well Log Details
MW-18
Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC

December 30, 2003

Soil Boring SB-65

Date Drilled 11-18-03

Depth (feet)	Soil Columns	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0					Caliche: grayish orange, soft, damp
			None	None	
10			None	None	
					Sandy, moderately reddish orange at 12'
			None	None	Caliche: white, moderately hard, dry
20			None	None	
			None	None	Very pale orange
					Grayish orange
30			None	None	
			None	None	Caliche: grayish orange, moderately hard, dry
					Caliche: very pale orange, hard, dry
40			None	None	
			None	None	
					Caliche: very pale orange, very hard, dry
					Caliche: grayish orange, moderatly hard to hard, dry, sandy
50			None	None	Caliche: grayish orange, very hard, dry
	TD				Sand: light brown, very fine grained, well sorted, sub angular/rounded, loose, damp to moist
60					
70					
80					

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

The soil borinbg was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-65

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS

Checked By: TKC

December 30, 2003

Soil Boring SB-66

Date Drilled 11-20-03

Depth (feet)	Soil Columns	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0					Asphalt / sand / caliche / soil fill material
			None	None	Caliche: light brown, soft, damp
					Caliche: very pale orange, soft, damp
10			None	None	
			None	None	
20		⬭	None	None	
					hard at 22'
			None	None	Caliche: very pale orange, moderately hard, dry, slightly sandy
30			None	None	
			None	None	
					Caliche: grayish orange, moderately hard, slightly sandy
40			None	None	
		⬭	None	None	Sand: grayish orange, very fine to fine grained, moderately sorted, loose
					Caliche: very pale orange to white, very hard, dry
50			None	None	Sand: light brown, very fine grained, well sorted, loose, damp
					Caliche: very pale orange to white, very hard, dry
	TD	⬭			Sand: light brown, very fine grained, well sorted, loose, damp
60					
70					
80					

▼ Indicates the groundwater level measured on date.

⬭ Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Sopil Boring Log Details

SB-66

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC

December 30, 2003

Soil Boring SB-67

Depth (feet)	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0				Asphalt / sand / caliche / soil fill material
		None	None	Caliche: very pale orange, soft, damp
10		None	None	Moderately hard at 10'
		None	None	
20	⬭	None	None	
				Hard at 22'
		None	None	Caliche: grayish orange, moderately hard, dry, slightly sandy to 35'
30		None	None	
		None	None	
40		None	None	
	⬭	None	None	Sand: grayish orange, very fine to fine grained, moderately sorted, loose
				Caliche: very pale orange to white, very hard, dry
50		None	None	Sand: light brown, very fine grained, well sorted, loose, damp
				Caliche: very pale orange to white, very hard, dry
TD	⬭			Sand: light brown, very fine grained, well sorted, loose, damp
60				
70				
80				

Date Drilled 11-20-03

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-67

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC

December 30, 2003

Soil Boring SB-68

Date Drilled 11-20-03

Depth (feet)	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0				Asphalt / sand / caliche / soil fill material
		None	None	Caliche: very pale orange, soft, damp
10		None	None	
		None	None	
20	⬭	None	None	Slightly sandy at 20 to 25' Moderately hard to hard at 20'
		None	None	
30		None	None	Caliche: grayish orange, moderately hard to hard, dry
		None	None	
40	⬭	None	None	
		None	None	Caliche: very pale orange to white, very hard, dry
50		None	None	
TD	⬭			Caliche: light brown, very fine grained, well sorted, subangular to rounded, loose, moist
60				
70				
80				

▼ Indicates the groundwater level measured on date.

⬭ Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-68

Champion Technologies, Inc. Hobbs Facility — Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS	Checked By: TKC
December 30, 2003	

Attachment 5
Report on the Slug Test and Pump Test

Report on the Slug Test and Pump Test Results for the Champion Technologies Facility, Hobbs, New Mexico

Prepared For:

Champion Technologies
GW-199
4001 South Highway 18
Hobbs (Lea County), New Mexico

August 7, 2003

Table of Contents

List of Figures

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Section 1.0 Introduction

Tests were performed at the Champion Technologies (Champion) Hobbs, Lea County, New Mexico facility to determine the continuity of the hydraulic conductivity, and perform an accurate test to discern the hydraulic conductivity of the aquifer present at the site. To determine the continuity of the hydraulic conductivity and to establish initial pumping rates for the planned pump test, slug tests were performed. A pump test was also performed after the slug tests to establish the hydraulic conductivity of the aquifer.

The slug test and pump test data collected was then evaluated and analyzed to determine the resultant hydraulic conductivities. The software used to perform the data analyses was AquiferTest version 3.5, a product of Waterloo Hydrogeologic Incorporated. Significant discussion of the methodology used will not be presented below, however good references for the test, data processing, and groundwater issues are: The Design, Performance, and Analysis of Slug Tests, Butler, 1997; AquiferTest User's Mannual, Waterloo Hydrogeologic, Inc., 2002; Goundwater, Freeze and Cherry, 1979; and, Applied Hydrology, Fetter, 1988.

Section 2.0 Slug Tests

Slug tests were performed September 8, 2003 on monitoring wells MW-7, MW-9, MW-12, MW-13, MW-14, and MW-15. The process for the slug tests was as follows; the well was gauged for depth to water level and total depth of the well. A transducer was installed approximately six inches to one foot above the bottom of the well, and a constructed slug was installed in the well approximately six inches below the static water surface. The water level in the well was then allowed to re-equilibrate to static level as measured by hand gauging. Recording of the pressure by the transducer was completed to establish a baseline for the test. When it was confirmed that a baseline was established the slug was removed immediately from the well by pulling up forcefully. The test was then recorded by the transducer and checked by hand gauging the depth to water in the well until the water level rose to static level measured at the beginning of the test. The transducer, cable, slug, and water level meter and tape were then decontaminated.

The slug was constructed from two inch schedule 40 polyvinyl chloride (PVC) pipe five feet seven inches long. The ends of the pipe were capped and it was filled with sand. A rope was connected to one end of the slug for it to be lowered and raised from the well casing. The slug was calculated to displace 1.97 ft (feet) of water in a four inch PVC monitor well casing.

The resultant data from the tests were then plotted as time versus change in water level for initial evaluation purposes. An example of a time versus change in water level plot is depicted in Figure 1 for the slug test on monitor well MW-7. The data were then plotted as the ratio of the head to the initial head (h/h_0) versus time and a Bouwer and Rice fit was performed on the data. Figure 2 through Figure 6 display Bouwer and Rice fits to the slug test data for monitor wells MW-7, MW-9, MW-12, MW-13, MW-14, and MW-15.

Section 2.1 Slug Test on Monitor Well MW-7

Monitor well MW-7 was gauged for depth to water to establish the static water level and total depth at 10:15 hours. The depth to static water level was gauged to be 54.49 ft and total depth of the well was gauged as 62.05 ft. After installing the transducer, the slug was lowered into the well at 10:25 hours. At 10:37 hours the water level was measured to have returned to the static water level. At 10:40 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus the change in water level (feet) as displayed in Figure 1. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data as displayed on Figure 2. The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-7 as 3.09 ft/d (feet per day).

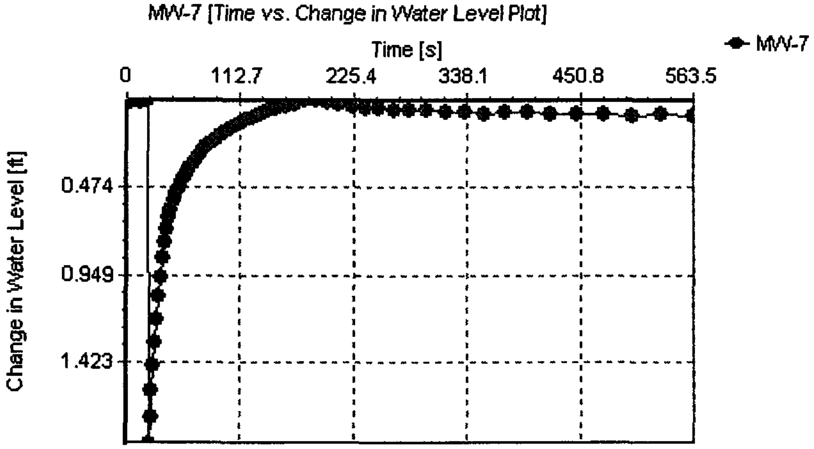
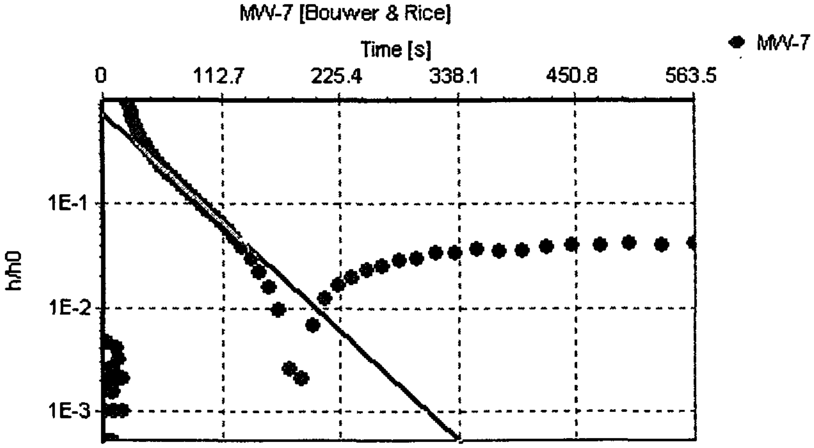


Figure 1: Time (seconds) versus the change in water level plot for the slug test performed on monitor well MW-7. The sharp downward spike depicted on the plot is where the slug was pulled from the well. The water level equilibrated back to the static water level approximately 170 seconds (2.8 minutes) after the slug was pulled from the casing.



Conductivity: 3.09E+0 ft/d

Figure 2: Bouwer and Rice fit to the slug test data from monitor well MW-7. The data is plotted as the ratio of the head to the initial head (h/h_0) versus time in seconds.

Section 2.2 Slug Test on Monitor Well MW-9

Monitor well MW-9 was gauged for depth to water to establish the static water level and total depth at 15:00 hours. The depth to static water level was gauged to be 54.52 ft and total depth of the well was gauged as 61.90 ft. After emplacing the transducer, the slug was lowered into the well at 15:09 hours. At 15:15 hours the water level was measured to have returned to the static water level. At 15:18 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus change in water level (feet) and evaluated. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data as displayed on Figure 3. The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-9 as 1.7 ft/d (feet per day).

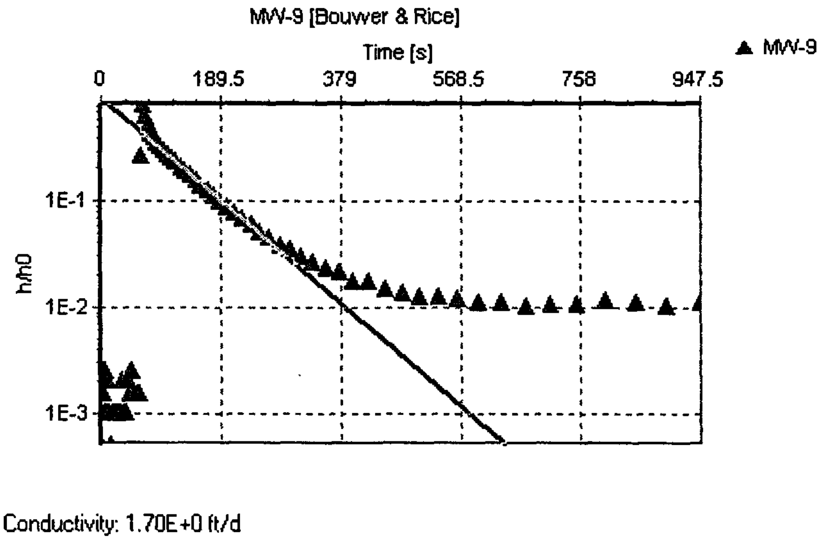
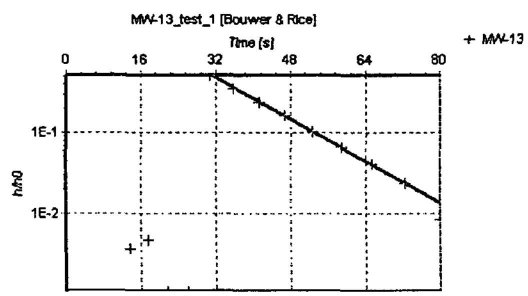


Figure 3: Bouwer and Rice fit to the slug test data from monitor well MW-9. The data is plotted as the ratio of the head to the initial head (h/h_0) versus time in seconds.

Section 2.3 Slug Tests on Monitor Well MW-13

Two slug tests were performed on monitor well MW-13. At 11:10 hours monitor well MW-13 was gauged for depth to the static water level and total depth of the well. The depth to the static water level was gauged as 61.46 ft and the total depth was gauged as 73.38 ft. At 11:14 hours the slug was introduced into the well and emplaced six inches below the static water level. At 11:30 hours the depth to water level had re-equilibrated to the static water level. The transducer was then started and the slug was pulled from the well at 11:34 hours. At 11:58 hours the depth to water level was 0.01 ft (approximately 0.1 inches) below the static water level. It was then decided to leave the transducer recording in the well and perform a slug test on another monitor well. After returning to monitor well MW-13 at 13:02 hours the depth to water level was gauged as 61.44 ft, or 0.02 ft (approximately a quarter of an inch) above the static water level previously gauged. A second slug test was then performed on monitor well MW-13 for comparative purposes. At 13:20 hours the test was started and by 13:30 the well had returned to the static water level as measured by hand gauging. The Bouwer and Rice fits to data for the ratio of head to initial head versus the time are displayed in Figure 4. The fits display a calculated hydraulic conductivity for the first test to be 12 ft/day (feet per day) and the second test to be 9.6 ft/day (feet per day).



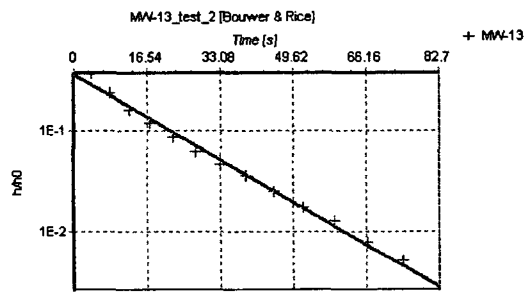


Figure 4: Bouwer and Rice fit to the slug tests data for monitor well MW-13. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 2.4 Slug Test on Monitor Well MW-14

A slug test was performed on monitor well MW-14 after it was determined that monitor well MW-5 did not contain a sufficient column of water to perform the slug test. At 12:30 hours the depth to static water level in monitor well MW-14 was measured to be 58.34 ft and the total depth of the well was measured to be 66.25 feet. The slug was introduced into the monitor well MW-14 at 12:38 hours after the transducer was installed in the well. At 12:45 hours the water level had re-equilibrated to static water level and at

12:47 hours the slug was removed from the well. At 12:53 hours the test was concluded when the water level was measured to have returned to the static level. The data obtained from the slug test performed on monitor well MW-14 were then plotted as change of water level versus time for initial evaluation purposes. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data (Figure 5). The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-14 as 4.5 ft/d (feet per day).

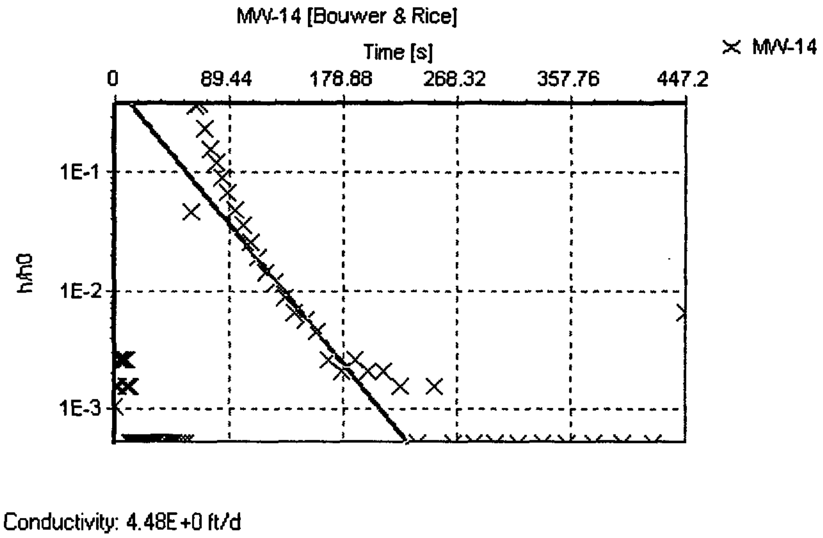


Figure 5: Bouwer and Rice fit to the slug test data from monitor well MW-14. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 2.5 Slug Test on Monitor Well MW-15

Monitor well MW-15 was gauged for depth to water to establish the static water level and total depth at 15:45 hours. The depth to static water level was gauged to be 54.46 ft and total depth of the well was gauged as 66.83 ft. After emplacing the transducer, the slug was lowered into the well at 15:53 hours. At 16:03 hours the water level was measured to have returned to the static water level. At 16:05 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus change in water level (feet) and evaluated. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data (Figure 6). The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-15 as 8.1 ft/d (feet per day).

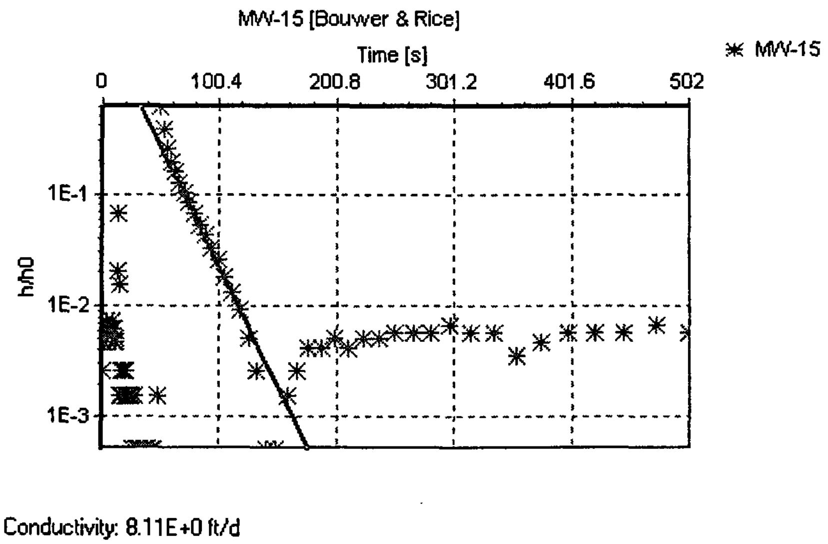


Figure 6: Bouwer and Rice fit to the slug test data from monitor well MW-15. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 3:0 Pump Test Performance and Data

On September 9, 2003 a pump test was performed on monitor well MW-9 with monitor wells MW-1 and MW-15 gauged for depth to water level. After initial preparations monitor wells MW-9, MW-1, and MW-15 were gauged for depth to water level and total well depth. For monitor well MW-9 the depth to water level was measured to be 54.54 ft and the total depth was measured to be 61.66 ft. The depth to water level was measured to be 52.12 ft for monitor well MW-1 with a measured total depth of 60.96 ft. Monitor well MW-15 was gauged to have a depth to water level of 54.47 ft with a total depth of 66.83 ft. Transducers were then placed in monitor wells MW-9 and MW-1. A variable speed pump was also placed into monitor well MW-9. The water level in monitor well MW-9 was then allowed to re-equilibrate to the static water level and the test was then started at 14:55 hours. The initial pump rate was determined to be 5.45 GPM (gallons per minute). Four minutes after the onset of the test, surging was noted from the discharge hose. The pump rate, or discharge rate was then reduced and held constant at 4.66 GPM. The effect of the higher initial pump rate is displayed on Figure 7 where the sharp downward spike in the drawdown occurs approximately 265 seconds into the test. After this initial spike in the data, the drawdown exhibited due to the pumping of monitor well MW-9 was approximately constant at over four feet of drawdown. During the course of the pump test, monitor well MW-15 was hand gauged for depth to water level, initially every 5 minutes for 3 hours and 55 minutes, after which the interval between gauging events became 15 minutes for the remainder of the test. At 20:15 hours the pump in monitor well MW-9 was shut off. Within a span of five minutes after the conclusion of the test the water level in monitor well MW-9 had rebounded to the static water level.

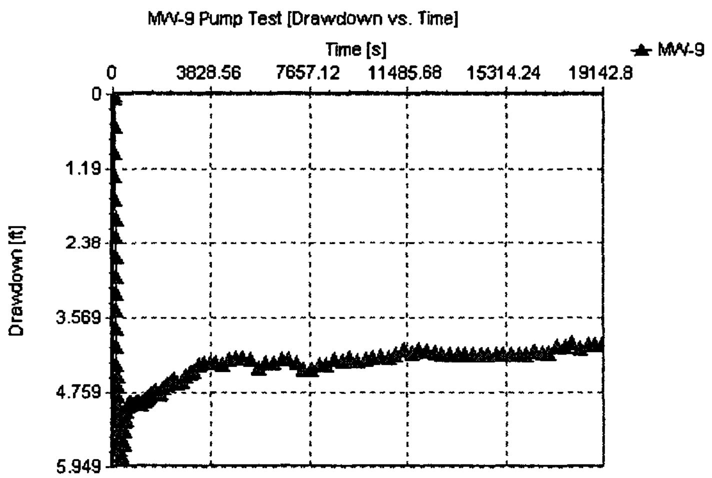


Figure 7: Drawdown (in feet) versus time (in seconds) plot for the pump test data from monitor well MW-9.

The drawdown versus time data from the pump test for monitor wells MW-1 and MW-15 is displayed in Figure 8. Monitor well MW-1 exhibited about 1.7 inches of drawdown, whereas monitor well MW-15 was only drawn down about a half an inch.

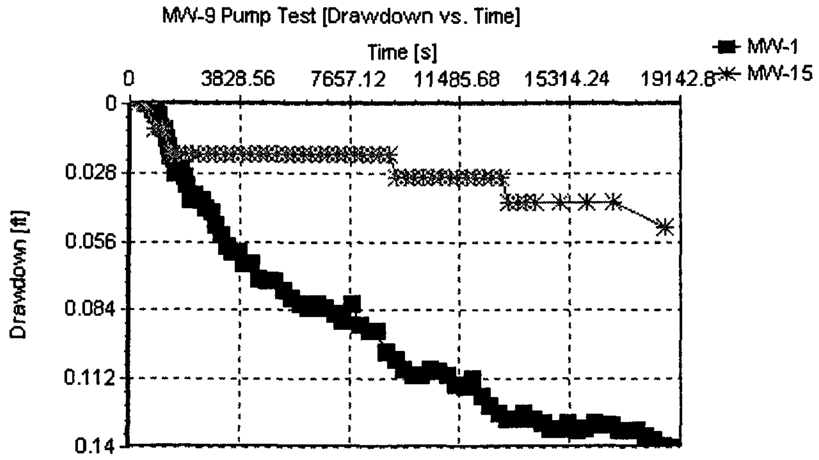


Figure 8: Drawdown (feet) versus time (seconds) plot for monitor wells MW-1 and MW-15.

The difference in the drawdown in monitor wells MW-1 and MW-15 could be due to primarily three factors; the distance of the monitor well from the pumped well, the gradient of the groundwater flow, and the hydraulic continuity of the groundwater flow. In general the closer the monitor well is to the pumping well the more likely it is to observe the influence of the drawdown in the pumping well. The distances of monitor wells MW-1 and MW-15 from the well which was pumped (monitor well MW-9) is approximately 75 ft from monitor well MW-1 to monitor well MW-9, and approximately 125 ft from monitor well MW-15 to monitor well MW-9.

The relationship between the pumping well and the gradient of the groundwater also can cause a differential effect in the drawdown to be seen. The more offset the monitor well is from the vector of the groundwater gradient at the pumped well the less influence was seen. The groundwater gradient at the site has been observed as being higher on the west side of the site and lower on the east side of the site, so in general groundwater flows from east to west. Monitor well MW-15 is up the groundwater gradient and more offset to the south of monitor well MW-9, whereas monitor well MW-1 is more down the groundwater gradient from monitor well MW-9 and therefore more likely to be influenced by the pumping of monitor well MW-9.

The hydraulic continuity and homogeneity of the aquifer necessitates both the slug tests and the pump test to be synthesized and will be addressed below in the discussion.

The drawdown data for monitor wells MW-1 and MW-15 were plotted as dimensionless parameters $\log(t_{dy})$(dimensionless time) on the X axis and $\log(h_d)$ (dimensionless head) plotted on the Y axis, with the data scaled to $\log(t/r^2)$ (the log of the time divided by the internal radius of the well squared) on the X axis and log(s) (the log of the drawdown) on the Y axis. A Moench fit was then performed on these data with the results displayed in Figure 9. The Moench fit provided a calculated hydraulic conductivity of approximately nine feet per day.

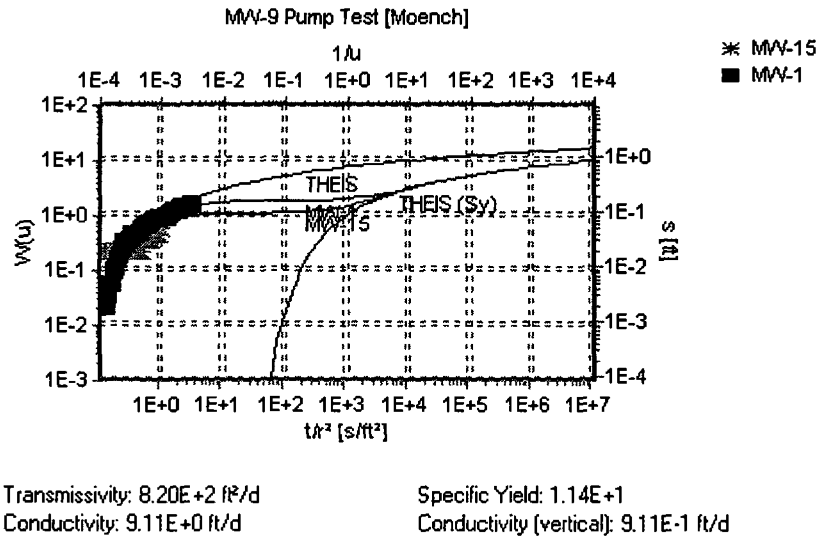


Figure 9: Moench fit to the data for pump test preformed on monitor well MW-9. Parameters for the Moench fit: the ratio of storativity to specific yield $(S/S_y) = 0.001$, the ratio of the vertical hydraulic conductivity to the horizontal hydraulic conductivity $(K_V/K_H) = 0.1$, and the dimensionless drawdown parameter $(\gamma) = 1\times10^9$.

A Theis fit was also performed on the drawdown data for monitor wells MW-1 and MW-15 and the result is displayed below in Figure 10. The data are plotted on a logarithmic scale as drawdown (s which is equal to $h-h_0$) versus the time (t) divided by the radius of the well squared (r). The calculated hydraulic conductivity from the Theis fit is about 9.5 ft/d (feet per day) which is in relative agreement with the Moench fit solution.

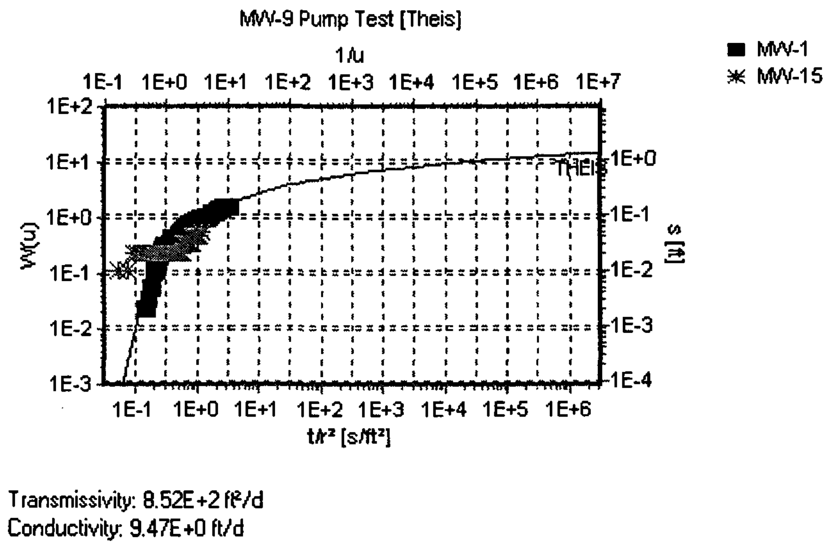


Figure 10: Theis fit for the data for the pump test performed on monitor well MW-9, for the drawdown in monitor wells MW-1 and MW-15.

Section 4.0 Discussion

As noted above the purpose of the slug tests and the pump tests were to establish the homogeneity, continuity, and hydraulic conductivity of the aquifer present at the Champion site in Hobbs, New Mexico. Table 1 displays a compilation of the slug tests and pump test resultant hydraulic conductivity with an average hydraulic conductivity for all tests as 6.9 ft/day, with a range of hydraulic conductivities from 1.7 to 12.3 ft/day. The hydraulic conductivity calculated to be 1.7 ft/day was for monitor well MW-9 which the pump test displayed to have a hydraulic conductivity of approximately nine feet per day. Slug tests are very sensitive to well skin effects and to how the well was completed. Well skins generally form during the drilling process and can either be high K (hydraulic conductivity) or low K well skins. Most often the well skins are of the low K variety, which in turn means that the hydraulic conductivity calculated from a slug test only serves as a lower bound of the true hydraulic conductivity. Pump tests are less sensitive to well skin effects because they are a measurement of water flow in the aquifer between wells, rather than flow into and out of the formation in the immediate vicinity of the well in question.

Table 1: Summary Table of the slug tests and pump test calculated hydraulic conductivities.

Monitor Well	Hydraulic Conductivity (ft/day)	Test Type
MW-7	3.09	Slug
MW-9	1.7	Slug
MW-13 test 1	12.3	Slug
MW-13 test 2	9.64	Slug
MW-14	4.48	Slug
MW-15	8.11	Slug
MW-9	9.11	Pump
Average	**6.9**	

The variability of the calculated hydraulic conductivities for the slug tests could be interpreted such that one could conclude that a non-homogenous aquifer is present on the site. However the variability in the test data results between the slug test and pump test for monitor well MW-9 suggests that the variability is due to well skin effects. Additionally, the form of the curves plotted for the Bouwer and Rice fits, with the exception of the curve for monitor well MW-9, are similar to data plotted for slug tests which did not have sufficient displacement of water. Without sufficient displacement of water in the well recovery occurs to quickly to be accurately measured and plotted. The slug volume was the maximum size possible considering the design of the test and the depth of the water column present in the monitor wells. The average measured displacement for the water column in the monitor wells after the removal of the slug was only 1.33 ft whereas the calculated displacement by the slug is 1.97 ft of water in a four inch monitor well. Instantaneous draining of the sand pack assuming twenty percent effective porosity and no void space in the sand pack would provide approximately one foot of recovery, which means the above 0.64 ft of difference in the average displacement between the slug volume and calculated displacement is within reason. Therefore the necessary conclusion, barring further data collection, is that the hydraulic conductivity of the aquifer was higher than the slug tests were designed to accurately measure.

Generally accepted values for hydraulic conductivities for silty to fine sands range from 10^{-5} to 10^{-3} cm/s (centimeters per second), the results from the slug test are in the upper range of these accepted values at about 2×10^{-3} cm/s. The hydraulic conductivity value is slightly higher than anticipated at the onset of the tests owing to the well logs which describe significant caliche present. However, the caliche is described to be mostly above the water bearing zone, which is in agreement with the test results. Relatively good hydraulic continuity was demonstrated during the pump test which argues against a significant contribution of the groundwater to be due to fracture flow. Fracture flow would be expected if the caliche were the main conductive unit for the groundwater flow.

Section 5.0 Conclusions

The average hydraulic conductivity for the aquifer as evidenced through slug tests and a pump test is 6.9 ft/day. The resultant hydraulic conductivities of the slug tests, though variable, did display an average hydraulic conductivity which was in relative agreement with the resultant hydraulic conductivity from the pump test. The pump test displayed the aquifer to be relatively uniform and homogenous in the area surrounding monitor wells MW-9, MW-1, and MW-15. From the relative agreement between the slug tests and pump test results, it is therefore inferred that the aquifer under the Champion, Hobbs, New Mexico facility is relatively uniform and homogenous.

June 3, 2003

GW-199

Mr. Wayne Price
Environmental Engineer
New Mexico Oil Conservation Division
1220 South St. Francis Dr
Santa Fe, NM 87505

RECEIVED
JUN 09 2003
Environmental Bureau
Oil Conservation Division

RE: Abatement Plan (AP-14)
Stage 2 Abatement Plan Proposal
Comprehensive Status Report
Champion's Hobbs, NM Facility GW-199

Dear Mr. Price:

Environmental Technology Group, Inc. (ETGI) is pleased to present this response to your letter dated May 8, 2003, on behalf of Champion Technologies (Champion) for the above referenced site. The format of this letter is to specify the New Mexico Oil Conservation Division (NMOCD) concerns followed by ETGI's response.

Required Information:

1. *OCD requires a copy of the Hydrus model with instructions, input parameters, weather input data and a copy of the excel spreadsheet that contains the groundwater mixing model. Due to the complex nature of this model, OCD request a technical meeting with the consultant concerning the model and submitted report.*

   R.T. Hicks Consultants, Ltd (Hicks) the Consultant that completed the chloride simulation, is coordinating a Hydrus seminar to be presented to interested individuals in the NMOCD and industry. Hicks will provide a copy of the Hydrus-1D model/software and provide technical guidance to the NMOCD at this seminar. As of this writing, the seminar is scheduled for Thursday June 26th. Details on time and location are to be determined shortly and will be communicated to the NMOCD by Hicks.

2. *Modeling Comments and Questions:*

   A. *OCD is having a difficult time understanding how calibration of the model can be made using hypothetical one-time release at this particular site. Please explain.*

   The use of the word "calibration" in this application was somewhat ambiguous. The initial simulation was run to determine if site input parameters based on professional judgment and the model's library database (e.g. unsaturated hydraulic conductivity) could render a reasonable prediction of chloride migration. A one-time theoretical release of chloride was employed due to the absence of data that indicate how chlorides were introduced into the pit area or onto the site. Hicks found that by assuming a single release event, a chloride distribution in the unsaturated zone developed that was very similar to observed field data. Actual field data that was used in the simulation required no adjustment to calibrate the model.

B. *OCD does not agree using 80 or 100 feet of aquifer thickness in the mixing model. OCD will require 10 feet. Please recalculate using 10 feet.*

The use of 80-100 feet is based directly on published data for thickness of saturated Ogallala formation in the area of the Champion site.

Research suggests that mixing of the chloride ion in groundwater happens readily. Dispersion horizontally and vertically will take place. In addition, gravity flow will directly affect the denser chloride concentration in the groundwater allowing transport to the lower reaches of the aquifer. Groundwater analysis collected from on/offsite domestic water wells (which are primarily screened near the lower section of the aquifer in this area) indicates that chloride concentrations are present at these lower depths in similar concentrations. This illustrates that mixing has occurred throughout the aquifer with regard to the chloride ion.

Based on previous communication on other projects with the NMOCD, Hicks originally used an aquifer thickness input parameter of 10 feet. This input value of a 10-foot aquifer thickness yielded chloride concentration results (from the simulation) that were many times higher than those actually observed in an adjacent monitor well. When the simulation is run with a true representative aquifer thickness of 100 feet, the results match approximately the chloride concentrations that have actually been detected in onsite monitor wells. Moreover, since the chloride ion has higher specific gravity than a hydrocarbon and does not remain in only the top 10 feet of the saturated zone, employing an 80-100 foot aquifer thickness is appropriate.

C. *Explanation of Fig #1 and #4: In Fig #1 (Simulated Chloride distribution in the Vadose zone) the units of the measured concentrations do not match the actual soil conditions. For example one point is labeled approximately 1.5 E+05. Is this ppm in soil or soil water and what are the units? Please explain and provide example calculations on how these numbers were obtained and which sample data was used.*

Figure #1 and #4 represent the simulated distribution of chloride in soil water throughout the soil profile. Figure #1 represents initial conditions and figure #4 represents Scenario 3.

Figure #1 in Hick's chloride modeling report represents Hydrus output data that is different from laboratory report data in that it represents values of chloride concentration in milligrams/liter of **soil water**.

The actual measured concentrations were converted to express soil water concentrations. Soil concentrations provided by the laboratory are in grams chloride/grams soil. The vast majority of chloride in the soil resides in soil moisture. If the soil moisture and chloride concentration are known, a calculation can be used to determine chloride concentration in the soil (pore) water.

Hicks used the following equation to convert laboratory chloride soil concentration values to chloride concentration values in soil (pore) water:

[Soil chloride (mg/kg)] x [soil bulk density (kg/m^3)] / [soil moisture (%)] x [soil bulk density (kg/m^3)] x [1kg/1L] = (mg/L)

For example, using this equation to determine the chloride concentration of soil water for a sample analysis of 11,009 mg/kg with soil moisture content of 8% and a bulk density 1858 kg/m^3 yields a value of 137,612 mg/L or 1.40E+5.

D. *Engineering controls to reduce precipitation by 70%. Please demonstrate that reducing precipitation is the same as reducing the infiltration.*

Engineering controls specified were never meant to control precipitation amounts. Engineering controls will be used to control precipitation infiltration. This will be completed by reducing the permeability of the material through compaction and/or by constructing a surface gradient that sheds precipitation. The Hydrus model simulates such engineering controls by precipitation reduction.

E. *Champion will have to demonstrate that a caliche pad will provide a proper barrier and demonstrate how this barrier will be maintained. OCD's experience is that caliche pads become very plastic during rainstorm events and notwithstanding the fact that heavy truck traffic used during these times may deteriorate the integrity of the barrier and thus not provide the protection as suggested.*

The numerous layers of caliche placed by Champions and past operators at the site has resulted in approximately eight (8) to nine (9) inches of compacted caliche on the poorly developed native soil. ETGI will conduct proctor tests to determine if the existing caliche pad throughout the yard is currently sufficient to attain the infiltration reduction required.

As illustrated in the modeling results (Figs. 2 and 3 of Hicks report), if infiltration had not been reduced by the existing compacted caliche layer, groundwater chloride concentrations should have exceeded 1500 parts per million (ppm).

F. *The area size used in the calculations does not take into account chlorides found outside of Area #3 and the rest of the yard. This would increase the overall chloride load and physical geometry of the model. Please delineate Area #3 and adjust the model input parameters to correct for this deficiency and resubmit the new results.*

The chloride loading was calculated using worst-case conditions and not a concentration average. The loading is appropriate based on our considerations. It was not stated in the Comprehensive Site Report (CSR) that the surficial area around boring SB-3 with chloride concentrations of 12,428 mg/kg (Area 5) would be removed. This will be completed as part of any additional/follow-up activities to address this letter. Soil confirmation samples will be collected from Area 5 to verify that chloride concentration is primarily in the near surface (0-2' bgs). The values used in load calculations or scenario 3 of this simulation take into account all the areas of the yard that data is available.

Four soil borings were installed in Area 5 by Enercon Services in May 2001, to delineate the chloride concentrations around soil boring SB-3. All soil samples collected by Enercon from this area are from the depth interval of 0 (surface) - 1 foot below ground surface (bgs). The four additional soil borings SB-37, SB-38, SB-39 and SB-40 showed chloride concentrations of 2076 mg/kg, 2093 mg/kg, 3511 mg/kg and 2460 mg/kg respectively.

The chloride loading was calculated based on worst-case concentrations from soil data that was available assuming the removal of chloride concentrations around the isolated area associated with area SB-3.

3. *Section 1.2: The old water well found abandoned under the chemical storage pad shall be sampled and analyzed for BTEX, TPH, and Chemicals of Concern using EPA approved methods. A plugging and abandonment plan shall be submitted for OCD approval.*

The abandoned water well discovered beneath the bulk chemical storage area is constructed in such a way as to preclude conventional sampling methodology. The well material consists of an inner ¾ inch diameter metal "shaft" that is surrounded by a 4 inch metal casing. The "shaft" is held in the middle of the 4-inch casing by metal centralizers
that are welded to the interior of the 4-inch pipe. The centralizers are not removable and do not allow a conventional sampling bailer to pass. Executing an EPA method of removing a minimum of 3 well volumes of water prior to sample collection is doubtful. A groundwater sample collected without properly purging the well is not believed to represent current groundwater environmental conditions. The 4-inch metal casing is surrounded by an outer 6-inch metal casing that appears to be grouted in place.

ETGI proposes to plug and abandon this water well by using a winch truck to make an attempt to pull the casing. If the casing cannot be removed then the well will be filled with the required slurry mixture and then cemented and capped by welding a metal cover over the well.

4. *Appendix G Photographs (Drain system from warehouse) please describe the past history concerning this system. Is any drain system currently in use? If so please explain.*

Evidence suggests that this was what is commonly referred to as a "French Drain" system. A French drain typically transports liquids from sinks, floors etc through a metal piping system and discharges through and open-ended pipe or diffuser into a pit or trench.

Champion has no record of using this drain. Observations of the location where the drain line exits the warehouse are inconclusive to determine usage. The drain system appears to have been installed and used by the former tenants of this facility prior to Champion Technologies. The drain pipe system consisted of at least two sets of three (3) metal pipes. One set drained or serviced the warehouse and another appeared to run beneath portions of the bulk chemical storage containment area and were subsequently excavated. The three pipes in the set from the warehouse contained one (1) three-inch diameter, one (1) three-inch diameter with an electric lead and one (1) one point five-inch line. The pipes originate from near the southwest corner of the warehouse approximately three feet above the ground surface. The warehouse has a cut-away in the sidewall of the structure that would allow access from the interior. From the exterior of the warehouse, two metal pipes descended to below the ground surface and angled into the former pit where they terminated without caps. Observations of the pipes discovered beneath the former bulk chemical containment area are inconclusive in regards to origins or destinations.

The only known drain systems in use are the current septic system that services the current office and former laboratory. The former septic line was excavated and removed and a new drain-line was installed during the drain-line investigation. There is a second drain system that services a sink(s) and restroom in the warehouse. Champion has stated that these facilities are being used for sanitary waste only.

5. *Section 4.2: Please provide the total feet of screen placed in monitor wells and the amount placed above and below groundwater.*

Well construction information and diagrams can be found in Appendix D, Monitor Well Logs and Well Completion Materials in the Comprehensive Status Report.

Monitor Well MW-14 well construction was reported incorrectly in the Comprehensive Status Report. The Monitor Well Detail should read Depth of PVC well to be 68 feet bgs and not 78 feet bgs. The 68 feet accurately describes the location of the bottom of the screened interval in this monitor well. The corrected copy of MW-14 well completion diagram and a summary of well screen data for the onsite monitor wells are enclosed in Attachment A.

Typically, monitor wells installed by ETGI are constructed with 20 feet of PVC screen or slotted pipe. Approximately 15 feet of screen is placed below the groundwater table and 5 feet above groundwater table.

6. *Section 4.5.6: (Background Data). OCD is reluctant to consider on-site monitor wells MW-1 and MW-7 as being background wells because of the fact that contamination has been found through out Champion's yard i.e. chlorides. MW-7 is located near Area 3 where the delineation of chlorides has not been completed and may have impacted the groundwater in this area, in addition MW-1 and MW-9 lie in proximity to the northwest part of the yard area where natural drainage from Champions yard has occurred for many years. Therefore, please revise the background Chloride data utilizing off-site up-gradient monitor well MW-15 (chlorides noted at 156, 200, 221 mg/l.) and any other off-site up-gradient well such as those sampled by OCD i.e. Harmon and Morrow residences wells (chlorides in these wells were 137 mg/l and 241 mg/l. respectively). OCD calculates the average to be (221+137+241)/3 =199 mg/l. Please provide the recalculated results from the model using this background input data.*

Data for monitor well MW-7 was incorrectly reported by the laboratory and subsequently by ETGI in the CSR. The chloride concentration report as 510 mg/L was actually 255 mg/L. The corrected laboratory report is enclosed as Attachment B.

Monitor well MW-7 was originally installed as SB-35 by Enercon Services approximately 38 feet east of the western property line and up-gradient of the rest of the property. Soil samples were collected at the 3-5', 13-15', 23-25', 33-35' and 43-45' intervals. The greatest concentration of chloride was found at the 13-15'interval at 3388 ppm. Despite this concentration and a concentration of 1405 ppm at the 43-45' interval, there has not been a spike increase in the groundwater chloride concentration detected in MW-7 (Attachment C). This is directly related to the lack of transport medium (water) in the unsaturated zone due to the existing compacted caliche surface layer restricting vertical migration of precipitation across the Champion yard. The fact that chloride is found in the soil column does not negate this monitor well from representing background concentrations of chloride in the **groundwater**.

Monitor well MW-9 was installed by ETGI to be out of the runoff flow path for the facility. Monitor well MW-9 is located approximately 50 feet south of the flow path. Observed rain event runoffs of last season did not approach the MW-9 location. Monitor well MW-9 is constructed with a raised surface completion that stands approximately 4 feet above the surrounding surface. A soil sample collected during placement of monitoring well MW-9 @ 5 feet below ground surface yielded a chloride concentration of 73.9 ppm (Attachment C).

In the conditionally approved (by OCD) Stage 2 Abatement Plan Proposal by Enercon

Services dated February 5, 2002, an off-site, up-gradient monitor well is proposed to monitor groundwater conditions entering the facility (Enercon's MW-8). This proposed monitor well placement is assumed to be approved by the OCD since there was no deficiency associated with this item. Enercon's Figure 5 of the Stage 2 Abatement Plan Proposal indicates where Enercon proposed to place MW-8 (Attachment D).

In the letter Response to Notice of Deficiency dated June 3, 2002 by ETGI it is stated that a proposed monitor well will be placed off-site, up-gradient to the west or north-west of the facility to ascertain background soil and groundwater quality. A Site Map figure was attached to the Response Letter indicating where the proposed monitor well(s) would be located (Attachment D). The OCD did not respond or comment on the proposed monitor well locations and it is assumed by lack of comment that the locations are approved.

Monitor well MW-1 was installed by Enercon Services near the north-east corner of the site to evaluate groundwater coming on-site. A soil boring SB-1 (installed by Enercon) nearest to monitoring well MW-1 had a reported chloride concentration from 0-1 foot bgs of 151 ppm. Monitoring well MW-1 has been inspected for faulty well cap or well box gasket. Both are in place and appear to be functioning according to design.

Champion and ETGI maintain that monitoring wells MW-1, MW-7, MW-9 and MW-15 are legitimate representations of (up-gradient) background groundwater monitoring points. These monitor wells have a calculated average groundwater chloride concentration of 311 ppm ((435 + 255 + 332 + 221)/4) based on data collected in the February 2003 sampling event and 291 mg/L based on all samples collected from these wells by ETGI from August 2002 through February 2003.

Regardless of the background concentration selected, the chloride simulations illustrate a potential net increase of approximately 1226 mg/L in Scenario 1 (without controls) and a maximum potential increase of approximately 100 mg/L for Scenario 2 (with Controls).

7. *Section 9.1: Soil Remediation and Assessment: Page 27 bullet point 7. OCD assumes Soil Borings SB-9, 10, 13, 14, 15 are located in Area 3. This section of the report indicated benzene concentrations in subsurface soils that have a potential to leak into groundwater and a clay cap cover over these locations will assist in stopping further migration. However, there is no mention of a clay cap in the final recommendations for this area. Please explain.*

Soil borings SB-9, 10, 13, 14 and 15 are all located in **Area 2**. This area is planned to have a clay cap to prevent precipitation infiltration.

Area 3 is not planned to have a clay cap cover but will have a compacted caliche cover that will restrict infiltration. The compacted caliche cover will have a hydraulic conductivity of less then 1 x 10^{-5} cm/s which is similar to the requirements of a cover over a municipal landfill.

8. *Section 7.1: Historical and Current Land Use: Please provide the aerial photos mentioned in this section.*

   Copies of the aerial photos referenced in this section are provided as an Attachment E.

9. *The plan did not address Area 5: SB-3, 37, 38, 39 and 40 for chlorides. Please address.*

   Sample SB-3 in area 5 indicates near-surface impact only. Additional delineation completed in this area showed chloride concentrations ranging from 2093 mg/kg to 3511 mg/kg. Champion will have the top 1-2 feet removed from Area 5 associated with sample SB-3. Confirmation soil samples will be collected to illustrate chloride removal/reduction. The area will be covered with a compacted caliche surface to reduce precipitation infiltration and prevent any remaining chloride migration into groundwater.

10. *Section 7.2 page 23 of 31 Scenario 3: Which area is this for?*

    Scenario 3 is a simulation for all chloride impacted areas outside of Area 2. Scenario 3 takes into account the worst-case condition(s) found at 5 feet bgs in Area 3 at sample location D-34 (11,900 ppm). This is not an average concentration but ETGI elected to run the chloride simulations with the most conservative values. Even though the concentration of 12,428 ppm at soil sample location SB-3 (collected by Enercon) is statistically very similar to the 11,900 at location D-34 this impacted material, as discussed in number 9 above, specifically soil associated with sample SB-3 will be removed.

11. *Section 7.2 page 23 of 31 hydraulic saturated conductivity of .7 cm/day: Is this for the vadose zone or groundwater? Please explain and supply laboratory analysis mentioned in the report.*

    The hydraulic saturated conductivity is representative of the vadose zone. A soil sample core was collected at location SB-46 @ 42-45 feet bgs and submitted for geotechnical soil analysis at Stork Southwestern Laboratories.

    A copy of the laboratory report is enclosed as Attachment F.

12. *Section 7.2 page 23 of 31 "Compaction of either sandy (caliche) soils or clayey soils generally results in a decrease of permeability by approximately 70 percent": OCD's question here is 70 % of what permeability number? Other words will the caliche meet the specifications listed in Item #2B below.*

The compacted caliche will meet the criteria in Item #2B as it pertains to use as a cover to prevent infiltration of precipitation. A demonstration will be made by the completion of at least three Proctor Tests (ASTM-D-698) on the compacted caliche base to illustrate a hydraulic conductivity of not more than 1 x 10^{-5} cm/sec. The parameters stated in Item #2B to meet hydraulic conductivity values of 1 x 10^{-7} are criteria developed for municipal landfill liners according to 40 CFR 258.40(b) landfill design, not 40 CFR 258.60(a)(1), Closure and Post Closure- Final Cover Design. A compacted caliche layer of approximately 8-9 inches thick across the site can be demonstrated to have a hydraulic conductivity of 1 x 10^{-5} cm/sec. Appendix G of this letter contains the recent paper referenced in section 7.1 of the CSR titled, "*Compacted Urban Soils Effects on Infiltration and Bioretention Stormwater Control Designs*". This paper discusses the significance of compacted urban/industrial soils relating to precipitation infiltration (including compacted sand and clay).

The specification referenced in the OCD approval of Section 10 Recommendations specifically 2B, are for an EPA specification municipal bottom liner. Champion refers to the above regulation regarding final cover design for Municipal Solid Waste landfills specific to construction of a cover with a permeability of not more than $1x10^{-5}$ cm/sec. These regulations indicate the relevance to the technical consideration of the cover required to minimize the infiltration of precipitation into the subsurface.

I hope this letter address the concerns raised. Upon your review of this document and attachments, should have any questions or concerns please do not hesitate to contact us.

Sincerely,

ENVIRONMENTAL TECHNOLOGY GROUP, INC.

Todd K Chob

Todd K. Choban
Sr. Geologist/Project Manager

Kennie Clabaugh for
Chan B. Patel
Sr. Project Manager

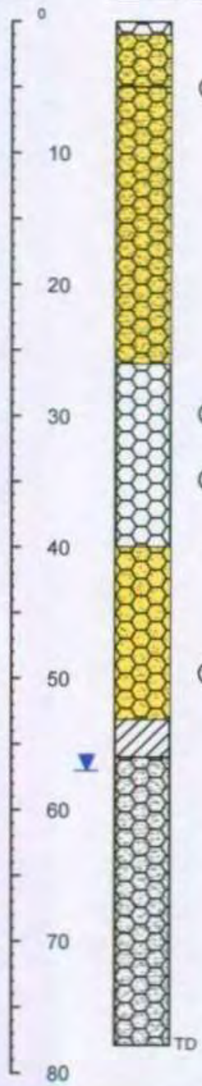
Attachments

cc: Larry Johnson - OCD Hobbs District Office
Ralph Corry - Champion Technologies, Fresno, TX
Dwight E. Vorpahl - Attorney, Houston, TX
Richard Cox - Champion Technologies, Guthrie, OK
Champion Technologies - Hobbs, NM
ETGI - Midland, TX
ETGI - Houston, TX

ATTACHMENT A

Monitor Well MW-14

Depth (feet)	Soil Columns	PID Reading	Odor	Stain	Soil Description
0					Caliche pad
					Fine sand with caliche, tan
10					
					Caliche with sand, light tan moderately hard, dry
20					
30					
					Caliche - calcrete very hard light buff color
40		2.3			
					Caliche with sand (slight) moderately hard,tan, dry
50		3.2			
					Caliche with sand
					Very hard indurated calcrete, siliceous
60					
					Sand with minor caliche weekly cemented, reddish brown
70					
	TD				
80					



Monitor Well Details

Date Drilled 09 - 25 - 02
Thickness of Bentonite Seal 3 ft
Length of PVC Well Screen 20 ft
Depth of PVC Well 68 ft
Depth of Exploratory Well 78 ft
Depth to Groundwater 57 ft

Grout Surface Seal
Bentonite Pellet Seal
Sand Pack
Screen

Indicates the groundwater level measured on date.
Indicates samples selected for laboratory submittal.
PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitor well was installed on date using air rotary drilling techniques.
2. The well was constructed with 4" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked flush steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Soil Boring Log Details

MW-14

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

Environmental Technology Group, Inc.

Prep By: JDJ	Checked By: TKC
March 11, 2003	ETGI Project # CH2100

MONITOR WELL SCREEN DATA
ATTACHMENT A

Monitor Well No.	Total Screen Length	Total Depth of PVC Used	Average Water Level	Screen Above Water Level	Screen Below Water Level
MW-8	20	69’	60’	11	9
MW-9	20	61’	53’	12	8
MW-10	20	67’	59’	12	8
MW-11	20	70’	57’	7	13
MW-12	20	70’	60’	10	10
MW-13	20	71’	60’	9	11
MW-14*	20	68’	57’	9	11
MW-15	20	68’	53’	5	15
MW-16	20	71’	60’	9	11

* An error was observed on the Monitor Well Details log submitted in the Comprehensive Status Report, Appendix D. Attachment A contains the corrected log.

ATTACHMENT B

CORRECTED CERTIFICATE
Summary Report

Todd Choban
E.T.G.I.
PO Box 4845
Midland, Tx. 79704

Report Date: May 21, 2003

Order ID Number: A03022118

Project Number: CH2100
Project Name: Champion Tech
Project Location: Hobbs,NM

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
222041	WChamp 21903 MW-1	Water	2/19/03	10:01	2/21/03
222042	WChamp 21903 MW-2	Water	2/19/03	8:46	2/21/03
222043	WChamp 21903 MW-3	Water	2/19/03	9:17	2/21/03
222044	WChamp 21903 MW-4	Water	2/19/03	9:40	2/21/03
222045	WChamp 21903 MW-5	Water	2/19/03	9:30	2/21/03
222046	WChamp 21903 MW-7	Water	2/19/03	8:20	2/21/03
222047	WChamp 21903 MW-8	Water	2/19/03	9:12	2/21/03
222048	WChamp 21903 MW-9	Water	2/19/03	8:27	2/21/03
222049	WChamp 21903 MW-10	Water	2/19/03	10:16	2/21/03
222050	WChamp 21903 MW-13	Water	2/19/03	9:22	2/21/03
222051	WChamp 21903 MW-14	Water	2/19/03	9:35	2/21/03
222052	WChamp 21903 MW-15	Water	2/19/03	8:13	2/21/03
222053	WChamp 21903 MW-16	Water	2/19/03	8:52	2/21/03
222054	WChamp Onsite 21903	Water	2/19/03	10:53	2/21/03
222055	WChamp Offsite 21903	Water	2/19/03	10:42	2/21/03

Comment: CORRECTED CHLORIDE FOR 222046

This report consists of a total of 5 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 222041 - WChamp 21903 MW-1

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		435	mg/L

Sample: 222042 - WChamp 21903 MW-2

Param	Flag	Result	Units
Dissolved Chromium		0.0134	mg/L
Chloride		384	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

Sample: 222043 - WChamp 21903 MW-3

Param	Flag	Result	Units
Dissolved Chromium		0.0122	mg/L
Chloride		658	mg/L

Sample: 222044 - WChamp 21903 MW-4

Param	Flag	Result	Units
Dissolved Chromium		0.271	mg/L
Chloride		485	mg/L

Sample: 222045 - WChamp 21903 MW-5

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		476	mg/L

Sample: 222046 - WChamp 21903 MW-7

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		255	mg/L

Sample: 222047 - WChamp 21903 MW-8

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		397	mg/L

Sample: 222048 - WChamp 21903 MW-9

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		332	mg/L

Sample: 222049 - WChamp 21903 MW-10

Param	Flag	Result	Units
Dissolved Chromium		0.0163	mg/L
Chloride		355	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

Sample: 222050 - WChamp 21903 MW-13

Param	Flag	Result	Units
Dissolved Chromium		0.151	mg/L
Chloride		332	mg/L

Sample: 222051 - WChamp 21903 MW-14

Param	Flag	Result	Units
Dissolved Arsenic		<0.011	mg/L
Dissolved Chromium		<0.011	mg/L
Chloride		342	mg/L

Sample: 222052 - WChamp 21903 MW-15

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		221	mg/L

Sample: 222053 - WChamp 21903 MW-16

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		474	mg/L
Bromochloromethane		<1.00	μg/L
Dichlorodifluoromethane		<1.00	μg/L
Chloromethane (methyl chloride)		<1.00	μg/L
Vinyl Chloride		<1.00	μg/L
Bromomethane (methyl bromide)		<5.00	μg/L
Chloroethane		<1.00	μg/L
Trichlorofluoromethane		<1.00	μg/L
Acetone		<10.0	μg/L
Iodomethane (methyl iodide)		<5.00	μg/L
Carbon Disulfide		<1.00	μg/L
Acrylonitrile		<1.00	μg/L
2-Butanone (MEK)		<5.00	μg/L
4-methyl-2-pentanone (MIBK)		<5.00	μg/L
2-hexanone		<5.00	μg/L
trans 1,4-Dichloro-2-butene		<10.0	μg/L
1,1-Dichloroethene		<1.00	μg/L
Methylene chloride		<5.00	μg/L
MTBE		<1.00	μg/L
trans-1,2-Dichloroethene		<1.00	μg/L
1,1-Dichloroethane		1.64	μg/L
cis-1,2-Dichloroethene		<1.00	μg/L
2,2-Dichloropropane		<1.00	μg/L
1,2-Dichloroethane (EDC)		<1.00	μg/L
Chloroform		<1.00	μg/L
1,1,1-Trichloroethane		<1.00	μg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

Sample 222053 continued ...

Param	Flag	Result	Units
1,1-Dichloropropene		<1.00	μg/L
Benzene		<1.00	μg/L
Carbon Tetrachloride		<1.00	μg/L
1,2-Dichloropropane		<1.00	μg/L
Trichloroethene (TCE)		<1.00	μg/L
Dibromomethane (methylene bromide)		<1.00	μg/L
Bromodichloromethane		<1.00	μg/L
2-Chloroethyl vinyl ether		<5.00	μg/L
cis-1,3-Dichloropropene		<1.00	μg/L
trans-1,3-Dichloropropene		<1.00	μg/L
Toluene		<1.00	μg/L
1,1,2-Trichloroethane		<1.00	μg/L
1,3-Dichloropropane		<1.00	μg/L
Dibromochloromethane		<1.00	μg/L
1,2-Dibromoethane (EDB)		<1.00	μg/L
Tetrachloroethene (PCE)		1.62	μg/L
Chlorobenzene		<1.00	μg/L
1,1,1,2-Tetrachloroethane		<1.00	μg/L
Ethylbenzene		<1.00	μg/L
m,p-Xylene		<1.00	μg/L
Bromoform		<1.00	μg/L
Styrene		<1.00	μg/L
o-Xylene		<1.00	μg/L
1,1,2,2-Tetrachloroethane		<1.00	μg/L
2-Chlorotoluene		<1.00	μg/L
1,2,3-Trichloropropane		<1.00	μg/L
Isopropylbenzene		<1.00	μg/L
Bromobenzene		<1.00	μg/L
n-Propylbenzene		<1.00	μg/L
1,3,5-Trimethylbenzene		<1.00	μg/L
tert-Butylbenzene		<1.00	μg/L
1,2,4-Trimethylbenzene		<1.00	μg/L
1,4-Dichlorobenzene (para)		<1.00	μg/L
sec-Butylbenzene		<1.00	μg/L
1,3-Dichlorobenzene (meta)		<1.00	μg/L
p-Isopropyltoluene		<1.00	μg/L
4-Chlorotoluene		<1.00	μg/L
1,2-Dichlorobenzene (ortho)		<1.00	μg/L
n-Butylbenzene		<1.00	μg/L
1,2-Dibromo-3-chloropropane		<5.00	μg/L
1,2,3-Trichlorobenzene		<5.00	μg/L
1,2,4-Trichlorobenzene		<5.00	μg/L
Naphthalene		<5.00	μg/L
Hexachlorobutadiene		<5.00	μg/L

Sample: 222054 - WChamp Onsite 21903

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L

Continued on next page ...

This is only a summary. Please, refer to the complete report package for quality control data.

Sample 222054 continued ...

Param	Flag	Result	Units
Chloride		347	mg/L

Sample: 222055 - WChamp Offsite 21903

Param	Flag	Result	Units
Dissolved Chromium		<0.011	mg/L
Chloride		479	mg/L

This is only a summary. Please, refer to the complete report package for quality control data.

TraceAnalysis, Inc.

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E-Mail: lab@traceanalysis.com

CORRECTED CERTIFICATE

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
PO Box 4845
Midland, Tx. 79704

Report Date: May 21, 2003

Order ID Number: A03022118

Project Number: CH2100
Project Name: Champion Tech
Project Location: Hobbs,NM

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
222041	WChamp 21903 MW-1	Water	2/19/03	10:01	2/21/03
222042	WChamp 21903 MW-2	Water	2/19/03	8:46	2/21/03
222043	WChamp 21903 MW-3	Water	2/19/03	9:17	2/21/03
222044	WChamp 21903 MW-4	Water	2/19/03	9:40	2/21/03
222045	WChamp 21903 MW-5	Water	2/19/03	9:30	2/21/03
222046	WChamp 21903 MW-7	Water	2/19/03	8:20	2/21/03
222047	WChamp 21903 MW-8	Water	2/19/03	9:12	2/21/03
222048	WChamp 21903 MW-9	Water	2/19/03	8:27	2/21/03
222049	WChamp 21903 MW-10	Water	2/19/03	10:16	2/21/03
222050	WChamp 21903 MW-13	Water	2/19/03	9:22	2/21/03
222051	WChamp 21903 MW-14	Water	2/19/03	9:35	2/21/03
222052	WChamp 21903 MW-15	Water	2/19/03	8:13	2/21/03
222053	WChamp 21903 MW-16	Water	2/19/03	8:52	2/21/03
222054	WChamp Onsite 21903	Water	2/19/03	10:53	2/21/03
222055	WChamp Offsite 21903	Water	2/19/03	10:42	2/21/03

Comment: CORRECTED CHLORIDE FOR 222046

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.
Note: the RDL is equal to MQL for all organic analytes including TPH.
The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 17 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 222041 - WChamp 21903 MW-1

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222041 - WChamp 21903 MW-1

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27363 Date Analyzed: 2/21/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25133 Date Prepared: 2/21/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		435	mg/L	10	1

Sample: 222042 - WChamp 21903 MW-2

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		0.0134	mg/L	1.10	0.01

Sample: 222042 - WChamp 21903 MW-2

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27363 Date Analyzed: 2/21/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25133 Date Prepared: 2/21/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		384	mg/L	10	1

Sample: 222043 - WChamp 21903 MW-3

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		0.0122	mg/L	1.10	0.01

Sample: 222043 - WChamp 21903 MW-3

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27363 Date Analyzed: 2/21/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25133 Date Prepared: 2/21/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		658	mg/L	10	1

Sample: 222044 - WChamp 21903 MW-4

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		0.271	mg/L	1.10	0.01

Sample: 222044 - WChamp 21903 MW-4

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27363 Date Analyzed: 2/21/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25133 Date Prepared: 2/21/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		485	mg/L	10	1

Sample: 222045 - WChamp 21903 MW-5

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222045 - WChamp 21903 MW-5

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		476	mg/L	50	1

Sample: 222046 - WChamp 21903 MW-7

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27483 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222046 - WChamp 21903 MW-7

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27363 Date Analyzed: 2/21/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25133 Date Prepared: 2/21/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		255	mg/L	10	1

Sample: 222047 - WChamp 21903 MW-8

Analysis: Dissolved Metals | Analytical Method: S 6010B | QC Batch: QC27483 | Date Analyzed: 2/28/03
Analyst: RR | Preparation Method: E 3005A | Prep Batch: PB25159 | Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222047 - WChamp 21903 MW-8

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC27397 | Date Analyzed: 2/24/03
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB25161 | Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		397	mg/L	10	1

Sample: 222048 - WChamp 21903 MW-9

Analysis: Dissolved Metals | Analytical Method: S 6010B | QC Batch: QC27483 | Date Analyzed: 2/28/03
Analyst: RR | Preparation Method: E 3005A | Prep Batch: PB25159 | Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222048 - WChamp 21903 MW-9

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC27397 | Date Analyzed: 2/24/03
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB25161 | Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		332	mg/L	10	1

Sample: 222049 - WChamp 21903 MW-10

Analysis: Dissolved Metals | Analytical Method: S 6010B | QC Batch: QC27484 | Date Analyzed: 2/28/03
Analyst: RR | Preparation Method: E 3005A | Prep Batch: PB25159 | Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		0.0163	mg/L	1.10	0.01

Sample: 222049 - WChamp 21903 MW-10

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC27397 | Date Analyzed: 2/24/03
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB25161 | Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		355	mg/L	10	1

Sample: 222050 - WChamp 21903 MW-13

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27484 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		0.151	mg/L	1.10	0.01

Sample: 222050 - WChamp 21903 MW-13

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		332	mg/L	10	1

Sample: 222051 - WChamp 21903 MW-14

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27484 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Arsenic		<0.011	mg/L	1.10	0.01
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222051 - WChamp 21903 MW-14

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		342	mg/L	10	1

Sample: 222052 - WChamp 21903 MW-15

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27484 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222052 - WChamp 21903 MW-15

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		221	mg/L	10	1

Sample: 222053 - WChamp 21903 MW-16

Analysis:	Dissolved Metals	Analytical Method:	S 6010B	QC Batch:	QC27484	Date Analyzed:	2/28/03
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB25159	Date Prepared:	2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222053 - WChamp 21903 MW-16

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC27397	Date Analyzed:	2/24/03
Analyst:	JSW	Preparation Method:	N/A	Prep Batch:	PB25161	Date Prepared:	2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		474	mg/L	10	1

Sample: 222053 - WChamp 21903 MW-16

Analysis:	Volatiles	Analytical Method:	S 8260B	QC Batch:	QC27374	Date Analyzed:	2/24/03
Analyst:	JG	Preparation Method:	E 5030B	Prep Batch:	PB25145	Date Prepared:	2/24/03

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<1.00	μg/L	1	1
Dichlorodifluoromethane		<1.00	μg/L	1	1
Chloromethane (methyl chloride)		<1.00	μg/L	1	1
Vinyl Chloride		<1.00	μg/L	1	1
Bromomethane (methyl bromide)		<5.00	μg/L	1	5
Chloroethane		<1.00	μg/L	1	1
Trichlorofluoromethane		<1.00	μg/L	1	1
Acetone		<10.0	μg/L	1	10
Iodomethane (methyl iodide)		<5.00	μg/L	1	5
Carbon Disulfide		<1.00	μg/L	1	1
Acrylonitrile		<1.00	μg/L	1	1
2-Butanone (MEK)		<5.00	μg/L	1	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5
2-hexanone		<5.00	μg/L	1	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10
1,1-Dichloroethene		<1.00	μg/L	1	1
Methylene chloride		<5.00	μg/L	1	5
MTBE		<1.00	μg/L	1	1
trans-1,2-Dichloroethene		<1.00	μg/L	1	1
1,1-Dichloroethane		1.64	μg/L	1	1
cis-1,2-Dichloroethene		<1.00	μg/L	1	1
2,2-Dichloropropane		<1.00	μg/L	1	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1
Chloroform		<1.00	μg/L	1	1
1,1,1-Trichloroethane		<1.00	μg/L	1	1
1,1-Dichloropropene		<1.00	μg/L	1	1
Benzene		<1.00	μg/L	1	1
Carbon Tetrachloride		<1.00	μg/L	1	1
1,2-Dichloropropane		<1.00	μg/L	1	1
Trichloroethene (TCE)		<1.00	μg/L	1	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1
Bromodichloromethane		<1.00	μg/L	1	1

Continued ...

... Continued Sample: 222053 Analysis: Volatiles

Param	Flag	Result	Units	Dilution	RDL
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5
cis-1,3-Dichloropropene		<1.00	μg/L	1	1
trans-1,3-Dichloropropene		<1.00	μg/L	1	1
Toluene		<1.00	μg/L	1	1
1,1,2-Trichloroethane		<1.00	μg/L	1	1
1,3-Dichloropropane		<1.00	μg/L	1	1
Dibromochloromethane		<1.00	μg/L	1	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1
Tetrachloroethene (PCE)		1.62	μg/L	1	1
Chlorobenzene		<1.00	μg/L	1	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1
Ethylbenzene		<1.00	μg/L	1	1
m,p-Xylene		<1.00	μg/L	1	1
Bromoform		<1.00	μg/L	1	1
Styrene		<1.00	μg/L	1	1
o-Xylene		<1.00	μg/L	1	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1
2-Chlorotoluene		<1.00	μg/L	1	1
1,2,3-Trichloropropane		<1.00	μg/L	1	1
Isopropylbenzene		<1.00	μg/L	1	1
Bromobenzene		<1.00	μg/L	1	1
n-Propylbenzene		<1.00	μg/L	1	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1
tert-Butylbenzene		<1.00	μg/L	1	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1
sec-Butylbenzene		<1.00	μg/L	1	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1
p-Isopropyltoluene		<1.00	μg/L	1	1
4-Chlorotoluene		<1.00	μg/L	1	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1
n-Butylbenzene		<1.00	μg/L	1	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5
Naphthalene		<5.00	μg/L	1	5
Hexachlorobutadiene		<5.00	μg/L	1	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.8	μg/L	1	50	100	70 - 130
Toluene-d8		50.3	μg/L	1	50	101	70 - 130
4-Bromofluorobenzene		44.9	μg/L	1	50	90	70 - 130

Sample: 222054 - WChamp Onsite 21903

Analysis:	Dissolved Metals	Analytical Method:	S 6010B	QC Batch:	QC27484	Date Analyzed:	2/28/03
Analyst:	RR	Preparation Method:	E 3005A	Prep Batch:	PB25159	Date Prepared:	2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222054 - WChamp Onsite 21903

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		347	mg/L	10	1

Sample: 222055 - WChamp Offsite 21903

Analysis: Dissolved Metals Analytical Method: S 6010B QC Batch: QC27484 Date Analyzed: 2/28/03
Analyst: RR Preparation Method: E 3005A Prep Batch: PB25159 Date Prepared: 2/25/03

Param	Flag	Result	Units	Dilution	RDL
Dissolved Chromium		<0.011	mg/L	1.10	0.01

Sample: 222055 - WChamp Offsite 21903

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC27397 Date Analyzed: 2/24/03
Analyst: JSW Preparation Method: N/A Prep Batch: PB25161 Date Prepared: 2/24/03

Param	Flag	Result	Units	Dilution	RDL
Chloride		479	mg/L	10	1

Quality Control Report
Method Blank

Method Blank QCBatch: QC27363

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1

Method Blank QCBatch: QC27374

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1

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Param	Flag	Results	Units	Reporting Limit
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.3	μg/L	1	50	101	70 - 130
Toluene-d8		50.3	μg/L	1	50	101	70 - 130
4-Bromofluorobenzene		45.0	μg/L	1	50	90	70 - 130

Method Blank   QCBatch: QC27397

Param	Flag	Results	Units	Reporting Limit
Chloride		<1.0	mg/L	1

Method Blank   QCBatch: QC27483

Param	Flag	Results	Units	Reporting Limit
Dissolved Chromium		<0.011	mg/L	0.01

Method Blank QCBatch: QC27484

Param	Flag	Results	Units	Reporting Limit
Dissolved Arsenic		<0.011	mg/L	0.01
Dissolved Chromium		<0.011	mg/L	0.01

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes QCBatch: QC27363

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	13.68	13.63	mg/L	1	12.50	<1.0	109	0	90 - 110	20
Fluoride	2.69	2.63	mg/L	1	2.50	<0.2	107	2	90 - 110	20
Nitrate-N	2.75	2.70	mg/L	1	2.50	<0.2	110	1	90 - 110	20
Sulfate	13.29	13.25	mg/L	1	12.50	<1.0	106	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC27374

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	104	105	μg/L	1	100	<1.00	104	1	70 - 130	20
Benzene	102	100	μg/L	1	100	<1.00	102	2	70 - 130	20
Trichloroethene (TCE)	95.1	93.4	μg/L	1	100	<1.00	95	2	70 - 130	20
Toluene	103	102	μg/L	1	100	<1.00	103	1	70 - 130	20
Chlorobenzene	104	103	μg/L	1	100	<1.00	104	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	49.2	49.7	μg/L	1	50	98	99	70 - 130
Toluene-d8	49.9	50.6	μg/L	1	50	100	101	70 - 130
4-Bromofluorobenzene	46.4	45.3	μg/L	1	50	93	91	70 - 130

Laboratory Control Spikes QCBatch: QC27397

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	13.54	13.58	mg/L	1	12.50	<1.0	108	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC27483

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Aluminum	0.965	0.963	mg/L	1.20	1	<0.055	96	0	75 - 125	20
Dissolved Arsenic	0.438	0.440	mg/L	1.20	0.50	<0.011	87	0	75 - 125	20
Dissolved Barium	0.963	0.953	mg/L	1.20	1	<0.011	96	1	75 - 125	20
Dissolved Boron	0.0387	0.0383	mg/L	1.20	0.05	<0.0055	77	1	75 - 125	20
Dissolved Cadmium	0.254	0.254	mg/L	1.20	0.25	<0.0055	101	0	75 - 125	20
Dissolved Chromium	0.106	0.106	mg/L	1.20	0.10	<0.011	88	0	75 - 125	20
Dissolved Cobalt	0.256	0.256	mg/L	1.20	0.25	<0.0275	102	0	75 - 125	20
Dissolved Copper	0.123	0.121	mg/L	1.20	0.12	<0.0138	98	1	75 - 125	20
Dissolved Iron	0.504	0.506	mg/L	1.20	0.50	<0.055	100	0	75 - 125	20
Dissolved Lead	0.510	0.511	mg/L	1.20	0.50	<0.011	102	0	75 - 125	20
Dissolved Manganese	0.256	0.256	mg/L	1.20	0.25	<0.0275	102	0	75 - 125	20
Dissolved Molybdenum	0.513	0.513	mg/L	1.20	0.50	0.0596	102	0	75 - 125	20
Dissolved Nickel	0.246	0.246	mg/L	1.20	0.25	<0.0275	98	0	75 - 125	20
Dissolved Selenium	0.420	0.428	mg/L	1.20	0.50	<0.055	84	1	75 - 125	20
Dissolved Silver	0.120	0.121	mg/L	1.20	0.12	<0.0138	96	0	75 - 125	20
Dissolved Uranium	0.471	0.469	mg/L	1.20	0.50	<0.022	94	0	75 - 125	20
Dissolved Zinc	0.247	0.246	mg/L	1.20	0.25	<0.0275	98	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes QCBatch: QC27484

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Arsenic	0.438	0.440	mg/L	1.20	0.50	<0.011	87	0	75 - 125	20
Dissolved Chromium	0.106	0.106	mg/L	1.20	0.10	<0.011	106	0	75 - 125	20
Dissolved Lead	0.510	0.511	mg/L	1.20	0.50	<0.011	102	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes QCBatch: QC27363

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1130	1130	mg/L	1	625	372	121	0	48 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC27397

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Chloride	1150	1150	mg/L	1	625	476	107	0	48 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC27483

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Chromium	0.108	0.107	mg/L	1.20	0.10	<0.011	90	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes QCBatch: QC27484

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Dissolved Arsenic	0.498	0.494	mg/L	1.20	0.50	<0.011	94	0	75 - 125	20
Dissolved Chromium	0.197	0.196	mg/L	1.20	0.10	0.097	100	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

CCV (1) QCBatch: QC27363

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	13.62	108	90 - 110	2/21/03
Fluoride		mg/L	2.50	2.63	105	90 - 110	2/21/03
Nitrate-N		mg/L	2.50	2.71	108	90 - 110	2/21/03
Sulfate		mg/L	12.50	12.80	102	90 - 110	2/21/03

ICV (1) QCBatch: QC27363

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	13.58	108	90 - 110	2/21/03
Fluoride		mg/L	2.50	2.71	108	90 - 110	2/21/03
Nitrate-N		mg/L	2.50	2.75	110	90 - 110	2/21/03
Sulfate		mg/L	12.50	13.24	105	90 - 110	2/21/03

CCV (1) QCBatch: QC27374

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50	54.0	108	80 - 120	2/24/03
1,1-Dichloroethene		μg/L	50	47.0	94	80 - 120	2/24/03
Chloroform		μg/L	50	46.0	92	80 - 120	2/24/03
1,2-Dichloropropane		μg/L	50	49.0	98	80 - 120	2/24/03
Toluene		μg/L	50	48.0	96	80 - 120	2/24/03
Chlorobenzene		μg/L	50	49.0	98	80 - 120	2/24/03
Ethylbenzene		μg/L	50	50.0	100	80 - 120	2/24/03
Dibromofluoromethane		μg/L	50	48.2	96	80 - 120	2/24/03
Toluene-d8		μg/L	50	51.0	102	80 - 120	2/24/03
4-Bromofluorobenzene		μg/L	50	48.4	97	80 - 120	2/24/03

CCV (1) QCBatch: QC27397

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	13.57	108	90 - 110	2/24/03

ICV (1) QCBatch: QC27397

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.50	13.58	108	90 - 110	2/24/03

CCV (1) QCBatch: QC27483

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Aluminum		mg/L	2	1.97	98	90 - 110	2/28/03
Dissolved Arsenic		mg/L	1	0.972	97	90 - 110	2/28/03
Dissolved Barium		mg/L	2	2.02	101	90 - 110	2/28/03

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Boron		mg/L	0.10	0.0948	95	90 - 110	2/28/03
Dissolved Cadmium		mg/L	0.50	0.501	100	90 - 110	2/28/03
Dissolved Chromium		mg/L	0.20	0.212	106	90 - 110	2/28/03
Dissolved Cobalt		mg/L	0.50	0.517	103	90 - 110	2/28/03
Dissolved Copper		mg/L	0.25	0.251	100	90 - 110	2/28/03
Dissolved Iron		mg/L	1	1.01	101	90 - 110	2/28/03
Dissolved Lead		mg/L	1	1.03	103	90 - 110	2/28/03
Dissolved Manganese		mg/L	0.50	0.519	104	90 - 110	2/28/03
Dissolved Molybdenum		mg/L	1	1.02	96	90 - 110	2/28/03
Dissolved Nickel		mg/L	0.50	0.514	103	90 - 110	2/28/03
Dissolved Selenium		mg/L	1	0.991	99	90 - 110	2/28/03
Dissolved Silver		mg/L	0.25	0.249	100	90 - 110	2/28/03
Dissolved Uranium		mg/L	1	1.03	103	90 - 110	2/28/03
Dissolved Zinc		mg/L	0.50	0.492	98	90 - 110	2/28/03

ICV (1) QCBatch: QC27483

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Aluminum		mg/L	2	1.98	99	90 - 110	2/28/03
Dissolved Arsenic		mg/L	1	0.980	98	90 - 110	2/28/03
Dissolved Barium		mg/L	2	1.99	100	90 - 110	2/28/03
Dissolved Boron		mg/L	0.10	0.0922	92	90 - 110	2/28/03
Dissolved Cadmium		mg/L	0.50	0.503	101	90 - 110	2/28/03
Dissolved Chromium		mg/L	0.20	0.212	106	90 - 110	2/28/03
Dissolved Cobalt		mg/L	0.50	0.516	103	90 - 110	2/28/03
Dissolved Copper		mg/L	0.25	0.251	100	90 - 110	2/28/03
Dissolved Iron		mg/L	1	1.01	101	90 - 110	2/28/03
Dissolved Lead		mg/L	1	1.03	103	90 - 110	2/28/03
Dissolved Manganese		mg/L	0.50	0.523	105	90 - 110	2/28/03
Dissolved Molybdenum		mg/L	1	1.03	97	90 - 110	2/28/03
Dissolved Nickel		mg/L	0.50	0.514	103	90 - 110	2/28/03
Dissolved Selenium		mg/L	1	1.00	100	90 - 110	2/28/03
Dissolved Silver		mg/L	0.25	0.248	99	90 - 110	2/28/03
Dissolved Uranium		mg/L	1	1.01	101	90 - 110	2/28/03
Dissolved Zinc		mg/L	0.50	0.499	100	90 - 110	2/28/03

CCV (1) QCBatch: QC27484

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1	0.970	97	90 - 110	2/28/03
Dissolved Chromium		mg/L	0.20	0.210	105	90 - 110	2/28/03
Dissolved Lead		mg/L	1	1.01	101	90 - 110	2/28/03

ICV (1) QCBatch: QC27484

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1	0.980	98	90 - 110	2/28/03
Dissolved Chromium		mg/L	0.20	0.212	106	90 - 110	2/28/03
Dissolved Lead		mg/L	1	1.03	103	90 - 110	2/28/03

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # AD3D22116

Company Name: ET&T
Phone #: (505) 397-4882
Address: (Street, City, Zip) [illegible]
Fax #: (505) 397-4701
Contact Person: Todd Choban
Invoice to: (If different from above) 4600 W. Wall, Midland TX 79703
Project #: CH 2100
Project Name: Champion
Project Location: [illegible]
Sampler Signature: [signature]

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO3	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride (Cl)	Chromium (Cr)	Arsenic (As)	~~[illegible]~~		Turn Around Time if different from standard	Hold
222041	W Champ 21903 MW-1	1		X								X		2-19	10:01																X	X					
42	W Champ 21903 MW-2	1		X								X		2-19	8:46																X	X					
43	W Champ 21903 MW-3	1		X								X		2-19	9:17																X	X					
44	W Champ 21903 MW-4	1		X								X		2-19	9:40																X	X					
45	W Champ 21903 MW-5	1		X								X		2-19	9:30																X	X					
46	W Champ 21903 MW-7	1		X								X		2-19	8:20																X	X					
47	W Champ 21903 MW-8	1		X								X		2-19	9:12																X	X					
48	W Champ 21903 MW-9	1		X								X		2-19	9:27																X	X					
49	W Champ 21903 MW-10	1		X								X		2-19	10:16																X	X					
50	W Champ 21903 MW-13	1		X								X		2-19	9:22																X	X					
51	W Champ 21903 MW-14	1		X								X		2-19	9:35																X	X	X				

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	2-19-03	11:40	[signature]	02-19-03	1140
[signature]	02-19-03	1730	Allen Shelton	2/19/03	1730
[signature]	2/19/03	[illegible]	Received at Laboratory by: [signature]	2-21-03	10:48

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 4°
Log-in Review MS

REMARKS: Filter ~~all~~ metal samples before analysis.
☐ Check If Special Reporting Limits Are Needed

Carrier # [illegible] 166 1503633

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C. 11 samples

LAB COPY

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A03022118

Company Name: ET&T
Phone #: (505) 397-4882
Address: (Street, City, Zip) 2540 W. Marland
Fax #: (505) 397-4701
Contact Person: Todd Choban
Invoice to: (If different from above) 4600 W. Wall, Midland TX 79703
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE		SAMPLING: DATE	TIME
220052	WChamp 21903 MW-15	1		X									X			2-19	8:13
53	WChamp 21903 MW-16	~~1~~ 3	nr	X									X			2-19	8:52
54	WChamp Onsite 21903	1		X									X			2-19	10:53
55	WChamp Offsite 21903	1		X									X			2-19	10:40

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride (Cl)	Chromium (Cr)	~~[illegible]~~ (HS)	~~[illegible]~~ (HS)	Volatiles	Turn Around Time if different from standard	Hold
220052																X	X					
53																X	X			X		
54																X	X					
55																X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	2-19-03	11:40	Aaron Henry	02-19-03	1140
Aaron Henry	02-19-03	1730	[signature]	2/19/03	1720
[signature]	2/19/03	[illegible]	Received at Laboratory by: [signature]	2-20-03	10:00

LAB USE ONLY
Intact Y / N (Y)
Headspace Y / N
Temp 4°
Log-in Review [initials]

REMARKS: Filter metal samples before analysis.

☐ Check If Special Reporting Limits Are Needed

Carrier # [illegible] 1703623

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

4 samples-HS

LAB COPY

ATTACHMENT C

CORRELATION OF SOIL DATA TO MONITOR WELL DATA

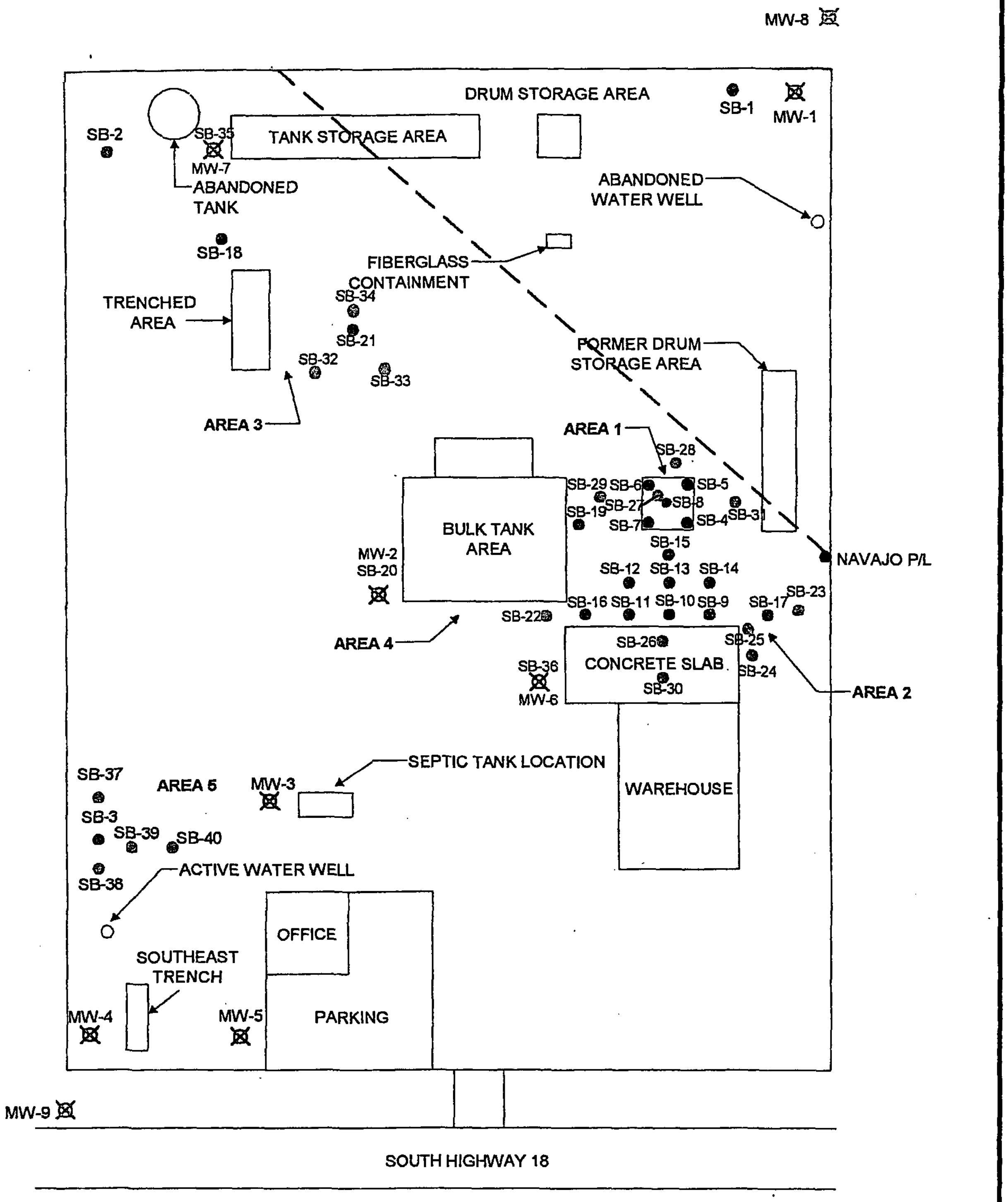
Champion Technology

ETGI Project No. CH2100

ATTACHMENT C

MONITOR WELL #	Proximal Correlation Point (in feet, approx)	DEPTH in feet	SOIL CONC. mg/kg	DATE m/d/y	GW CONC. mg/L
MW-1	SB-1 (18)	0-1	151	8/2/2002	408
				10/21/2002	356
				2/19/2003	435
MW-2	MW-2 (0)	5 - 7	868	08/02/02	372
		15 - 17	3122	10/21/02	397
				02/19/03	384
MW-3	SB-52 (25)	5	53	08/02/02	381
		25	43.7	10/21/02	464
		45	38.7	02/19/03	658
MW-4	MW-14 (50)	5	61.4	08/02/02	354
		30	575	10/21/02	377
		50	243	02/19/03	435
MW-5	MW-14 (50)	5	61.4	08/02/02	346
		30	575	10/21/02	508
		50	243	02/19/03	476
MW-6	MW-6 (0)	3 - 5	3582	08/02/02	443
		13 - 15	1195	10/21/02	469
		23 - 25	197	11/13/02	390
		33 - 35	68.7	02/19/03	533
		43 - 45	57.2		
MW-7	MW-7 (0)	3-5	1339.0	08/02/02	239
		13-15	3388.0	10/21/02	235
		23-25	1579.0	02/19/03	255
		33-35	1480.0		
		43-45	1405.0		
MW-8	SB-24 (34)	3 - 5	198	08/02/02	257
		10 - 12	220	10/21/02	304
		23 - 25	821	02/19/03	397
		38 - 40	166		
MW-9	MW-9 (0)	5	73.9	08/02/02	348
				10/21/02	305
				02/19/03	332
MW-10	MW-10 (0)	5	240	10/21/02	260
		10	153	02/19/03	355
		20	243		
		40	7.8		
MW-11	SB-30 (6)	(SB-30) 3 - 5	<3.0	10/21/02	298
		(SB-30) 15 - 17	33.1	02/19/03	298
	MW-11 (0)	(MW-11) 56	37.6		
MW-12	MW-12 (0)	15	390	10/21/02	357
		45	43.7	02/19/03	353
MW-13	MW-13 (0)	5	2280	10/21/02	464
		10	501	02/19/03	332
MW-14	MW-14 (0)	5	61.4	10/21/02	272
		30	575	02/19/03	342
		50	243		
MW-15	MW-15 (0)	5	46.7	10/21/02	156
		25	37.4	11/13/02	200
		40	137	02/19/03	221
MW-16	MW-16 (0)	5	2820	10/21/02	416
				02/19/03	474

ATTACHMENT D



= SOIL BORINGS DRILLED 9/00

= SOIL BORINGS DRILLED 5/01

= MONITORING WELLS INSTALLED 9/00

= MONITORING WELLS INSTALLED 5/01

= PROPOSED MONITORING WELLS

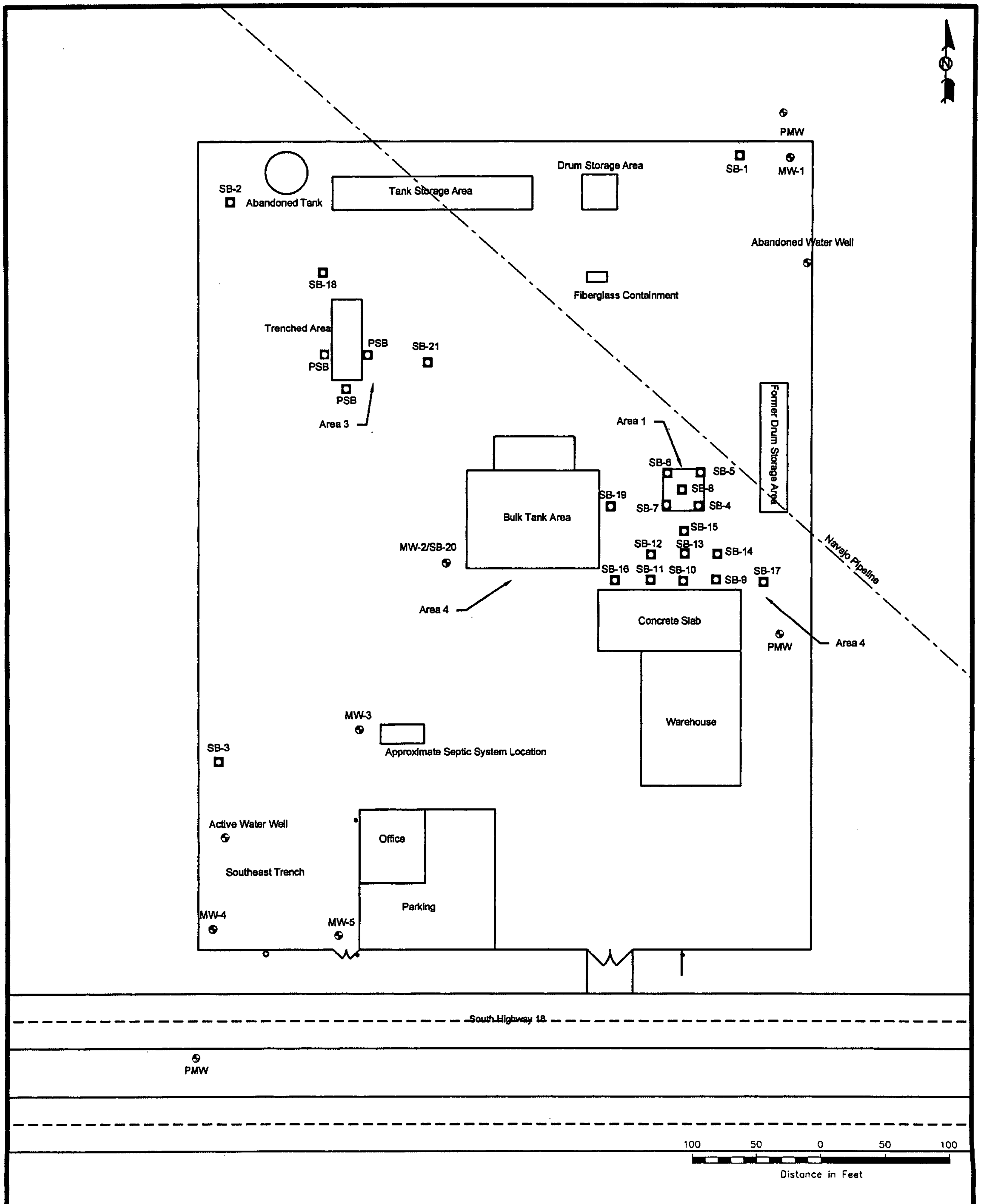
0 60' 0" 100' 0" 200' 0"

W S N E

ENERCON SERVICES, INC.

FIGURE 5:
PROPOSED MONITORING
WELL LOCATIONS
CHAMPION TECHNOLOGIES, INC.

PROJECT NO.: EN332 DATE: 2/04/02 BY: APB



Legend:

- Proposed Monitor Well Location
- Monitor Well Location
- Abandoned Water Well Location
- Pipeline
- Proposed Soil Boring Location
- Soil Boring Location

Site Map

Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

Environmental Technology Group, Inc.

Scale: 1" = 100'	Prep By: JDJ	Checked By: CJ
May 30, 2002	ETGI Project #:CHA2100R	

ATTACHMENT E

Send To Printer Back To TerraServer Change to 11x17 Print Size Show Grid Lines Change to Landscape

USGS **5 km S of Hobbs, New Mexico, United States** 01 Nov 1997

0 .5Km 0 .25Mi

Image courtesy of the U.S. Geological Survey

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USGS **4 km S of Hobbs, New Mexico, United States** 01 Nov 1997

0 1Km 0 .5Mi

Image courtesy of the U.S. Geological Survey

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Send To Printer Back To TerraServer Change to 11x17 Print Size Show Grid Lines Change to Landscape

USGS **5 km S of Hobbs, New Mexico, United States** 01 Nov 1997

0 2Km 0 1Mi

Image courtesy of the U.S. Geological Survey

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Longitude: -103° 7' 43.1"
Latitude: 32° 39' 26.3"

UTM Easting: 675504 meters
UTM Northing: 3614656 meters
UTM Zone: NAD 13

County: LEA

Project: NAPP
Quadrangle:
Date: 19 Sep 1995
Film Type: Black & White

Scale: 1 inch to 400 feet

UTM North is straight up

Source: U.S. Dept of Interior, Geological Survey

AERIAL PHOTOGRAPH OF THE VICINITY OF THE SUBJECT SITE LOCATED AT 4001 S HWY 18, HOBBS

Scale: 1 inch to 800 feet

UTM North is straight up

Longitude: -103° 7' 43.1"
Latitude: 32° 39' 26.3"

UTM Easting: 675504 meters
UTM Northing: 3614656 meters
UTM Zone: NAD 13

County: LEA

Project: NHAP02 474 66
Quadrangle:
Date: 1986/07/19
Film Type: Black & White

Source: U.S. Dept of Interior, Geological Survey

AERIAL PHOTOGRAPH OF THE VICINITY OF THE SUBJECT SITE LOCATED AT 4001 S HWY 18, HOBBS

Scale: 1 inch to 500 feet

UTM North is straight up

Longitude: -103° 7' 43.1"
Latitude: 32° 39' 26.3"

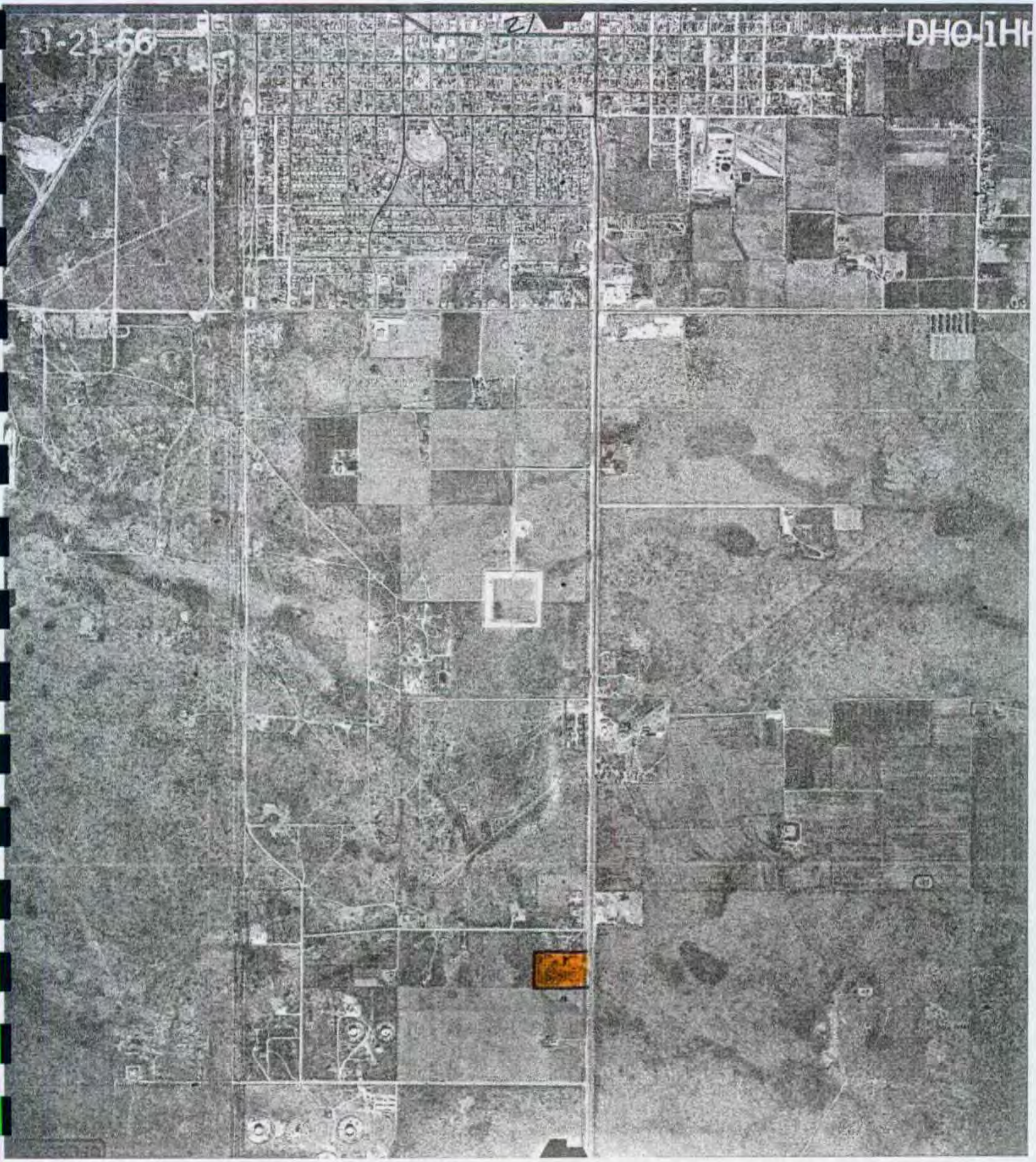
UTM Easting: 675504 meters
UTM Northing: 3614656 meters
UTM Zone: NAD 13

County: LEA

Project: VBQG 1-70
Quadrangle:
Date: 1967
Film Type: Black & White

Source: U.S. Dept of Interior, Geological Survey

AERIAL PHOTOGRAPH OF THE VICINITY OF THE SUBJECT SITE LOCATED AT
4001 S HWY 18, HOBBS



966

1966

ATTACHMENT F

STORK®

SwL

SOUTHWESTERN LABORATORIES

222 Cavalcade Street, 77009-3213
P.O. Box 8768, Houston, Texas 77249-8768
Tel (713) 692-9151 Fax (713) 696-6307

HYDRAULIC CONDUCTIVITY (ASTM D 5084), ORGANIC CONTENT (ASTM D2974) BULK DENSITY(ASTM D2937), MOISTURE CONTENT (ASTM D2216)

Project Name:	Environmental Technoloy Group	Proj. No.:	
Sample ID:	42-45 ft	Lab No.:	51409
Description of Soil:	Pale Brown Caliche Cemented Sand		
Porosity	31.0 %	Fraction Organic Corban = 0.3 %	

Back Pressure Saturation Conditions:		B Coefficient	> or =	0.95
Consolidation and Permeation Conditions:		Effective Stress, psi:	=	30.0
Pipet Length, Lp (cm)	11.237 in 28.542 cm	Pipet Area, a (25.000 cm^3/Lp)	=	0.876 cm^2
		Specific Gravity of Water, G_W	=	1.003

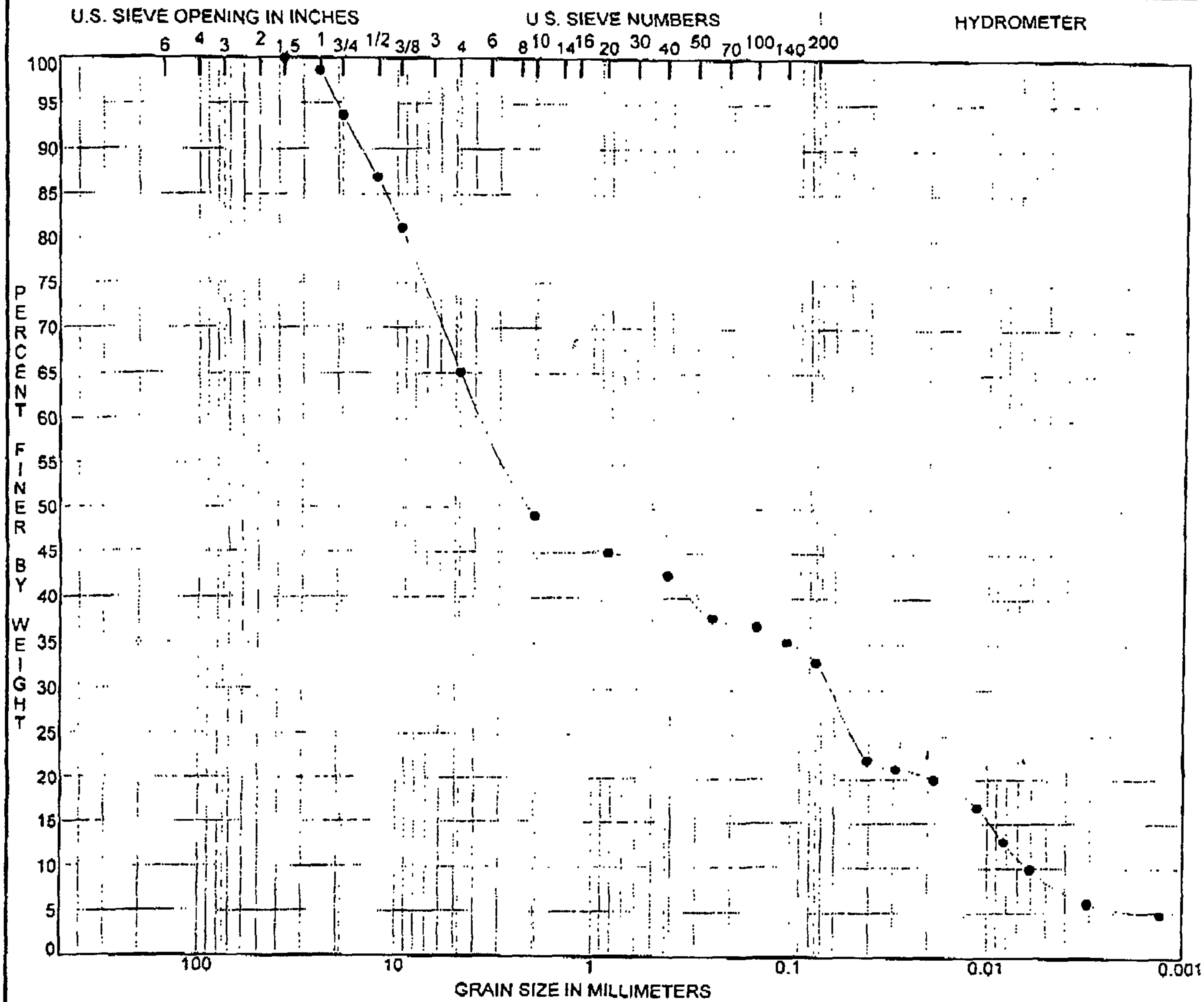
SPECIMEN DIMENSIONS AND PROPERTIES

Item	Initial			Final		
	Input Data	Cor. Factor	Output Data	Input Data	Cor. Factor	Output Data
Sample Diameter	2.825 in	2.54	7.18 cm	2.820 in	2.54	7.16 cm
Sample Area	6.27 in		40.44 cm^2	6.25		40.30 cm^2
Sample Length	3.65 in	2.54	9.27 cm	3.64 in	2.54	9.25 cm
Tare Number	6			100		
Tare Weight (gm)	144.86			130.26		
Wet Soil + Tare (gm)	786.60			608.20		
Dry Soil + Tare (gm)	734.00			542.10		
Water Weight (gm)			52.60			66.10
Dry Soil Weight (gm)			589.14			411.84
Moisture Content (%)			8.9			16.0
Wet Soil Weight (gm)	760.60			798.20		
Wet Bulk Density (pcf)			126.7			133.7
Dry Bulk Density (pcf)			116.3			115.3
Saturation (%)			53.7			95.0
Specific Gravity	2.700		TESTED		ASSUMED	X

HYDRAULIC CONDUCTIVITY TESTING MEASUREMENT

Confining Pressure (psi)			82	Influent Pressure (psi)		52		Effluent Press. (psi)	50.5
Reset?	Meas. Time		ha_{out}	ha_{in}	Temperature	Gradient		k	k_{20}
1=Yes	Date	Time	(cm)	(cm)	(°C)	Min.	Max.	(cm/s)	(cm/s)
1	08/13	16:12:00	24.00	1.00	22.5	10	34		
	08/13	16:23:00	20.65	4.30	22.5	13		9.0E-06	8.5E-06
	08/13	16:36:00	16.85	7.10	22.5	13		8.1E-06	7.6E-06
	08/13	16:45:00	14.40	9.65	22.5	12		9.3E-06	8.7E-06
AVERAGE VALUES						13		8.8E-06	8.3E-06

Calculated by: M. Medi, E.I.T. Date: 08-14-2002



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth, ft	Sample Description	MC%	LL	PL	PI	Cc	Cu
• 42-45 ft	45.0	Pale Brown Caliche Cemented Sand w/Aggregates					0.18	626.8

Boring No.	Depth, ft	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
• 42-45 ft	45.0	37.50	3.87	0.065	0.0062	34.9	32.1	27.7	5.3

PROJECT: Evironmental Technology Group
Midland, Texas

PROJECT NO: Report No.51409
DATE: 8/15/02

Southwestern Laboratories, Inc.

GRADATION CURVES

ATTACHMENT G

Presented at the *9th International Conference on Urban Drainage.* IAHR, IWA, EWRI, and ASCE. Portland, Oregon, September 8-13, 2002.

Compacted Urban Soils Effects on Infiltration and Bioretention Stormwater Control Designs

Robert Pitt, P.E.[*] Shen-En Chen, P.E.[**] and Shirley Clark, P.E.[**]

[*]Department of Civil and Environmental Engineering, The University of Alabama, Tuscaloosa, AL 35487-0205
[**]Department of Civil and Environmental Engineering, The University of Alabama at Birmingham, Birmingham, AL 35226

Abstract

Prior research by Pitt (1987) examined runoff losses from paved and roofed surfaces in urban areas and showed significant losses at these surfaces during the small and moderate sized events of most interest for water quality evaluations. However, Pitt and Durrans (1995) also examined runoff and pavement seepage on highway pavements and found that very little surface runoff entered typical highway pavement. During earlier research, it was also found that disturbed urban soils do not behave as indicated by most stormwater models. Additional tests were therefore conducted to investigate detailed infiltration behavior of disturbed urban soils.

The effects of urbanization on soil structure can be extensive. Infiltration of rain water through soils can be greatly reduced, plus the benefits of infiltration and bioretention devices can be jeopardized. Basic infiltration measurements in disturbed urban soils were conducted during an EPA-sponsored project by Pitt, *et al* (1999a), along with examining hydraulic and water quality benefits of amending these soils with organic composts. Prior EPA-funded research examined the potential of groundwater contamination by infiltrating stormwater (Pitt, *et al,* 1994, 1996, and 1999b). In addition to the information obtained during these research projects, numerous student projects have also been conduced to examine other aspects of urban soils, especially more detailed tests examining soil density and infiltration during lab-scale tests, and methods and techniques to recover infiltration capacity of urban soils. This paper is a summary of this recently collected information and it is hoped that it will prove useful to both stormwater practice designers and to modelers.

Introduction and Summary

The role of urban soils in stormwater management cannot be under-estimated. Although landscaped areas typically produce relatively small fractions of the annual runoff volumes (and pollutant discharges) in most areas, they need to be considered as part of most control scenarios. In stormwater quality management, the simplest approach is to attempt to maintain the relative values of the hydrologic cycle components after development compared to pre-development conditions. This usually implies the use of infiltration controls to compensate for the increased pavement and roof areas. This can be a difficult objective to meet. However, with a better understanding of urban soil characteristics, and how they may be improved, this objective can be more realistically obtained.

Whenever one talks of stormwater infiltration, potential groundwater contamination questions arise. Prior EPA-funded research, an updated book, and a more recent review paper (Pitt, *et al.* 1994, 1996 and 1999b) discuss the potential for this problem. This material shows that is possible to incorporate many stormwater infiltration options in urban areas, as long as suitable care is taken. Infiltration controls should especially be considered in residential areas where the runoff is relatively uncontaminated and surface infiltration can typically be applied. Manufacturing industrial areas and subsurface injection should normally be excluded from stormwater infiltration consideration, in contrast.

Over the past few years, we have conducted several sets of tests, both in the field and in the laboratory. We have found that typical soil compaction results in substantial reductions in infiltration rates, especially for clayey soils, as expected. Sandy soils are better able to withstand compaction, although their infiltration rates are still significantly reduced.

A previous EPA report (Pitt 1999a) describes the results from a series of tests that have examined how the infiltration capacity of compacted soils can be recovered through the use of soil amendments (such as composts). This work has shown that these soil amendments not only allow major improvements in infiltration rates, but also provide added protection to groundwater resources, especially from heavy metal contamination. Newly placed compost amendments, however, may cause increased nutrient discharges until the material is better stabilized (usually within a couple of years). Information collected during research on stormwater filter media (Clark and Pitt 1999) has also allowed us to develop a listing of desirable traits for soil amendments and to recommend several media that may be good candidates as soil amendments.

The NRCS (2001), especially in New Jersey, have also been active in investigating problems associated with urban soils during land development.

Alternative stormwater management options can be examined using the Source Loading and Management Model (SLAMM) and this soil information. The use of bioretention controls, such as roof gardens for example, can result in almost complete removal of roof runoff from the surface runoff component. It must be recognized that matching pre-development runoff characteristics through stormwater controls at the time of development may not be possible. Certainly, the careful use of different types of infiltration and bioretention controls, especially in low and medium density developments, are more likely to meet pre-development conditions than if these controls are not used. Accurate hydrologic modeling and correct design of these practices that consider the unique features of urban soils will help in minimizing many types of urban receiving water problems.

Areas have increased runoff after development due to a number of reasons. The most important cause is usually the increased amount of pavement and roof areas. However, as noted in this paper, urban soils also undergo major modifications that also result in increased runoff. These soil modifications may mostly affect infiltration (as described in the following paper sections), but other soil changes also occur. Specifically, reductions in the organic content of the surface soil layers and removal of plants will reduce the evapotranspiration (ET) losses and contribute to increases in runoff. This is especially important in areas where surface soils are relatively shallow and located above impermeable layers (such as the glacial till in the Seattle area, the location of our research on amended soils that was conducted to increase the ET rates of urban soils, Harrison, et al. 1997 and Pitt, et al. 1999a).

The soil compaction during construction and use likely causes most of the reduced infiltration capacity of urban soils. In addition, many more subtle changes will also reduce infiltration, such as the replacement of native plants which typically have much deeper root systems with shallow-rooted grasses. Many of these subtle changes contribute to the variations in the measured infiltration rates noted during these experiments reported in this paper. The removal of the native surface soils results in the removal of organic matter, mature and deep-rooted plants, and the soils themselves, often exposing a deeper soil material that is much less able to allow infiltration or evapotranspiration.

Infiltration Mechanisms. Infiltration of rainfall into pervious surfaces is controlled by three mechanisms, the maximum possible rate of entry of the water through the soil/plant surface, the rate of movement of the water through the vadose (unsaturated) zone, and the rate of drainage from the vadose zone into the saturated zone. During periods of rainfall excess, long-term infiltration is the least of these three rates, and the runoff rate after depression storage is filled is the excess of the rainfall intensity greater than the infiltration rate. The infiltration rate typically decreases during periods of rainfall excess. Storage capacity is recovered when the drainage from the vadose zone is faster than the infiltration rate.

The surface entry rate of water may be affected by the presence of a thin layer of silts and clay particles at the surface of the soil and vegetation. These particles may cause a surface seal that would decrease a normally high infiltration rate. The movement of water through the soil depends on the characteristics of the underlying soil. Once the surface soil layer is saturated, water cannot enter soil faster than it is being transmitted away, so this transmission rate affects the infiltration rate during longer events. The depletion of available storage capacity in the soil affects the transmission and drainage rates. The storage capacity of soils depends on the soil thickness, porosity, and the soil-water content. Many factors, such as soil texture, root development, soil insect and animal bore holes, structure, and presence of organic matter, affect the effective porosity of the soil.

The infiltration of water into the surface soil is responsible for the largest abstraction (loss) of rainwater in natural areas. The infiltration capacity of most soils allows low intensity rainfall to totally infiltrate, unless the soil voids became saturated or the underlain soil was much more compact than the top layer (Morel-Seytoux 1978). High intensity rainfalls generate substantial runoff because the infiltration capacity at the upper soil surface is surpassed, even though the underlain soil might still be very dry.

The classical assumption is that the infiltration capacity of a soil is highest at the very beginning of a storm and decreases with time (Willeke 1966). The soil-water content of the soil, whether it was initially dry or wet from a recent storm, will have a great effect on the infiltration capacity of certain soils (Morel-Seytoux 1978). Horton (1939) is credited with defining infiltration capacity and deriving an appropriate working equation. Horton defined infiltration capacity as "...the maximum rate at which water can enter the soil at a particular point under a given set of conditions" (Morel-Seytoux 1978).

Natural infiltration is significantly reduced in urban areas due to several factors: the decreased area of exposed soils, removal of surface soils and exposing subsurface soils, and compaction of the soils during earth moving and construction operations. The decreased areas of soils are typically associated with increased runoff volumes and peak flow rates, while the effects of soil disturbance are rarely considered. Infiltration practices have long been applied in many areas to compensate for the decreased natural infiltration areas, but with limited success. Silting of the infiltration areas is usually responsible for early failures of these devices, although compaction from heavy traffic is also a recognized problem. More recently, "bioretention" practices, that rely more on surface infiltration in extensively vegetated areas, are gaining in popularity and appear to be a more robust solution than conventional infiltration trenches. These bioretention devices also allow modifications of the soil with amendments.

Groundwater Impacts Associated with Stormwater Infiltration. One of the major concerns of stormwater infiltration is the question of adversely impacting groundwater quality. Pitt, *et al.* (1994, 1996 and 1999b) reviewed many studies that investigated groundwater contamination from stormwater infiltration. They developed a methodology to evaluate the contamination potential of stormwater nutrients, pesticides, other organic compounds, pathogens, metals, salts and other dissolved minerals, suspended solids, and gases, based on the concentrations of the contaminant in stormwater, the treatability of the contaminant, and the mobility of the contaminant through the vadose zone. Stormwater salts, some pathogens, 1,3-dichlorobenzene, pyrene, fluoranthene, and zinc, were found to have high potentials for contaminating groundwater, under some conditions. Generally, there is only a minimal potential of contaminating groundwaters from residential area stormwaters (chlorides in northern areas remains a concern), especially if surface infiltration is used.

Prior to urbanization, groundwater recharge resulted from infiltration of precipitation through pervious surfaces, including grasslands and woods. This infiltrating water was relatively uncontaminated. With urbanization in humid areas, the permeable soil surface area through which recharge by infiltration could occur was reduced. This resulted in much less groundwater recharge and greatly increased surface runoff and reduced dry weather flows. In addition, the waters available for recharge generally carried increased quantities of pollutants. With urbanization, new sources of groundwater recharge also occurred, including recharge from domestic septic tanks, percolation basins and industrial waste injection wells, and from agricultural and residential irrigation. In arid areas, the groundwater recharge may actually increase with urbanization due to artificial irrigation, resulting in increased dry weather base flows.

The following paragraphs (from Pitt, *et al.* 1994 and 1996) describe the stormwater pollutants that have the greatest potential of adversely affecting groundwater quality during stormwater infiltration. Table 1 is a summary of the pollutants found in stormwater that may cause groundwater contamination problems for various reasons. This table does not consider the risk associated with using groundwater contaminated with these pollutants. Causes of concern include high mobility (low sorption potential) in the vadose zone, high abundance (high concentrations and high detection frequencies) in stormwater, and high soluble fractions (small fraction associated with particulates which would have little removal potential using conventional stormwater sedimentation controls) in the stormwater. The contamination potential is the lowest rating of the influencing factors. As an example, if no pretreatment was to be used before percolation through surface soils, the mobility and abundance criteria are most important. If a compound was mobile, but was in low abundance (such as for VOCs), then the groundwater contamination potential would be low. However, if the compound was mobile and was also in high abundance (such as for sodium chloride, in certain conditions), then the groundwater contamination would be high. If sedimentation pretreatment was to be used before infiltration, then most of the particulate-bound pollutants will likely be removed before infiltration. In this case, all three influencing factors (mobility, abundance in stormwater, and soluble fraction) would be considered important. As an example, chlordane would have a low contamination potential with sedimentation pretreatment, while it would have a moderate contamination potential if no pretreatment was used. In addition, if subsurface infiltration/injection was used instead of surface percolation, the compounds would most likely be more mobile, making the abundance criteria the most important, with some regard given to the filterable fraction information for operational considerations.

This table is only appropriate for initial estimates of contamination potential because of the simplifying assumptions made, such as the likely worst case mobility measures for sandy soils having low organic content. If the soil was clayey and/or had a high organic content, then most of the organic compounds would be less mobile than shown on this table. The abundance and filterable fraction information is generally applicable for warm weather stormwater runoff at residential and commercial area outfalls. The concentrations and detection frequencies (and corresponding contamination potentials) would likely be greater for critical source areas (especially vehicle service areas) and critical land uses (especially manufacturing industrial areas).

With biofiltration through amended urban soils, the lowered groundwater contamination potential shown for surface infiltration with prior treatment, would generally apply. With gravel-filled infiltration trenches having no grass filtering or other pre-treatment, or with discharge in disposal wells, the greater groundwater contamination potentials shown for injection with minimal pretreatment would generally apply.

The stormwater pollutants of most concern (those that may have the greatest adverse impacts on groundwaters) include:

- nutrients: nitrate has a low to moderate groundwater contamination potential for both surface percolation and subsurface infiltration/injection practices because of its relatively low concentrations found in most stormwaters. However, if the stormwater nitrate concentration was high, then the groundwater contamination potential would also likely be high.

Table 1. Groundwater Contamination Potential for Stormwater Pollutants (Source: Pitt, *et al.* 1996)

	Compounds	Mobility (sandy/low organic soils)	Abundance in storm-water	Fraction filterable	Contamination potential for surface infilt. and no pretreatment	Contamination potential for surface infilt. with sediment-ation	Contamination potential for sub-surface inj. with minimal pretreatment
Nutrients	nitrates	mobile	low/moderate	high	low/moderate	low/moderate	low/moderate
Pesticides	2,4-D	mobile	low	likely low	low	low	low
	γ-BHC (lindane)	intermediate	moderate	likely low	moderate	low	moderate
	malathion	mobile	low	likely low	low	low	low
	atrazine	mobile	low	likely low	low	low	low
	chlordane	intermediate	moderate	very low	moderate	low	moderate
	diazinon	mobile	low	likely low	low	low	low
Other organics	VOCs	mobile	low	very high	low	low	low
	1,3-dichloro-benzene	low	high	high	low	low	high
	anthracene	intermediate	low	moderate	low	low	low
	benzo(a) anthracene	intermediate	moderate	very low	moderate	low	moderate
	bis (2-ethylhexyl) phthalate	intermediate	moderate	likely low	moderate	low?	moderate
	butyl benzyl phthalate	low	low/moderate	moderate	low	low	low/moderate
	fluoranthene	intermediate	high	high	moderate	moderate	high
	fluorene	intermediate	low	likely low	low	low	low
	naphthalene	low/inter.	low	moderate	low	low	low
	penta-chlorophenol	intermediate	moderate	likely low	moderate	low?	moderate
	phenanthrene	intermediate	moderate	very low	moderate	low	moderate
	pyrene	intermediate	high	high	moderate	moderate	high
Pathogens	enteroviruses	mobile	likely present	high	high	high	high
	Shigella	low/inter.	likely present	moderate	low/moderate	low/moderate	high
	Pseudomonas aeruginosa	low/inter.	very high	moderate	low/moderate	low/moderate	high
	protozoa	low/inter.	likely present	moderate	low/moderate	low/moderate	high
Heavy metals	nickel	low	high	low	low	low	high
	cadmium	low	low	moderate	low	low	low
	chromium	inter./very low	moderate	very low	low/moderate	low	moderate
	lead	very low	moderate	very low	low	low	moderate
	zinc	low/very low	high	high	low	low	high
Salts	chloride	mobile	seasonally high	high	high	high	high

• pesticides: lindane and chlordane have moderate groundwater contamination potentials for surface percolation practices (with no pretreatment) and for subsurface injection (with minimal pretreatment). The groundwater contamination potentials for both of these compounds would likely be substantially reduced with adequate sedimentation pretreatment. Pesticides have been mostly found in urban runoff from residential areas, especially in dry-weather flows associated with landscaping irrigation runoff.

• other organics: 1,3-dichlorobenzene may have a high groundwater contamination potential for subsurface infiltration/injection (with minimal pretreatment). However, it would likely have a lower groundwater contamination potential for most surface percolation practices because of its relatively strong sorption to vadose zone soils. Both pyrene and fluoranthene would also likely have high groundwater contamination potentials for subsurface infiltration/injection practices, but lower contamination potentials for surface percolation practices because of their more limited mobility through the unsaturated zone (vadose zone). Others (including benzo(a)anthracene, bis (2-ethylhexyl) phthalate, pentachlorophenol, and phenanthrene) may also have moderate groundwater contamination potentials, if surface percolation with no pretreatment, or subsurface injection/infiltration is used. These compounds would have low groundwater contamination potentials if surface infiltration was used with sedimentation pretreatment. Volatile organic compounds (VOCs) may also have high groundwater contamination potentials if present in the stormwater (likely for some industrial and commercial facilities and vehicle service establishments). The other organics, especially the volatiles, are mostly found in industrial areas. The phthalates are found in all areas. The PAHs are also found in runoff from all areas, but they are in higher concentrations and occur more frequently in industrial areas.

• pathogens: enteroviruses likely have a high groundwater contamination potential for all percolation practices and subsurface infiltration/injection practices, depending on their presence in stormwater (likely if contaminated with sanitary sewage). Other pathogens, including *Shigella*, *Pseudomonas aeruginosa*, and various protozoa, would also have high groundwater contamination potentials if subsurface infiltration/injection practices are used without disinfection. If disinfection (especially by chlorine or ozone) is used, then disinfection byproducts (such as trihalomethanes or ozonated bromides) would have high groundwater contamination potentials. Pathogens are most likely associated with sanitary sewage contamination of storm drainage systems, but several bacterial pathogens are commonly found in surface runoff in residential areas.

• heavy metals: nickel and zinc would likely have high groundwater contamination potentials if subsurface infiltration/injection was used. Chromium and lead would have moderate groundwater contamination potentials for subsurface infiltration/injection practices. All metals would likely have low groundwater contamination potentials if surface infiltration was used with sedimentation pretreatment. Zinc is mostly found in roof runoff and other areas where galvanized metal comes into contact with rainwater.

• salts: chloride would likely have a high groundwater contamination potential in northern areas where road salts are used for traffic safety, irrespective of the pretreatment, infiltration or percolation practice used. Salts are at their greatest concentrations in snowmelt and early spring runoff in northern areas.

Prior Infiltration Measurements in Disturbed Urban Soils. A series of 153 double ring infiltrometer tests were conducted in disturbed urban soils in the Birmingham, and Mobile, Alabama, areas (Pitt, *et al.* 1999a). The tests were organized in a complete 23 factorial design (Box, *et al.* 1978) to examine the effects of soil-water, soil texture, and soil density (compaction) on water infiltration through historically disturbed urban soils. Ten sites were selected representing a variety of desired conditions (compaction and texture) and numerous tests were conducted at each test site area. Soil-water content and soil texture conditions were determined by standard laboratory soil analyses. Compaction was measured in the field using a cone penetrometer and confirmed by the site history. From 12 to 27 replicate tests were conducted in each of the eight experimental categories in order to measure the variations within each category for comparison to the variation between the categories:

Category	Soil Texture	Compaction	Soil-Water Content	Number of Tests
1	Sand	Compact	Saturated	18
2	Sand	Compact	Dry	21
3	Sand	Non-compact	Saturated	24
4	Sand	Non-compact	Dry	12
5	Clay	Compact	Saturated	18
6	Clay	Compact	Dry	15
7	Clay	Non-compact	Saturated	27
8	Clay	Non-compact	Dry	18

Soil infiltration capacity was expected to be related to the time since the soil was disturbed by construction or grading operations (turf age). In most new developments, compacted soils are expected to be dominant, with reduced infiltration compared to pre-construction conditions. In older areas, the soil may have recovered some of its infiltration capacity due to root structure development and from soil insects and other digging animals. Soils having a variety of times since development, ranging from current developments to those about 50 years old, were included in the sampling program. These test sites did not adequately represent a wide range of age conditions for each test condition, so the effects of age could not be directly determined. The WI Dept. of Natural Resources and the University of Wisconsin (Roger Bannerman, WI DNR, personal communication) have conducted some soil infiltration tests on loamy soils to examine the effects of age of urbanization on soil infiltration rates. Their preliminary tests have indicated that as long as several decades may be necessary before compacted loam soils recover to conditions similar to pre-development conditions.

Three TURF-TEC Infiltrometers were used within a meter from each other to indicate the infiltration rate variability of soils in close proximity. These devices have an inner ring about 64 mm (2.5 in.) in diameter and an outer ring about 110 mm (4.25 in.) in diameter. The water depth in the inner compartment starts at 125 mm (5 in.) at the beginning of the test, and the device is pushed into the ground 50 mm (2 in.). Both the inner and outer compartments were filled with clean water by first filling the inner compartment and allowing it to overflow into the outer compartment. Readings were taken every five minutes for a duration of two hours. The incremental infiltration rates were calculated by noting the drop of water level in the inner compartment over each five minute time period.

The weather occurring during this testing phase enabled most site locations to produce a paired set of dry and wet tests. The dry tests were taken during periods of little rain, which typically extended for as long as two weeks with sunny, hot days. The saturated tests were conducted after through soaking of the ground by natural rain or by irrigation. The soil-water content was measured in the field using a portable soil moisture meter and in the laboratory using standard soil-moisture content methods. Saturated conditions occurred for most soils when the soil-moisture content exceeded about 20%.

The texture of the samples were determined by ASTM standard sieve analyses (ASTM D 422 –63 (*Standard Test Method For Particle Size Analysis of Soils*). "Clayey" soils had 30 to 98% clay, 2 to 45% silt, and 2 to 45% sand. This category included clay and clay loam soils. "Sandy" soils had 65 to 95% sand, 2 to 25% silt, and 5 to 35% clay. This category included sand, loamy sand, and sandy loam soils. No natural soils were tested that were predominately silt or loam.

The soil compaction at each site was measured using a cone penetrometer (DICKEY-john Soil Compaction Tester Penetrometer). Penetrometer measurements are sensitive to water content. Therefore, these measurements were not made for saturated conditions and the degree of soil compaction was also determined based on the history of the specific site (especially the presence of parked vehicles, unpaved vehicle lanes, well-used walkways, etc.). Compact soils were defined as having a reading of greater than 300 psi at a depth of three inches. Other factors that were beyond the control of the experiments, but also affect infiltration rates, include bioturbation by ants, gophers and other small burrowing animals, worms, and plant roots.

Figures 1 and 2 are 3D plots of the field infiltration data, illustrating the effects of soil-moisture and compaction, for both sands and clays. Four general conditions were observed to be statistically unique, as listed on Table 2. Compaction has the greatest effect on infiltration rates in sandy soils, with little detrimental effects associated with higher soil-water content conditions. Clay soils, however, are affected by both compaction and soil-water content. Compaction was seen to have about the same effect as saturation on clayey soils, with saturated and compacted clayey soils having very little effective infiltration.

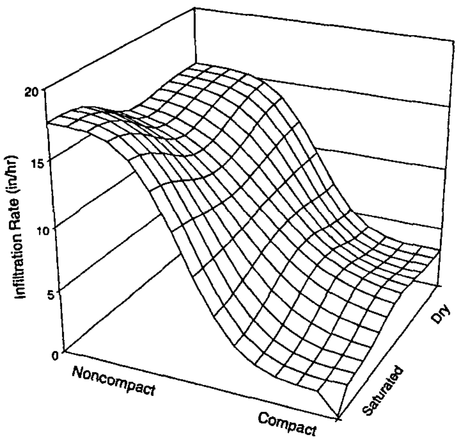


Figure 1. Three dimensional plot of infiltration rates for sandy soil conditions.

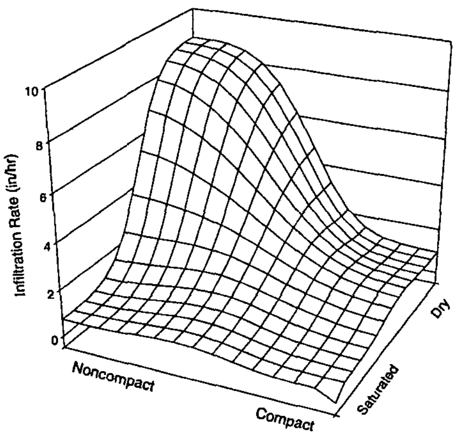


Figure 2. Three dimensional plot of infiltration rates for clayey soil conditions.

Table 2. Infiltration Rates for Significant Groupings of Soil Texture, Soil-Water Content, and Compaction Conditions

Group	Number of tests	Average infiltration rate (in/hr)	COV
noncompacted sandy soils	36	13	0.4
compact sandy soils	39	1.4	1.3
noncompacted and dry clayey soils	18	9.8	1.5
all other clayey soils (compacted and dry, plus all wetter conditions)	60	0.2	2.4

The Horton infiltration equation was fitted to each set of individual site test data and the equation coefficients were statistically compared for the different site conditions. Because of the wide range in observed rates for each of the major categories, it may not matter which infiltration rate equation is used. The residuals are all relatively large and it is much more important to consider the random nature of infiltration about any fitted model and to address the considerable effect that soil compaction has on infiltration. It may therefore be best to use a Monte Carlo stochastic component in a runoff model to describe these variations for disturbed urban soils.

As one example of an approach, Table 3 shows the measured infiltration rates for each of the four major soil categories, separated into several time increments. This table shows the observed infiltration rates for each test averaged for different storm durations (15, 30, 60, and 120 minutes). Also shown are the ranges and COV values for each duration and condition. Therefore, a routine in a model could select an infiltration rate, associated with the appropriate soil category, based on the storm duration. The selection would be from a random distribution (likely a log-normal distribution) as described from this table.

Figures 3 through 6 are probability plots showing the observed infiltration rates for each of the four major soil categories, separated by these event durations. Each figure has four separate plots representing the storm event averaged infiltration rates corresponding to four storm durations from 15 minutes to 2 hours. As indicated previously, the infiltration rates became relatively steady after about 30 to 45 minutes during most tests. Therefore, the 2 hour averaged rates could likely be used for most events of longer duration. There is an obvious pattern on these plots which show higher rates for shorter rain durations, as expected. The probability distributions are closer to being log-normally distributed than normally distributed. However, with the large number of zero infiltration rate observations for three of the test categories, log-normal probability plots were not possible.

The soil texture and compaction classification would remain fixed for an extended simulation period (unless the soils underwent an unlikely recovery operation to reduce the soil compaction), but the clayey soils would be affected by the antecedent interevent period which would define the soil-water level at the beginning of the event. Recovery periods are highly dependent on site specific soil and climatic conditions and are calculated using various methods in continuous simulation urban runoff models. The models assume that the recovery period is much longer than the period needed to produce saturation conditions. As noted above, saturation (defined here as when the infiltration rate reaches a constant value) occurred under an hour during these tests. A simple estimate of the time needed for recovery of soil-water levels is given by the USDA's Natural Resources Conservation Service (NRCS) (previously the Soil Conservation Service, SCS) in TR-55 (McCuen 1998). The NRCS developed three antecedent soil-water conditions as follows:

Table 3. Soil Infiltration Rates for Different Categories and Storm Durations (all rate values are in inches per hour)

Sand, Non-compacted

	15 minutes	30 minutes	60minutes	120 minutes
mean	19.5	17.4	15.2	13.5
median	18.8	16.5	16.5	15.4
std. dev.	8.8	8.1	6.7	6.0
min	1.5	0.0	0.0	0.0
max	38.3	33.8	27.0	24.0
COV	0.4	0.5	0.4	0.4
number	36	36	36	36

Sand, Compacted

	15 minutes	30 minutes	60minutes	120 minutes
mean	3.6	2.2	1.6	1.5
median	2.3	1.5	0.8	0.8
std. dev.	6.0	3.6	2.0	1.9
min	0.0	0.0	0.0	0.0
max	33.8	20.4	9.0	6.8
COV	1.7	1.6	1.3	1.3
number	39	39	39	39

Clay, Dry Non-compacted

	15 minutes	30 minutes	60minutes	120 minutes
mean	9.0	8.8	10.8	9.3
median	5.6	4.9	4.5	3.0
std. dev.	9.7	8.8	15.1	15.0
min	0.0	0.0	0.0	0.0
max	28.5	26.3	60.0	52.5
COV	1.1	1.0	1.4	1.6
number	18	18	18	18

All other clayey soils (compacted and dry, plus all saturated conditions)

	15 minutes	30 minutes	60minutes	120 minutes
mean	1.3	0.7	0.5	0.2
median	0.8	0.8	0.0	0.0
std. dev.	1.6	1.4	1.2	0.4
min	0.0	0.0	0.0	0.0
max	9.0	9.8	9.0	2.3
COV	1.2	1.9	2.5	2.4

number	60	60	60	60

- Condition I: soils are dry but not to the wilting point
- Condition II: average conditions
- Condition III: heavy rainfall, or lighter rainfall and low temperatures, have occurred within the last five days, producing saturated soil.

McCuen (1998) presents Table 4 (from the NRCS) that gives seasonal rainfall limits for these three conditions. Therefore, as a rough guide, saturated soil conditions for clay soils may be assumed if the preceding 5-day total rainfall was greater than about 25 mm (one inch) during the winter or greater than about 50 mm (two inches) during the summer. Otherwise, the "other" infiltration conditions for clay should be assumed.

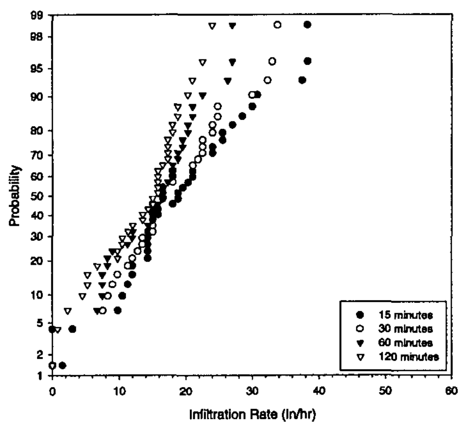


Figure 3. Probability plots for infiltration measurements for noncompacted, sandy soil, conditions.

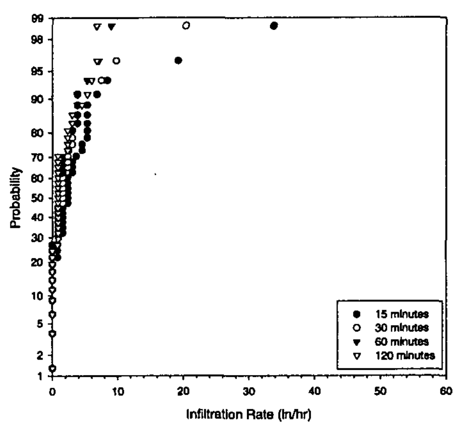
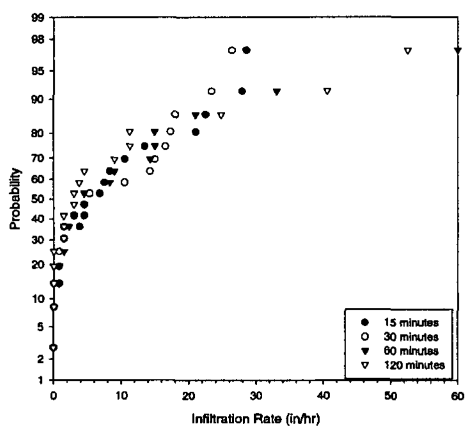


Figure 4. Probability plots for infiltration measurements for compacted, sandy soil, conditions.



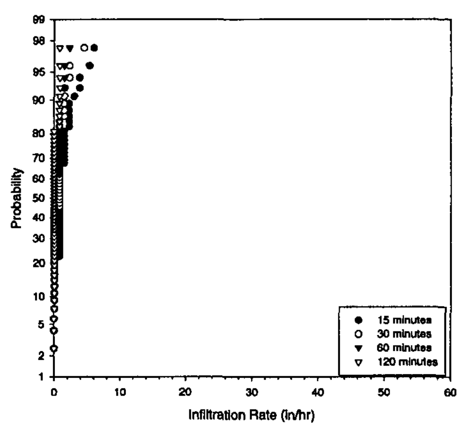


Figure 5. Probability plots for infiltration measurements for dry-noncompacted, clayey soil, conditions.	**Figure 6. Probability plots for infiltration measurements for wet-noncompacted, dry-compacted, and wet-compacted, clayey soil conditions.**

Table 4. Total Five-Day Antecedent Rainfall for Different Soil-Water Content Conditions (in.)

	Dormant Season	Growing Season
Condition I	<0.5	<1.4
Condition II	0.5 to 1.1	1.4 – 2.1
Condition III	>1.1	> 2.1

Laboratory Controlled Compaction Tests

Laboratory Test Methods. Previous research (Pitt, et al. 1999a), as summarized above, has identified significant reductions in infiltration rates in disturbed urban soils. The tests reported in the following discussion were recently conducted under more controlled laboratory conditions and represent a wider range of soil textures and known soil density values compared to the previous field tests.

Laboratory permeability test setups were used to measure infiltration rates associated with different soils having different textures and compactions. These tests differed from normal permeability tests in that high resolution observations were made at the beginning of the tests to observe the initial infiltration behavior. The tests were run for up to 20 days, although most were completed (when steady low rates were observed) within 3 or 4 days.

Test samples were prepared by mixing known quantities of sand, silt, and clay to correspond to defined soil textures, as shown in Table 5. The initial sample moistures were determined and water was added to bring the initial soil moistures to about 8%, per standard procedures (ASTM D1140-54), reflecting typical "dry" soil conditions and to allow water movement through the soil columns. Table 6 lists the actual soil moisture levels at the beginning of the tests, along with the actual dry bulk soil densities and indications of root growth problems.

Three methods were used to modify the compaction of the soil samples: hand compaction, Standard Proctor Compaction, and Modified Proctor Compaction. Both Standard and Modified Proctor Compactions follow ASTM standard (D 1140-54). All tests were conducted using the same steel molds (115.5 mm tall with 105 mm inner diameter, having a volume of 1000 cm^3). The Standard Proctor compaction hammer is 24.4 kN and has a drop height of 300 mm. The Modified Proctor hammer is 44.5 kN and has a drop height of 460 mm. For the Standard Proctor setup, the hammer was dropped on the test soil in the mold 25 times on each of three soil layers, while for the Modified Proctor test, the heavier hammer was also dropped 25 times, but on each of five soil layers. The Modified Proctor test therefore resulted in much more compacted soil. The hand compaction was done by gentle hand pressing to force the soil into the mold with as little compaction as possible. A minimal compaction effort was needed to keep the soil in contact with the mold walls and to prevent short-circuiting during the tests. The hand compacted soil specimens therefore had the least amount of compaction. The head for these permeability tests was 1.14 meter (top of the water surface to the top of the compaction mold). The water temperature during the test was kept consistent at 75°F.

Table 5. Test Mixtures During Laboratory Tests

	Pure Sand	Pure Clay	Pure Silt	Sandy Loam	Clayey Loam	Silt Loam	Clay Mix
% Sand	100			72.1	30.1	19.4	30
% Clay		100		9.2	30.0	9.7	50
% Silt			100	18.7	39.9	70.9	20

Table 6. Soil Moisture and Density Values during Laboratory Tests

Soil Types	Compaction Method	Dry Bulk Density Before Test (g/cc)	Ideal Bulk Density	Root Growth Potential Problems (NRCS 2001): Bulk Densities that may Affect Root Growth	Root Growth Potential Problems (NRCS 2001): Bulk Densities that Restrict Root Growth	Before Test Moisture Content (%)	After Test Moisture Content (%)
Silt	Hand	1.508		X		9.7	22.9
	Standard	1.680		X		8.4	17.9
	Modified	1.740			X	7.8	23.9
Sand	Hand	1.451	X			5.4	21.6
	Standard	1.494	X			4.7	16.4
	Modified	1.620		X		2.0	16.1
Clay	Hand	1.242		X		10.6	N/A
Sandy Loam	Hand	1.595		X		7.6	20.2
	Standard	1.653		X		7.6	18.9
	Modified	1.992			X	7.6	9.9
Silt Loam	Hand	1.504		X		8.1	23.0
	Standard	1.593		X		8.1	27.8
	Modified	1.690		X		8.1	27.8
Clay Loam	Hand	1.502		X		9.1	24.1
	Standard	1.703			X	9.1	19.0
	Modified	1.911			X	9.1	14.5
Clay Mix	Hand	1.399		X		8.2	42.2
	Standard	1.685			X	8.2	N/A

Modified	1.929	X	8.2	N/A

As shown on Table 6, a total of 7 soil types were tested representing all main areas of the standard soil texture triangle. Three levels of compaction were tested for each soil, resulting in a total of 21 tests. However, only 15 tests resulted in observed infiltration. The Standard and Modified Proctor clay tests, the Modified Proctor clay loam, and all of the clay mixture tests did not result in any observed infiltration after several days and those tests were therefore stopped. The "after test" moisture levels generally corresponded to the "saturated soil" conditions of the earlier field measurements.

Also shown on Table 6 are indications of root growth problems for these soil densities, based on the NRCS Soil Quality Institute 2000 report, as summarized by the Ocean County Soil Conservation District (NRCS 2001). The only soil test mixtures that were in the "ideal" range for plant growth were the hand placed and standard compacted sands. Most of the modified compacted test mixtures were in the range that are expected to restrict root growth, the exceptions were the sand and silt loam mixtures. The rest of the samples were in the range that may affect root growth. These tests cover a wide range of conditions that may be expected in urban areas.

Laboratory Test Results. Figures 7 through 11 show the infiltration plots obtained during these laboratory compaction tests. Since the hydraulic heads for these experiments was a little more than 1 m, the values obtained would not be very applicable to typical rainfall infiltration values. However, they may be comparable to bioretention or other infiltration devices that have substantial head during operation. The final percolation values may be indicative of long-term infiltration rates, and these results do illustrate the dramatic effects of soil compaction and texture on the infiltration rates.

Most recently, another series of controlled laboratory tests were conducted to better simulate field conditions and standard double-ring infiltration tests, as shown in Table 7. Six soil samples were tested, each at the three different compaction levels described previously. The same permeability test cylinders were used as in the above tests, but plastic extensions were used to enable small depths of standing water on top of the soil test mixtures (4.3 inches, or 11.4 cm, maximum head). Most of these tests were completed within 3 hours, but some were continued for more than 150 hours. Only one to three observation intervals were used during these tests, so they did not have sufficient resolution or enough data points to attempt to fit to standard infiltration equations. However, as noted previously, these longer-term averaged values may be more suitable for infiltration rate predictions due to the high natural variability observed during the initial field tests. As shown, there was very little variation between the different time periods for these tests, compared to the differences between the compaction or texture groupings. Also, sandy soils can still provide substantial infiltration capacities, even when compacted greatly, in contrast to the soils having clays that are very susceptible to compaction.

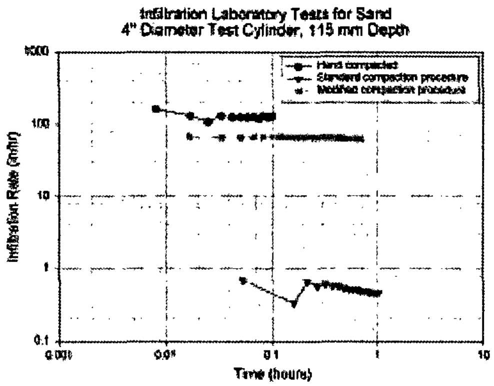


Figure 7. Sandy soil laboratory infiltration test results.

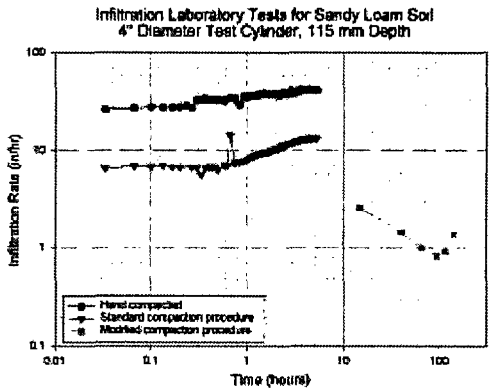


Figure 8. Sandy loam soil laboratory infiltration test results.

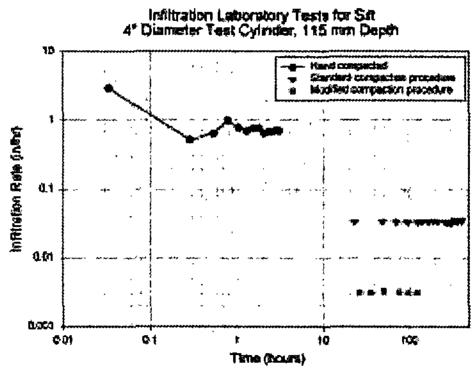


Figure 9. Silty soil laboratory infiltration test results.

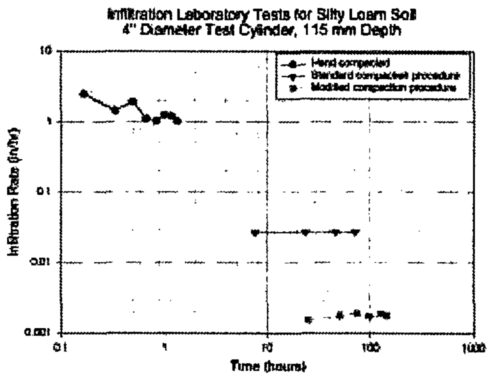


Figure 10. Silty loam soil laboratory infiltration test results.

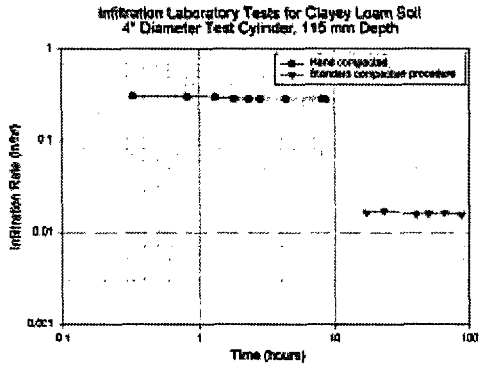


Figure 11. Clayey loam soil laboratory infiltration test results.

Table 7. Low-Head Laboratory Infiltration Tests for Various Soil Textures and Densities (densities and observed infiltration rates)

	Hand Compaction	Standard Compaction	Modified Compaction
Sand (100% sand)	Density: 1.36 g/cc (ideal for roots) 0 to 0.48 hrs: 9.35 in/hr 0.48 to 1.05 hrs: 7.87 in/hr 1.05 to 1.58 hrs: 8.46 in/hr	Density: 1.71 g/cc (may affect roots) 0 to 1.33 hrs: 3.37 in/hr 1.33 to 2.71 hrs: 3.26 in/hr	Density: 1.70 g/cc (may affect roots) 0 to 0.90 hrs: 4.98 in/hr 0.90 to 1.83 hrs: 4.86 in/hr 1.83 to 2.7 hrs: 5.16 in/hr
Silt (100% silt)	Density: 1.36 g/cc (close to ideal for roots) 0 to 8.33 hrs: 0.26 in/hr 8.33 to 17.78 hrs: 0.24 in/hr 17.78 to 35.08 hrs: 0.25 in/hr	Density: 1.52 g/cc (may affect roots) 0 to 24.22 hrs: 0.015 in/hr 24.22 to 48.09: 0.015 in/hr	Density: 1.75 g/cc (will likely restrict roots) 0 to 24.20 hrs: 0.0098 in/hr 24.20 to 48.07: 0.0099 in/hr
Clay (100% clay)	Density: 1.45 g/cc (may affect roots) 0 to 22.58 hrs: 0.019 in/hr 22.58 to 47.51 hrs: 0.016 in/hr	Density: 1.62 g/cc (will likely restrict roots) 0 to 100 hrs: <2X10-3 in/hr	Density: 1.88 g/cc (will likely restrict roots) 0 to 100 hrs: <2X10-3 in/hr
Sandy Loam (70% sand, 20% silt, 10% clay)	Density: 1.44 g/cc (close to ideal for roots) 0 to 1.17 hrs: 1.08 in/hr 1.17 to 4.37 hrs: 1.40 in/hr 4.37 to 7.45 hrs: 1.45 in/hr	Density: 1.88 g/cc (will likely restrict roots) 0 to 3.82 hrs: 0.41 in/hr 3.82 to 24.32 hrs: 0.22 in/hr	Density: 2.04 g/cc (will likely restrict roots) 0 to 23.50 hrs: 0.013 in/hr 23.50 to 175.05 hrs: 0.011 in/hr
Silty Loam (70% silt, 20% sand, 10% clay)	Density: 1.40 g/cc (may affect roots) 0 to 7.22 hrs: 0.17 in/hr 7.22 to 24.82 hrs: 0.12 in/hr 24.82 to 47.09 hrs: 0.11 in/hr	Density: 1.64 g/cc (will likely restrict roots) 0 to 24.62 hrs: 0.014 in/hr 24.62 to 143.52 hrs: 0.0046 in/hr	Density: 1.98 g/cc (will likely restrict roots) 0 to 24.62 hrs: 0.013 in/hr 24.62 to 143.52 hrs: 0.0030 in/hr
Clay Loam (40% silt, 30% sand, 30% clay)	Density: 1.48 g/cc (may affect roots) 0 to 2.33 hrs: 0.61 in/hr 2.33 to 6.13 hrs: 0.39 in/hr	Density: 1.66 g/cc (will likely restrict roots) 0 to 20.83 hrs: 0.016 in/hr 20.83 to 92.83 hrs: 0.0066 in/hr	Density: 1.95 g/cc (will likely restrict roots) 0 to 20.83 hrs: <0.0095 in/hr 20.83 to 92.83 hrs: 0.0038 in/hr

Conclusions

Very large errors in soil infiltration rates can easily be made if published soil maps are used in conjunction with most available models for typically disturbed urban soils, as these tools ignore compaction. Knowledge of compaction (which can be measured using a cone penetrometer, or estimated based on expected activity on grassed areas, or directly measured) can be used to more accurately predict stormwater runoff quantity, and to better design bioretention stormwater control devices. In most cases, the mapped soil textures were similar to what was actually measured in the field. However, important differences were found during many of the 153 tests. Table 2 showed the 2-hour averaged infiltration rates and their COVs in each of the four major groupings. Although these COV values are generally high (0.5 to 2), they are much less than if compaction was ignored. These data can be fitted to conventional infiltration models, but the high variations within each of these categories makes it difficult to identify legitimate patterns, implying that average infiltration rates within each event may be most suitable for predictive purposes. The remaining uncertainty can probably best be described using Monte Carlo components in runoff models.

The field measurements of infiltration rates during these tests were all substantially larger than expected, but comparable to previous standard double-ring infiltrometer tests in urban soils. Other researchers have noted the general over-predictions of ponding infiltrometers compared to actual observations during natural rains. In all cases, these measurements are suitable to indicate the relative effects of soil texture, compaction, and soil-water on infiltration rates. Also, the measured values can be directly used to predict the infiltration rates that may be expected from stormwater infiltration controls that utilize ponding (most infiltration and bioretention devices).

Table 8 compares the infiltration test results from these field and laboratory investigations. The low-head laboratory and field results were similar, except for the higher rates observed for the noncompacted clay field tests. These higher results could reflect actual macro-structure conditions in the natural soils, or the compaction levels obtained in the laboratory were unusually high compared to field conditions. In addition, the high-head laboratory test results produced infiltration rates substantially greater than for the similar low-head results for sandy soil conditions, but not for the other soils. We have scheduled a "final" series of tests over the coming summer to examine some of these issues again. We expect to report these results during the conference presentation. Specifically, we anticipate repeating the low-head laboratory infiltration tests, but with higher resolution measurements. In addition, we will conduct a new series of field measurements, and will specifically measure soil density along with moisture and texture. Finally, we will use selected field soil samples for controlled compaction tests in the laboratory. These tests should enable us to specifically investigate alternative conventional infiltration equations, and examine needed modifications for typical compaction conditions; we will confirm a simple method to measure compaction in the field; and we will verify the laboratory measurements for field applications.

The use of soil amendments, or otherwise modifying soil structure and chemical characteristics, is becoming an increasingly popular stormwater control practice. However, little information is available to reasonably quantify benefits and problems associated with these changes. An example examination of appropriate soil chemical characteristics, along with surface and subsurface runoff quantity and quality, was shown during the Seattle tests (Pitt, *et al.* 1999a). It is recommended that researchers considering soil modifications as a stormwater management option conduct similar local tests in order to understand the effects these soil changes may have on runoff quality and quantity. During the Seattle tests, the compost was found to have significant sorption and ion exchange capacity that was responsible for pollutant reductions in the infiltrating water. However, the newly placed compost also leached large amounts of nutrients to the surface and subsurface waters. Related tests with older test plots in the Seattle area found much less pronounced degradation of surface and subsurface flows with aging of the compost amendments. In addition, it is likely that the use of a smaller fraction of compost would have resulted in fewer negative problems, while providing most of the benefits. Again, local studies using locally available compost and soils, would be needed to examine this emerging stormwater management option more thoroughly.

Table 8. Comparison of Infiltration Rates from Different Test Series

Group	Field Test Average Infiltration Rates (in/hr and COV)	Low-head Laboratory Test Results	High-head Laboratory Test Results
Noncompacted sandy soils	13 (0.4)	8 to 9.5 in/hr	30 to 120 in/hr
compact sandy soils	1.4 (1.3)	3 to 5 in/hr	0.5 to 60 in/hr
Noncompacted and dry clayey soils	9.8 (1.5)	0.4 to 0.6 in/hr	0 to 0.3 in/hr
All other clayey soils (compacted and dry, plus all wetter conditions)	0.2 (2.4)	0 to 0.4 in/hr	0 to 0.02 in/hr
Noncompacted silty and loamy soils	na	0.25 to 0.6 in/hr	0.5 to 3 in/hr
Compacted silty and loamy soils	na	0 to 0.02 in/hr	0 to 0.04 in/hr

This information can be effectively used in the modeling of small-scale stormwater controls, such as bioretention devices located near buildings and gass swales. As an example of the benefits these devices may provide in typical urban areas, WinSLAMM, the Source Loading and Management Model (www.winslamm.com) (Pitt and Voorhees 1995) was used to calculate the expected reductions in annual runoff volumes for several different controls. Table 9 illustrates these example reductions for Phoenix (9.3 in/year of rainfall), Seattle (33.4 in/yr), and Birmingham, AL (52.5 in/yr). The reductions are only for roof runoff control, but illustrate the magnitude of the reductions possible. The calculations are based on long-term continuous simulations (about 5 years of historical rain records were used). The test site is a single-family residential area with silty soils and directly connected roofs. In this type of area, directly connected residential roofs produce about 30 to 35% of the annual runoff volume for the rain conditions in these three cities.

Table 9. Example Calculations of Benefits of On-Site Stormwater Controls (% reduction of annual roof runoff volumes).

	Phoenix, AZ	Seattle, WA	Birmingham, AL
Roof garden (1in/hr amended soils, 60ft^2 per house)	96%	100%	87%
Cistern for stormwater storage and reuse of roof water (375ft^3 per house)	88	67	66
Disconnect roof runoff to allow drainage onto silty soils	91	87	84
Green roof (vegetated roof surface)	84	77	75

The roof garden option using amended soils provides large reductions, even for a relatively small treatment area. This is especially useful for sites with extremely poor soils or small landscaped areas. Bioretention options can be sized to provide specifically desired runoff reductions, considering actual, or improved, soil conditions. This table also shows potential runoff reductions associated with storage of roof runoff for later reuse for on-site irrigation, and an option for a green roof, where the roof surface is actually vegetated allowing increased evapotranspiration.

This table shows that even for a wide range of rainfall conditions, these options can provide substantial reductions in runoff volume from residential roofs. An estimated 20 to 35% reductions in annual runoff volumes for the complete drainage areas would be expected for these alternatives. Obviously, these controls can be applied to the runoff from other areas, in addition to the roofs, for additional runoff reductions.

Acknowledgements

Much of the infiltration measurements were carried out as class projects by University of Alabama at Birmingham hydrology, experimental design, and soil mechanics students. Choo Keong Ong directed the laboratory compaction tests, while Janice Lantrip directed the field infiltration tests. Specific thanks are given to the following students who assisted with the projects summarized here: Robecca Martin, Stacey Sprayberry, Muhammad Salman, Wade Burcham, Brian Adkins, Sarah Braswell, Scott Lee, and Jennifer Harper. Partial support was provided by the Urban Watershed Management Branch, U.S. Environmental Protection Agency, Edison, NJ for portions of the field measurements, including the amended soil tests. EPA support was also provided for the research on potential groundwater contamination associated with stormwater infiltration. Thomas O'Connor was the EPA project officer and provided valuable project guidance.

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GW-199

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 South Ulster Street, Suite 930 ▪ Denver, CO 80237 ▪ (303) 850-9200 ▪ Fax (303) 850-9214

March 29, 2005

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St Francis Drive
Santa Fe, NM 87505

Re: Record of Transmittal, Status Update Letter, Champion Technologies Inc. Site (AP-14)
4001 South Highway 18, Hobbs, New Mexico

Dear Mr. Price:

On behalf of Champion Technologies, Inc., Environmental Strategies Consulting LLC is enclosing 2 copies of NOVA Safety and Environmental's "Stage 2 Abatement Plan, Status Update Letter to Comprehensive Status Report", dated March 24, 2005, for the above-referenced site.

Sincerely,

Manley Tom, P.E.
Technical Manager

Enclosure

cc/encl: Chris Williams – New Mexico Oil Conservation Division
cc w/o encl: Dean Sibert – Champion Technologies Inc.
Dwight Vorpahl - Champion Technologies Inc.
John Simon – Environmental Strategies Consulting, LLC

March 24, 2005

Mr. Dean Sibert
Global Director, QHSE Affairs
Champion Technologies
3355 West Alabama # 400
Houston, TX 77098

RE: Abatement Plan (AP-14)
Stage 2 Abatement Plan
Status Update Letter to Comprehensive Status Report
Champion Facility, Hobbs, NM GW-199

Mr. Sibert:

NOVA Safety and Environmental (NOVA), on behalf of Champion Technologies (Champion) is pleased to submit this Status Update Letter to the Comprehensive Status Report (CSR) prepared by Environmental Technology, Inc (ETGI). This letter is intended as a summary of activities conducted at the Champion facility located in Hobbs, New Mexico since submittal of the CSR dated March, 2003 to the New Mexico Oil Conservation Division (NMOCD). Site activities were conducted to address the NMOCD letter dated August 5, 2003 and to maintain groundwater monitoring activities. For reference, a site map is provided as Figure 1.

NOVA
safety and environmental

This Status Update Letter specifically addresses the following activities:

- Backfilling of Areas 2 and 3 and clay cap installation at Area 2;
- Removal of chloride-impacted soil from areas associated with sample locations D-34, D-35 and SB-3;
- Hydraulic conductivity of compacted caliche surfaces.
- Plug and Abandonment of buried water well discovered in Area 2;
- Plug and Abandonment of discovered lines from warehouse in Area 2;
- Quarterly groundwater sampling results through the third quarter of 2004;
- Groundwater summary data and trends;
- Installation of monitor well near facility entrance (MW-18)

Backfilling of Area 2 and Area 3

Backfilling of Area 2 and 3 (Figure 1) commenced on September 3, 2003. Caliche fill was placed into the excavations in twelve to eighteen-inch lifts. Water was applied to the caliche backfill and lifts to enhance compaction. Density readings were collected to demonstrate 90% and greater compaction (Table 1). Clay cap installation in Area 2 commenced on September 12, 2003 at seven feet below ground surface (bgs). It was placed in 6-inch lifts and water was added to the clay and compacted. Density readings were collected at the 6-foot and 5-foot depths during clay cap installation. The clay cap was graded into a convex form to promote shedding off of infiltration water from Area 2. The clay cap was then covered with an additional five feet of compacted caliche fill. The surface of the excavation was graded to the adjacent ground elevation to promote stormwater run-off via sheet flow. Backfill and compaction of Area 2 and 3 was completed on September 24, 2003.

Excavation of Locations D-34, D-35 and SB-3

Elevated chloride concentrations associated with sample locations D-34, D-35 and SB-3 were excavated on September 19, 2003. Confirmation soil samples were collected and analyzed for chlorides (Figure 2). The analytical results for sample D-34 and Sample D-35 indicated chloride concentrations of 15,000 mg/kg and 1380 mg/kg at 8 feet bgs respectively. After additional excavation of D-34 area to 13 feet bgs and re-sampling, the analytical results for sample SD-34-13 indicated chloride concentrations at 14,300 mg/kg. On October 1, 2003 this area was excavated down to 18 feet bgs and a confirmation sample collected. The sample results for SD-34-18 indicated chloride concentrations at 11,900 mg/kg. On October 2, 2003 this area was further excavated to 20 feet bgs and a confirmation sample collected. The sample results for SD-34-20 indicated chloride concentrations at 9030 mg/kg. Laboratory analytical reports for chloride investigation/confirmation can be found in Attachment 2. This excavation was terminated at 20 feet bgs due to refusal of the backhoe bucket after encountering an extremely indurated caliche horizon similar to the base of the excavation in Area 2.

An assessment of the chlorides in this area was completed by installing soil borings and collecting soil samples for chloride analysis. On November 20, 2003 four soil borings (SB-65—SB-68) were completed outside of the excavated area associated with sample location D-34 (Figure 2). Soil boring logs are located in Attachment 4. Three soil samples were collected from each of the borings to determine if chloride had migrated below the indurated caliche horizon encountered at 20 feet bgs. Analytical results indicate chloride concentrations ranged from 166-580 mg/kg at 20 feet bgs (Table 2). Chloride concentrations below this depth are all less than 100mg/kg. Based on these results it can be concluded that chloride concentrations associated with sample location D-34 are limited to a depth of 20 feet or less. During all assessment activities, no subsurface water or moist zones were encountered.

The area associated with Area 5, sample SB-3 was excavated to a depth of 2 feet bgs and confirmation samples collected that yielded chloride concentrations at 2850 and 3680 mg/kg (Figure 2). This excavation southeast of monitor well MW-13 was backfilled with caliche material and compacted. Excavated material is presently stockpiled on plastic, onsite.

How DEEP???

Compacted Caliche Surface

Three soil samples were collected from the compacted caliche surface that covers the yard (Figure 3). These samples were submitted for permeability, moisture and dry weight analyses on August 25, 2003, September 5, 2003, and September 10, 2003. The permeability results for the sample collected on August 25, 2003, was 1.39E-04 cm/sec, September 5, 2003, 4.56E-5cm/sec and the September 10, 2003 sample indicated 1.46E-04 cm/sec. Field density test completed in the yard showed dry density readings of 98.4% and 101.1%. Laboratory test results are found in Attachment 1. This data indicates there are currently unmodified areas in the yard that do not meet NMOCD permeability criteria requirements (hydraulic conductivity <1.0E-5 or slightly higher). ??.

Buried Water Well and Lines in Area 2

On August 13, 2003, a water sample was collected from the water well discovered beneath the bulk storage containment during excavation of Area 2. The water well was gauged and sampled for chemicals of concern. The analysis illustrates no significant impact to groundwater (Attachment 3). Cadmium at 0.012 mg/l and Manganese at 0.286 mg/l were above the New Mexico Water Quality Control Commission (NMWQCC) standards. This data was submitted to the NMOCD with a request to plug and abandon the water well. The request was granted. On September 3, 2003, ETGI removed the well casing to the extent possible, filled the open borehole with a cement grout and welded a cap on top of the remaining casing.

All lines discovered entering the Area 2 excavation from the warehouse were removed. Additional discovered lines entering the Area 2 excavation from beneath the remaining containment area were packed with bentonite grout and pinched closed.

Quarterly Groundwater Monitoring

Quarterly groundwater sampling was conducted on November 4th –5th, 2003, March 17th, May 16, June 24th, August 11 and October 5th-6th, 2004 Analytical reports are provided in Attachment 3. The data indicates that dissolved chromium concentrations remain above NMWQCC standards of 0.05 mg/l in monitor wells MW-4 and MW-13. During the June and October, 2004 sampling event, monitor wells MW-10 and MW-14 also display chromium concentrations above the NMWQCC standards. The on-site and off-site domestic water wells continue to be non-detect for dissolved chromium. Summary data for dissolved chromium and chloride concentrations in groundwater are provided as Table 3 and 4.

A groundwater gradient map was constructed from the most recent monitoring data (October 5-6, 2004) and is provided as Figure 4. A groundwater concentration map for chloride and dissolved chromium was constructed from this data and is provided as Figure 5. Groundwater elevation data is provided as Table 5.

Installation of Monitor Well(s)

Monitor well MW-18 was installed near the east entrance to the facility on November 17, 2003 (Figure 1). Twenty (20) feet of screen was installed between fifty (50) and seventy (70) feet bgs. A boring log and monitor well completion schematic is located in Attachment 4. Monitor well MW-18 will monitor groundwater conditions at the eastern (down-gradient) perimeter of the site. The last sampling event (October 5-6, 2004) at monitor well MW-12 which is located approximately 100 feet west (up-gradient) of MW-18, had a dissolved chromium concentration of 0.019 mg/l and monitor well MW-18 had a dissolved chromium concentration of 0.025 mg/l.

Soil cuttings generated during drilling activities were placed with the stockpile of excavated material from the area associated with the excavation of sample location D-34. This material will need to be appropriately treated or disposed.

Chromium Source Investigation

An NMOCD approved workplan to investigate an additional chromium source on the southern side of the Champion property has been initiated. This investigation involves installation of temporary piezometers to determine the up-gradient boundary of the chromium plume observed in monitor wells MW-4, MW-13 and MW-14. This activity commenced on November 18th, 2003. Two temporary piezometers had been installed prior to the notification by Champion to temporarily cease all field activities. Piezometer boring log schematics are located in Attachment 4.

Chromium Treatment Pilot Test

A pilot test to determine radius of influence for groundwater injection treatment was initiated. The pilot test was terminated prior to conclusion at the request of Champion.

Slug and Pump Test Report

Slug and Pump tests were conducted on the Champion property to determine hydraulic conductivity in the saturated zone. A slug test was performed initially to gather data to establish pumping rates for a planned short-term aquifer pump test. The average hydraulic conductivity as determined from the slug and pump tests was 6.9 ft/day. The program used for data analysis was AquiferTest v. 3.5. A complete report on slug and pump test results is provided as Attachment 5.

Sincerely,

Todd K Choban

Todd K Choban
Vice-President Technical Services
NOVA Safety and Environmental

Enclosures:

Enclosures:

Figures:

Figure 1	Site Plan
Figure 2	Chloride Confirmation Sample Locations
Figure 3	Yard Permeability Sample Locations
Figure 4	Groundwater Gradient Map (10/5/04)
Figure 5	Groundwater Concentration Map (10/5/04)

Tables:

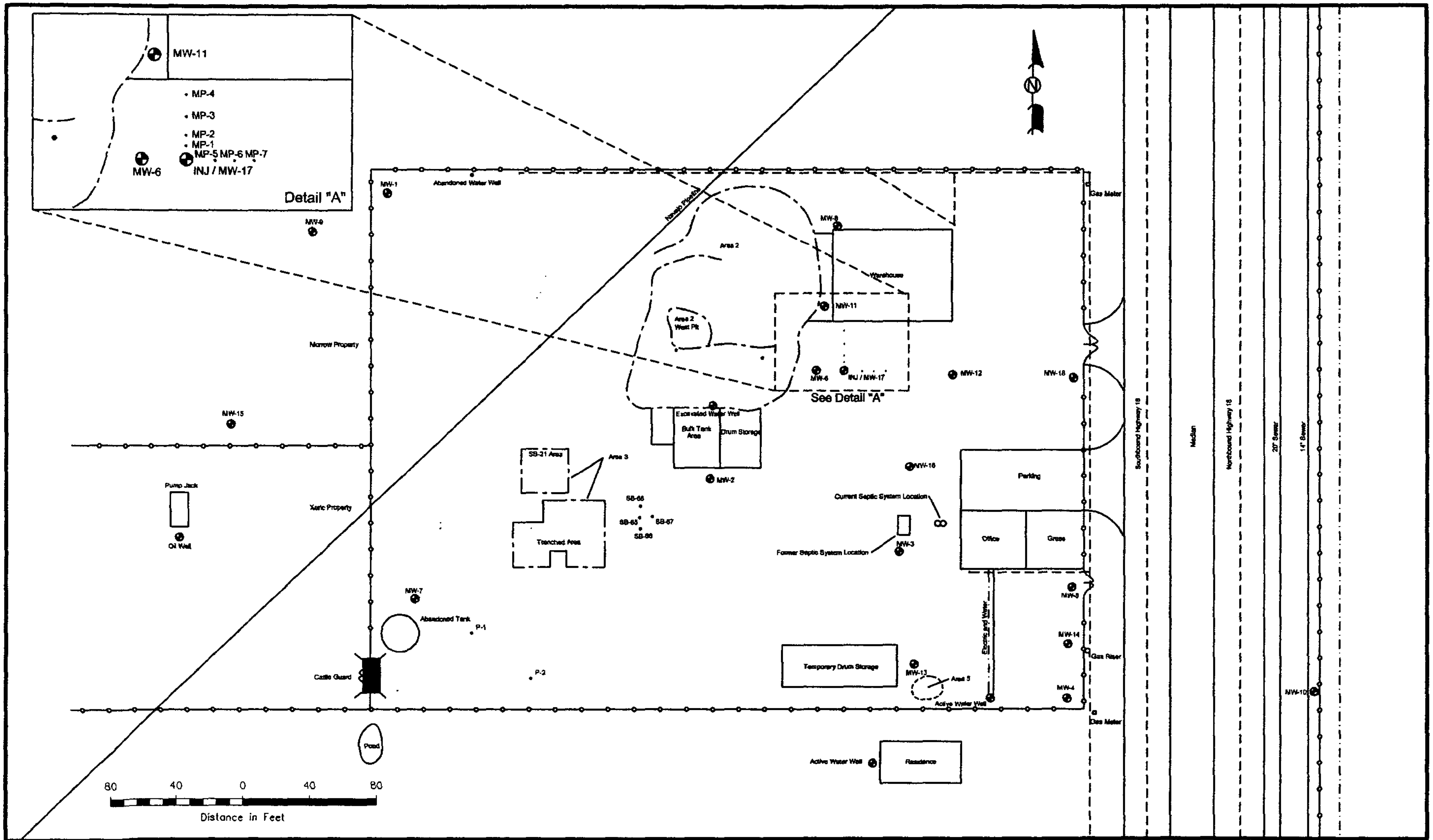
Table 1	Laboratory Compaction Test Results.
Table 2	Summary of Chloride Confirmation Samples.
Table 3	Summary of Dissolved Chromium Concentrations in Monitor Wells and Water Wells.
Table 4	Summary of Chloride Concentrations in Monitor Wells and Water Wells.
Table 5	Groundwater Elevations.

Attachments:

Attachment 1	Compaction and Permeability Test Results.
Attachment 2	Analytical Reports of Soil Confirmation Samples
Attachment 3	Analytical Reports for Monitor Wells, Water Wells and Excavated Wells
Attachment 4	Monitor Wells, Soil Borings, Piezometer Boring Logs and Completion Details
Attachment 5	Report on Slug Test and Pump Test

Enclosures
Volume 1 of 2

Figures



Legend

Former Excavation	Utility Pole Location
Fence	Overhead Utility Line
MW-1 Monitor Well	P-1 Piezometer Location
Pipeline	SB-65 Soil Boring Location

Figure 1

Site Plan

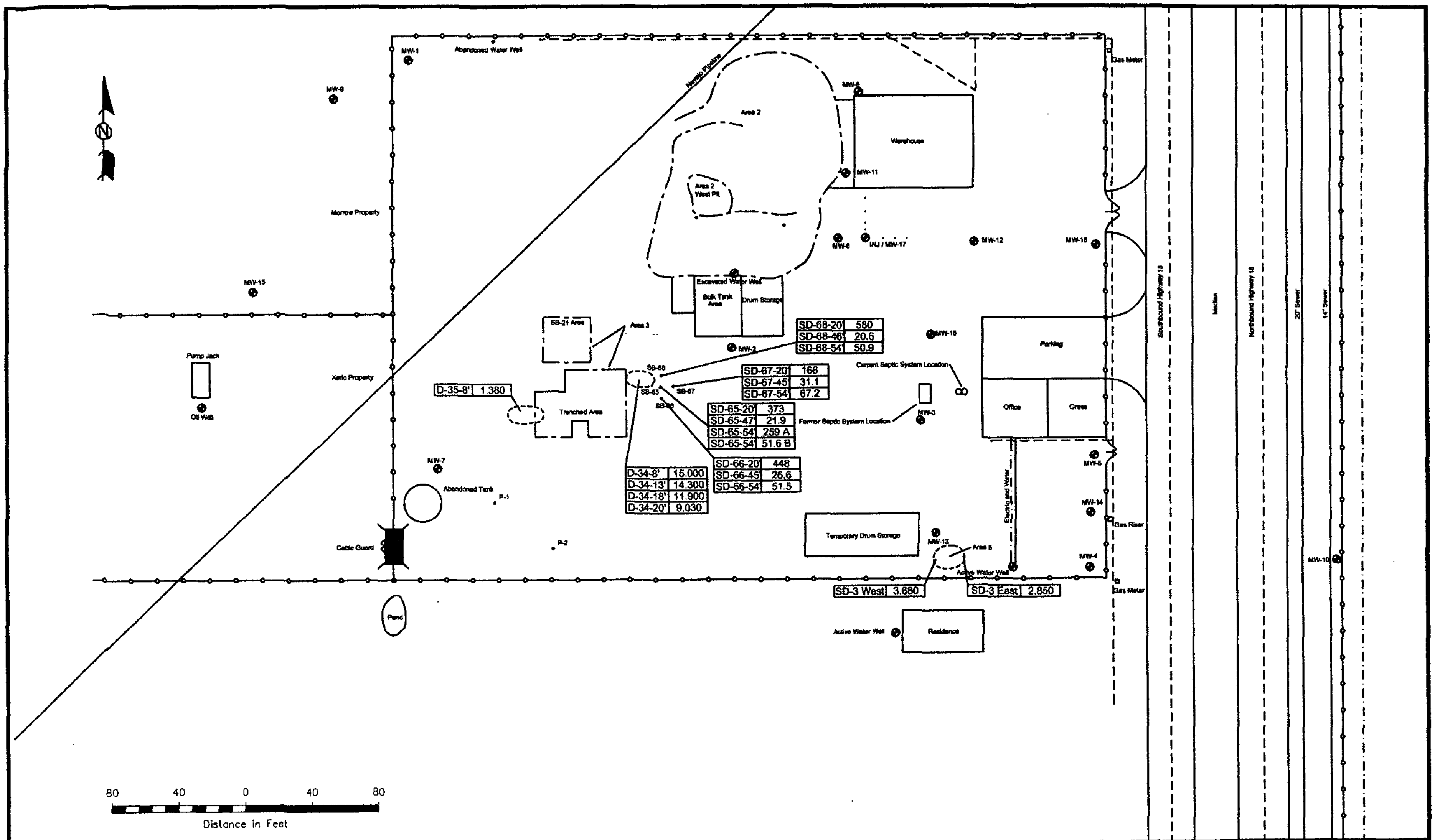
Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80' | Prep By: cds | Checked By: TKC

August 13, 2004



Legend

— — —	Former Excavation	o	Utility Pole Location	SD-35-8' 1.380	Sample Location and Chloride Concentration
—o—	Fence	— · — · —	Overhead Utility Line		
MW-1	Monitor Well	P-1	Piezometer Location	259 A	Sample analyzed by Environmental Labs of Texas, Inc.
———	Pipeline	SB-65	Soil Boring Location	51.6 B	Sample analyzed by Trace Analysis, Inc.

Figure 2

Chloride Concentration Sample Locations

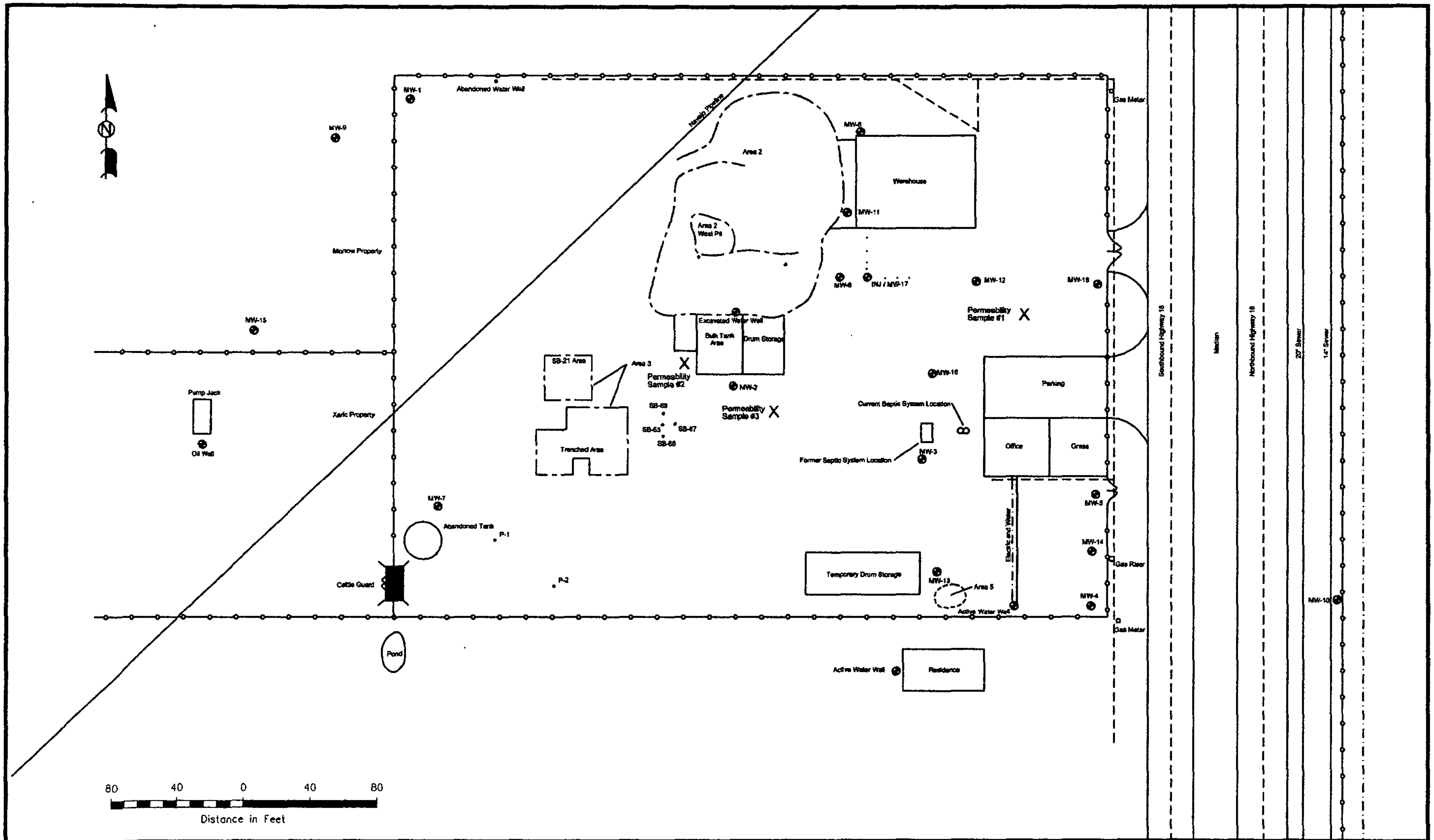
Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80' | Prep By: cds | Checked By: TKC

August 13, 2004



Legend

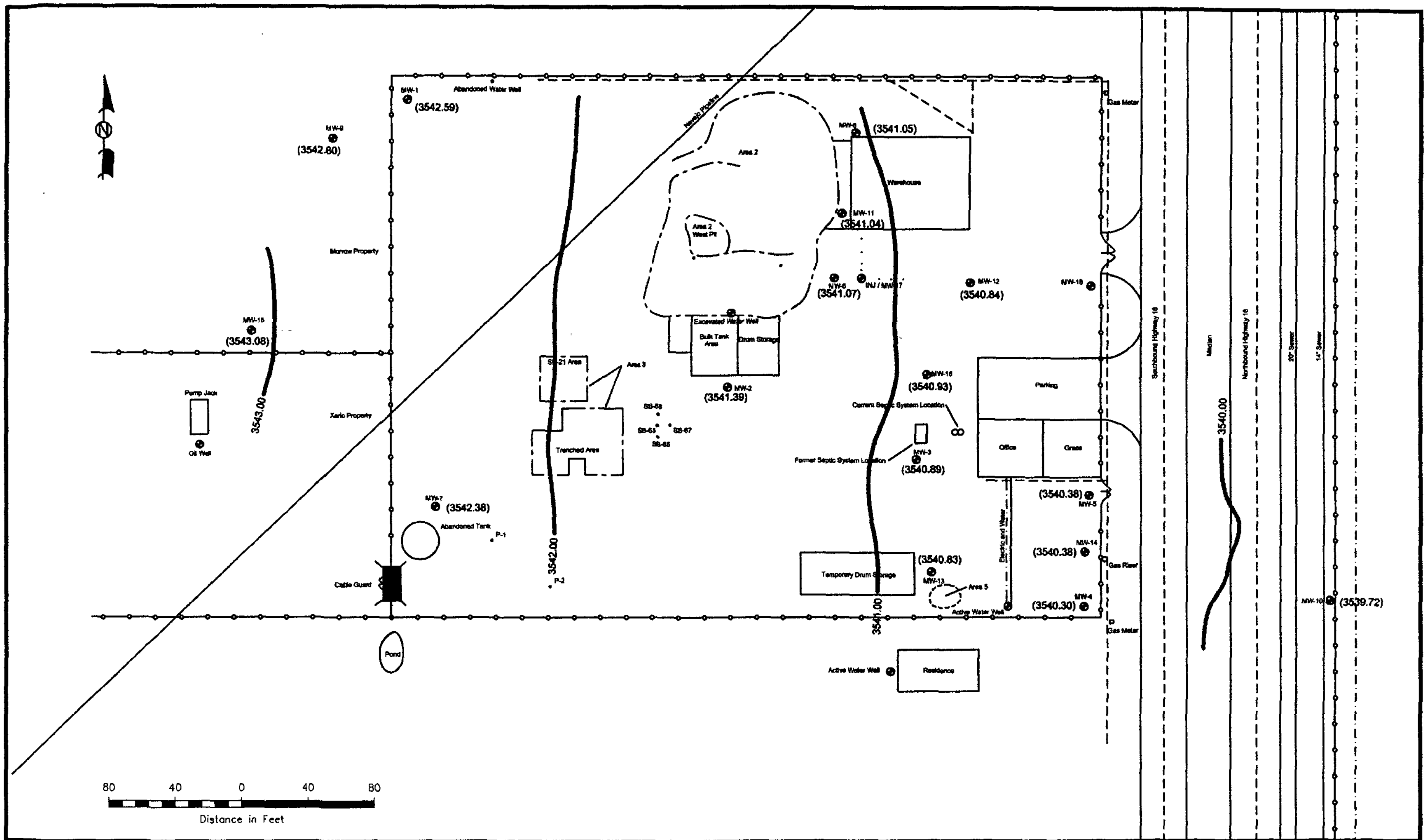
Former Excavation
Fence
MW-1 Monitor Well
Pipeline
Utility Pole Location
Overhead Utility Line
P-1 Piezometer Location
SB-65 Soil Boring Location
X Permeability Sample Location

Figure 3
Yard Permeability Sample Locations
Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80'	Prep By: cds	Checked By: TKC
August 13, 2004		



Legend

- Former Excavation
- Fence
- MW-1 Monitor Well
- Pipeline
- Utility Pole Location
- Overhead Utility Line
- P-1 Pizometer Location
- SB-65 Soil Boring Location
- (3541.94) Groundwater Elevation in Feet above Mean Sea Level
- Groundwater Elevation Contour

Figure 4

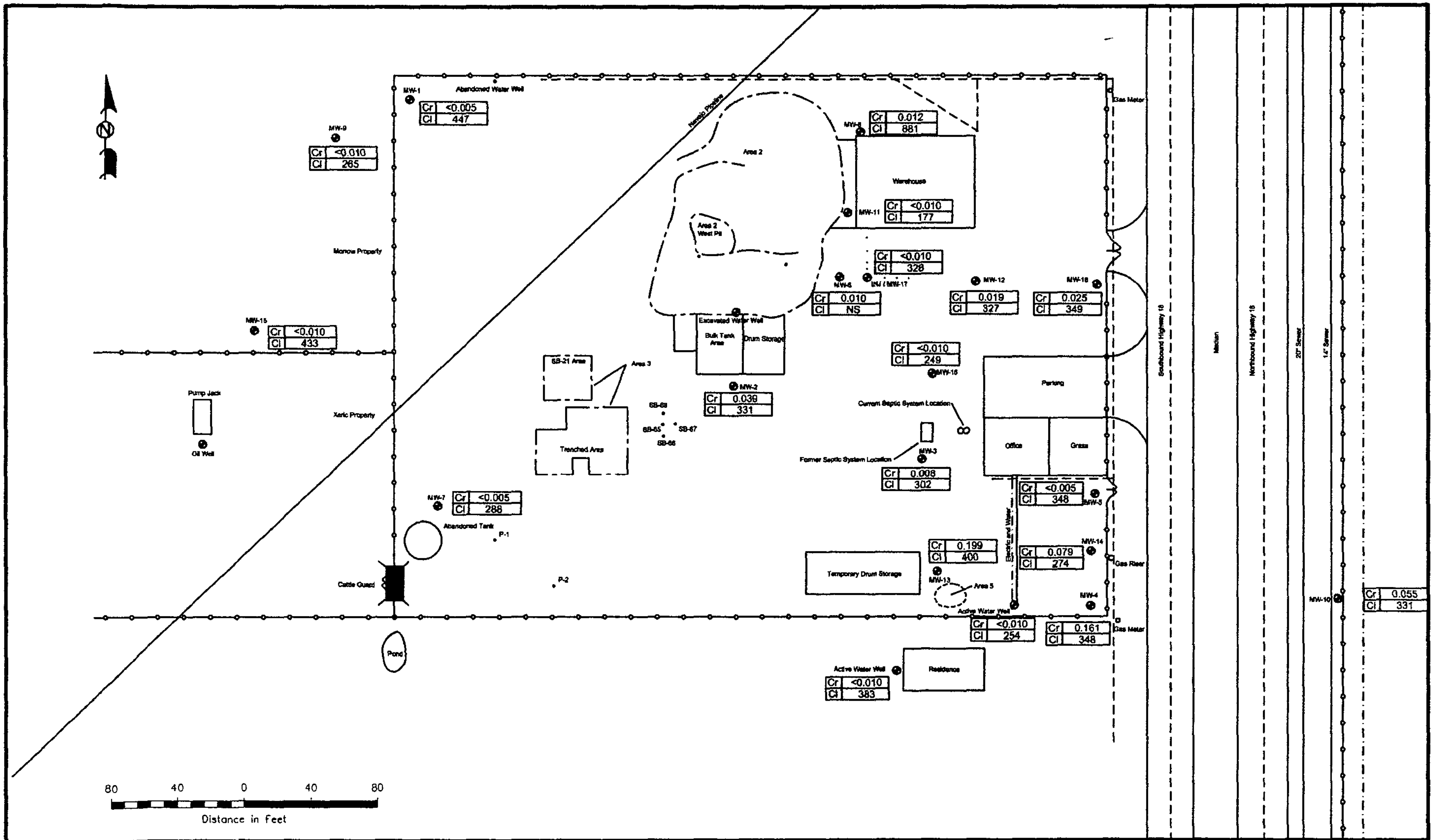
Groundwater Gradient Map
10/5/04

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80'	Prep By: cds	Checked By: TKC
November 14, 2004		



Legend

- Extent of Excavation
- Fence
- MW-1 Monitor Well
- Pipeline
- Utility Pole Location
- Overhead Utility Line
- P-1 Piezometer Location
- SB-65 Soil Boring Location

Cr	<0.005	Dissolved Chromium Concentration on October 5, 2004
Cl	295	Chloride Concentration on October 5, 2004

Figure 5

Groundwater Concentration Map (October 5, 2004)

Champion Technologies, Inc.
Hobbs Facility
Hobbs, NM

NOVA Safety and Environmental

NOVA safety and environmental

Scale: 1" = 80' | Prep By: cds | Checked By: TKC

August 17, 2004

Tables

TABLE 1. Champion Technologies Laboratory Compaction Test Results							
DATE	TEST #	LOCATION	DEPTH	DRY DENSITY	CONTROL DENSITY	MATERIAL	% Moisture
9/5/03	SG-1	Pit-20'S	15'±bfs	100.8	106.3	sandy caliche	14.1
9/8/03	SG-2	Large pit-30' S	13.5bfs	98.1	106.3	sandy caliche	11.6
9/9/03	SG-3	Large pit-50' N	12'bfs	96.3	106.3	sandy caliche	11.2
9/9/03	SG-4	Small pit-30' W	4'bfs	97.9	106.3	sandy caliche	10
9/9/03	*SG-5	Roadway-350' W	finished sg	94.1	*116.1	sandy caliche	4.9
9/10/03	SG-6	N.pit-10' S	9.5'bfs	92.9	106.3	sandy caliche	16.1
9/10/03	SG-7	N.pit-15' N	11'bfs	90.7	106.3	sandy caliche	10.4
9/11/03	SG-8	Sample site #2	finished sg	98.4	116.1	sandy caliche	5.6
9/11/03	SG-9	Sample site #1	finished sg	101.1	116.1	sandy caliche	4.4
9/16/03	SG-10	Large pit-25' E	7'bfs	95.8	106.3	sandy caliche	11.6
9/16/03	SG-11	Large pit-30'N	7'bfs	96.0	106.3	sandy caliche	10.2
9/16/03	SG-12	Large pit-50' E	6'bfs	97.6	110.5	red clay	10.6
9/17/03	SG-13	Large pit-25' N	5'bfs	98.5	110.5	red clay	13.3
9/17/03	SG-14	Large pit-50' S	5'bfs	100.4	110.5	red clay	16.1
9/19/03	SG-15	Large pit-15' S	3'bfs	94.8	106.3	sandy caliche	10.0
9/23/03	SG-16	Large pit-20' N	2'bfs	96.6	106.3	sandy caliche	8.4
9/23/03	SG-17	Large pit-50' S	2'bfs	97.5	106.3	sandy caliche	9.8
9/24/03	SG-18	Large pit-30' N	1'bfs	95.0	106.3	sandy caliche	14.1
9/26/03	SG-19	Large pit-25' S	finished sg	102.6	106.3	sandy caliche	12.8
9/26/03	SG-20	Large pit-25' N	finished sg	99.3	106.3	sandy caliche	14.4
9/29/03	SG-21	Large pit-40' W	finished sg	105.0	106.3	sandy caliche	9.7

NOTE:

* *Control Density was 116.1*

bfs=below finished subgrade

finished sg=finished subgrade

Table 2. Summary of Chloride Confirmation Samples

SAMPLE DATE	SAMPLE LOCATION	SAMPLE TYPE	CHLORIDE
09/19/03	SD-34	SOIL	15000
	SD-35	SOIL	1380
	SD-3 East	SOIL	2850
	SD-3 West	SOIL	3680
09/26/03	SD-34-13'	SOIL	14300
10/01/03	SD-34 18"	SOIL	11900
10/07/03	SB-34-20'	SOIL	9030
11/19/03	SB-65 (20')	SOIL	373
	SB-65 (47')	SOIL	21.9
11/20/03	SB-65 (54') [1]	SOIL	259
	SB-65 (54')	SOIL	51.6
	SB-66 (20')	SOIL	448
	SB-66 (45')	SOIL	26.6
	SB-66 (54')	SOIL	51.5
	SB-67 (20')	SOIL	166
	SB-67 (45')	SOIL	31.1
	SB-67 (54')	SOIL	67.2
	SB-68 (20')	SOIL	580
	SB-68 (46')	SOIL	20.6
11/21/03	SB-68 (54')	SOIL	50.9

Chloride 9253/6020

1 Env lab of Texas

OK

Table 3. Summary of Dissolved Chromium Concentrations in Monitor Wells and Water Wells

Sample Location	Matrix	First Quarter 03 2/19/2003 mg/l	Second Quarter 03 5/16/2003 mg/l	Third Quarter 03 8/11/2003 mg/l	Fourth Quarter 03 11/4-5/2003 mg/l	First Quarter 04 3/17/2004 mg/l	Second Quarter 04 6/24/2004 mg/l	Third Quarter 04 10/5-6/04 mg/l
MW-1	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-2	Water	0.013	0.036	0.040	0.022	0.012	0.026	0.039
MW-3	Water	0.012	0.011	<0.010	0.010	<0.010	<0.005	0.008
MW-4	Water	**0.271**	**0.201**	**0.187**	**0.161**	**0.163**	**0.117**	**0.161**
MW-5	Water	<0.011	0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-6	Water	**0.097**	0.031	**0.057**	0.038	NS	<0.005	0.010
MW-7	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
MW-8	Water	<0.011	0.024	0.025	0.019	0.012	0.008	0.012
MW-9	Water	<0.011	<0.010	0.010	<0.010	<0.010	<0.005	<0.01
MW-10	Water	0.016	0.022	0.022	0.021	0.048	**0.055**	**0.055**
MW-11	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-12	Water	0.020	0.016	0.023	0.016	0.013	0.021	0.019
MW-13	Water	**0.151**	**0.158**	**0.191**	**0.180**	**0.179**	**0.166**	**0.199**
MW-14	Water	<0.011	0.030	0.035	0.024	0.034	**0.055**	**0.079**
MW-15	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-16	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
MW-17	Water					<0.010	<0.005	<0.01
MW-18	Water					**0.220**	0.017	0.025
Champion's Water Well	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01
Resident's Water Well	Water	<0.011	<0.010	<0.010	<0.010	<0.010	<0.005	<0.01

Concentrations in bold exceed NMWQCC Standards

NS - Not Sampled

Table 4. Summary of Chloride Concentrations in Monitor Wells and Water Wells

Sample Location	Matrix	First Quarter 03 2/19/2003 mg/l	Second Quarter 03 5/16/2003 mg/l	Third Quarter 03 8/11/2003 mg/l	Fourth Quarter 03 11/4-5/2003 mg/l	First Quarter 04 3/17/2004 mg/l	Second Quarter 04 6/24/2004 mg/l	Third Quarter 04 10/5-6/04 mg/l
MW-1	Water	**435**	**65**	**381**	**369**	**419**	**475**	**447**
MW-2	Water	**384**	**331**	**316**	227	201	**304**	**331**
MW-3	Water	**658**	**510**	**359**	**432**	223	**313**	**302**
MW-4	Water	**485**	**363**	**384**	**360**	**326**	**545**	**348**
MW-5	Water	**476**	**329**	**430**	**432**	**377**	**389**	**348**
MW-6	Water	**533**	**328**	**431**	**462**	NS	NS	NS
MW-7	Water	**255**	205	242	179	199	**290**	**288**
MW-8	Water	**397**	**324**	**370**	**327**	**447**	**664**	**881**
MW-9	Water	**332**	**299**	**329**	**263**	199	**295**	**265**
MW-10	Water	**355**	**316**	**351**	**339**	**335**	**402**	**331**
MW-11	Water	**298**	**256**	**413**	248	**270**	197	177
MW-12	Water	**353**	**280**	**350**	**344**	**327**	**379**	**327**
MW-13	Water	**332**	**296**	**340**	**310**	**322**	**355**	**400**
MW-14	Water	**342**	**279**	**299**	**269**	**260**	**258**	**274**
MW-15	Water	221	205	165	174	185	127	**433**
MW-16	Water	**474**	**362**	**410**	**322**	**266**	235	249
MW-17	Water					**301**	224	**328**
MW-18	Water					**333**	**291**	**349**
Champion's Water Well	Water	347	**258**	**295**	**377**	240	236	**254**
Resident's Water Well	Water	479	**383**	**397**	**299**	**382**	**397**	**383**

NS - Not Sampled

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
MW-1	8/2/2002	3594.44	50.74	3543.70
	8/22/2002		50.75	3543.69
	9/20/2002		50.94	3543.50
	10/21/2002		50.96	3543.48
	11/13/2002		51.01	3543.43
	2/18/2003		51.22	3543.22
	11/4/2003		52.25	3542.19
	6/24/2004		52.56	3541.88
	10/5/2004		51.85	3542.59
MW-2	8/2/2002	3598.40	56.30	3542.10
	8/22/2002		56.42	3541.98
	9/20/2002		60.00	3538.40
	10/21/2002	*3602.78	60.08	3542.70
	2/18/2003		60.29	3542.49
	11/4/2003		61.31	3541.47
	6/24/2004		61.73	3541.05
	10/5/2004		61.39	3541.39
MW-3	8/2/2002	3599.49	56.81	3542.68
	8/22/2002		56.84	3542.65
	9/20/2002		57.02	3542.47
	10/21/2002		57.09	3542.40
	11/13/2002		57.06	3542.43
	2/18/2003		57.31	3542.18
	11/4/2003		58.44	3541.05
	6/24/2004		58.82	3540.67
	10/5/2004		58.60	3540.89
MW-4	8/2/2002	3599.40	57.13	3542.27
	8/22/2002		57.17	3542.23
	9/20/2002		57.37	3542.03
	10/21/2002		57.45	3541.95
	11/13/2002		57.47	3541.93
	2/18/2003		57.61	3541.79
	11/4/2003		58.76	3540.64
	6/24/2004		59.21	3540.19
	10/5/2004		59.10	3540.30

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
MW-5	8/2/2002	3599.28	56.97	3542.31
	8/22/2002		57.00	3542.28
	9/20/2002		57.19	3542.09
	10/21/2002		57.28	3542.00
	2/18/2003		57.50	3541.78
	11/4/2003		58.63	3540.65
	6/24/2004		59.02	3540.26
	10/5/2004		58.90	3540.38
MW-6	8/2/2002	3599.20	56.38	3542.82
	8/22/2002		56.44	3542.76
	9/20/2002	*3603.56	60.98	3542.58
	10/21/2002		61.04	3542.52
	11/13/2002		61.08	3542.48
	2/18/2003		61.30	3542.26
	11/4/2003		62.68	3540.88
	6/24/2004		62.73	3540.83
	10/5/2004		62.49	3541.07
MW-7	8/2/2002	3596.91	53.16	3543.75
	8/22/2002		53.28	3543.63
	9/20/2002		53.40	3543.51
	10/21/2002		53.46	3543.45
	11/13/2002		53.51	3543.40
	2/18/2003		53.70	3543.21
	11/4/2003		54.67	3542.24
	6/24/2004		54.97	3541.94
	10/5/2004		54.53	3542.38
MW-8	8/2/2002	3602.68	59.87	3542.81
	8/22/2002		59.98	3542.70
	9/20/2002		60.12	3542.56
	10/21/2002		60.18	3542.50
	2/18/2003		60.38	3542.30
	11/4/2003		61.50	3541.18
	6/24/2004		61.90	3540.78
	10/5/2004		61.63	3541.05
MW-9	8/2/2002	3597.00	53.15	3543.85

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
	8/22/2002		53.12	3543.88
	9/20/2002		53.34	3543.66
	10/21/2002		53.37	3543.63
	2/18/2003		53.61	3543.39
	11/4/2003		54.63	3542.37
	6/24/2004		54.97	3542.03
	10/5/2004		54.20	3542.80
MW-10	10/16/2002	3600.84	59.38	3541.46
	10/21/2002		59.37	3541.47
	2/18/2003		59.61	3541.23
	11/4/2003		60.75	3540.09
	6/24/2004		61.13	3539.71
	10/5/2004		61.12	3539.72
MW-11	10/16/2002	3599.63	57.09	3542.54
	10/21/2002		57.12	3542.51
	2/18/2003		57.35	3542.28
	11/4/2003		58.46	3541.17
	6/24/2004		58.84	3540.79
	10/5/2004		58.59	3541.04
MW-12	10/16/2002	3602.80	60.42	3542.38
	10/21/2002		60.45	3542.35
	2/18/2003		60.66	3542.14
	11/4/2003		61.80	3541.00
	6/24/2004		62.18	3540.62
	10/5/2004		61.96	3540.84
MW-13	10/16/2002	3602.68	60.28	3542.40
	10/21/2002		60.39	3542.29
	11/13/2002		60.35	3542.33
	2/18/2003		60.52	3542.16
	11/4/2003		61.71	3540.97
	6/24/2004		62.08	3540.60
	10/5/2004		61.85	3540.83
MW-14	10/16/2002	3599.23	57.17	3542.06

Table 5

GROUNDWATER ELEVATION

Champion Technologies Inc.
Hobbs, New Mexico

All measurements are in feet except where noted

WELL LOCATION	DATE MEASURED	CASING WELL ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)
	10/21/2002		57.24	3541.99
	2/18/2003		57.43	3541.80
	11/4/2003		58.56	3540.67
	6/24/2004		58.98	3540.25
	10/5/2004		58.85	3540.38
MW-15	10/16/2002	3597.06	53.26	3543.80
	10/21/2002		53.31	3543.75
	11/13/2002		53.35	3543.71
	2/18/2003		53.56	3543.50
	11/4/2003		54.55	3542.51
	6/24/2004		54.87	3542.19
	10/5/2004		53.98	3543.08
MW-16	10/16/2002	3602.56	60.11	3542.45
	10/21/2002		60.17	3542.39
	11/13/2002		60.19	3542.37
	2/18/2003		60.38	3542.18
	11/4/2003		61.50	3541.06
	6/24/2004		61.88	3540.68
	10/5/2004		61.63	3540.93
MW-17	6/24/2004		62.19	Not Surveyed
	10/5/2004		61.95	Not Surveyed
MW-18	6/24/2004		61.99	Not Surveyed
	10/5/2004		61.82	Not Surveyed

* Top of Casing raised on 9/18/02

Attachments

Attachment 1
Compaction and Permeability Laboratory Test Reports

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	Material:	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 5, 2003	Depth:	15'± Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-1	Pit - 20' S. & 15' E. of the NW Corner	100.8	14.1	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5719

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: [signature] E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 8, 2003	**Depth:**	13 1/2' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-2	Large Pit - 30' S. & 15' E. of the NW Corner	98.1	11.6	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5757

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 9, 2003	**Depth:**	See Below

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-3	Large Pit - 50' N. & 50' E. of the SW Corner	96.3	11.2	12' Below Finished Subgrade
SG-4	Small Pit - 30' W. & 50' N. of the SE Corner	97.9	10.0	4' Below Finished Subgrade
*SG-5	Champion Yard Roadway - 350' W. of Entrance Gate - Centerline	94.1	4.9	Finished Subgrade

Control Density: 106.3
* 116.1
ASTM: D 698

Optimum Moisture: 16.0%
*11.4

Required Compaction: 90%

Lab No.: 03 5763-5765

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: [signature] S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18
DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 11, 2003

Depth: See Below

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-6	N. Pit - 10' S. & 30' E. of the NW Corner	92.9	16.1	9 1/2' Below Finished Subgrade
SG-7	N. Pit - 15' N. & 12' W. of the SE Corner	90.7	10.4	11' Below Finished Subgrade

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5801-5802

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: ______________________ S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 16, 2003	**Depth:**	7' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-10	Large Pit - 25' E. & 25' S. of the NW Corner	95.8	11.6	
SG-11	Large Pit - 30' N. & 15' W. of the SE Corner	96.0	10.2	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0%

Required Compaction: 90%

Lab No.: 03 5827-2828

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Red Clay

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 16, 2003

Depth: 6' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-12	Large Pit - 50' E. & 50' S. of the NW Corner	97.6	10.6	

Control Density: 110.5
ASTM: D 698

Optimum Moisture: 16.6 %

Required Compaction: 95%

Lab No.: 03 5848

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] SET

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Red Clay

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 17, 2003

Depth: 5' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-13	Large Pit - 25' N. & 30' E. of the SW Corner	98.5	13.3	
SG-14	Large Pit - 50' S. & 50' W. of the NE Corner	100.4	16.1	

Control Density: 110.5
ASTM: D 698

Optimum Moisture: 16.6 %

Required Compaction: 95%

Lab No.: 03 5890-5891

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] SEI

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 19, 2003	**Depth:**	3' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-15	Large Pit - 15' S. & 20' W. of the NE Corner	94.8	10.0	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5916

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	Material:	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 23, 2003	Depth:	2' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-16	Large Pit - 20' N. & 10' W. of the SE Corner	96.6	8.4	
SG-17	Large Pit - 50' S. & 30' W. of the NE Corner	97.5	9.8	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5937-5938

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] SET

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To:	Environmental Technologies Group Tod Choban 4600 Wall Street Midland, Texas 79703	**Material:**	Sandy Caliche
		Test Method:	ASTM: D 2922
Project:	Champion Technologies		
Date of Test:	September 24, 2003	**Depth:**	1' Below Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-18	Large Pit - 30' N. & 75' W. of the SE Corner	95.0	14.1	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 5944

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] S.E.T.

LABORATORY TEST REPORT
PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 26, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-19	Large Pit - 25' S. & 25. E. of the NW Corner	102.6	12.8	
SG-20	Large Pit - 30' N. & 15' W. of the SE Corner	99.3	14.4	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 6038-6039

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: S.E.T.

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS. III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 29, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-21	Small Pit - 40' W. & 35' N. of the SE Comer	105.0	9.7	

Control Density: 106.3
ASTM: D 698

Optimum Moisture: 16.0 %

Required Compaction: 90%

Lab No.: 03 6047

Copies To: Env. Tech.
Tod Choban
Chan Patel

PETTIGREW and ASSOCIATES

BY: [signature] S.E.T.

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

DEBRA P HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Environmental Technologies Group
Tod Choban
4600 Wall Street
Midland, Texas 79703

Material: Sandy Caliche

Test Method: ASTM: D 2922

Project: Champion Technologies

Date of Test: September 11, 2003

Depth: Finished Subgrade

Test No.	Location	Dry Density % Maximum	% Moisture	Depth
SG-8	Sample Site # 2	98.4	5.6	
SG-9	Sample Site # 1	101.1	4.4	

Control Density: 116.1
ASTM: D 698

Optimum Moisture: 11.4%

Required Compaction:

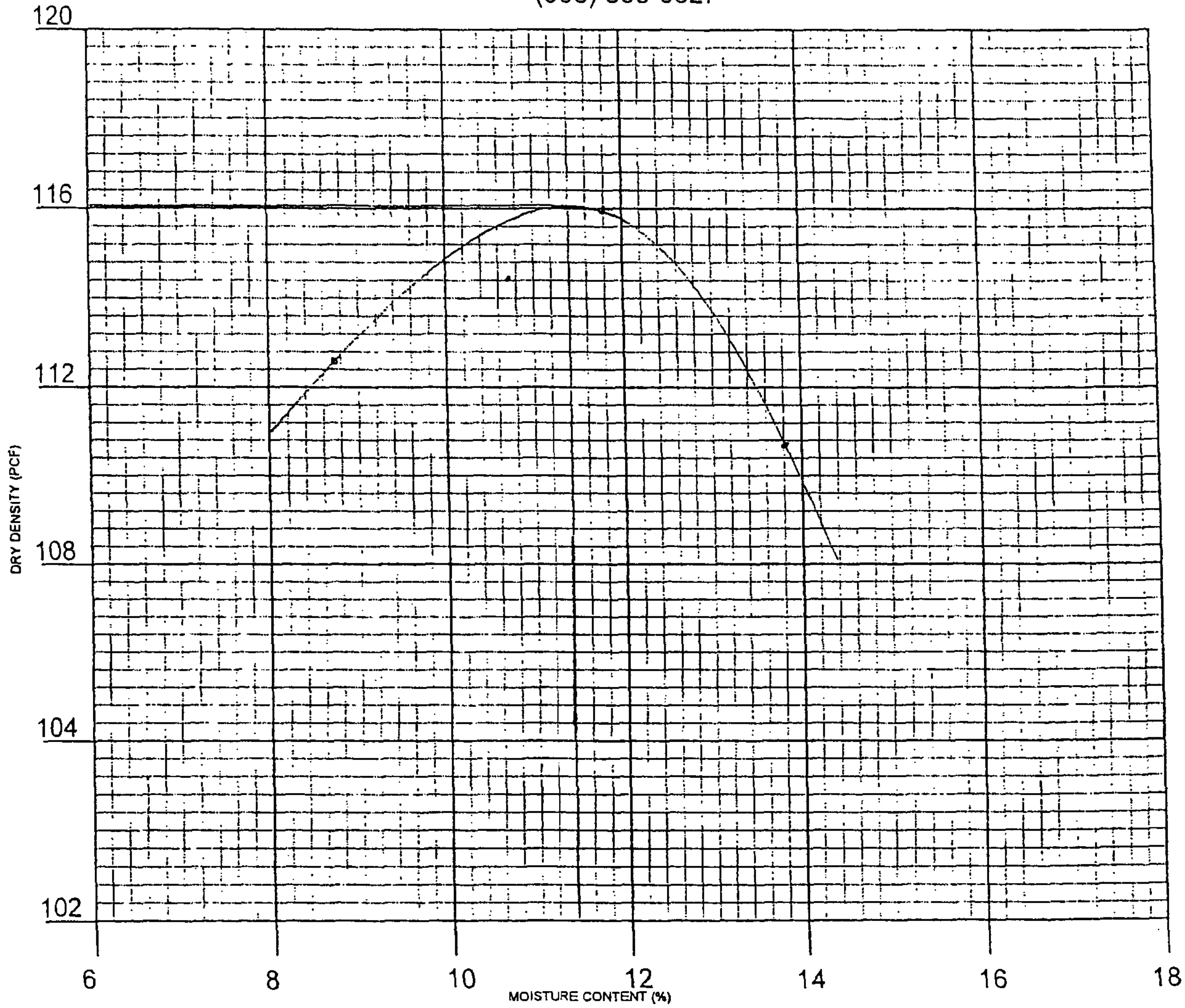
Lab No.: 03 5803-5804

Copies To: Env. Tech.

PETTIGREW and ASSOCIATES

BY: SET

PETTIGREW and ASSOCIATES, P.A.
1110 N. GRIMES ST.
HOBBS, NM 88240
(505) 393-9827



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Surface Sample from Yard Near Front Gate

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Delivered 8/25/03

DATE: 8/26/03 LAB NO. 03 5604-5606

DRY WEIGHT LB/CU. FT. 116.1 MOISTURE CONTENT % 11.4

SIEVE ANALYSIS - % PASSING
Permeability : 1.39E-04 cm/sec. Test Performed at 94.8% Compaction -11.4% Moisture

PETTIGREW and ASSOCIATES

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BY: S.E.T.

PETTIGREW and ASSOCIATES, P.A.
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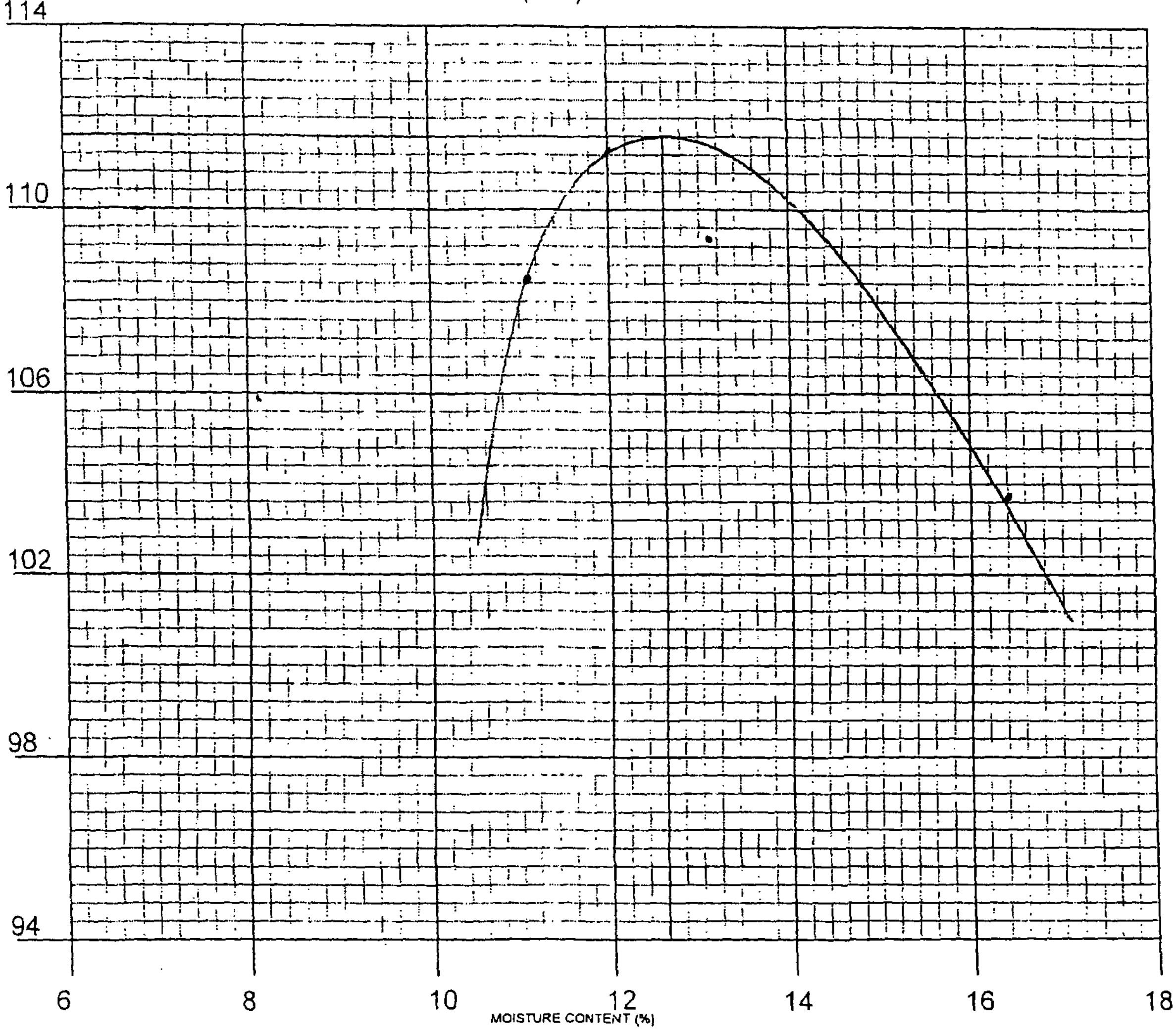
AASHTO R18



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Permeability Sample # 2

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Delivered 9/5/03

DATE: 9/8/03 LAB NO. 03 5766-5768

DRY WEIGHT LB/CU. FT. 111.6 MOISTURE CONTENT % 12.6

Permeability : 4.56E-05 cm/sec.
Test Performed at 95.6% Compaction -9.0% Moisture

PETTIGREW and ASSOCIATES

COPIES: Env. Tech

BY: S.E.T.

PETTIGREW and ASSOCIATES, P.A.
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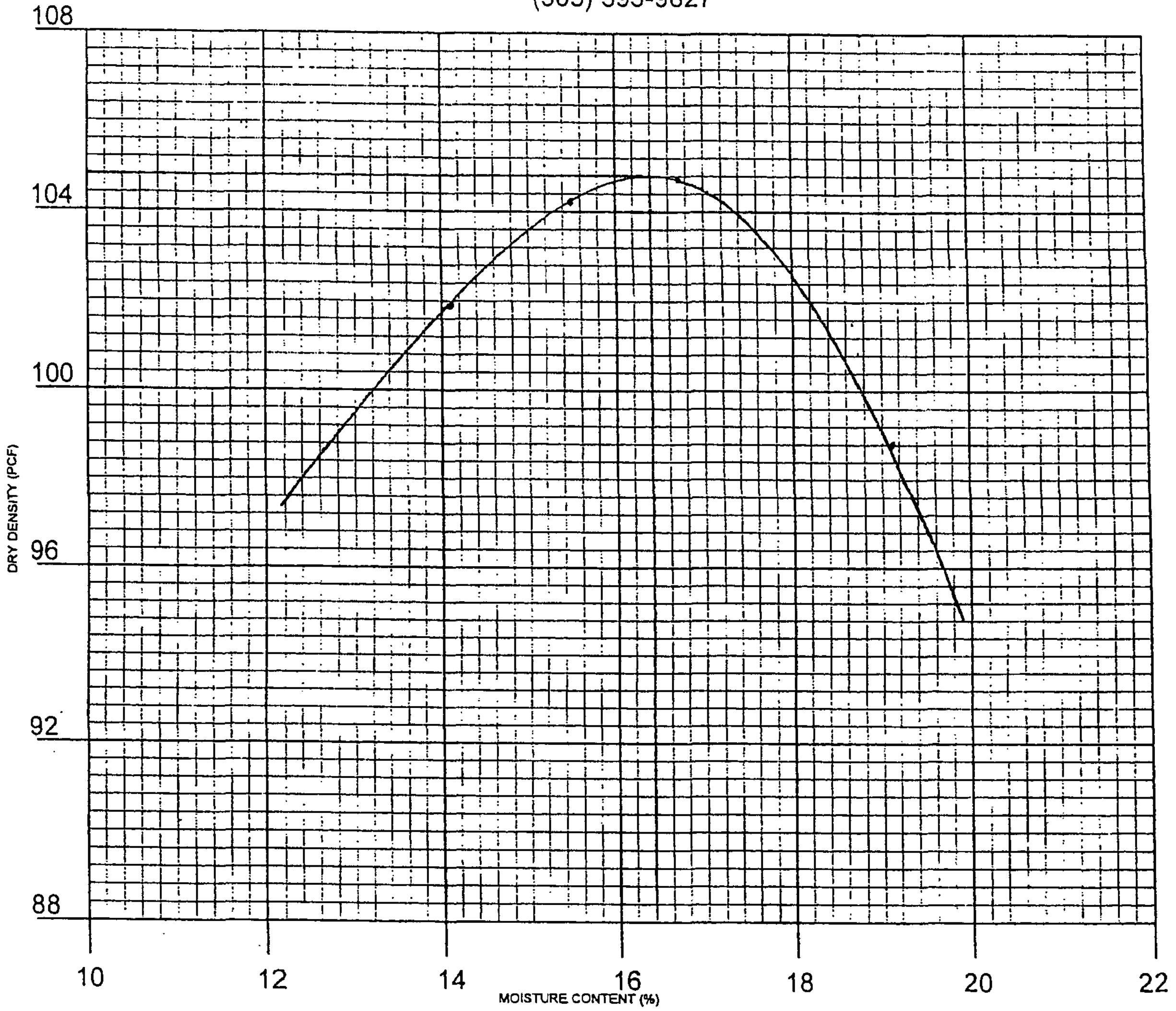
(505) 393-9827



CLIENT: Environmental Technologies PROJECT: Champion Technologies

SAMPLE LOCATION: Permeability Sample # 3

SOIL DESCRIPTION: Rocky Sandy Caliche

SOIL CLASSIFICATION: ______ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Delivered 9/10/03

DATE: 9/12/03 LAB NO. 03 5798-5800

DRY WEIGHT LB/CU. FT. 104.8 MOISTURE CONTENT % 16.4

Permeability : 1.46E-04 cm/sec
Test Performed at 95.1% Compaction - 16.2% Moisture

PETTIGREW and ASSOCIATES

COPIES: Env. Tech

BY: S.E.T.

Attachment 2
Analytical Reports for Soil Confirmation Samples

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: September 24, 2003

Work Order: 3092310

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
17920	SD-34	soil	2003-09-19	10:55	2003-09-23
17921	SD-35	soil	2003-09-19	11:30	2003-09-23
17922	SD-3 East	soil	2003-09-19	13:01	2003-09-23
17923	SD-3 West	soil	2003-09-19	13:05	2003-09-23

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 17920 - SD-34

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		15000	mg/Kg	1000	1.00

Sample: 17921 - SD-35

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1380	mg/Kg	100	1.00

Sample: 17922 - SD-3 East

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2850	mg/Kg	500	1.00

Sample: 17923 - SD-3 West

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4573	Date Analyzed:	2003-09-24	Analyzed By:	JSW
Prep Batch:	4102	Date Prepared:	2003-09-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3680	mg/Kg	500	1.00

Matrix Blank (1) QC Batch: 4573

Parameter	Flag	Result	Units	RL
Chloride		18.3	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	30.0	30.1	mg/Kg	1	12.5	18.3	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4573

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2670	2640	mg/Kg	100	12.5	1380	103	1	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2003-09-24

Standard (CCV-1) QC Batch: 4573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.3	98	90 - 110	2003-09-24

Page____of____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3092310

Company Name: Environmental Technology Group Inc.
Phone #: @ 432 522 1139
Address: (Street, City, Zip) 4600 W. Wall 79703
Fax #: 520-4310
Contact Person: Chan Patel
Invoice to: (If different from above) Champion
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides	Turn Around Time if different from standard	Hold
17920	SD-34	1			X							X		9-19-03	10:55																X	*	
21	SD-35	1			X							X		9-19-03	11:30																X	*	
22	SD-3 East	1			X							X		9-19-03	1:01																X	*	
23	SD-3 West	1			X							X		9-19-03	1:05																X	*	

Relinquished by: Date: 9-23-03 Time: 2:31
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Date: 9-23-03 Time: 11:14

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 2°
Log-in Review

REMARKS:
* 24 hour turnaround on all samples please.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM 80 903 112 376-1

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: September 30, 2003

Work Order: 3092902

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
18434	SD-34-13'	Soil	2003-09-26	10:08	2003-09-29

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 18434 - SD-34-13'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4730	Date Analyzed:	2003-09-30	Analyzed By:	JSW
Prep Batch:	4247	Date Prepared:	2003-09-29	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		14300	mg/Kg	1000	1.00

Matrix Blank (1) QC Batch: 4730

Parameter	Flag	Result	Units	RL
Chloride		16.8	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4730

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	28.9	29.3	mg/Kg	1	12.5	16.8	97	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4730

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	26700	26700	mg/Kg	1000	12.5	14300	99	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4730

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.4	99	90 - 110	2003-09-30

Standard (CCV-1) QC Batch: 4730

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.2	98	90 - 110	2003-09-30

Page____of____

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3092902

Company Name: Environmental Technology Group Inc.
Phone #: (915) 522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703
Fax #: (432) 520-4320
Contact Person: Chan Patel
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion Yard
Project Location: Hobbs
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
18434	SD-34-13'	1			X							X		9-26-03	10:08

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chlorides					Turn Around Time if different from standard	Hold
18434																X					X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	9-26-03	2:27			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				9-27-03	1035

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 3°
Log-in Review MA

REMARKS: Need 24 hour turnaround on sample.

☐ Check If Special Reporting Limits Are Needed

Carrier # BUS 9031124025

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: October 3, 2003

Work Order: 3100209

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
18683	SD-34 18'	soil	2003-10-01	12:45	2003-10-02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 18683 - SD-34 18'

Analysis: Chloride (IC)
QC Batch: 4826
Prep Batch: 4333

Analytical Method: E 300.0
Date Analyzed: 2003-10-03
Date Prepared: 2003-10-02

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		11900	mg/Kg	1000	1.00

Matrix Blank (1) QC Batch: 4826

Parameter	Flag	Result	Units	RL
Chloride		17.5	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4826

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	29.5	29.7	mg/Kg	1	12.5	17.5	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4826

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	22800	22900	mg/Kg	1000	12.5	11900	87	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.2	98	90 - 110	2003-10-03

Standard (CCV-1) QC Batch: 4826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.8	110	90 - 110	2003-10-03

Page 1 of 1

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 114 (·3100209

Company Name: ETGI
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 WEST WALL, MIDLAND TX 79703
Fax #: 432-520-4310
Contact Person: TODD CHODAN
Invoice to: (If different from above)
Project #: CH-2100
Project Name: CHAMPION TECHNOLOGY YARD
Project Location: HOBBS, N.M.
Sampler Signature: Ross Anderson

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE 2003	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	CHLORIDES					Turn Around Time if different from standard	Hold
18683	SD-34 18 FT.	1	4oz		X							X		10/1	12:45																X					X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Ross Anderson	10-1-03	3:15			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki	10-2-03	10:29

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4°c
Log-in Review

REMARKS: 24 HR TURNAROUND PLEASE.

☐ Check If Special Reporting Limits Are Needed

Carrier # TNMTO 903 112 433-3

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Chan Patel
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: October 10, 2003

Work Order: 3100819

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
19007	SB-34-20'	soil	2003-10-07	09:35	2003-10-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 19007 - SB-34-20'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	4974	Date Analyzed:	2003-10-10	Analyzed By:	JSW
Prep Batch:	4446	Date Prepared:	2003-10-09	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9030	mg/Kg	500	1.00

Matrix Blank (1) QC Batch: 4974

Parameter	Flag	Result	Units	RL
Chloride		15.0	mg/Kg	1

Laboratory Control Spike (LCS-1) QC Batch: 4974

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	26.3	26.2	mg/Kg	1	12.5	15	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 4974

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	19700	19800	mg/Kg	1000	12.5	8500	90	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 4974

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2003-10-10

Standard (CCV-1) QC Batch: 4974

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.5	92	90 - 110	2003-10-10

Report Date: October 10, 2003
CH 2100

Work Order: 3100819
Champion

Page____of____

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Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3100819

Company Name: ENVIORNMENTAL TECH GROUP INC
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. WALL MIDLAND, TX. 79703
Fax #: 432-520-4320
Contact Person: CHAN PATEL
Invoice to: (If different from above)
Project #: CH-2100
Project Name: CHAMPION YARD
Project Location: HOBBS
Sampler Signature: [signature]

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: 2003 DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	CHLORIDES					Turn Around Time if different from standard	Hold
19007	SB-34-20'	1			X							X		10-7	9:35																X					X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	10-7-03	12:45pm			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			[signature]	10-8-03	10:27

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 4°c
Log-in Review MA

REMARKS: NEED 24 HOUR TURNAROUND ON SAMPLE.

☐ Check If Special Reporting Limits Are Needed

Carrier # INMHO 903.112.482.8

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: December 4, 2003

Work Order: 3112613

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
22245	P-1 (55')	soil	2003-11-18	11:10	2003-11-26
22248	P-2 (57')	soil	2003-11-18	03:55	2003-11-26
22249	SB-65 (20')	soil	2003-11-19	03:19	2003-11-26
22250	SB-65 (47')	soil	2003-11-19	16:08	2003-11-26
22251	SB-65 (54')	soil	2003-11-20	07:30	2003-11-26
22252	SB-66 (20')	soil	2003-11-20	08:35	2003-11-26
22253	SB-66 (45')	soil	2003-11-20	09:26	2003-11-26
22254	SB-66 (54')	soil	2003-11-20	10:00	2003-11-26
22255	SB-67 (20')	soil	2003-11-20	11:05	2003-11-26
22256	SB-67 (45')	soil	2003-11-20	13:05	2003-11-26
22258	SB-67 (54')	soil	2003-11-20	14:45	2003-11-26
22259	SB-68 (20')	soil	2003-11-20	14:50	2003-11-26
22260	SB-68 (46')	soil	2003-11-20	15:58	2003-11-26
22261	SB-68 (54')	soil	2003-11-21	08:15	2003-11-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 9 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 22245 - P-1 (55')

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	6127	Date Analyzed:	2003-12-04	Analyzed By:	RR
Prep Batch:	5442	Date Prepared:	2003-12-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		2.83	mg/Kg	1	2.50

Sample: 22248 - P-2 (57')

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3050B
QC Batch:	6127	Date Analyzed:	2003-12-04	Analyzed By:	RR
Prep Batch:	5442	Date Prepared:	2003-12-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		3.48	mg/Kg	1	2.50

Sample: 22249 - SB-65 (20')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		373	mg/Kg	10	1.00

Sample: 22250 - SB-65 (47')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		21.9	mg/Kg	5	1.00

Sample: 22251 - SB-65 (54')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		51.6	mg/Kg	5	1.00

Sample: 22252 - SB-66 (20')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		448	mg/Kg	10	1.00

Sample: 22253 - SB-66 (45')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		26.6	mg/Kg	5	1.00

Sample: 22254 - SB-66 (54')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		51.5	mg/Kg	5	1.00

Sample: 22255 - SB-67 (20')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW
Prep Batch:	5437	Date Prepared:	2003-12-02	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		166	mg/Kg	10	1.00

Sample: 22256 - SB-67 (45')

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	6081	Date Analyzed:	2003-12-02	Analyzed By:	JSW

Prep Batch: 5437 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		31.1	mg/Kg	5	1.00

Sample: 22258 - SB-67 (54')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6081 Date Analyzed: 2003-12-02 Analyzed By: JSW
Prep Batch: 5437 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		67.2	mg/Kg	5	1.00

Sample: 22259 - SB-68 (20')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		580	mg/Kg	50	1.00

Sample: 22260 - SB-68 (46')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		20.6	mg/Kg	5	1.00

Sample: 22261 - SB-68 (54')

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 6082 Date Analyzed: 2003-12-03 Analyzed By: JSW
Prep Batch: 5438 Date Prepared: 2003-12-02 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		50.9	mg/Kg	5	1.00

Matrix Blank (1) QC Batch: 6081

Parameter	Flag	Result	Units	RL
Chloride		17.8	mg/Kg	1

Matrix Blank (1) QC Batch: 6082

Parameter	Flag	Result	Units	RL
Chloride		17.5	mg/Kg	1

Method Blank (1) QC Batch: 6127

Parameter	Flag	Result	Units	RL
Total Chromium		<2.50	mg/Kg	2.5

Laboratory Control Spike (LCS-1) QC Batch: 6081

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	31.2	31.1	mg/Kg	1	12.5	17.8	107	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 6082

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride [1]	31.3	31.4	mg/Kg	1	12.5	17.5	110	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 6127

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	10.3	10.2	mg/Kg	1	10.0	<0.0125	103	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6081

continued ...

[1] Duplicate is still within RPD limits.

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	135	135	mg/Kg	5	12.5	67.2	108	0	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6082

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1250	1230	mg/Kg	50	12.5	580	107	2	24.7 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 6127

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	13.5	13.2	mg/Kg	1	10.0	2.83	107	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 6081

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	12.7	102	90 - 110	2003-12-02

Standard (CCV-1) QC Batch: 6081

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.1	105	90 - 110	2003-12-02

Standard (ICV-1) QC Batch: 6082

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.0	104	90 - 110	2003-12-03

Standard (CCV-1) QC Batch: 6082

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	13.1	105	90 - 110	2003-12-03

Standard (ICV-1) QC Batch: 6127

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/Kg	1.00	0.984	98	90 - 110	2003-12-04

Standard (CCV-1) QC Batch: 6127

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/Kg	1.00	1.03	103	90 - 110	2003-12-04

Page Number: 8 of 9
Hobbs

Page 01 of 02

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1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3112613

Company Name: Environmental Technology Group, Inc.
Phone #: (432) ~~(505)~~ 522-1139
Address: (Street, City, Zip) 4600 W. Wall St., Midland, TX 79703
Fax #: (432) 520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion Technologies, Inc.
Project Location: Hobbs Yard
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Cl⁻ 300.0					Turn Around Time if different from standard	Hold
22243	P-1 (22')	1	4oz		X							X		11-18-03	9:50					X																	X
44	P-1 (45')	1	4oz		X							X		11-18-03	10:30					X																	X
45	P-1 (55')	1	4oz		X							X		11-18-03	11:10					X																	
46	P-2 (20')	1	4oz		X							X		11-18-03	14:30					X																	X
47	P-2 (49')	1	4oz		X							X		11-18-03	3:43					X																	X
48	P-2 (57')	1	4oz		X							X		11-18-03	3:55					X																	
49	SB-65 (20')	1	4oz		X							X		11-19-03	3:19																X						
50	SB-65 (47')	1	4oz		X							X		11-19-03	4:08																X						
51	SB-65 (54')	1	4oz		X							X		11-20-03	7:30																X						
52	SB-66 (20')	1	4oz		X							X		11-20-03	8:35																X						
53	SB-66 (45')	1	4oz		X							X		11-20-03	9:26																X						

Relinquished by: Date: 11/25/03 Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki Date: 11-26-03 Time: 9:48

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4
Log-in Review

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

Carrier # TNMHO 903 1336534

ORIGINAL COPY

Work Order: 3112613
Champion

Report Date: December 4, 2003
CH 2100

Page 02 of 02

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3112613

Company Name: ~~Environmental Technologies~~ Group, Inc.
Phone #: (432) 522-1139

Address: (Street, City, Zip) 4600 W. Wall St., Midland, TX 79703
Fax #: (432) 520-4310

Contact Person: Todd Choban

Invoice to:
(If different from above)

Project #: CH 2100
Project Name: Champion Technologies, Inc.

Project Location: Hobbs Yard
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Cl 300.0	Turn Around Time if different from standard	Hold
22254	SB-66(54')	1	4oz		X							X		11-20-03	10:00																X		
55	SB-67(20')	1	4oz		X							X		11-20-03	11:05																X		
56	SB-67(45')	1	4oz		X							X		11-20-03	13:05																X		
57	SB-67(49')	1	4oz		X							X		11-20-03	13:20																X		
58	SB-67(54')	1	4oz		X							X		11-20-03	14:45																X		
	~~SB-68~~																																
59	SB-68(20')	1	4oz		X							X		11-20-03	14:50																X		
60	SB-68(46')	1	4oz		X							X		11-20-03	15:58																X		
61	SB-68(54')	1	4oz		X							X		11-21-03	8:15																X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	11/25/03				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki	11-26-03	9:48

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4 °
Log-in Review

REMARKS:

☐ Check If Special Reporting Limits Are Needed

Carrier # TNMAO 903 1336534

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

ANALYTICAL REPORT

Prepared for:

Todd Choban
Environmental Technology Group, Inc.
P.O. Box 4845
Midland, TX 79704

Project:	Champion Technologies
PO#:	CH2100
Order#:	G0308061
Report Date:	12/05/2003

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS
SAMPLE WORK LIST

Environmental Technology Group, Inc.		Order#:	G0308061
P.O. Box 4845		Project:	CH2100
Midland, TX 79704		Project Name:	Champion Technologies
915-520-4310		Location:	Hobbs, NM Yard

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

ab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
)308061-01	SB-65 (54')	SOIL	11/20/03 7:30	11/26/03 10:25	4 oz glass	ice

Lab Testing: **Rejected:** No **Temp** 3.5 C

Chloride

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Todd Choban
Environmental Technology Group, Inc.
P.O. Box 4845
Midland, TX 79704

Order#: G0308061
Project: CH2100
Project Name: Champion Technologies
Location: Hobbs, NM Yard

Lab ID: 0308061-01
Sample ID: SB-65 (54')

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	259	mg/kg	1	0.50	300.0	12/4/03	RKT

Approval:
Raland K. Tuttle, Lab Director, QA Officer Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0308061

BLANK **Recovery**	SOIL **Pct (%)** SOIL	**LAB-ID #** **RPD**	**Concentr.**	**Sample**	**Concentr**	**Spike**	**QC Test**	**Result**
Chloride-mg/kg		0007645-01			<0.50			
CONTROL **Recovery**	SOIL **Pct (%)** SOIL	**LAB-ID #** **RPD**	**Concentr.**	**Sample**	**Concentr**	**Spike**	**QC Test**	**Result**
Chloride-mg/kg		0007645-02		0.5	0.54	108.%		
DUPLICATE **Recovery**	SOIL **Pct (%)** SOIL	**LAB-ID #** **RPD**	**Concentr.**	**Sample**	**Concentr**	**Spike**	**QC Test**	**Result**
Chloride-mg/kg		0308061-01	259		281		8.1%	
SRM **Recovery**	SOIL **Pct (%)** SOIL	**LAB-ID #** **RPD**	**Concentr.**	**Sample**	**Concentr**	**Spike**	**QC Test**	**Result**
Chloride-mg/kg		0007645-04		1	0.94	94.%		

Attachment 3
Analytical Reports for Monitor Wells, Water Wells and Excavated Wells

TRACEANALYSIS, INC.
6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: May 30, 2003

Work Order: 3051906

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
7693	MW-1	water	2003-05-16	12:13	2003-05-17
7694	MW-2	water	2003-05-16	13:43	2003-05-17
7695	MW-3	water	2003-05-16	13:36	2003-05-17
7696	MW-4	water	2003-05-16	14:17	2003-05-17
7697	MW-5	water	2003-05-16	12:20	2003-05-17
7698	MW-6	water	2003-05-16	14:04	2003-05-17
7699	MW-7	water	2003-05-16	12:28	2003-05-17
7700	MW-8	water	2003-05-16	12:34	2003-05-17
7701	MW-9	water	2003-05-16	12:44	2003-05-17
7702	MW-10	water	2003-05-16	13:49	2003-05-17
7703	MW-11	water	2003-05-16	12:50	2003-05-17
7704	MW-12	water	2003-05-16	13:56	2003-05-17
7705	MW-13	water	2003-05-16	14:11	2003-05-17
7706	MW-14	water	2003-05-16	13:13	2003-05-17
7707	MW-15	water	2003-05-16	13:18	2003-05-17
7708	MW-16	water	2003-05-16	13:29	2003-05-17
7709	Champion's Water Well	water	2003-05-16	08:20	2003-05-17
7710	Resident's Water Well	water	2003-05-16	08:30	2003-05-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 7693 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**265**	mg/L	10	0.500

Sample: 7693 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7694 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**331**	mg/L	50	0.500

Sample: 7694 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0360**	mg/L	1	0.0100

Sample: 7695 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

continued . . .

sample 7695 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**510**	mg/L	50	0.500

Sample: 7695 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0110**	mg/L	1	0.0100

Sample: 7696 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**363**	mg/L	50	0.500

Sample: 7696 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.201**	mg/L	1	0.0100

Sample: 7697 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**329**	mg/L	50	0.500

Sample: 7697 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0100**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		**0.0990**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**328**	mg/L	50	0.500

Sample: 7698 - MW-6

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0310**	mg/L	1	0.0100

Sample: 7698 - MW-6

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	1725	Date Analyzed:	2003-05-20	Analyzed By:	JG
Prep Batch:	1555	Sample Preparation:	2003-05-20	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**26.2**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		**1.21**	μg/L	1	1.00
1,1,1-Trichloroethane		**1.31**	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		**3.38**	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**14.4**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00

continued ...

sample 7698 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.2	μg/L	1	50.0	104	70 - 130
Toluene-d8		52.6	μg/L	1	50.0	105	70 - 130
4-Bromofluorobenzene (4-BFB)		45.7	μg/L	1	50.0	91	70 - 130

Sample: 7699 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**205**	mg/L	10	0.500

Sample: 7699 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7700 - MW-8

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**324**	mg/L	50	0.500

Sample: 7700 - MW-8

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0240**	mg/L	1	0.0100

Sample: 7701 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1753	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1585	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**299**	mg/L	10	0.500

Sample: 7701 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7702 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**316**	mg/L	10	0.500

Sample: 7702 - MW-10

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 1820 | Date Analyzed: 2003-05-27 | Analyzed By: RR
Prep Batch: 1524 | Sample Preparation: 2003-05-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0220**	mg/L	1	0.0100

Sample: 7703 - MW-11

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 1752 | Date Analyzed: 2003-05-21 | Analyzed By: JSW
Prep Batch: 1584 | Sample Preparation: 2003-05-20 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**256**	mg/L	10	0.500

Sample: 7703 - MW-11

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 1820 | Date Analyzed: 2003-05-27 | Analyzed By: RR
Prep Batch: 1524 | Sample Preparation: 2003-05-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7703 - MW-11

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 1709 | Date Analyzed: 2003-05-20 | Analyzed By: BP
Prep Batch: 1535 | Sample Preparation: 2003-05-20 | Prepared By: BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.3	mg/L	0.1	150	129	83 - 174

Sample: 7703 - MW-11

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 1725 | Date Analyzed: 2003-05-20 | Analyzed By: JG
Prep Batch: 1555 | Sample Preparation: 2003-05-20 | Prepared By: JG

sample 7703 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52	μg/L	1	50.0	104	70 - 130
Toluene-d8		52.2	μg/L	1	50.0	104	70 - 130
4-Bromofluorobenzene (4-BFB)		45.1	μg/L	1	50.0	90	70 - 130

Sample: 7704 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**280**	mg/L	10	0.500

Sample: 7704 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0160**	mg/L	1	0.0100

Sample: 7704 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	1709	Date Analyzed:	2003-05-20	Analyzed By:	BP
Prep Batch:	1535	Sample Preparation:	2003-05-20	Prepared By:	BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.2	mg/L	0.1	150	128	83 - 174

Sample: 7704 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	1725	Date Analyzed:	2003-05-20	Analyzed By:	JG
Prep Batch:	1555	Sample Preparation:	2003-05-20	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**2.88**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00

continued ...

sample 7704 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**1.87**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.5	μg/L	1	50.0	105	70 - 130
Toluene-d8		52	μg/L	1	50.0	104	70 - 130
4-Bromofluorobenzene (4-BFB)		45.5	μg/L	1	50.0	91	70 - 130

Sample: 7705 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**296**	mg/L	10	0.500

Sample: 7705 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.158**	mg/L	1	0.0100

Sample: 7706 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**279**	mg/L	10	0.500

Sample: 7706 - MW-14

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		**0.0300**	mg/L	1	0.0100

Sample: 7707 - MW-15

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**205**	mg/L	10	0.500

Sample: 7707 - MW-15

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7708 - MW-16

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 1752 | Date Analyzed: 2003-05-21 | Analyzed By: JSW
Prep Batch: 1584 | Sample Preparation: 2003-05-20 | Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**362**	mg/L	10	0.500

Sample: 7708 - MW-16

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 1820 | Date Analyzed: 2003-05-27 | Analyzed By: RR
Prep Batch: 1524 | Sample Preparation: 2003-05-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7708 - MW-16

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 1709 | Date Analyzed: 2003-05-20 | Analyzed By: BP
Prep Batch: 1535 | Sample Preparation: 2003-05-20 | Prepared By: BP

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		19.1	mg/L	0.1	150	127	83 - 174

Sample: 7708 - MW-16

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 1725 | Date Analyzed: 2003-05-20 | Analyzed By: JG
Prep Batch: 1555 | Sample Preparation: 2003-05-20 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00

continued . . .

sample 7708 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		**1.51**	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		**1.65**	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00

continued . . .

sample 7708 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.2	μg/L	1	50.0	104	70 - 130
Toluene-d8		52.3	μg/L	1	50.0	105	70 - 130
4-Bromofluorobenzene (4-BFB)		45.2	μg/L	1	50.0	90	70 - 130

Sample: 7709 - Champion's Water Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**258**	mg/L	10	0.500

Sample: 7709 - Champion's Water Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 7710 - Resident's Water Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	1752	Date Analyzed:	2003-05-21	Analyzed By:	JSW
Prep Batch:	1584	Sample Preparation:	2003-05-20	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**383**	mg/L	10	0.500

Sample: 7710 - Resident's Water Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	1820	Date Analyzed:	2003-05-27	Analyzed By:	RR
Prep Batch:	1524	Sample Preparation:	2003-05-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 1709

Parameter	Flag	MDL Result	Units	RL
DRO		1.60	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		21.2	mg/L	0.1	150	141	83 - 174

Method Blank (1) QC Batch: 1725

Parameter	Flag	MDL Result	Units	RL
Bromochloromethane		<0.177	μg/L	1
Dichlorodifluoromethane		<0.208	μg/L	1
Chloromethane (methyl chloride)		<0.134	μg/L	1
Vinyl Chloride		<0.135	μg/L	1
Bromomethane (methyl bromide)		<1.23	μg/L	5
Chloroethane		<0.182	μg/L	1
Trichlorofluoromethane		<0.0610	μg/L	1
Acetone		<5.50	μg/L	10
Iodomethane (methyl iodide)		<0.107	μg/L	5
Carbon Disulfide		<0.0360	μg/L	1
Acrylonitrile		<0.0970	μg/L	1
2-Butanone (MEK)		<0.531	μg/L	5
4-Methyl-2-pentanone (MIBK)		<0.421	μg/L	5
2-Hexanone		<0.168	μg/L	5
trans 1,4-Dichloro-2-butene		<0.517	μg/L	10
1,1-Dichloroethene		<0.136	μg/L	1
Methylene chloride		<0.649	μg/L	5
MTBE		<0.123	μg/L	1
trans-1,2-Dichloroethene		<0.126	μg/L	1
1,1-Dichloroethane		<0.0600	μg/L	1
cis-1,2-Dichloroethene		<0.151	μg/L	1

continued ...

method blank continued . . .

Parameter	Flag	MDL Result	Units	RL
2,2-Dichloropropane		<0.180	μg/L	1
1,2-Dichloroethane (EDC)		<0.113	μg/L	1
Chloroform		<0.141	μg/L	1
1,1,1-Trichloroethane		<0.116	μg/L	1
1,1-Dichloropropene		<0.0540	μg/L	1
Benzene		0.200	μg/L	1
Carbon Tetrachloride		<0.0790	μg/L	1
1,2-Dichloropropane		<0.111	μg/L	1
Trichloroethene (TCE)		0.310	μg/L	1
Dibromomethane (methylene bromide)		<0.140	μg/L	1
Bromodichloromethane		<0.161	μg/L	1
2-Chloroethyl vinyl ether		<0.388	μg/L	5
cis-1,3-Dichloropropene		<0.0890	μg/L	1
trans-1,3-Dichloropropene		<0.0760	μg/L	1
Toluene		0.440	μg/L	1
1,1,2-Trichloroethane		<0.135	μg/L	1
1,3-Dichloropropane		<0.0990	μg/L	1
Dibromochloromethane		<0.0900	μg/L	1
1,2-Dibromoethane (EDB)		<0.0700	μg/L	1
Tetrachloroethene (PCE)		<0.270	μg/L	1
Chlorobenzene		<0.0540	μg/L	1
1,1,1,2-Tetrachloroethane		<0.0990	μg/L	1
Ethylbenzene		<0.0360	μg/L	1
m,p-Xylene		<0.0940	μg/L	1
Bromoform		<0.0570	μg/L	1
Styrene		<0.0910	μg/L	1
o-Xylene		<0.0960	μg/L	1
1,1,2,2-Tetrachloroethane		<0.125	μg/L	1
2-Chlorotoluene		<0.0570	μg/L	1
1,2,3-Trichloropropane		<0.458	μg/L	1
Isopropylbenzene		<0.0850	μg/L	1
Bromobenzene		<0.106	μg/L	1
n-Propylbenzene		<0.0590	μg/L	1
1,3,5-Trimethylbenzene		<0.0250	μg/L	1
tert-Butylbenzene		<0.107	μg/L	1
1,2,4-Trimethylbenzene		<0.0990	μg/L	1
1,4-Dichlorobenzene (para)		<0.217	μg/L	1
sec-Butylbenzene		<0.0430	μg/L	1
1,3-Dichlorobenzene (meta)		<0.0690	μg/L	1
p-Isopropyltoluene		<0.106	μg/L	1
4-Chlorotoluene		<0.0940	μg/L	1
1,2-Dichlorobenzene (ortho)		<0.100	μg/L	1
n-Butylbenzene		<0.0850	μg/L	1
1,2-Dibromo-3-chloropropane		<0.690	μg/L	5
1,2,3-Trichlorobenzene		<0.135	μg/L	5
1,2,4-Trichlorobenzene		<0.155	μg/L	5
Naphthalene		<0.594	μg/L	5
Hexachlorobutadiene		<0.248	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.5	μg/L	1	50.0	103	70 - 130

continued . . .

method blank continued . . .

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Toluene-d8		52.8	μg/L	1	50.0	106	70 - 130
4-Bromofluorobenzene (4-BFB)		46.4	μg/L	1	50.0	93	70 - 130

Method Blank (1) QC Batch: 1752

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.49	mg/L	0.5

Method Blank (1) QC Batch: 1753

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.49	mg/L	0.5

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Arsenic		<0.00593	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Barium		<0.000343	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Chromium		<0.000660	mg/L	0.01

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Manganese		<0.000275	mg/L	0.025

Method Blank (1) QC Batch: 1820

Parameter	Flag	MDL Result	Units	RL
Dissolved Lead		<0.00367	mg/L	0.01

Method Blank (1) QC Batch: 1826

Parameter	Flag	MDL Result	Units	RL
GRO		<0.0261	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.089	mg/L	1	0.100	89	73 - 120
4-Bromofluorobenzene (4-BFB)		0.0844	mg/L	1	0.100	84	78 - 120

Laboratory Control Spike (LCS-1) QC Batch: 1709

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	24.5	24.6	mg/L	0.1	250	<0.190	98	0	68.5 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	23.0	23.0	mg/L	0.1	150	153	153	83 - 174

Laboratory Control Spike (LCS-1) QC Batch: 1725

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	102	99.0	μg/L	1	100	<0.136	102	3	78 - 120	20
Benzene	98.8	99.3	μg/L	1	100	<0.146	99	0	84.2 - 108	20
Trichloroethene (TCE)	94.4	102	μg/L	1	100	<0.117	94	8	85.8 - 106	20
Toluene	97.6	101	μg/L	1	100	<0.0600	98	3	77.2 - 104	20
Chlorobenzene	97.2	100	μg/L	1	100	<0.0540	97	3	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	51.2	38.3	μg/L	1	50.0	102	77	84.2 - 115
Toluene-d8	52.0	53.0	μg/L	1	50.0	104	106	94.6 - 103
4-Bromofluorobenzene (4-BFB)	46.7	46.5	μg/L	1	50.0	93	93	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 1752

continued . . .

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.4	mg/L	1	12.5	<1.49	90	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1753

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.3	mg/L	1	12.5	<1.49	90	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.473	0.468	mg/L	1	0.500	<0.00593	95	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.00	0.994	mg/L	1	1.00	<0.000343	100	1	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.108	0.107	mg/L	1	0.100	<0.000660	108	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.250	0.249	mg/L	1	0.250	<0.000275	100	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 1820

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.487	0.493	mg/L	1	0.500	<0.00367	97	1	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1752 Spiked Sample: 7711

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	*2630*	*2630*	*mg/L*	*100*	*12.5*	*1510*	*90*	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1753 Spiked Sample: 7700

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	880	881	mg/L	50	12.5	324	89	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.448	0.432	mg/L	1	0.500	<0.00593	90	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.19	1.19	mg/L	1	1.00	0.099	109	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.130	0.125	mg/L	1	0.100	0.031	99	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.246	0.246	mg/L	1	0.250	0.006	96	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 1820 Spiked Sample: 7698

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.529	0.515	mg/L	1	0.500	<0.00367	106	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 1820 Spiked Sample: 7702

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.123	0.126	mg/L	1	0.100	0.022	101	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 1709

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	274	110	83 - 174	2003-05-20

Standard (CCV-1) QC Batch: 1709

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	248	99	83 - 174	2003-05-20

Standard (CCV-1) QC Batch: 1725

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	53.0	106	80 - 120	2003-05-20
1,1-Dichloroethene		μg/L	50.0	51.0	102	80 - 120	2003-05-20
Chloroform		μg/L	50.0	46.0	92	80 - 120	2003-05-20
1,2-Dichloropropane		μg/L	50.0	47.0	94	80 - 120	2003-05-20
Toluene		μg/L	50.0	49.0	98	80 - 120	2003-05-20
Chlorobenzene		μg/L	50.0	49.0	98	80 - 120	2003-05-20
Ethylbenzene		μg/L	50.0	51.0	102	80 - 120	2003-05-20

Standard (ICV-1) QC Batch: 1752

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2003-05-21

Standard (CCV-1) QC Batch: 1752

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.3	90	90 - 110	2003-05-21

Standard (ICV-1) QC Batch: 1753

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.3	90	90 - 110	2003-05-21

Standard (CCV-1) QC Batch: 1753

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2003-05-21

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.959	96	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.924	92	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.943	94	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.941	94	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1820

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.935	94	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.936	94	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.994	99	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.976	98	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.970	97	90 - 110	2003-05-27

Standard (CCV-1) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.988	99	90 - 110	2003-05-27

Standard (CCV-2) QC Batch: 1820

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.981	98	90 - 110	2003-05-27

Standard (ICV-1) QC Batch: 1826

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.888	89	85 - 115	2003-05-26

Standard (CCV-1) QC Batch: 1826

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.920	92	85 - 115	2003-05-26

C.O.C #45 Page 1 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3043051906

Company Name: Environmental Technology Group Inc.
Phone #: (915) 522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO GRO	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Chromium (Dis)	lead, Arsenic, Manganese, Barium	VOC		Turn Around Time if different from standard 5 day	Hold
7693	MW-1	1		X								X		5-16	1313																X	X				X	
94	MW-2	1		X								X		5-16	1343																X	X				X	
95	MW-3	1		X								X		5-16	1336																X	X				X	
96	MW-4	1		X								X		5-16	1417																X	X				X	
97	MW-5	1		X								X		5-16	1220																X	X				X	
98	MW-6	4 3	5	X								X		5-16	1404			X DRO + GRO													X	X	X	X		X	
99	MW-7	1		X								X		5-16	1228																X	X				X	
7700	MW-8	1		X								X		5-16	1234																X	X				X	
01	MW-9	1		X								X		5-16	1244																X	X				X	
02	MW-10	1		X								X		5-16	1349																X	X				X	
03	MW-11	3		X								X		5-16	1250			X DRO													X	X	*	X		X	

Relinquished by: Date: 5-16-03 Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: PATEL T.H. Date: 5/17/03 Time: 10:55 AM.

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 3 °
Log-in Review MA

REMARKS:
* If metals (lead, arsenic, Manganese, Barium) are detected in MW-6 test for metals in MW-11, MW-12, MW-16

☐ Check If Special Reporting Limits Are Needed

no add'l tests per Todd 5-28-03

Carrier # Bus 6:11# 903 014 415 6
(GL1 166 230 383 I)

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 2 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3051906

Company Name: Environmental Technology Group Inc. Phone #: (915) 522-1139

Address: (Street, City, Zip) 4600 W. Wall Midland TX 79703 Fax #: 432-520-4310

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: CH2100 Project Name: Champion

Project Location: South of Hobbs Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
04	MW-12	3		X								X		5-16-03	1356
7705	MW-13	1		X								X		5-16-03	1411
06	MW-14	1		X								X		5-16-03	1313
07	MW-15	1		X								X		5-16-03	1318
08	MW-16	3		X								X		5-16-03	1329
09	Champion's Water Well	1		X								X		5-16-03	820
10	Resident's Water Well	1		X								X		5-16-03	830

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200 7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	Lead, Arsenic, Manganese, Barium	VOC		Turn Around Time if different from standard 5 days	Hold
04			X	DRO												X	X	*	X		X	
7705																X	X				X	
06																X	X				X	
07																X	X				X	
08			X	DRO												X	X	*	X		X	
09																X	X				X	
10																X	X				X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	5-16-03				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			PATEL T.H.	5/17/03	10:55 Am.

LAB USE ONLY
Intact Y / N (Y circled)
Headspace Y / N
Temp 3 °
Log-in Review MA

REMARKS: * If metals (lead, Arsenic, manganese, barium) are detected in MW-16 test for metals in MW-11, MW-12, MW-16

☐ Check if Special Reporting Limits Are Needed

Carrier # Bus Bill # 903 014 4156

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Report Date: May 30, 2003
CH 2100

Work Order: 3051906
Champion

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: August 20, 2003

Work Order: 3081414

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
15306	Excavated Well	water	2003-08-13	10:50	2003-08-14

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 33 pages and shall not be reproduced except in its entirety, without written approval o: TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 15306 - Excavated Well

Analysis: Ag, Dissolved
QC Batch: 3849
Prep Batch: 3385

Analytical Method: S 6010B
Date Analyzed: 2003-08-19
Date Prepared: 2003-08-15

Prep Method: S 3005A
Analyzed By: RR
Prepared By: JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Silver		<0.0130	mg/L	1	0.0130

Sample: 15306 - Excavated Well

Analysis: Alkalinity
QC Batch: 3806
Prep Batch: 3417

Analytical Method: SM 2320B
Date Analyzed: 2003-08-15
Date Prepared: 2003-08-15

Prep Method: N/A
Analyzed By: RS
Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		108	mg/L as CaCo3	1	4.00
Total Alkalinity		108	mg/L as CaCo3	1	4.00

Sample: 15306 - Excavated Well

Analysis: As, Dissolved
QC Batch: 3849
Prep Batch: 3385

Analytical Method: S 6010B
Date Analyzed: 2003-08-19
Date Prepared: 2003-08-15

Prep Method: S 3005A
Analyzed By: RR
Prepared By: JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis: Ba, Dissolved
QC Batch: 3849
Prep Batch: 3385

Analytical Method: S 6010B
Date Analyzed: 2003-08-19
Date Prepared: 2003-08-15

Prep Method: S 3005A
Analyzed By: RR
Prepared By: JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.743	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis: Cations
QC Batch: 3866
Prep Batch: 3385

Analytical Method: S 6010B
Date Analyzed: 2003-08-18
Date Prepared: 2003-08-15

Prep Method: S 3005A
Analyzed By: BC
Prepared By: JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		49.9	mg/L	1	0.500
Dissolved Potassium		5.93	mg/L	1	0.500
Dissolved Magnesium		12.3	mg/L	1	0.500
Dissolved Sodium		116	mg/L	1	0.500

Sample: 15306 - Excavated Well

Analysis:	Cd, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Cadmium		0.0120	mg/L	1	0.00500

Sample: 15306 - Excavated Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Cu, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Copper		<0.0125	mg/L	1	0.0125

Sample: 15306 - Excavated Well

Analysis:	Fe, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Iron		<0.0500	mg/L	1	0.0500

Sample: 15306 - Excavated Well

Analysis:	Hg, Dissolved	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	3857	Date Analyzed:	2003-08-19	Analyzed By:	BC
Prep Batch:	3462	Date Prepared:	2003-08-18	Prepared By:	BC

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Mercury		<0.000200	mg/L	1	0.000200

Sample: 15306 - Excavated Well

Analysis:	Ion Chromatography	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	3756	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3379	Date Prepared:	2003-08-14	Prepared By:	JSW
QC Batch:	3823	Date Analyzed:	2003-08-19	Analyzed By:	JSW
Prep Batch:	3431	Date Prepared:	2003-08-18	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		285	mg/L	10	0.500
Fluoride		<1.00	mg/L	5	0.200
Sulfate		5.25	mg/L	5	0.500

Sample: 15306 - Excavated Well

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.286	mg/L	1	0.0250

Sample: 15306 - Excavated Well

Analysis:	NO2 (Spec)	Analytical Method:	SM 4500-NO2 B	Prep Method:	N/A
QC Batch:	3757	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3380	Date Prepared:	2003-08-15	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrite-N		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	3756	Date Analyzed:	2003-08-15	Analyzed By:	JSW
Prep Batch:	3379	Date Prepared:	2003-08-14	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 15306 - Excavated Well

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	3830	Date Analyzed:	2003-08-14	Analyzed By:	RS
Prep Batch:	3438	Date Prepared:	2003-08-14	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
pH	[1]	7.20	s.u.	1	0.00

Sample: 15306 - Excavated Well

Analysis:	Se, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Selenium		<0.0100	mg/L	1	0.0100

Sample: 15306 - Excavated Well

Analysis:	Semivolatiles	Analytical Method:	S 8270C	Prep Method:	S 3510C
QC Batch:	3813	Date Analyzed:	2003-08-18	Analyzed By:	RC
Prep Batch:	3411	Date Prepared:	2003-08-17	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Pyridine		<0.00500	mg/L	0.001	5.00
n-Nitrosodimethylamine		<0.00500	mg/L	0.001	5.00
2-Picoline		<0.00500	mg/L	0.001	5.00
Methyl methanesulfonate		<0.00500	mg/L	0.001	5.00
Ethyl methanesulfonate		<0.00500	mg/L	0.001	5.00

continued ...

[1] received out of holding time

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Phenol		<0.00500	mg/L	0.001	5.00
Aniline		<0.00500	mg/L	0.001	5.00
bis(2-chloroethyl)ether		<0.00500	mg/L	0.001	5.00
2-Chlorophenol		<0.00500	mg/L	0.001	5.00
1,3-Dichlorobenzene (meta)		<0.00500	mg/L	0.001	5.00
1,4-Dichlorobenzene (para)		<0.00500	mg/L	0.001	5.00
Benzyl alcohol		<0.00500	mg/L	0.001	5.00
1,2-Dichlorobenzene (ortho)		<0.00500	mg/L	0.001	5.00
2-Methylphenol		<0.00500	mg/L	0.001	5.00
bis(2-chloroisopropyl)ether		<0.00500	mg/L	0.001	5.00
4-Methylphenol / 3-Methylphenol		<0.00500	mg/L	0.001	5.00
n-Nitrosodi-n-propylamine		<0.00500	mg/L	0.001	5.00
Hexachloroethane		<0.00500	mg/L	0.001	5.00
Acetophenone		<0.00500	mg/L	0.001	5.00
Nitrobenzene		<0.00500	mg/L	0.001	5.00
n-Nitrosopiperidine		<0.00500	mg/L	0.001	5.00
Isophorone		<0.00500	mg/L	0.001	5.00
2-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dimethylphenol		<0.00500	mg/L	0.001	5.00
bis(2-chloroethoxy)methane		<0.00500	mg/L	0.001	5.00
2,4-Dichlorophenol		<0.00500	mg/L	0.001	5.00
1,2,4-Trichlorobenzene		<0.00500	mg/L	0.001	5.00
Benzoic acid		<0.0200	mg/L	0.001	20.0
Naphthalene		<0.00500	mg/L	0.001	5.00
a,a-Dimethylphenethylamine		<0.00500	mg/L	0.001	5.00
4-Chloroaniline		<0.00500	mg/L	0.001	5.00
2,6-Dichlorophenol		<0.00500	mg/L	0.001	5.00
Hexachlorobutadiene		<0.00500	mg/L	0.001	5.00
n-Nitroso-di-n-butylamine		<0.00500	mg/L	0.001	5.00
4-Chloro-3-methylphenol		<0.00500	mg/L	0.001	5.00
2-Methylnaphthalene		<0.00500	mg/L	0.001	5.00
1-Methylnaphthalene		<0.00500	mg/L	0.001	5.00
1,2,4,5-Tetrachlorobenzene		<0.00500	mg/L	0.001	5.00
Hexachlorocyclopentadiene		<0.00500	mg/L	0.001	5.00
2,4,6-Trichlorophenol		<0.00500	mg/L	0.001	5.00
2,4,5-Trichlorophenol		<0.00500	mg/L	0.001	5.00
2-Chloronaphthalene		<0.00500	mg/L	0.001	5.00
1-Chloronaphthalene		<0.00500	mg/L	0.001	5.00
2-Nitroaniline		<0.00500	mg/L	0.001	5.00
Dimethylphthalate		<0.00500	mg/L	0.001	5.00
Acenaphthylene		<0.00500	mg/L	0.001	5.00
2,6-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
3-Nitroaniline		<0.00500	mg/L	0.001	5.00
Acenaphthene		<0.00500	mg/L	0.001	5.00
2,4-Dinitrophenol		<0.0200	mg/L	0.001	20.0
Dibenzofuran		<0.00500	mg/L	0.001	5.00
Pentachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
1-Naphthylamine		<0.00500	mg/L	0.001	5.00
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	0.001	5.00

continued ...

sample 15306 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
2-Naphthylamine		<0.00500	mg/L	0.001	5.00
Fluorene		<0.00500	mg/L	0.001	5.00
4-Chlorophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Diethylphthalate		<0.00500	mg/L	0.001	5.00
4-Nitroaniline		<0.00500	mg/L	0.001	5.00
Diphenylhydrazine		<0.00500	mg/L	0.001	5.00
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	0.001	5.00
Diphenylamine		<0.00500	mg/L	0.001	5.00
4-Bromophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Phenacetin		<0.00500	mg/L	0.001	5.00
Hexachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Aminobiphenyl		<0.00500	mg/L	0.001	5.00
Pentachlorophenol		<0.00500	mg/L	0.001	5.00
Anthracene		<0.00500	mg/L	0.001	5.00
Pentachloronitrobenzene		<0.00500	mg/L	0.001	5.00
Pronamide		<0.00500	mg/L	0.001	5.00
Phenanthrene		<0.00500	mg/L	0.001	5.00
Di-n-butylphthalate		<0.00500	mg/L	0.001	5.00
Fluoranthene		<0.00500	mg/L	0.001	5.00
Benzidine		<0.0150	mg/L	0.001	15.0
Pyrene		<0.00500	mg/L	0.001	5.00
p-Dimethylaminoazobenzene		<0.00500	mg/L	0.001	5.00
Butylbenzylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(a)anthracene		<0.00500	mg/L	0.001	5.00
3,3-Dichlorobenzidine		<0.00500	mg/L	0.001	5.00
Chrysene		<0.00500	mg/L	0.001	5.00
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	0.001	10.0
Di-n-octylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(b)fluoranthene		<0.00500	mg/L	0.001	5.00
Benzo(k)fluoranthene		<0.00500	mg/L	0.001	5.00
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(a)pyrene		<0.00500	mg/L	0.001	5.00
3-Methylcholanthrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,j)acridine		<0.00500	mg/L	0.001	5.00
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,h)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(g,h,i)perylene		<0.00500	mg/L	0.001	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0225	mg/L	0.001	80.0	28	0 - 94
Phenol-d5		0.0135	mg/L	0.001	80.0	17	0 - 67
Nitrobenzene-d5		0.0596	mg/L	0.001	80.0	74	6.75 - 138.7
2-Fluorobiphenyl		0.0650	mg/L	0.001	80.0	81	14.7 - 135
2,4,6-Tribromophenol		0.0586	mg/L	0.001	80.0	73	44.92 - 152
Terphenyl-d14		0.0572	mg/L	0.001	80.0	72	44.49 - 162.36

Sample: 15306 - Excavated Well

Analysis: TDS   Analytical Method: SM 2540C   Prep Method: N/A

QC Batch: 3734 Date Analyzed: 2003-08-15 Analyzed By: JSW
Prep Batch: 3360 Date Prepared: 2003-08-14 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		583.0	mg/L	1	10.00

Sample: 15306 - Excavated Well

Analysis: TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A
QC Batch: 3747 Date Analyzed: 2003-08-14 Analyzed By: BP
Prep Batch: 3372 Date Prepared: 2003-08-14 Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		7.72	mg/L	0.1	150	51	44 - 123

Sample: 15306 - Excavated Well

Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5030B
QC Batch: 3765 Date Analyzed: 2003-08-15 Analyzed By: MT
Prep Batch: 3388 Date Prepared: 2003-08-15 Prepared By: MT

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.103	mg/L	1	0.100	103	73 - 120
4-Bromofluorobenzene (4-BFB)	2	0.0688	mg/L	1	0.100	69	78 - 120

Sample: 15306 - Excavated Well

Analysis: Volatiles Analytical Method: S 8260B Prep Method: S 5030B
QC Batch: 3782 Date Analyzed: 2003-08-17 Analyzed By: JG
Prep Batch: 3404 Date Prepared: 2003-08-17 Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00

continued ...

[2] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		6.88	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		<1.00	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00

continued ...

sample 15306 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	μg/L	1	50.0	97	70 - 130
Toluene-d8		48.3	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		48.8	μg/L	1	50.0	98	70 - 130

Sample: 15306 - Excavated Well

Analysis:	Zn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	3849	Date Analyzed:	2003-08-19	Analyzed By:	RR
Prep Batch:	3385	Date Prepared:	2003-08-15	Prepared By:	JH

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Zinc		<0.0250	mg/L	1	0.025

Method Blank (1) QC Batch: 3734

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) QC Batch: 3747

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		8.27	mg/L	0.1	150	55	44 - 123

Method Blank (1) QC Batch: 3756

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 3756

Parameter	Flag	Result	Units	RL
Fluoride		<0.200	mg/L	0.2
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 3757

Parameter	Flag	Result	Units	RL
Nitrite-N		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3765

Parameter	Flag	Result	Units	RL
GRO		0.216	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.101	mg/L	1	0.100	101	73 - 120
4-Bromofluorobenzene (4-BFB)	3	0.0658	mg/L	1	0.100	66	78 - 120

Method Blank (1) QC Batch: 3782

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1

continued ...

[3] Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

method blank continued ...

Parameter	Flag	Result	Units	RL
Acetophenone		<0.00500	mg/L	5
Nitrobenzene		<0.00500	mg/L	5
n-Nitrosopiperidine		<0.00500	mg/L	5
Isophorone		<0.00500	mg/L	5
2-Nitrophenol		<0.00500	mg/L	5
2,4-Dimethylphenol		<0.00500	mg/L	5
bis(2-chloroethoxy)methane		<0.00500	mg/L	5
2,4-Dichlorophenol		<0.00500	mg/L	5
1,2,4-Trichlorobenzene		<0.00500	mg/L	5
Benzoic acid		<0.0200	mg/L	20
Naphthalene		<0.00500	mg/L	5
a,a-Dimethylphenethylamine		<0.00500	mg/L	5
4-Chloroaniline		<0.00500	mg/L	5
2,6-Dichlorophenol		<0.00500	mg/L	5
Hexachlorobutadiene		<0.00500	mg/L	5
n-Nitroso-di-n-butylamine		<0.00500	mg/L	5
4-Chloro-3-methylphenol		<0.00500	mg/L	5
2-Methylnaphthalene		<0.00500	mg/L	5
1-Methylnaphthalene		<0.00500	mg/L	5
1,2,4,5-Tetrachlorobenzene		<0.00500	mg/L	5
Hexachlorocyclopentadiene		<0.00500	mg/L	5
2,4,6-Trichlorophenol		<0.00500	mg/L	5
2,4,5-Trichlorophenol		<0.00500	mg/L	5
2-Chloronaphthalene		<0.00500	mg/L	5
1-Chloronaphthalene		<0.00500	mg/L	5
2-Nitroaniline		<0.00500	mg/L	5
Dimethylphthalate		<0.00500	mg/L	5
Acenaphthylene		<0.00500	mg/L	5
2,6-Dinitrotoluene		<0.00500	mg/L	5
3-Nitroaniline		<0.00500	mg/L	5
Acenaphthene		<0.00500	mg/L	5
2,4-Dinitrophenol		<0.0200	mg/L	20
Dibenzofuran		<0.00500	mg/L	5
Pentachlorobenzene		<0.00500	mg/L	5
4-Nitrophenol		<0.00500	mg/L	5
2,4-Dinitrotoluene		<0.00500	mg/L	5
1-Naphthylamine		<0.00500	mg/L	5
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	5
2-Naphthylamine		<0.00500	mg/L	5
Fluorene		<0.00500	mg/L	5
4-Chlorophenyl-phenylether		<0.00500	mg/L	5
Diethylphthalate		<0.00500	mg/L	5
4-Nitroaniline		<0.00500	mg/L	5
Diphenylhydrazine		<0.00500	mg/L	5
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	5
Diphenylamine		<0.00500	mg/L	5
4-Bromophenyl-phenylether		<0.00500	mg/L	5
Phenacetin		<0.00500	mg/L	5
Hexachlorobenzene		<0.00500	mg/L	5
4-Aminobiphenyl		<0.00500	mg/L	5
Pentachlorophenol		<0.00500	mg/L	5
Anthracene		<0.00500	mg/L	5

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
Pentachloronitrobenzene		<0.00500	mg/L	5
Pronamide		<0.00500	mg/L	5
Phenanthrene		<0.00500	mg/L	5
Di-n-butylphthalate		<0.00500	mg/L	5
Fluoranthene		<0.00500	mg/L	5
Benzidine		<0.0150	mg/L	15
Pyrene		<0.00500	mg/L	5
p-Dimethylaminoazobenzene		<0.00500	mg/L	5
Butylbenzylphthalate		<0.00500	mg/L	5
Benzo(a)anthracene		<0.00500	mg/L	5
3,3-Dichlorobenzidine		<0.00500	mg/L	5
Chrysene		<0.00500	mg/L	5
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	10
Di-n-octylphthalate		<0.00500	mg/L	5
Benzo(b)fluoranthene		<0.00500	mg/L	5
Benzo(k)fluoranthene		<0.00500	mg/L	5
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	5
Benzo(a)pyrene		<0.00500	mg/L	5
3-Methylcholanthrene		<0.00500	mg/L	5
Dibenzo(a,j)acridine		<0.00500	mg/L	5
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	5
Dibenzo(a,h)anthracene		<0.00500	mg/L	5
Benzo(g,h,i)perylene		<0.00500	mg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0453	mg/L	0.001	80.0	57	0 - 94.7
Phenol-d5		0.0269	mg/L	0.001	80.0	34	0 - 67.64
Nitrobenzene-d5		0.0670	mg/L	0.001	80.0	84	6.75 - 138.7
2-Fluorobiphenyl		0.0719	mg/L	0.001	80.0	90	14.71 - 134.97
2,4,6-Tribromophenol		0.0594	mg/L	0.001	80.0	74	44.92 - 152.29
Terphenyl-d14		0.0716	mg/L	0.001	80.0	90	44.49 - 162.36

Method Blank (1) QC Batch: 3823

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Silver		<0.0130	mg/L	0.013

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Cadmium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Copper		<0.0125	mg/L	0.0125

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Iron		<0.0500	mg/L	0.05

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Selenium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 3849

Parameter	Flag	Result	Units	RL
Dissolved Zinc		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 3857

Parameter	Flag	Result	Units	RL
Dissolved Mercury		<0.000200	mg/L	0.0002

Method Blank (1) QC Batch: 3866

Parameter	Flag	Result	Units	RL
Dissolved Calcium		<0.500	mg/L	0.5
Dissolved Potassium		<0.500	mg/L	0.5
Dissolved Magnesium		<0.500	mg/L	0.5
Dissolved Sodium		0.501	mg/L	0.5

Duplicate (1) QC Batch: 3734

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2998	2810	mg/L	2	6	9.41

Duplicate (1) QC Batch: 3806

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	5.81
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	5.81
Bicarbonate Alkalinity	104	108	mg/L as CaCo3	1	4	5.81

continued ...

duplicate continued ...

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Alkalinity	104	108	mg/L as CaCo3	1	4	5.81

Duplicate (1) QC Batch: 3830

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH [4]	3.70	3.70	s.u.	1	0	0

Laboratory Control Spike (LCS-1) QC Batch: 3747

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.5	27.0	mg/L	0.1	250	<0.230	90	18	86 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	8.38	9.92	mg/L	0.1	150	56	66	44 - 123

Laboratory Control Spike (LCS-1) QC Batch: 3756

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.36	2.33	mg/L	1	2.50	<0.126	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3756

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	2.50	2.38	mg/L	1	2.50	<0.0153	100	5	90 - 110	20
Sulfate	12.5	12.2	mg/L	1	12.5	<0.171	100	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3757

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrite-N	0.0830	0.0813	mg/L	1	0.0800	<0.000820	104	2	95 - 106	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3765

[4] received out of holding time

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	0.933	0.950	mg/L	1	1.00	<0.0261	93	2	78.1 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.104	0.106	mg/L	1	0.100	104	106	73 - 120
4-Bromofluorobenzene (4-BFB) [5][6]	0.0711	0.0705	mg/L	1	0.100	71	70	78 - 120

Laboratory Control Spike (LCS-1) QC Batch: 3782

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	103	101	μg/L	1	100	<0.136	103	2	70 - 130	20
Benzene	101	102	μg/L	1	100	<0.146	101	1	70 - 130	20
Trichloroethene (TCE)	105	108	μg/L	1	100	<0.117	105	3	70 - 130	20
Toluene	100	101	μg/L	1	100	0.09	100	1	70 - 130	20
Chlorobenzene	100	102	μg/L	1	100	<0.0540	100	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	48.9	47.9	μg/L	1	50.0	98	96	70 - 130
Toluene-d8	49.0	49.3	μg/L	1	50.0	98	99	70 - 130
4-Bromofluorobenzene (4-BFB)	50.9	52.2	μg/L	1	50.0	102	104	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 3813

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Phenol	26.7	25.2	mg/L	1	80.0	<0.490	33	6	1 - 56.82	20
2-Chlorophenol	53.1	52.0	mg/L	1	80.0	<1.63	66	2	13.99 - 107.11	20
1,4-Dichlorobenzene (para)	57.6	57.6	mg/L	1	80.0	<1.93	72	0	9.09 - 113.45	20
n-Nitrosodi-n-propylamine	64.4	55.0	mg/L	1	80.0	<2.26	80	16	17.91 - 139.92	20
1,2,4-Trichlorobenzene	62.4	63.7	mg/L	1	80.0	<1.52	78	2	16.63 - 117.68	20
4-Chloro-3-methylphenol	50.8	43.9	mg/L	1	80.0	<1.60	64	14	22.33 - 107.93	20
Acenaphthene	73.0	71.6	mg/L	1	80.0	<1.58	91	2	36.91 - 123.61	20
4-Nitrophenol	25.4	25.0	mg/L	1	80.0	<3.83	32	2	0 - 69.1	20
2,4-Dinitrotoluene	74.4	74.1	mg/L	1	80.0	<2.09	93	0	44.81 - 136.34	20
Pentachlorophenol	63.5	64.7	mg/L	1	80.0	<3.04	79	2	28.5 - 125.7	20
Pyrene	82.0	80.8	mg/L	1	80.0	<1.81	102	1	42.61 - 159.68	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorophenol	48.2	45.7	mg/L	1	80.0	60	57	0 - 94.7
Phenol-d5	34.0	32.5	mg/L	1	80.0	42	41	0 - 67.6
Nitrobenzene-d5	74.2	76.2	mg/L	1	80.0	93	95	6.75 - 139

continued ...

[5]Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.
[6]Low BFB surrogate recovery due to prep. TFT surrogate recovery shows the method to be in control.

control spikes continued . . .

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorobiphenyl	82.9	82.4	mg/L	1	80.0	104	103	14.7 - 135
2,4,6-Tribromophenol	76.9	77.6	mg/L	1	80.0	96	97	44.9 - 152
Terphenyl-d14	85.5	84.8	mg/L	1	80.0	107	106	44.5 - 162

Laboratory Control Spike (LCS-1) QC Batch: 3823

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.4	12.5	mg/L	1	12.5	<1.49	99	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Silver	0.110	0.111	mg/L	1	0.125	<0.000779	88	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.423	0.516	mg/L	1	0.500	<0.00593	85	20	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.858	0.962	mg/L	1	1.00	<0.000343	86	11	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Cadmium	0.230	0.238	mg/L	1	0.250	<0.000268	92	3	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0950	0.103	mg/L	1	0.100	<0.000660	95	8	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Copper	0.108	0.113	mg/L	1	0.125	<0.00177	86	4	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Iron	0.422	0.480	mg/L	1	0.500	<0.00220	84	13	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.224	0.257	mg/L	1	0.250	<0.000275	90	14	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.415	0.437	mg/L	1	0.500	<0.00367	83	5	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Selenium	0.441	0.472	mg/L	1	0.500	<0.00650	88	7	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3849

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Zinc	0.216	0.220	mg/L	1	0.250	<0.00907	86	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3857

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Mercury	0.00113	0.000980	mg/L	1	0.00100	<0.0000360	113	14	86.7 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 3866

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	91.7	89.9	mg/L	1	100	<0.183	92	2	85 - 115	20
Dissolved Potassium	95.5	97.5	mg/L	1	100	<0.135	96	2	85 - 115	20
Dissolved Magnesium	90.6	91.1	mg/L	1	100	<0.183	91	0	85 - 115	20
Dissolved Sodium	94.7	93.6	mg/L	1	100	<0.105	95	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3756

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	249	247	mg/L	100	2.50	<12.6	100	1	62.2 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3756

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	193	190	mg/L	100	2.50	11.7	72	2	30.1 - 187	20
Sulfate	2900	2900	mg/L	100	12.5	1640	101	0	69.9 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3757

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrite-N	0.0739	0.0765	mg/L	1	0.0800	<0.000820	92	3	65.9 - 119	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3823

continued . . .

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1660	1660	mg/L	100	12.5	594	85	0	32.7 - 136	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Silver	0.127	0.139	mg/L	1	0.125	<0.000779	102	9	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.470	0.445	mg/L	1	0.500	<0.00593	94	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.996	1.02	mg/L	1	1.00	<0.000343	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Cadmium	0.249	0.254	mg/L	1	0.250	<0.000268	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.104	mg/L	1	0.100	<0.000660	101	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Copper	0.100	0.105	mg/L	1	0.125	<0.00177	80	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Iron	0.521	0.548	mg/L	1	0.500	<0.00220	104	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.261	0.263	mg/L	1	0.250	0.021	96	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.578	0.552	mg/L	1	0.500	<0.00367	116	5	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Selenium	0.376	0.381	mg/L	1	0.500	<0.00650	75	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3849

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Zinc	0.544	0.546	mg/L	1	0.250	0.326	87	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3857

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Mercury	0.00147	0.00148	mg/L	1	0.00100	<0.0000360	147	1	40 - 177	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 3866

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	140	125	mg/L	1	100	49.9	90	11	75 - 125	20
Dissolved Potassium	103	97.2	mg/L	1	100	5.93	97	6	75 - 125	20
Dissolved Magnesium [7,8]	84.4	79.7	mg/L	1	100	12.3	72	6	75 - 125	20
Dissolved Sodium	226	202	mg/L	1	100	116	110	11	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 3734

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1019	102	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3734

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1002	100	90 - 110	2003-08-15

Standard (ICV-1) QC Batch: 3747

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	238	95	75 - 125	2003-08-14

Standard (CCV-1) QC Batch: 3747

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	225	90	75 - 125	2003-08-14

Standard (ICV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.35	94	90 - 110	2003-08-15

[7] ms recovery out of range due to matrix effect/spiking error, use lcs/lcsd
[8] ms recovery out of range due to matrix effect/spiking error, use lcs/lcsd

Standard (ICV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.42	97	90 - 110	2003-08-15
Sulfate		mg/L	12.5	12.3	98	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.33	93	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3756

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.36	94	90 - 110	2003-08-15
Sulfate		mg/L	12.5	12.2	98	90 - 110	2003-08-15

Standard (ICV-1) QC Batch: 3757

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrite-N		mg/L	0.0800	0.0816	102	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3757

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrite-N		mg/L	0.0800	0.0807	101	85 - 115	2003-08-15

Standard (ICV-1) QC Batch: 3765

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.14	114	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3765

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.05	105	85 - 115	2003-08-15

Standard (CCV-1) QC Batch: 3782

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	49.1	98	80 - 120	2003-08-17
1,1-Dichloroethene		μg/L	50.0	46.4	93	80 - 120	2003-08-17
Chloroform		μg/L	50.0	46.3	93	80 - 120	2003-08-17
1,2-Dichloropropane		μg/L	50.0	48.5	97	80 - 120	2003-08-17
Toluene		μg/L	50.0	49.4	99	80 - 120	2003-08-17
Chlorobenzene		μg/L	50.0	49.5	99	80 - 120	2003-08-17
Ethylbenzene		μg/L	50.0	51.2	102	80 - 120	2003-08-17

Standard (ICV-1) QC Batch: 3806

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2003-08-15
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3806

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2003-08-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2003-08-15
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	2003-08-15

Standard (CCV-1) QC Batch: 3813

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60.0	70.0	117	80 - 120	2003-08-18
1,4-Dichlorobenzene (para)		mg/L	60.0	57.8	96	80 - 120	2003-08-18
2-Nitrophenol		mg/L	60.0	54.2	90	80 - 120	2003-08-18
2,4-Dichlorophenol		mg/L	60.0	63.4	106	80 - 120	2003-08-18
Hexachlorobutadiene		mg/L	60.0	49.3	82	80 - 120	2003-08-18
4-Chloro-3-methylphenol		mg/L	60.0	61.4	102	80 - 120	2003-08-18
2,4,6-Trichlorophenol		mg/L	60.0	59.4	99	80 - 120	2003-08-18
Acenaphthene		mg/L	60.0	60.1	100	80 - 120	2003-08-18
Diphenylamine		mg/L	60.0	61.4	102	80 - 120	2003-08-18
Pentachlorophenol		mg/L	60.0	67.0	112	80 - 120	2003-08-18
Fluoranthene		mg/L	60.0	58.6	98	80 - 120	2003-08-18
Di-n-octylphthalate		mg/L	60.0	50.7	84	80 - 120	2003-08-18
Benzo(a)pyrene		mg/L	60.0	59.1	98	80 - 120	2003-08-18

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		61.8	mg/L	1	60.0	103	80 - 120
Phenol-d5		67.0	mg/L	1	60.0	112	80 - 120
Nitrobenzene-d5		60.0	mg/L	1	60.0	100	80 - 120
2-Fluorobiphenyl		61.7	mg/L	1	60.0	103	80 - 120
2,4,6-Tribromophenol		56.3	mg/L	1	60.0	94	80 - 120
Terphenyl-d14		55.2	mg/L	1	60.0	92	80 - 120

Standard (ICV-1) QC Batch: 3823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3823

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.5	92	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3830

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.00	100	98 - 102	2003-08-14

Standard (CCV-1) QC Batch: 3830

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.00	100	98 - 102	2003-08-14

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Silver		mg/L	0.125	0.123	98	90 - 110	2003-08-1

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.06	106	90 - 110	2003-08-1

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Cadmium		mg/L	1.00	1.04	104	95 - 105	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Copper		mg/L	1.00	0.966	97	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Iron		mg/L	1.00	1.03	103	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.01	101	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.967	97	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Selenium		mg/L	1.00	1.02	102	95 - 105	2003-08-19

Standard (ICV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Zinc		mg/L	1.00	1.06	106	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Silver		mg/L	0.125	0.129	103	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.09	109	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.08	108	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Cadmium		mg/L	1.00	1.06	106	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.975	98	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Copper		mg/L	1.00	0.923	92	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Iron		mg/L	1.00	0.964	96	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.958	96	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.933	93	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Selenium		mg/L	1.00	0.902	90	90 - 110	2003-08-19

Standard (CCV-1) QC Batch: 3849

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Zinc		mg/L	1.00	0.984	98	90 - 110	2003-08-19

Standard (ICV-1) QC Batch: 3857

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Mercury		mg/L	0.00100	0.000900	90	80 - 120	2003-08-19

Standard (CCV-1) QC Batch: 3857

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Mercury		mg/L	0.00100	0.000900	90	80 - 120	2003-08-19

Standard (ICV-1) QC Batch: 3866

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	25.0	100	90 - 110	2003-08-18
Dissolved Potassium		mg/L	25.0	26.0	104	90 - 110	2003-08-18
Dissolved Magnesium		mg/L	25.0	24.6	98	90 - 110	2003-08-18
Dissolved Sodium		mg/L	25.0	25.7	103	90 - 110	2003-08-18

Standard (CCV-1) QC Batch: 3866

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	22.9	92	90 - 110	2003-08-18
Dissolved Potassium		mg/L	25.0	24.3	97	90 - 110	2003-08-18
Dissolved Magnesium		mg/L	25.0	23.5	94	90 - 110	2003-08-18
Dissolved Sodium		mg/L	25.0	23.8	95	90 - 110	2003-08-18

Work Order: 3081414
Champion

COC #78

Page 1 of 1

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Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3081414

Company Name: ETGI   Phone #: (432) 522-1139

Address: (Street, City, Zip) 4600 W. Wall, Midland, TX 79703   Fax #: (432) 520-4310

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: CH 2100   Project Name: Champion

Project Location: Hobbs, NM   Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO$_3$	H$_2$SO$_4$	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Turn Around Time if different from standard Rush 24 hrs	Hold
153061	Excavated Well	10		X									X		8-13-03																	X	

Relinquished by: [signature] Date: 8-13-03 Time: 1510
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki Alvarez Date: 8-14-03 Time: 10:50

LAB USE ONLY
Intact Y N
Headspace Y / N
Temp 1°C
Log-in Review

REMARKS:
See Attachment for Analysis Request
Filter samples prior to Analysis for metals

☐ Check if Special Reporting Limits Are Needed

Carrier # Tnmro 903-112-0219

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Report Date: August 20, 2003
CH 2100

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: November 20, 2003

Work Order: 3110614

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, In

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
20807	MW-1	water	2003-11-04	12:20	2003-11-06
20808	MW-2	water	2003-11-05	08:46	2003-11-06
20809	MW-3	water	2003-11-05	09:04	2003-11-06
20810	MW-4	water	2003-11-04	13:05	2003-11-06
20811	MW-5	water	2003-11-05	09:13	2003-11-06
20812	MW-6	water	2003-11-04	11:40	2003-11-06
20813	MW-7	water	2003-11-04	12:30	2003-11-06
20814	MW-8	water	2003-11-05	08:26	2003-11-06
20815	MW-9	water	2003-11-05	08:14	2003-11-06
20816	MW-10	water	2003-11-05	09:38	2003-11-06
20817	MW-11	water	2003-11-05	08:35	2003-11-06
20818	MW-12	water	2003-11-04	12:45	2003-11-06
20819	MW-13	water	2003-11-04	12:56	2003-11-06
20820	MW-14	water	2003-11-05	09:20	2003-11-06
20821	MW-15	water	2003-11-05	07:50	2003-11-06
20822	MW-16	water	2003-11-05	08:56	2003-11-06
20823	On Site Domestic Well	water	2003-11-04	13:50	2003-11-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a bat basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 32 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blair Leftwich

Dr. Blair Leftwich, Director

Analytical Report

Sample: 20807 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		369	mg/L	10	0.500

Sample: 20807 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5653	Date Analyzed:	2003-11-11	Analyzed By:	RR
Prep Batch:	5019	Date Prepared:	2003-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20808 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		227	mg/L	10	0.500

Sample: 20808 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5653	Date Analyzed:	2003-11-11	Analyzed By:	RR
Prep Batch:	5019	Date Prepared:	2003-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0220	mg/L	1	0.0100

Sample: 20809 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		432	mg/L	50	0.500

Sample: 20809 - MW-3

Analysis: Cr, Dissolved
QC Batch: 5653
Prep Batch: 5019

Analytical Method: S 6010B
Date Analyzed: 2003-11-11
Date Prepared: 2003-11-10

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0100	mg/L	1	0.0100

Sample: 20810 - MW-4

Analysis: Chloride (IC)
QC Batch: 5576
Prep Batch: 4984

Analytical Method: E 300.0
Date Analyzed: 2003-11-07
Date Prepared: 2003-11-06

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		360	mg/L	50	0.500

Sample: 20810 - MW-4

Analysis: Cr, Dissolved
QC Batch: 5653
Prep Batch: 5019

Analytical Method: S 6010B
Date Analyzed: 2003-11-11
Date Prepared: 2003-11-10

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.161	mg/L	1	0.0100

Sample: 20811 - MW-5

Analysis: Chloride (IC)
QC Batch: 5576
Prep Batch: 4984

Analytical Method: E 300.0
Date Analyzed: 2003-11-07
Date Prepared: 2003-11-06

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		432	mg/L	50	0.500

Sample: 20811 - MW-5

Analysis: Cr, Dissolved
QC Batch: 5653

Analytical Method: S 6010B
Date Analyzed: 2003-11-11

Prep Method: S 3005A
Analyzed By: RR

Prep Batch: 5019 Date Prepared: 2003-11-10 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0620	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5576	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4984	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		462	mg/L	50	0.500

Sample: 20812 - MW-6

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0380	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 20812 - MW-6

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 20812 - MW-6

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		9.19	mg/L	0.1	150	61	44 - 123

Sample: 20812 - MW-6

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		0.294	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1	0.154	mg/L	1	0.100	154	70 - 130
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	70 - 130

Sample: 20812 - MW-6

[1] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		52.9	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.59	μg/L	1	1.00
1,1,1-Trichloroethane		2.25	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		6.53	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		28.1	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00

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sample 20812 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.5	μg/L	1	50.0	91	70 - 130
Toluene-d8		48.2	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		47.2	μg/L	1	50.0	94	70 - 130

Sample: 20813 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		179	mg/L	10	0.500

Sample: 20813 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20814 - MW-8

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	50	0.500

Sample: 20814 - MW-8

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0190	mg/L	1	0.0100

Sample: 20815 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		263	mg/L	10	0.500

Sample: 20815 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20816 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		339	mg/L	10	0.500

Sample: 20816 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0210	mg/L	1	0.0100

Sample: 20817 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5575	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4983	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		248	mg/L	10	0.500

Sample: 20817 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20817 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		11.1	mg/L	0.1	150	74	44 - 123

Sample: 20817 - MW-11

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	2	0.147	mg/L	1	0.100	147	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0993	mg/L	1	0.100	99	70 - 130

Sample: 20817 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		9.59	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00

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[2]High surrogate recovery due to prep. ICV/CCV show the method to be in control.

sample 20817 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.9	μg/L	1	50.0	92	70 - 130
Toluene-d8		47.9	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		46.7	μg/L	1	50.0	93	70 - 130

Sample: 20818 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

continued ...

sample 20818 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		344	mg/L	10	0.500

Sample: 20818 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0160	mg/L	1	0.0100

Sample: 20818 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		9.77	mg/L	0.1	150	65	44 - 123

Sample: 20818 - MW-12

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	3	0.151	mg/L	1	0.100	151	70 - 130
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	70 - 130

[3] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Sample: 20818 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		5.16	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.23	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.39	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00

continued ...

sample 20818 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.9	μg/L	1	50.0	92	70 - 130
Toluene-d8		49.6	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		46.2	μg/L	1	50.0	92	70 - 130

Sample: 20819 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		310	mg/L	10	0.500

Sample: 20819 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5659	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.180	mg/L	1	0.0100

Sample: 20820 - MW-14

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 5574 Date Analyzed: 2003-11-07 Analyzed By: JSW
Prep Batch: 4982 Date Prepared: 2003-11-06 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		269	mg/L	10	0.500

Sample: 20820 - MW-14

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 5659 Date Analyzed: 2003-11-12 Analyzed By: RR
Prep Batch: 5055 Date Prepared: 2003-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0240	mg/L	1	0.0100

Sample: 20821 - MW-15

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 5574 Date Analyzed: 2003-11-07 Analyzed By: JSW
Prep Batch: 4982 Date Prepared: 2003-11-06 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		174	mg/L	10	0.500

Sample: 20821 - MW-15

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 5659 Date Analyzed: 2003-11-12 Analyzed By: RR
Prep Batch: 5055 Date Prepared: 2003-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20822 - MW-16

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 5574 Date Analyzed: 2003-11-07 Analyzed By: JSW
Prep Batch: 4982 Date Prepared: 2003-11-06 Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		322	mg/L	10	0.500

Sample: 20822 - MW-16

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5660	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 20822 - MW-16

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	5587	Date Analyzed:	2003-11-07	Analyzed By:	BP
Prep Batch:	4996	Date Prepared:	2003-11-06	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.1	mg/L	0.1	150	81	44 - 123

Sample: 20822 - MW-16

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	5573	Date Analyzed:	2003-11-06	Analyzed By:	BS
Prep Batch:	4980	Date Prepared:	2003-11-06	Prepared By:	BS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.100	mg/L	1	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	4	0.143	mg/L	1	0.100	143	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0974	mg/L	1	0.100	97	70 - 130

Sample: 20822 - MW-16

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	5702	Date Analyzed:	2003-11-11	Analyzed By:	JG
Prep Batch:	5097	Date Prepared:	2003-11-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00

continued ...

[4] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

sample 20822 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		2.20	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.18	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00

continued ...

sample 20822 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		45.8	μg/L	1	50.0	92	70 - 130
Toluene-d8		48.6	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		45.8	μg/L	1	50.0	92	70 - 130

Sample: 20823 - On Site Domestic Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5574	Date Analyzed:	2003-11-07	Analyzed By:	JSW
Prep Batch:	4982	Date Prepared:	2003-11-06	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		299	mg/L	10	0.500

Sample: 20823 - On Site Domestic Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5660	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 5573

Parameter	Flag	Result	Units	RL
GRO		0.128	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	5	0.144	mg/L	1	0.100	144	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0996	mg/L	1	0.100	100	70 - 130

Method Blank (1) QC Batch: 5574

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5575

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5576

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5587

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.0	mg/L	0.1	150	93	44 - 123

Method Blank (1) QC Batch: 5653

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

[5] High surrogate recovery due to prep. ICV/CCV show the method to be in control.

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 5659

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5660

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 5702

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	RL
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	[illegible]
1,4-Dichlorobenzene (para)		<1.00	μg/L	[illegible]
sec-Butylbenzene		<1.00	μg/L	[illegible]

continued . . .

method blank continued ...

Parameter	Flag	Result	Units	RL
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.6	μg/L	1	50.0	101	70 - 130
Toluene-d8		48.2	μg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		47.0	μg/L	1	50.0	94	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 5573

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	1.05	1.06	mg/L	1	1.00	<0.0261	105	1	70.7 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.135	0.124	mg/L	1	0.100	135	124	38.9 - 148
4-Bromofluorobenzene (4-BFB)	0.109	0.105	mg/L	1	0.100	109	105	46.1 - 116

Laboratory Control Spike (LCS-1) QC Batch: 5574

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<1.49	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5575

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<1.49	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5576

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	12.1	mg/L	1	12.5	<1.49	97	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5587

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	23.6	26.2	mg/L	0.1	250	0.45	93	10	86 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	13.9	16.1	mg/L	0.1	150	93	107	44 - 123

Laboratory Control Spike (LCS-1) QC Batch: 5653

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.105	0.105	mg/L	1	0.100	<0.000437	105	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.443	0.448	mg/L	1	0.500	<0.00489	89	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	0.959	0.959	mg/L	1	1.00	<0.000450	96	0	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.244	0.237	mg/L	1	0.250	<0.000297	98	3	85 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5659

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.482	0.491	mg/L	1	0.500	<0.00698	96	2	86.1 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5660

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5702

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	94.6	93.8	μg/L	1	100	<0.136	95	1	70 - 130	20
Benzene	101	98.8	μg/L	1	100	0.15	101	2	70 - 130	20
Trichloroethene (TCE)	97.6	95.3	μg/L	1	100	0.18	98	2	70 - 130	20
Toluene	102	100	μg/L	1	100	0.22	102	2	70 - 130	20
Chlorobenzene	102	101	μg/L	1	100	<0.0540	102	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.0	50.1	μg/L	1	50.0	100	100	70 - 130
Toluene-d8	48.1	48.3	μg/L	1	50.0	96	97	70 - 130
4-Bromofluorobenzene (4-BFB)	47.5	47.1	μg/L	1	50.0	95	94	70 - 130

Matrix Spike (MS-1) QC Batch: 5574

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	958	960	mg/L	50	12.5	318	102	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5575

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	915	915	mg/L	50	12.5	327	94	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5576

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	959	960	mg/L	50	12.5	462	80	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5653

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0980	0.0980	mg/L	1	0.100	<0.000437	98	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5659

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.432	0.451	mg/L	1	0.500	<0.00489	86	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5659

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.06	1.07	mg/L	1	1.00	0.051	101	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5659

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.122	0.122	mg/L	1	0.100	0.021	101	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5659

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.244	0.244	mg/L	1	0.250	<0.000297	98	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5659

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.500	0.545	mg/L	1	0.500	<0.00698	100	9	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5660

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0940	0.0950	mg/L	1	0.100	<0.00357	94	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 5573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.04	104	85 - 115	2003-11-06

Standard (CCV-1) QC Batch: 5573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.04	104	85 - 115	2003-11-06

Standard (CCV-2) QC Batch: 5573

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	1.06	106	85 - 115	2003-11-06

Standard (ICV-1) QC Batch: 5574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2003-11-07

Standard (CCV-1) QC Batch: 5574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.971	97	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.971	97	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.999	100	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.944	94	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5659

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.00	100	90 - 110	2003-11-12

Standard (ICV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.980	98	90 - 110	2003-11-1

Standard (CCV-1) QC Batch: 5702

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	44.5	89	80 - 120	2003-11-11
1,1-Dichloroethene		μg/L	50.0	47.1	94	80 - 120	2003-11-11
Chloroform		μg/L	50.0	44.6	89	80 - 120	2003-11-11
1,2-Dichloropropane		μg/L	50.0	45.7	91	80 - 120	2003-11-11
Toluene		μg/L	50.0	45.2	90	80 - 120	2003-11-11
Chlorobenzene		μg/L	50.0	45.4	91	80 - 120	2003-11-11
Ethylbenzene		μg/L	50.0	45.6	91	80 - 120	2003-11-11

COC#116 Page 1 of 1

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1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110614

Company Name: ETGI Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 W. WAll, Midland, TX 79703 Fax #: 432-520-4310

Contact Person: Todd ChobAn

Invoice to:
(If different from above)

Project #: CH 2100 Project Name: Champion

Project Location: Hobb, nm 88240 Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE 2003	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
20807	MW-1	1		X								X		11/4	1220																X	X					
08	MW-2	1		X								X		11/5	846																X	X					
09	MW-3	1		X								X		11/5	9:04																X	X					
10	MW-4	1		X								X		11/4	1305																X	X					
11	MW-5	1		X								X		11/5	9:13																X	X					
12	MW-6	8		X								X		11/4	11:40			X													X	X	X	X	X		
13	MW-7	1		X								X		11/4	1230																X	X					
14	MW-8	1		X								X		11/5	826																X	X					
15	MW-9	1		X								X		11/5	814																X	X					
16	MW-10	1		X								X		11/5	928																X	X					
17	MW-11	8		X								X		11/5	835			X													X	X	X	*	*		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	11-5-03	10:00			

Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				11-6-03	10:49

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 2°c
Log-in Review

REMARKS: Filter Metals Prior To Analysis *If metals (Arsenic, lead, barium, Manganese) are detected in mw-6 test for metals in mw-11, mw-12, mw-16

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM+D 903-133 458-7

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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COC# 116 Page 1 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110614

Company Name: ETGI
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. Wall, Midland, TX 79703
Fax #: 432-520-4318
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH2100
Project Name: Champion
Project Location: Hobbs, NM 88240
Sampler Signature: [signature]

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE 2003	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
20818	MW-12	8		X								X		11/4	1245			X													X	X	X	*X	*X		
19	MW-13	1		X								X		11/4	1256																X	X					
20	MW-14	1		X								X		11/5	9:20																X	X					
21	MW-15	1		X								X		11/5	7:50																X	X					
22	MW-16	8		X								X		11/5	8:56			X													\	X	X	*X	*X		
23	On-Site Domestic Well	1		X								X		11/4	1330																X	X					
	~~Trip Blank~~	2																																			

Relinquished by: [signature] Date: 11-5-03 Time: 10:00
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki Alvarez Date: 11-6-03 Time: 10:49

LAB USE ONLY
Intact (Y) / N
Headspace Y / (N)
Temp 2°c
Log-in Review [initials]
Carrier # TNMXO 903-133-458-7

REMARKS: Filter Metals Prior To Analysis, * If metals (lead, Arsenic, Barium manganese) are detected in MW-16, test for Metals in MW-11, MW-12, MW-16

☐ Check If Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Enclosures
Volume 2 of 2

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: November 12, 2003

Work Order: 3110616

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, In

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
20830	Off Site Domestic Well	water	2003-11-04	13:40	2003-11-06

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batc basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 20830 - Off Site Domestic Well

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	5598	Date Analyzed:	2003-11-10	Analyzed By:	JSW
Prep Batch:	5003	Date Prepared:	2003-11-07	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		377	mg/L	10	0.500

Sample: 20830 - Off Site Domestic Well

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	5660	Date Analyzed:	2003-11-12	Analyzed By:	RR
Prep Batch:	5055	Date Prepared:	2003-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 5598

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 5660

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Laboratory Control Spike (LCS-1) QC Batch: 5598

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.3	12.4	mg/L	1	12.5	<1.49	98	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 5660

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0910	0.0910	mg/L	1	0.100	<0.00357	91	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5598

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	706	708	mg/L	50	12.5	124	93	0	56.4 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 5660

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0940	0.0950	mg/L	1	0.100	<0.00357	94	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 5598

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2003-11-10

Standard (CCV-1) QC Batch: 5598

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2003-11-10

Standard (ICV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2003-11-12

Standard (CCV-1) QC Batch: 5660

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.980	98	90 - 110	2003-11-12

COC # 118 Page 1 of 1

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 3110616

Company Name: ETGI Phone #: 432-522-1139

Address: (Street, City, Zip) 4600 W. Wall, Midland TX 79703 Fax #: 432-520-4310

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: CH 2100 Project Name: Champion

Project Location: Hobbs, NM 88240 Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE ('03)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Chromium	Turn Around Time if different from standard	Hold
20830	Off Site Domestic Well	1		X								X		11/4	1340																X	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	11-5-03	10:00			

Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki Owens	11-6-03	11:03

LAB USE ONLY

Intact (Y) / N
Headspace Y / N
Temp 2°
Log-in Review

REMARKS: Filter Metal sample prior to Analysis

☐ Check If Special Reporting Limits Are Needed

Carrier # Fedex 903 133-458-7

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
E.T.G.I.
4600 W. Wall
Midland, TX 79703

Report Date: April 2, 2004

Work Order: 4031927

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
29883	MW-1	water	2004-03-17	12:35	2004-03-19
29884	MW-2	water	2004-03-17	12:46	2004-03-19
29885	MW-3	water	2004-03-17	14:17	2004-03-19
29886	MW-4	water	2004-03-17	14:36	2004-03-19
29887	MW-5	water	2004-03-17	14:27	2004-03-19
29888	MW-17	water	2004-03-17	13:07	2004-03-19
29889	MW-7	water	2004-03-17	12:18	2004-03-19
29890	MW-8	water	2004-03-17	13:30	2004-03-19
29891	MW-9	water	2004-03-17	12:41	2004-03-19
29892	MW-10	water	2004-03-17	15:31	2004-03-19
29893	MW-11	water	2004-03-17	13:25	2004-03-19
29894	MW-12	water	2004-03-17	13:42	2004-03-19
29895	MW-13	water	2004-03-17	14:22	2004-03-19
29896	MW-14	water	2004-03-17	14:31	2004-03-19
29897	MW-15	water	2004-03-17	12:26	2004-03-19
29898	MW-16	water	2004-03-17	14:11	2004-03-19
29899	MW-18	water	2004-03-17	13:57	2004-03-19
29900	Onsite Domestic	water	2004-03-17	15:41	2004-03-19
29901	Off-Site Domestic	water	2004-03-17	15:44	2004-03-19

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 45 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 29883 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		419	mg/L	50	0.500

Sample: 29883 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29884 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		201	mg/L	10	0.500

Sample: 29884 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 29885 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		223	mg/L	10	0.500

Sample: 29885 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29886 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		326	mg/L	10	0.500

Sample: 29886 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.163	mg/L	1	0.0100

Sample: 29887 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		377	mg/L	10	0.500

Sample: 29887 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR

Prep Batch: 7522 Date Prepared: 2004-03-23 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis: As, Dissolved
QC Batch: 8503
Prep Batch: 7522

Analytical Method: S 6010B
Date Analyzed: 2004-03-25
Date Prepared: 2004-03-23

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis: Ba, Dissolved
QC Batch: 8503
Prep Batch: 7522

Analytical Method: S 6010B
Date Analyzed: 2004-03-25
Date Prepared: 2004-03-23

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.331	mg/L	1	0.100

Sample: 29888 - MW-17

Analysis: Chloride (IC)
QC Batch: 8379
Prep Batch: 7471

Analytical Method: E 300.0
Date Analyzed: 2004-03-22
Date Prepared: 2004-03-19

Prep Method: N/A
Analyzed By: JSW
Prepared By: JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		301	mg/L	10	0.500

Sample: 29888 - MW-17

Analysis: Cr, Dissolved
QC Batch: 8503
Prep Batch: 7522

Analytical Method: S 6010B
Date Analyzed: 2004-03-25
Date Prepared: 2004-03-23

Prep Method: S 3005A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.288	mg/L	1	0.0250

Sample: 29888 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 29888 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.9	mg/L	0.1	150	86	81.8 - 161

Sample: 29888 - MW-17

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		0.900	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1	0.887	mg/L	5	0.200	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2	0.934	mg/L	5	0.200	93	70 - 130

[1] Changed spike amount from 0.1 to 0.2 due to prep. Sample spiked with double amount of surrogate.
[2] Changed spike amount from 0.1 to 0.2 due to prep. Sample spiked with double amount of surrogate.

Sample: 29888 - MW-17

Analysis: Volatiles
QC Batch: 8418
Prep Batch: 7501

Analytical Method: S 8260B
Date Analyzed: 2004-03-22
Date Prepared: 2004-03-22

Prep Method: S 5030B
Analyzed By: JG
Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<10.0	μg/L	10	1.00
Dichlorodifluoromethane		<10.0	μg/L	10	1.00
Chloromethane (methyl chloride)		<10.0	μg/L	10	1.00
Vinyl Chloride		<10.0	μg/L	10	1.00
Bromomethane (methyl bromide)		<50.0	μg/L	10	5.00
Chloroethane		<10.0	μg/L	10	1.00
Trichlorofluoromethane		<10.0	μg/L	10	1.00
Acetone		<100	μg/L	10	10.0
Iodomethane (methyl iodide)		<50.0	μg/L	10	5.00
Carbon Disulfide		18.1	μg/L	10	1.00
Acrylonitrile		<10.0	μg/L	10	1.00
2-Butanone (MEK)		594	μg/L	10	5.00
4-Methyl-2-pentanone (MIBK)		<50.0	μg/L	10	5.00
2-Hexanone		<50.0	μg/L	10	5.00
trans 1,4-Dichloro-2-butene		<100	μg/L	10	10.0
1,1-Dichloroethene		<10.0	μg/L	10	1.00
Methylene chloride		<50.0	μg/L	10	5.00
MTBE		<10.0	μg/L	10	1.00
trans-1,2-Dichloroethene		<10.0	μg/L	10	1.00
1,1-Dichloroethane		<10.0	μg/L	10	1.00
cis-1,2-Dichloroethene		<10.0	μg/L	10	1.00
2,2-Dichloropropane		<10.0	μg/L	10	1.00
1,2-Dichloroethane (EDC)		<10.0	μg/L	10	1.00
Chloroform		<10.0	μg/L	10	1.00
1,1,1-Trichloroethane		<10.0	μg/L	10	1.00
1,1-Dichloropropene		<10.0	μg/L	10	1.00
Benzene		<10.0	μg/L	10	1.00
Carbon Tetrachloride		<10.0	μg/L	10	1.00
1,2-Dichloropropane		<10.0	μg/L	10	1.00
Trichloroethene (TCE)		<10.0	μg/L	10	1.00
Dibromomethane (methylene bromide)		<10.0	μg/L	10	1.00
Bromodichloromethane		<10.0	μg/L	10	1.00
2-Chloroethyl vinyl ether		<50.0	μg/L	10	5.00
cis-1,3-Dichloropropene		<10.0	μg/L	10	1.00
trans-1,3-Dichloropropene		<10.0	μg/L	10	1.00
Toluene		<10.0	μg/L	10	1.00
1,1,2-Trichloroethane		<10.0	μg/L	10	1.00
1,3-Dichloropropane		<10.0	μg/L	10	1.00
Dibromochloromethane		<10.0	μg/L	10	1.00
1,2-Dibromoethane (EDB)		<10.0	μg/L	10	1.00
Tetrachloroethene (PCE)		<10.0	μg/L	10	1.00
Chlorobenzene		<10.0	μg/L	10	1.00
1,1,1,2-Tetrachloroethane		<10.0	μg/L	10	1.00
Ethylbenzene		<10.0	μg/L	10	1.00
m,p-Xylene		<10.0	μg/L	10	1.00
Bromoform		<10.0	μg/L	10	1.00
Styrene		<10.0	μg/L	10	1.00

continued ...

sample 29888 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
o-Xylene		<10.0	µg/L	10	1.00
1,1,2,2-Tetrachloroethane		<10.0	µg/L	10	1.00
2-Chlorotoluene		<10.0	µg/L	10	1.00
1,2,3-Trichloropropane		<10.0	µg/L	10	1.00
Isopropylbenzene		<10.0	µg/L	10	1.00
Bromobenzene		<10.0	µg/L	10	1.00
n-Propylbenzene		<10.0	µg/L	10	1.00
1,3,5-Trimethylbenzene		<10.0	µg/L	10	1.00
tert-Butylbenzene		<10.0	µg/L	10	1.00
1,2,4-Trimethylbenzene		<10.0	µg/L	10	1.00
1,4-Dichlorobenzene (para)		<10.0	µg/L	10	1.00
sec-Butylbenzene		<10.0	µg/L	10	1.00
1,3-Dichlorobenzene (meta)		<10.0	µg/L	10	1.00
p-Isopropyltoluene		<10.0	µg/L	10	1.00
4-Chlorotoluene		<10.0	µg/L	10	1.00
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	10	1.00
n-Butylbenzene		<10.0	µg/L	10	1.00
1,2-Dibromo-3-chloropropane		<50.0	µg/L	10	5.00
1,2,3-Trichlorobenzene		<50.0	µg/L	10	5.00
1,2,4-Trichlorobenzene		<50.0	µg/L	10	5.00
Naphthalene		<50.0	µg/L	10	5.00
Hexachlorobutadiene		<50.0	µg/L	10	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.5	µg/L	1	50.0	99	70 - 130
Toluene-d8		49.8	µg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.3	µg/L	1	50.0	89	70 - 130

Sample: 29889 - MW-7

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		199	mg/L	10	0.500

Sample: 29889 - MW-7

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29890 - MW-8

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		447	mg/L	50	0.500

Sample: 29890 - MW-8

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.0100

Sample: 29891 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		199	mg/L	10	0.500

Sample: 29891 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29892 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		335	mg/L	10	0.500

Sample: 29893 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.8	mg/L	0.1	150	85	81.8 - 161

Sample: 29893 - MW-11

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.453	mg/L	5	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)		0.474	mg/L	5	0.100	95	70 - 130

Sample: 29893 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	8418	Date Analyzed:	2004-03-22	Analyzed By:	JG
Prep Batch:	7501	Date Prepared:	2004-03-22	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		1.04	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0

continued . . .

sample 29893 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		26.8	μg/L	1	1.00
cis-1,2-Dichloroethene		2.32	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		3.18	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		1.04	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00

continued . . .

sample 29893 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.1	μg/L	1	50.0	98	70 - 130
Toluene-d8		49.8	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.3	μg/L	1	50.0	89	70 - 130

Sample: 29894 - MW-12

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29894 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	10	0.500

Sample: 29894 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0130	mg/L	1	0.0100

Sample: 29894 - MW-12

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29894 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.3	mg/L	0.1	150	95	81.8 - 161

Sample: 29894 - MW-12

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.448	mg/L	5	0.100	90	70 - 130
4-Bromofluorobenzene (4-BFB)		0.466	mg/L	5	0.100	93	70 - 130

Sample: 29894 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	8418	Date Analyzed:	2004-03-22	Analyzed By:	JG
Prep Batch:	7501	Date Prepared:	2004-03-22	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00

continued . . .

sample 29894 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		6.05	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.24	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		3.15	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00

continued . . .

sample 29894 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.9	μg/L	1	50.0	98	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		44.9	μg/L	1	50.0	90	70 - 130

Sample: 29895 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		322	mg/L	10	0.500

Sample: 29895 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.179	mg/L	1	0.0100

Sample: 29896 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8471	Date Analyzed:	2004-03-24	Analyzed By:	JSW
Prep Batch:	7545	Date Prepared:	2004-03-23	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		260	mg/L	10	0.500

Sample: 29896 - MW-14

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0340	mg/L	1	0.0100

Sample: 29897 - MW-15

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		185	mg/L	10	0.500

Sample: 29897 - MW-15

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29898 - MW-16

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29898 - MW-16

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		266	mg/L	10	0.500

Sample: 29898 - MW-16

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29898 - MW-16

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29898 - MW-16

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	8384	Date Analyzed:	2004-03-20	Analyzed By:	BP
Prep Batch:	7439	Date Prepared:	2004-03-19	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.2	mg/L	0.1	150	88	81.8 - 161

Sample: 29898 - MW-16

Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	8451	Date Analyzed:	2004-03-23	Analyzed By:	MS
Prep Batch:	7528	Date Prepared:	2004-03-23	Prepared By:	MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.460	mg/L	5	0.100	92	70 - 130
4-Bromofluorobenzene (4-BFB)		0.485	mg/L	5	0.100	97	70 - 130

Sample: 29898 - MW-16

Analysis: Volatiles	Analytical Method: S 8260B	Prep Method: S 5030B
QC Batch: 8418	Date Analyzed: 2004-03-22	Analyzed By: JG
Prep Batch: 7501	Date Prepared: 2004-03-22	Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		2.83	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.71	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00

continued ...

sample 29898 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.1	μg/L	1	50.0	98	70 - 130
Toluene-d8		49.9	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		43.7	μg/L	1	50.0	87	70 - 130

Sample: 29899 - MW-18

Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	8516	Date Analyzed:	2004-03-25	Analyzed By:	RS
Prep Batch:	7589	Date Prepared:	2004-03-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		302	mg/L as CaCo3	1	4.00
Total Alkalinity		302	mg/L as CaCo3	1	4.00

Sample: 29899 - MW-18

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

continued ...

sample 29899 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		<0.100	mg/L	1	0.100

Sample: 29899 - MW-18

Analysis:	Be, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Beryllium		<0.00250	mg/L	1	0.00250

Sample: 29899 - MW-18

Analysis:	Cations	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8540	Date Analyzed:	2004-03-23	Analyzed By:	BC
Prep Batch:	7488	Date Prepared:	2004-03-22	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		130	mg/L	1	0.500
Dissolved Potassium		9.12	mg/L	1	0.500
Dissolved Magnesium		22.6	mg/L	1	0.500
Dissolved Sodium		198	mg/L	1	0.500

Sample: 29899 - MW-18

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		333	mg/L	50	0.500

Sample: 29899 - MW-18

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0220	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis:	Ion Chromatography	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Fluoride		2.32	mg/L	5	0.200
Sulfate		177	mg/L	5	0.500

Sample: 29899 - MW-18

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 29899 - MW-18

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8379	Date Analyzed:	2004-03-22	Analyzed By:	JSW
Prep Batch:	7471	Date Prepared:	2004-03-19	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		5.18	mg/L	5	0.200

Sample: 29899 - MW-18

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A

QC Batch: 8503 | Date Analyzed: 2004-03-25 | Analyzed By: RR
Prep Batch: 7522 | Date Prepared: 2004-03-23 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 29899 - MW-18

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 8384 | Date Analyzed: 2004-03-20 | Analyzed By: BP
Prep Batch: 7439 | Date Prepared: 2004-03-19 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.0	mg/L	0.1	150	86	81.8 - 161

Sample: 29899 - MW-18

Analysis: TPH GRO | Analytical Method: S 8015B | Prep Method: S 5030B
QC Batch: 8451 | Date Analyzed: 2004-03-23 | Analyzed By: MS
Prep Batch: 7528 | Date Prepared: 2004-03-23 | Prepared By: MS

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.453	mg/L	5	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)		0.474	mg/L	5	0.100	95	70 - 130

Sample: 29899 - MW-18

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 8533 | Date Analyzed: 2004-03-24 | Analyzed By: JG
Prep Batch: 7602 | Date Prepared: 2004-03-24 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00

continued . . .

sample 29899 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		4.78	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		2.38	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00

continued ...

sample 29899 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.3	μg/L	1	50.0	97	70 - 130
Toluene-d8		47.6	μg/L	1	50.0	95	70 - 130
4-Bromofluorobenzene (4-BFB)		42.8	μg/L	1	50.0	86	70 - 130

Sample: 29900 - Onsite Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		240	mg/L	10	0.500

Sample: 29900 - Onsite Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 29901 - Off-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	8434	Date Analyzed:	2004-03-23	Analyzed By:	JSW
Prep Batch:	7516	Date Prepared:	2004-03-22	Prepared By:	JSW

continued ...

sample 29901 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		382	mg/L	10	0.500

Sample: 29901 - Off-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	8503	Date Analyzed:	2004-03-25	Analyzed By:	RR
Prep Batch:	7522	Date Prepared:	2004-03-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 8379

Parameter	Flag	Result	Units	RL
Fluoride		<0.200	mg/L	0.2
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8384

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.6	mg/L	0.1	150	91	81.8 - 161

Method Blank (1) QC Batch: 8418

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1

continued . . .

method blank continued ...

Parameter	Flag	Result	Units	RL
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.2	μg/L	1	50.0	98	70 - 130
Toluene-d8		50.2	μg/L	1	50.0	100	70 - 130
4-Bromofluorobenzene (4-BFB)		44.4	μg/L	1	50.0	89	70 - 130

Method Blank (1) QC Batch: 8434

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8451

Parameter	Flag	Result	Units	RL
GRO		0.115	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	3	0.0256	mg/L	1	0.100	26	44.8 - 160

continued ...

[3] Surrogate skipped in method blank during prep. ICV/CCV and LCS/LCSD show the method to be in control.

method blank continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)	4	0.0297	mg/L	1	0.100	30	44.1 - 133

Method Blank (1) QC Batch: 8471

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.100	mg/L	0.1

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Beryllium		<0.00250	mg/L	0.0025

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8503

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 8503

[4] Surrogate skipped in method blank during prep. ICV/CCV and LCS/LCSD show the method to be in control.

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 8516

Parameter	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.00	mg/L as CaCo3	4
Total Alkalinity		<4.00	mg/L as CaCo3	4

Method Blank (1) QC Batch: 8533

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1

continued . . .

method blank continued . . .

Parameter	Flag	Result	Units	RL
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		48.6	μg/L	1	50.0	97	70 - 130
Toluene-d8		48.5	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		44.0	μg/L	1	50.0	88	70 - 130

Method Blank (1) QC Batch: 8540

Parameter	Flag	Result	Units	RL
Dissolved Calcium		<0.500	mg/L	0.5
Dissolved Potassium		<0.500	mg/L	0.5
Dissolved Magnesium		<0.500	mg/L	0.5
Dissolved Sodium		<0.500	mg/L	0.5

Duplicate (1) QC Batch: 8516

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	36.0	36.0	mg/L as CaCo3	1	0	20
Total Alkalinity	36.0	36.0	mg/L as CaCo3	1	0	4.8

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.7	12.6	mg/L	1	12.5	<0.337	102	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.47	2.48	mg/L	1	2.50	<0.0217	99	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8379

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride	2.41	2.41	mg/L	1	2.50	<0.0594	96	0	90 - 110	20
Sulfate	12.7	12.7	mg/L	1	12.5	<0.409	102	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8384

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.7	24.4	mg/L	0.1	250	<0.538	91	7	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	13.5	14.8	mg/L	0.1	150	90	99	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 8418

continued ...

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	105	106	μg/L	1	100	<0.136	105	1	78 - 120	20
Benzene	99.0	97.3	μg/L	1	100	<0.146	99	2	84.2 - 108	20
Trichloroethene (TCE)	96.3	95.9	μg/L	1	100	0.16	96	0	85.8 - 106	20
Toluene	96.4	95.8	μg/L	1	100	0.18	96	1	77.2 - 104	20
Chlorobenzene	102	101	μg/L	1	100	<0.0540	102	1	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	48.2	49.1	μg/L	1	50.0	96	98	84.2 - 115
Toluene-d8	50.6	49.9	μg/L	1	50.0	101	100	94.6 - 103
4-Bromofluorobenzene (4-BFB)	45.5	44.5	μg/L	1	50.0	91	89	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 8434

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.7	12.0	mg/L	1	12.5	<0.337	94	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8451

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
GRO	1.03	0.869	mg/L	1	1.00	<0.0261	103	17	68.8 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0935	0.0853	mg/L	1	0.100	94	85	53.5 - 145
4-Bromofluorobenzene (4-BFB)	0.102	0.0994	mg/L	1	0.100	102	99	54.5 - 134

Laboratory Control Spike (LCS-1) QC Batch: 8471

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	12.0	mg/L	1	12.5	<0.337	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 8503

control spikes continued ...

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Benzene	100	97.3	μg/L	1	100	<0.146	100	3	84.2 - 108	20
Trichloroethene (TCE)	98.9	96.4	μg/L	1	100	<0.117	99	2	85.8 - 106	20
Toluene	100	97.4	μg/L	1	100	0.16	100	3	77.2 - 104	20
Chlorobenzene	103	99.9	μg/L	1	100	<0.0540	103	3	82.1 - 113	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	47.4	47.8	μg/L	1	50.0	95	96	84.2 - 115
Toluene-d8	48.4	48.2	μg/L	1	50.0	97	96	94.6 - 103
4-Bromofluorobenzene (4-BFB)	45.4	44.5	μg/L	1	50.0	91	89	82.4 - 102

Laboratory Control Spike (LCS-1) QC Batch: 8540

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium	88.6	92.4	mg/L	1	100	<0.102	89	4	85 - 115	20
Dissolved Potassium	102	98.2	mg/L	1	100	<0.101	102	4	85 - 115	20
Dissolved Magnesium	88.3	95.3	mg/L	1	100	<0.110	88	8	85 - 115	20
Dissolved Sodium	92.2	92.4	mg/L	1	100	<0.120	92	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	928	928	mg/L	50	12.5	419	81	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	148	148	mg/L	50	2.50	12.7	108	0	79.6 - 109	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8379

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Fluoride [5][6]	141	144	mg/L	50	2.50	7.6	107	2	84.9 - 104	20
Sulfate	762	765	mg/L	50	12.5	228	85	0	77.8 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[5] matrix difficulties.
[6] matrix difficulties.

Matrix Spike (MS-1) QC Batch: 8434

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2020	2000	mg/L	100	12.5	971	84	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8471

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	976	986	mg/L	50	12.5	447	85	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.486	0.488	mg/L	1	0.500	<0.00860	97	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.00	1.00	mg/L	1	1.00	<0.000984	100	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.0990	mg/L	1	0.100	<0.000437	101	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.234	0.233	mg/L	1	0.250	<0.00296	94	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.452	0.451	mg/L	1	0.500	<0.00310	90	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.500	0.508	mg/L	1	0.500	<0.00860	100	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.04	1.04	mg/L	1	1.00	<0.000984	104	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Beryllium	0.0220	0.0220	mg/L	1	0.0250	<0.000532	88	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0970	0.0980	mg/L	1	0.100	<0.000437	97	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.345	0.347	mg/L	1	0.250	0.106	96	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) QC Batch: 8503

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.466	0.464	mg/L	1	0.500	<0.00310	93	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 8540

Param		MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Calcium		215	211	mg/L	1	100	130	85	2	75 - 125	20
Dissolved Potassium		109	108	mg/L	1	100	9.12	100	1	75 - 125	20
Dissolved Magnesium		110	107	mg/L	1	100	22.6	87	3	75 - 125	20
Dissolved Sodium	[7,8]	265	256	mg/L	1	100	198	67	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.49	100	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.48	99	90 - 110	2004-03-22
Sulfate		mg/L	12.5	12.8	102	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.47	99	90 - 110	2004-03-22

Standard (CCV-1) QC Batch: 8379

[7] ms recovery out of limits due to matrix effect
[8] ms recovery out of limits due to matrix effect

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoride		mg/L	2.50	2.40	96	90 - 110	2004-03-22
Sulfate		mg/L	12.5	12.6	101	90 - 110	2004-03-22

Standard (ICV-1) QC Batch: 8384

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	228	91	68 - 140	2004-03-20

Standard (CCV-1) QC Batch: 8384

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	225	90	68 - 140	2004-03-20

Standard (CCV-1) QC Batch: 8418

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.0	96	80 - 120	2004-03-22
1,1-Dichloroethene		μg/L	50.0	49.0	98	80 - 120	2004-03-22
Chloroform		μg/L	50.0	47.0	94	80 - 120	2004-03-22
1,2-Dichloropropane		μg/L	50.0	50.3	101	80 - 120	2004-03-22
Toluene		μg/L	50.0	49.3	99	80 - 120	2004-03-22
Chlorobenzene		μg/L	50.0	50.4	101	80 - 120	2004-03-22
Ethylbenzene		μg/L	50.0	51.1	102	80 - 120	2004-03-22

Standard (ICV-1) QC Batch: 8434

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-03-23

Standard (CCV-1) QC Batch: 8434

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.7	94	90 - 110	2004-03-23

Standard (ICV-1) QC Batch: 8451

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.916	92	85 - 115	2004-03-23

Standard (CCV-1) QC Batch: 8451

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.964	96	85 - 115	2004-03-23

Standard (ICV-1) QC Batch: 8471

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2004-03-24

Standard (CCV-1) QC Batch: 8471

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-03-24

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.01	101	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.01	101	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.00	100	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.05	105	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Beryllium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	1.05	105	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Beryllium		mg/L	1.00	1.03	103	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-03-25

Standard (CCV-2) QC Batch: 8503

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	1.02	102	90 - 110	2004-03-25

Standard (ICV-1) QC Batch: 8516

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2004-03-25
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8516

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Carbonate Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2004-03-25
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	<4.00		0 - 200	2004-03-25
Total Alkalinity		mg/L as CaCo3	250	244	98	90 - 110	2004-03-25

Standard (CCV-1) QC Batch: 8533

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	47.1	94	80 - 120	2004-03-24
1,1-Dichloroethene		μg/L	50.0	47.4	95	80 - 120	2004-03-24
Chloroform		μg/L	50.0	45.7	91	80 - 120	2004-03-24
1,2-Dichloropropane		μg/L	50.0	50.1	100	80 - 120	2004-03-24
Toluene		μg/L	50.0	49.8	100	80 - 120	2004-03-24
Chlorobenzene		μg/L	50.0	50.1	100	80 - 120	2004-03-24
Ethylbenzene		μg/L	50.0	50.7	101	80 - 120	2004-03-24

Standard (ICV-1) QC Batch: 8540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	23.8	95	90 - 110	2004-03-23
Dissolved Potassium		mg/L	25.0	23.9	96	90 - 110	2004-03-23
Dissolved Magnesium		mg/L	25.0	23.7	95	90 - 110	2004-03-23
Dissolved Sodium		mg/L	25.0	23.0	92	90 - 110	2004-03-23

Standard (CCV-1) QC Batch: 8540

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	25.0	23.4	94	90 - 110	2004-03-23
Dissolved Potassium		mg/L	25.0	25.5	102	90 - 110	2004-03-23
Dissolved Magnesium		mg/L	25.0	23.4	94	90 - 110	2004-03-23
Dissolved Sodium		mg/L	25.0	24.4	98	90 - 110	2004-03-23

C.O.C. # 29 Page 1 of 2

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El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4031927

Company Name: Environmental Technology Group Inc.
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland, TX 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE (2004)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Chromium	VOC	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
29883	mw-1	1		X								X		3-17	1235																X	X					
84	mw-2	1		X								X		3-17	1246																X	X					
85	mw-3	1		X								X		3-17	1417																X	X					
86	mw-4	1		X								X		3-17	1436																X	X					
87	mw-5	1		X								X		3-17	1427																X	X					
88	mw-17 OF	8		X								X		3-17	1307			X													X	X	X	X	X		
89	mw-7	1		X								X		3-17	1218																X	X					
90	mw-8	1		X								X		3-17	1330																X	X					
91	mw-9	1		X								X		3-17	1241																X	X					
92	mw-10	1		X								X		3-17	1531																X	X					
93	mw-11	8		X								X		3-17	1325			X													X	X	X	X	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki [signature]	Date: 3-19-04	Time: 12:11

LAB USE ONLY
Intact (Y) N
Headspace Y (N)
Temp 1°C
Log-in Review gvg

REMARKS: Filter metals prior to Analysis. If metals (Arsenic, lead, barium, Manganese) are detected in mw-17F Test for metals in mw-11, mw-12, mw-16.

☐ Check If Special Reporting Limits Are Needed

Carrier # UPS 1Z 36-135-278-8

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4031927

Company Name: ETGI
Phone #: 432-522-1139
Address: (Street, City, Zip) 4600 W. Wall Midland Tx 79703
Fax #: 432-520-4310
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
29894	mw-12	8		X								X		3-17	1342
95	mw-13	1		X								X		3-17	1422
96	mw-14	1		X								X		3-17	1431
97	mw-15	1		X								X		3-17	1221
98	mw-16	8		X								X		3-17	1411
99	mw-18	9		X								X		3-17	1357
900	On-Site Domestic	1		X								X		3-17	1541
901	Off-Site Domestic	1		X								X		3-17	1544

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200 7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	Anions / Cations	Chloride	Chromium	Voc	Lead, Arsenic, Barium	Manganese	Turn Around Time if different from standard	Hold
29894			X													X	X	X	X	X		
95																X	X					
96																X	X					
97																X	X					
98			X													X	X	X	X	X		
99			X												X	X	X	X	X	X		
900																X	X					
901																X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Vicki [signature]	Date: 3-19-04	Time: 12:11

LAB USE ONLY
Intact (Y) / N
Headspace Y / (N)
Temp 1°
Log-in Review MA

REMARKS: Filter metals prior to Analysis
If metals (lead, arsenic, Barium, Manganese) are detected in mw-#", Test for metals in mw-11, mw-12, mw-16

☐ Check if Special Reporting Limits Are Needed

Carrier # UPS 7136-135-278-9

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: August 20, 2004

Work Order: 4062518

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
37532	MW-1	water	2004-06-24	10:15	2004-06-25
37533	MW-2	water	2004-06-24	11:53	2004-06-25
37534	MW-3	water	2004-06-24	11:40	2004-06-25
37535	MW-4	water	2004-06-24	12:41	2004-06-25
37536	MW-5	water	2004-06-24	13:10	2004-06-25
37537	MW-7	water	2004-06-24	09:57	2004-06-25
37538	MW-8	water	2004-06-24	10:38	2004-06-25
37539	MW-9	water	2004-06-24	10:28	2004-06-25
37540	MW-10	water	2004-06-24	13:41	2004-06-25
37541	MW-11	water	2004-06-24	10:50	2004-06-25
37542	MW-12	water	2004-06-24	11:07	2004-06-25
37543	MW-13	water	2004-06-24	12:07	2004-06-25
37544	MW-14	water	2004-06-24	12:57	2004-06-25
37545	MW-15	water	2004-06-24	09:47	2004-06-25
37546	MW-16	water	2004-06-24	11:27	2004-06-25
37547	MW-17	water	2004-06-24	13:29	2004-06-25
37548	MW-18	water	2004-06-24	11:15	2004-06-25
37549	On-Site Domestic	water	2004-06-24	13:57	2004-06-25

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 34 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 37532 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		475	mg/L	10	0.500

Sample: 37532 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37533 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		304	mg/L	10	0.500

Sample: 37533 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0260	mg/L	1	0.00500

Sample: 37534 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		313	mg/L	10	0.500

Sample: 37534 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37535 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		545	mg/L	10	0.500

Sample: 37535 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.117	mg/L	1	0.00500

Sample: 37536 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		389	mg/L	50	0.500

Sample: 37536 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR

Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37537 - MW-7

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 10678 Date Analyzed: 2004-06-28 Analyzed By: RS
Prep Batch: 9442 Date Prepared: 2004-06-25 Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		290	mg/L	10	0.500

Sample: 37537 - MW-7

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10921 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37538 - MW-8

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 10678 Date Analyzed: 2004-06-28 Analyzed By: RS
Prep Batch: 9442 Date Prepared: 2004-06-25 Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		664	mg/L	50	0.500

Sample: 37538 - MW-8

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 10921 Date Analyzed: 2004-07-08 Analyzed By: RR
Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.00800	mg/L	1	0.00500

Sample: 37539 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		295	mg/L	10	0.500

Sample: 37539 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37540 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10678	Date Analyzed:	2004-06-28	Analyzed By:	RS
Prep Batch:	9442	Date Prepared:	2004-06-25	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		402	mg/L	10	0.500

Sample: 37540 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10921	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0520	mg/L	1	0.0100

Sample: 37541 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		197	mg/L	10	0.500

Sample: 37541 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.0540	mg/L	1	0.0250

Sample: 37541 - MW-11

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37541 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.8	mg/L	0.1	150	92	81.8 - 161

Sample: 37541 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		8.96	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00

continued ...

sample 37541 continued...

Parameter	Flag	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		53.8	μg/L	1	50.0	108	70 - 130
Toluene-d8		51.0	μg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		43.6	μg/L	1	50.0	87	70 - 130

Sample: 37542 - MW-12

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0670	mg/L	1	0.0100

Sample: 37542 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		379	mg/L	50	0.500

Sample: 37542 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0210	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37542 - MW-12

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR

Prep Batch: 9579 Date Prepared: 2004-07-02 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37542 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.3	mg/L	0.1	150	89	81.8 - 161

Sample: 37542 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		11.4	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00

continued ...

sample 37542 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.79	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		5.38	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		53.6	μg/L	1	50.0	107	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		43.0	μg/L	1	50.0	86	70 - 130

Sample: 37543 - MW-13

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		355	mg/L	10	0.500

Sample: 37543 - MW-13

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.166	mg/L	1	0.00500

Sample: 37544 - MW-14

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		258	mg/L	10	0.500

Sample: 37544 - MW-14

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.00500

Sample: 37545 - MW-15

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		127	mg/L	10	0.500

Sample: 37545 - MW-15

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis: As, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis: Ba, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0470	mg/L	1	0.0100

Sample: 37546 - MW-16

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		235	mg/L	10	0.500

Sample: 37546 - MW-16

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis: Mn, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37546 - MW-16

Analysis: Pb, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37546 - MW-16

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 10666 | Date Analyzed: 2004-06-25 | Analyzed By: BP
Prep Batch: 9412 | Date Prepared: 2004-06-25 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.4	mg/L	0.1	150	89	81.8 - 161

Sample: 37546 - MW-16

Analysis: Volatiles | Analytical Method: S 8260B | Prep Method: S 5030B
QC Batch: 10797 | Date Analyzed: 2004-07-01 | Analyzed By: JG
Prep Batch: 9550 | Date Prepared: 2004-07-01 | Prepared By: JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00

continued ...

sample 37546 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		2.45	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.32	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00

continued ...

sample 37546 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.5	μg/L	1	50.0	109	70 - 130
Toluene-d8		51.0	μg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		43.4	μg/L	1	50.0	87	70 - 130

Sample: 37547 - MW-17

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		0.0390	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.100	mg/L	1	0.0100

Sample: 37547 - MW-17

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		224	mg/L	10	0.500

Sample: 37547 - MW-17

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.173	mg/L	1	0.0250

Sample: 37547 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37547 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	10666	Date Analyzed:	2004-06-25	Analyzed By:	BP
Prep Batch:	9412	Date Prepared:	2004-06-25	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.1	mg/L	0.1	150	88	81.8 - 161

Sample: 37547 - MW-17

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	µg/L	1	1.00
Dichlorodifluoromethane		<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1	1.00
Vinyl Chloride		<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	1	5.00
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		15.4	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		1.91	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		8.84	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00

continued . . .

sample 37547 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.0	μg/L	1	50.0	108	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		42.4	μg/L	1	50.0	85	70 - 130

Sample: 37548 - MW-18

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.00500	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.0660	mg/L	1	0.0100

Sample: 37548 - MW-18

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A

QC Batch: 10707 | Date Analyzed: 2004-06-29 | Analyzed By: JT
Prep Batch: 9469 | Date Prepared: 2004-06-28 | Prepared By: JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		291	mg/L	10	0.500

Sample: 37548 - MW-18

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0170	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis: Mn, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		<0.0250	mg/L	1	0.0250

Sample: 37548 - MW-18

Analysis: Pb, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 10922 | Date Analyzed: 2004-07-08 | Analyzed By: RR
Prep Batch: 9579 | Date Prepared: 2004-07-02 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.00500	mg/L	1	0.00500

Sample: 37548 - MW-18

Analysis: TPH DRO | Analytical Method: Mod. 8015B | Prep Method: N/A
QC Batch: 10666 | Date Analyzed: 2004-06-25 | Analyzed By: BP
Prep Batch: 9412 | Date Prepared: 2004-06-25 | Prepared By: DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.6	mg/L	0.1	150	91	81.8 - 161

Sample: 37548 - MW-18

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	10797	Date Analyzed:	2004-07-01	Analyzed By:	JG
Prep Batch:	9550	Date Prepared:	2004-07-01	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		7.19	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.11	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.10	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		4.33	μg/L	1	1.00

continued . . .

sample 37548 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.3	µg/L	1	50.0	109	70 - 130
Toluene-d8		50.9	µg/L	1	50.0	102	70 - 130
4-Bromofluorobenzene (4-BFB)		42.6	µg/L	1	50.0	85	70 - 130

Sample: 37549 - On-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10707	Date Analyzed:	2004-06-29	Analyzed By:	JT
Prep Batch:	9469	Date Prepared:	2004-06-28	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		236	mg/L	10	0.500

Sample: 37549 - On-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A

QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Method Blank (1) QC Batch: 10666

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.8	mg/L	0.1	150	92	81.8 - 161

Method Blank (1) QC Batch: 10678

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10707

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10797

Parameter	Flag	Result	Units	RL
Bromochloromethane	1	<1.00	μg/L	1
Dichlorodifluoromethane	2	<1.00	μg/L	1
Chloromethane (methyl chloride)	3	<1.00	μg/L	1
Vinyl Chloride	4	<1.00	μg/L	1
Bromomethane (methyl bromide)	5	<5.00	μg/L	5
Chloroethane	6	<1.00	μg/L	1
Trichlorofluoromethane	7	<1.00	μg/L	1
Acetone	8	<10.0	μg/L	10

continued . . .

[1] Acrolein <5.00 μg/L
[2] Allyl Chloride <1.00 μg/L
[3] Vinyl Acetate <5.00 μg/L
[4] Chloroprene <1.00 μg/L
[5] Propionitrile <1.00 μg/L
[6] Methacrylonitrile <1.00 μg/L
[7] Methyl methacrylate <1.00 μg/L
[8] Isobutyl Alcohol <5.00 μg/L

method blank continued ...

Parameter	Flag	Result	Units	RL
Iodomethane (methyl iodide)	9	<5.00	µg/L	5
Carbon Disulfide	10	<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-Hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1

continued ...

[9] Ethyl methacrylate <1.00 µg/L
[10] Acetonitrile <5.00 µg/L

method blank continued . . .

Parameter	Flag	Result	Units	RL
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.0	μg/L	1	50.0	104	70 - 130
Toluene-d8		50.6	μg/L	1	50.0	101	70 - 130
4-Bromofluorobenzene (4-BFB)		44.7	μg/L	1	50.0	89	70 - 130

Method Blank (1) QC Batch: 10921

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.00500	mg/L	0.005

Laboratory Control Spike (LCS-1) QC Batch: 10666

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.9	22.9	mg/L	0.1	250	<0.538	92	0	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	14.0	13.8	mg/L	0.1	150	93	92	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 10678

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.3	11.2	mg/L	1	12.5	<0.337	90	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10707

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.5	12.4	mg/L	1	12.5	<0.337	92	8	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10797

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	106	109	μg/L	1	100	<0.136	106	3	70 - 130	20
Benzene	105	104	μg/L	1	100	<0.146	105	1	70 - 130	20
Trichloroethene (TCE)	104	104	μg/L	1	100	0.14	104	0	70 - 130	20
Toluene	102	101	μg/L	1	100	0.19	102	1	70 - 130	20
Chlorobenzene	104	104	μg/L	1	100	<0.0540	104	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.7	51.4	μg/L	1	50.0	101	103	70 - 130
Toluene-d8	50.2	49.9	μg/L	1	50.0	100	100	70 - 130
4-Bromofluorobenzene (4-BFB)	47.6	45.6	μg/L	1	50.0	95	91	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 10921

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.538	0.488	mg/L	1	0.500	<0.00489	108	10	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.04	1.04	mg/L	1	1.00	<0.000450	104	0	85 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.270	0.271	mg/L	1	0.250	<0.000297	108	0	85 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 10922

continued ...

control spikes continued . . .

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.479	0.503	mg/L	1	0.500	<0.00698	96	5	86.1 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10678

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1200	1200	mg/L	50	12.5	664	86	0	74.3 - 118	20
Chloride	1200	1200	mg/L	50	12.5	664	86	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10707

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	951	956	mg/L	50	12.5	379	92	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10921

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.105	mg/L	1	0.100	<0.00357	106	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.488	0.504	mg/L	1	0.500	<0.00489	98	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.05	1.05	mg/L	1	1.00	<0.000450	105	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.108	mg/L	1	0.100	<0.00357	106	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.274	0.274	mg/L	1	0.250	<0.000297	110	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.488	0.508	mg/L	1	0.500	<0.00698	98	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 10666

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	224	89	68 - 140	2004-06-25

Standard (CCV-1) QC Batch: 10666

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	230	92	68 - 140	2004-06-25

Standard (ICV-1) QC Batch: 10678

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-28

Standard (CCV-1) QC Batch: 10678

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-28

Standard (ICV-1) QC Batch: 10707

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.2	90	90 - 110	2004-06-29

Standard (CCV-1) QC Batch: 10707

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.4	107	90 - 110	2004-06-29

Standard (CCV-1) QC Batch: 10797

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	46.1	92	80 - 120	2004-07-01
1,1-Dichloroethene		μg/L	50.0	52.4	105	80 - 120	2004-07-01
Chloroform		μg/L	50.0	51.1	102	80 - 120	2004-07-01
1,2-Dichloropropane		μg/L	50.0	53.3	107	80 - 120	2004-07-01
Toluene		μg/L	50.0	52.3	105	80 - 120	2004-07-01
Chlorobenzene		μg/L	50.0	52.5	105	80 - 120	2004-07-01
Ethylbenzene		μg/L	50.0	55.7	111	80 - 120	2004-07-01

Standard (ICV-1) QC Batch: 10921

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10921

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.963	96	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.02	102	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.02	102	90 - 110	2004-07-08

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.979	98	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.958	96	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.03	103	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Standard (CCV-2) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.958	96	90 - 110	2004-07-08

Page 1 of 2

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TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062518

Company Name: Nova Safety + Environmental
Phone #: 520 - 7720 / 432 - [illegible]
Address: (Street, City, Zip) 5023 Commerce Midland TX 79703
Fax #: 432-520-7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
37532	mw-1	2		X								X		6-24	1015
33	mw-2	2		X								X		6-24	1153
34	mw-3	2		X								X		6-24	1140
35	mw-4	2		X								X		6-24	1241
36	mw-5	2		X								X		6-24	1310
37	mw-7	2		X								X		6-24	957
38	mw-8	2		X								X		6-24	1038
39	mw-9	2		X								X		6-24	1028
40	mw-10	2		X								X		6-24	1341
41	mw-11	5		X								X		6-24	1050
42	mw-12	5		X								X		6-24	1107

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides, Chromium	Cbr	lead Arsenic, Barium, Benzene	Remarks	Turn Around Time if different from standard	Hold
37532																X					
33																X					
34																X					
35																X					
36																X					
37																X					
38																X					
39																X					
40																X					
41			X													X	X	X	*		
42			X													X	X	X	*		

Relinquished by: [signature] Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: [signature] Date: 6-25-04 Time: 11:07

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 2°C
Log-in Review [initials]

REMARKS: Please Filter all metals * Prior to Analysis.
Only run wells 11, 12, 16, 18 for metals if detected in mw-17.

☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 903-069 138-4

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Page 2 of 2

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062518

Company Name: Nova Safety + Environmental
Phone #: 432-520-7720
Address: (Street, City, Zip) 5023 Commerce Midland Tx 79703
Fax #: 432-520-7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015m DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chlorides, Chromium	Vix	lead, Arsenic, Barium, Manganese		Remarks	Turn Around Time if different from standard	Hold
37547	mw-13	2		X										6-24	1207																X						
44	mw-14	2		X										6-24	1257																X						
45	mw-15	2		X										6-24	947																X						
46	mw-16	5		X										6-24	1127			X													X	X	X		*		
47	mw-17	5		X										6-24	1329			X													X	X	X				
48	mw-18	5		X										6-24	1115			X													X	X	X		*		
49	On-Site Domestic	2		X										6-24	1357																X						
	~~Off-Site Domestic~~ JF			~~X~~	JF									~~6-24~~	JF																~~X~~	JF					

Relinquished by: Date: 6-24-04 Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki Denny Date: 6-25-04 Time: 11:07

LAB USE ONLY
Intact (Y) / N
Headspace Y / (N)
Temp 2°C
Log-in Review JF

REMARKS: * Please Filter all metals Prior to Analysis.
Only run wells 11, 12, 16, 18 for metals if detected in mw-17.

☐ Check If Special Reporting Limits Are Needed

Carrier # FedEx 903-069-138-4

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

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Report Date: August 20, 2004
CH 2100

Work Order: 4062518
Champion

Page Number: 34 of 34
Hobbs

Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: July 9, 2004

Work Order: 4062806

Project Location: Hobbs
Project Name: Champion
Project Number: CH 2100

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
37579	Off-Site Domestic	water	2004-06-25	13:25	2004-06-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 37579 - Off-Site Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	10896	Date Analyzed:	2004-07-06	Analyzed By:	JT
Prep Batch:	9635	Date Prepared:	2004-07-06	Prepared By:	JT

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		397	mg/L	10	0.500

Sample: 37579 - Off-Site Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	10922	Date Analyzed:	2004-07-08	Analyzed By:	RR
Prep Batch:	9579	Date Prepared:	2004-07-02	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Method Blank (1) QC Batch: 10896

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 10922

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Laboratory Control Spike (LCS-1) QC Batch: 10922

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.104	0.106	mg/L	1	0.100	<0.00357	104	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10896

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	71.5	71.4	mg/L	5	12.5	12.4	94	0	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 10922

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.106	0.108	mg/L	1	0.100	<0.00357	106	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 10896

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-07-06

Standard (CCV-1) QC Batch: 10896

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-07-06

Standard (ICV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2004-07-08

Standard (CCV-1) QC Batch: 10922

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-07-08

Page____of____

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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4062806

Company Name: Nova Safety + Environmental
Phone #: 432-520-7720
Address: (Street, City, Zip) 2053 Commerce Midland TX
Fax #: 432-520-7701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #: CH 2100
Project Name: Champion
Project Location: Hobbs
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chlorides, Chromium					Turn Around Time if different from standard	Hold
37579	Off-Site Domestic	2		X								X		6-25	1325																X						

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	6-25-04				
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: Melissa Wayland	Date: 6/26/04	Time: 9:40AM

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 3°
Log-in Review MW

REMARKS: Filter all metals prior to analysis.

☐ Check If Special Reporting Limits Are Needed

Carrier # Bus 903 069 143 9

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Analytical and Quality Control Report

Todd Choban
Nova Safety & Environmental
5023 Commerce
Midland, TX 79703

Report Date: November 9, 2004

Work Order: 4100807

Project Location: Hobbs
Project Name: Champion
Project Number: Champion

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
45351	MW-1	water	2004-10-05	13:50	2004-10-08
45352	MW-2	water	2004-10-05	14:40	2004-10-08
45353	MW-3	water	2004-10-05	15:35	2004-10-08
45354	MW-4	water	2004-10-05	16:30	2004-10-08
45355	MW-5	water	2004-10-05	17:28	2004-10-08
45356	MW-7	water	2004-10-06	16:01	2004-10-08
45357	MW-8	water	2004-10-06	12:22	2004-10-08
45358	MW-9	water	2004-10-06	17:42	2004-10-08
45359	MW-10	water	2004-10-06	18:36	2004-10-08
45360	MW-11	water	2004-10-06	13:10	2004-10-08
45361	MW-12	water	2004-10-06	10:28	2004-10-08
45362	MW-13	water	2004-10-06	15:18	2004-10-08
45363	MW-14	water	2004-10-05	18:33	2004-10-08
45364	MW-15	water	2004-10-06	16:55	2004-10-08
45365	MW-16	water	2004-10-06	14:15	2004-10-08
45366	MW-17	water	2004-10-06	09:15	2004-10-08
45367	MW-18	water	2004-10-06	11:33	2004-10-08
45368	Onsite Domestic	water	2004-10-06	18:57	2004-10-08
45369	Offsite Domestic	water	2004-10-06	19:23	2004-10-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

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Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 45351 - MW-1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		447	mg/L	50	0.500

Sample: 45351 - MW-1

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 45352 - MW-2

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		331	mg/L	50	0.500

Sample: 45352 - MW-2

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0390	mg/L	1	0.00500

Sample: 45353 - MW-3

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		302	mg/L	50	0.500

Sample: 45353 - MW-3

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.00800	mg/L	1	0.00500

Sample: 45354 - MW-4

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		348	mg/L	50	0.500

Sample: 45354 - MW-4

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR
Prep Batch:	11708	Date Prepared:	2004-10-12	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.161	mg/L	1	0.00500

Sample: 45355 - MW-5

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13298	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11748	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		348	mg/L	50	0.500

Sample: 45355 - MW-5

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13360	Date Analyzed:	2004-10-18	Analyzed By:	RR

Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0100	mg/L	1	0.00500

Sample: 45356 - MW-7

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13297 Date Analyzed: 2004-10-13 Analyzed By: WB
Prep Batch: 11749 Date Prepared: 2004-10-13 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		288	mg/L	50	0.500

Sample: 45356 - MW-7

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 13360 Date Analyzed: 2004-10-18 Analyzed By: RR
Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.00500	mg/L	1	0.00500

Sample: 45357 - MW-8

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13297 Date Analyzed: 2004-10-13 Analyzed By: WB
Prep Batch: 11749 Date Prepared: 2004-10-13 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		881	mg/L	100	0.500

Sample: 45357 - MW-8

Analysis: Cr, Dissolved Analytical Method: S 6010B Prep Method: S 3005A
QC Batch: 13360 Date Analyzed: 2004-10-18 Analyzed By: RR
Prep Batch: 11708 Date Prepared: 2004-10-12 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0120	mg/L	1	0.00500

Sample: 45358 - MW-9

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		265	mg/L	50	0.500

Sample: 45358 - MW-9

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45359 - MW-10

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		331	mg/L	50	0.500

Sample: 45359 - MW-10

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0550	mg/L	1	0.0100

Sample: 45360 - MW-11

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		177	mg/L	10	0.500

Sample: 45360 - MW-11

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45360 - MW-11

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.6	mg/L	0.1	150	97	81.8 - 161

Sample: 45360 - MW-11

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		3.62	μg/L	1	1.00

continued ...

sample 45360 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.6	μg/L	1	50.0	105	70 - 130
Toluene-d8		49.1	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		45.7	μg/L	1	50.0	91	70 - 130

Sample: 45361 - MW-12

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		327	mg/L	50	0.500

Sample: 45361 - MW-12

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0190	mg/L	1	0.0100

Sample: 45361 - MW-12

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		12.3	mg/L	0.1	150	82	81.8 - 161

Sample: 45361 - MW-12

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00

continued ...

sample 45361 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		18.0	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		1.08	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		2.41	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		8.77	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00

continued ...

sample 45361 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.6	μg/L	1	50.0	109	70 - 130
Toluene-d8		48.5	μg/L	1	50.0	97	70 - 130
4-Bromofluorobenzene (4-BFB)		44.5	μg/L	1	50.0	89	70 - 130

Sample: 45362 - MW-13

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13297	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11749	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		400	mg/L	50	0.500

Sample: 45362 - MW-13

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.199	mg/L	1	0.0100

Sample: 45363 - MW-14

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A

sample 45365 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		<1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		2.22	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		56.7	μg/L	1	50.0	113	70 - 130
Toluene-d8		49.5	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		44.2	μg/L	1	50.0	88	70 - 130

Sample: 45366 - MW-17

Analysis:	As, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Arsenic		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis:	Ba, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Barium		0.102	mg/L	1	0.100

Sample: 45366 - MW-17

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		328	mg/L	50	0.500

Sample: 45366 - MW-17

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis:	Mn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Manganese		0.135	mg/L	1	0.0250

Sample: 45366 - MW-17

Analysis:	Pb, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Lead		<0.0100	mg/L	1	0.0100

Sample: 45366 - MW-17

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		14.5	mg/L	0.1	150	97	81.8 - 161

Sample: 45366 - MW-17

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00

continued . . .

sample 45366 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		28.9	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		1.31	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		3.65	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		15.9	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00

continued . . .

sample 45366 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.4	μg/L	1	50.0	109	70 - 130
Toluene-d8		49.0	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		44.2	μg/L	1	50.0	88	70 - 130

Sample: 45367 - MW-18

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		349	mg/L	50	0.500

Sample: 45367 - MW-18

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	13620	Date Analyzed:	2004-10-28	Analyzed By:	RR
Prep Batch:	11886	Date Prepared:	2004-10-20	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		0.0250	mg/L	1	0.0100

Sample: 45367 - MW-18

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	13186	Date Analyzed:	2004-10-11	Analyzed By:	BP
Prep Batch:	11647	Date Prepared:	2004-10-08	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	0.1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		16.2	mg/L	0.1	150	108	81.8 - 161

Sample: 45367 - MW-18

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13261	Date Analyzed:	2004-10-11	Analyzed By:	JG
Prep Batch:	11718	Date Prepared:	2004-10-11	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	μg/L	1	1.00
Vinyl Chloride		<1.00	μg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	μg/L	1	5.00
Chloroethane		<1.00	μg/L	1	1.00
Trichlorofluoromethane		<1.00	μg/L	1	1.00
Acetone		<10.0	μg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	μg/L	1	5.00
Carbon Disulfide		<1.00	μg/L	1	1.00
Acrylonitrile		<1.00	μg/L	1	1.00
2-Butanone (MEK)		<5.00	μg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	1	5.00
2-Hexanone		<5.00	μg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	μg/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00
Methylene chloride		<5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		6.64	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μg/L	1	1.00
Trichloroethene (TCE)		1.17	μg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μg/L	1	1.00
Bromodichloromethane		<1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		<1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		4.18	μg/L	1	1.00

continued ...

sample 45367 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1	1.00
Ethylbenzene		<1.00	μg/L	1	1.00
m,p-Xylene		<1.00	μg/L	1	1.00
Bromoform		<1.00	μg/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1	1.00
2-Chlorotoluene		<1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		<1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	μg/L	1	5.00
Naphthalene		<5.00	μg/L	1	5.00
Hexachlorobutadiene		<5.00	μg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.3	μg/L	1	50.0	109	70 - 130
Toluene-d8		49.1	μg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		43.7	μg/L	1	50.0	87	70 - 130

Sample: 45368 - Onsite Domestic

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13295	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11750	Date Prepared:	2004-10-13	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		254	mg/L	10	0.500

Sample: 45368 - Onsite Domestic

Analysis:	Cr, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A

QC Batch: 13620 | Date Analyzed: 2004-10-28 | Analyzed By: RR
Prep Batch: 11886 | Date Prepared: 2004-10-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Sample: 45369 - Offsite Domestic

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 13295 | Date Analyzed: 2004-10-13 | Analyzed By: WB
Prep Batch: 11750 | Date Prepared: 2004-10-13 | Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		383	mg/L	50	0.500

Sample: 45369 - Offsite Domestic

Analysis: Cr, Dissolved | Analytical Method: S 6010B | Prep Method: S 3005A
QC Batch: 13620 | Date Analyzed: 2004-10-28 | Analyzed By: RR
Prep Batch: 11886 | Date Prepared: 2004-10-20 | Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Chromium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 13186

Parameter	Flag	Result	Units	RL
DRO		<5.00	mg/L	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	2	11.8	mg/L	0.1	150	79	81.8 - 161

Method Blank (1) QC Batch: 13261

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1

continued . . .

[2]Surrogate recovery out of control chart range but within method limits.

method blank continued . . .

Parameter	Flag	Result	Units	RL
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1

continued . . .

method blank continued . . .

Parameter	Flag	Result	Units	RL
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		51.0	μg/L	1	50.0	102	70 - 130
Toluene-d8		49.6	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		46.6	μg/L	1	50.0	93	70 - 130

Method Blank (1) QC Batch: 13295

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13297

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13298

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13360

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.00500	mg/L	0.005

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Arsenic		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Barium		<0.100	mg/L	0.1

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Manganese		<0.0250	mg/L	0.025

Method Blank (1) QC Batch: 13620

Parameter	Flag	Result	Units	RL
Dissolved Lead		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13731

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	μg/L	1
Dichlorodifluoromethane		<1.00	μg/L	1
Chloromethane (methyl chloride)		<1.00	μg/L	1
Vinyl Chloride		<1.00	μg/L	1
Bromomethane (methyl bromide)		<5.00	μg/L	5
Chloroethane		<1.00	μg/L	1
Trichlorofluoromethane		<1.00	μg/L	1
Acetone		<10.0	μg/L	10
Iodomethane (methyl iodide)		<5.00	μg/L	5
Carbon Disulfide		<1.00	μg/L	1
Acrylonitrile		<1.00	μg/L	1
2-Butanone (MEK)		<5.00	μg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	μg/L	5
2-Hexanone		<5.00	μg/L	5
trans 1,4-Dichloro-2-butene		<10.0	μg/L	10

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	RL
1,1-Dichloroethene		<1.00	μg/L	1
Methylene chloride		<5.00	μg/L	5
MTBE		<1.00	μg/L	1
trans-1,2-Dichloroethene		<1.00	μg/L	1
1,1-Dichloroethane		<1.00	μg/L	1
cis-1,2-Dichloroethene		<1.00	μg/L	1
2,2-Dichloropropane		<1.00	μg/L	1
1,2-Dichloroethane (EDC)		<1.00	μg/L	1
Chloroform		<1.00	μg/L	1
1,1,1-Trichloroethane		<1.00	μg/L	1
1,1-Dichloropropene		<1.00	μg/L	1
Benzene		<1.00	μg/L	1
Carbon Tetrachloride		<1.00	μg/L	1
1,2-Dichloropropane		<1.00	μg/L	1
Trichloroethene (TCE)		<1.00	μg/L	1
Dibromomethane (methylene bromide)		<1.00	μg/L	1
Bromodichloromethane		<1.00	μg/L	1
2-Chloroethyl vinyl ether		<5.00	μg/L	5
cis-1,3-Dichloropropene		<1.00	μg/L	1
trans-1,3-Dichloropropene		<1.00	μg/L	1
Toluene		<1.00	μg/L	1
1,1,2-Trichloroethane		<1.00	μg/L	1
1,3-Dichloropropane		<1.00	μg/L	1
Dibromochloromethane		<1.00	μg/L	1
1,2-Dibromoethane (EDB)		<1.00	μg/L	1
Tetrachloroethene (PCE)		<1.00	μg/L	1
Chlorobenzene		<1.00	μg/L	1
1,1,1,2-Tetrachloroethane		<1.00	μg/L	1
Ethylbenzene		<1.00	μg/L	1
m,p-Xylene		<1.00	μg/L	1
Bromoform		<1.00	μg/L	1
Styrene		<1.00	μg/L	1
o-Xylene		<1.00	μg/L	1
1,1,2,2-Tetrachloroethane		<1.00	μg/L	1
2-Chlorotoluene		<1.00	μg/L	1
1,2,3-Trichloropropane		<1.00	μg/L	1
Isopropylbenzene		<1.00	μg/L	1
Bromobenzene		<1.00	μg/L	1
n-Propylbenzene		<1.00	μg/L	1
1,3,5-Trimethylbenzene		<1.00	μg/L	1
tert-Butylbenzene		<1.00	μg/L	1
1,2,4-Trimethylbenzene		<1.00	μg/L	1
1,4-Dichlorobenzene (para)		<1.00	μg/L	1
sec-Butylbenzene		<1.00	μg/L	1
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1
p-Isopropyltoluene		<1.00	μg/L	1
4-Chlorotoluene		<1.00	μg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	1
n-Butylbenzene		<1.00	μg/L	1
1,2-Dibromo-3-chloropropane		<5.00	μg/L	5
1,2,3-Trichlorobenzene		<5.00	μg/L	5
1,2,4-Trichlorobenzene		<5.00	μg/L	5

continued . . .

method blank continued ...

Parameter	Flag	Result	Units	RL
Naphthalene		<5.00	μg/L	5
Hexachlorobutadiene		<5.00	μg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		55.4	μg/L	1	50.0	111	70 - 130
Toluene-d8		49.3	μg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)		44.8	μg/L	1	50.0	90	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 13186

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
DRO	22.9	24.1	mg/L	0.1	250	<0.538	92	5	68 - 140	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane [3]	12.0	12.6	mg/L	0.1	150	80	84	81.8 - 161

Laboratory Control Spike (LCS-1) QC Batch: 13261

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	104	104	μg/L	1	100	<0.136	104	0	70 - 130	20
Benzene	96.5	95.7	μg/L	1	100	0.15	96	1	70 - 130	20
Trichloroethene (TCE)	104	104	μg/L	1	100	<0.117	104	0	70 - 130	20
Toluene	99.9	98.9	μg/L	1	100	0.09	100	1	70 - 130	20
Chlorobenzene	101	99.0	μg/L	1	100	<0.0540	101	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	52.9	51.4	μg/L	1	50.0	106	103	70 - 130
Toluene-d8	51.1	50.5	μg/L	1	50.0	102	101	70 - 130
4-Bromofluorobenzene (4-BFB)	48.6	48.5	μg/L	1	50.0	97	97	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 13295

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.0	11.9	mg/L	1	12.5	<0.337	96	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[3]Surrogate recovery out of control chart range but within method limits.

Laboratory Control Spike (LCS-1) QC Batch: 13297

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.8	mg/L	1	12.5	<0.337	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13298

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.9	mg/L	1	12.5	<0.337	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13360

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.0960	0.0960	mg/L	1	0.100	<0.00357	96	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.523	0.525	mg/L	1	0.500	<0.00860	105	0	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.07	1.08	mg/L	1	1.00	<0.000984	107	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.109	0.110	mg/L	1	0.100	<0.000437	109	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.264	0.267	mg/L	1	0.250	<0.00296	106	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13620

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.550	0.556	mg/L	1	0.500	<0.00310	110	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13731

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	93.8	93.9	μg/L	1	100	<0.136	94	0	70 - 130	20
Benzene	95.0	95.4	μg/L	1	100	0.18	95	0	70 - 130	20
Trichloroethene (TCE)	89.6	90.7	μg/L	1	100	<0.117	90	1	70 - 130	20
Toluene	92.1	93.0	μg/L	1	100	0.13	92	1	70 - 130	20
Chlorobenzene	92.8	92.5	μg/L	1	100	<0.0540	93	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	53.2	53.8	μg/L	1	50.0	106	108	70 - 130
Toluene-d8	50.5	50.1	μg/L	1	50.0	101	100	70 - 130
4-Bromofluorobenzene (4-BFB)	46.7	46.2	μg/L	1	50.0	93	92	70 - 130

Matrix Spike (MS-1) QC Batch: 13295 Spiked Sample: 45734

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	68.3	67.7	mg/L	5	12.5	10.1	93	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13297 Spiked Sample: 45365

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	836	842	mg/L	50	12.5	249	94	1	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13298 Spiked Sample: 45355

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	917	957	mg/L	50	12.5	348	91	4	74.3 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13360 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.0950	mg/L	1	0.100	<0.00357	101	6	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Arsenic	0.537	0.532	mg/L	1	0.500	<0.00860	107	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Barium	1.01	1.01	mg/L	1	1.00	<0.000984	101	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Chromium	0.101	0.101	mg/L	1	0.100	<0.000437	101	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Manganese	0.249	0.251	mg/L	1	0.250	<0.00296	100	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13620 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Dissolved Lead	0.514	0.516	mg/L	1	0.500	<0.00310	103	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 13186

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	229	92	68 - 140	2004-10-11

Standard (CCV-1) QC Batch: 13186

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	228	91	68 - 140	2004-10-11

Standard (CCV-1) QC Batch: 13261

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.8	98	80 - 120	2004-10-11
1,1-Dichloroethene		μg/L	50.0	49.4	99	80 - 120	2004-10-11
Chloroform		μg/L	50.0	50.1	100	80 - 120	2004-10-11
1,2-Dichloropropane		μg/L	50.0	52.5	105	80 - 120	2004-10-11
Toluene		μg/L	50.0	52.0	104	80 - 120	2004-10-11
Chlorobenzene		μg/L	50.0	52.9	106	80 - 120	2004-10-11
Ethylbenzene		μg/L	50.0	56.2	112	80 - 120	2004-10-11

Standard (ICV-1) QC Batch: 13295

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13295

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13297

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13297

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13298

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.9	95	90 - 110	2004-10-13

Standard (CCV-1) QC Batch: 13298

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-10-13

Standard (ICV-1) QC Batch: 13360

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.04	104	90 - 110	2004-10-18

Standard (CCV-1) QC Batch: 13360

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.03	103	90 - 110	2004-10-18

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	1.00	100	90 - 110	2004-10-28

Standard (ICV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.993	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Arsenic		mg/L	1.00	0.990	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Barium		mg/L	1.00	0.992	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.990	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Manganese		mg/L	1.00	0.993	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13620

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Lead		mg/L	1.00	0.989	99	90 - 110	2004-10-28

Standard (CCV-1) QC Batch: 13731

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	48.6	97	80 - 120	2004-11-01
1,1-Dichloroethene		μg/L	50.0	52.0	104	80 - 120	2004-11-01
Chloroform		μg/L	50.0	51.1	102	80 - 120	2004-11-01
1,2-Dichloropropane		μg/L	50.0	53.3	107	80 - 120	2004-11-01
Toluene		μg/L	50.0	53.0	106	80 - 120	2004-11-01
Chlorobenzene		μg/L	50.0	52.1	104	80 - 120	2004-11-01
Ethylbenzene		μg/L	50.0	54.1	108	80 - 120	2004-11-01

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4100807

Company Name: Nova Safety + Enviromental Phone #: 432 520 7720

Address: (Street, City, Zip) ~~[illegible]~~ 2057 Commerce Midland Tx Fax #: 432 520 7701

Contact Person: Todd Choban

Invoice to: (If different from above)

Project #: Project Name: Champion

Project Location: Hobbs Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE		SAMPLING: DATE	TIME
45351	MW-1	2		X									X			10/5	150
52	MW-2	2		X									X			10/5	240
53	MW-3	2		X									X			10/5	335
54	MW 4	2		X									X			10/5	430
55	MW-5	2		X									X			10/5	528
56	MW-7	2		X									X			10/6	401
57	MW-8	2		X									X			10/6	1222
58	MW-9	2		X									X			10/6	542
59	MW-10	2		X									X			10/6	636
60	MW-11	7		X									X			10/6	110
61	MW-12	7		X									X			10/6	1024

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 DRO only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	~~[illegible]~~	VOC	Lead, Arsenic, Barium, Magnesium	Chromium, chlorides	Remarks	Turn Around Time if different from standard	Hold
45351																			X			
52																						
53																						
54																						
55																						
56																						
57																						
58																						
59																						
60			X														X	X		X		
61			X														X	X	V	X		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	10-7-04	9:24			

Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki [signature]	10-8-04	9:42

LAB USE ONLY

Intact (Y) / N

Headspace Y / (N)

Temp 2°C

Log-in Review [initials]

REMARKS:

Please Filter metals prior to Analysis Only run wells 11,12,16,18 If detected in MW 17

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM+O 903 260-7276

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

Report Date: November 9, 2004
Champion

Work Order: 4100807
Champion

Page 2 of 2

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
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1 (800) 378-1296

TraceAnalysis, Inc.

155 McCutcheon, Suite H
El Paso, Texas 79932
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 4100807

Company Name: Wova
Phone #: 432 520 7720
Address: (Street, City, Zip) 2057 Commerce
Fax #: 432 5207701
Contact Person: Todd Choban
Invoice to: (If different from above)
Project #:
Project Name: Champion
Project Location: Hobbs N.M.
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
45362	MW-13	2		X									X		10 6	318
63	MW-14	2													10 5	633
64	MW-15	2													10 6	855
65	MW-16	7													10 6	215
66	MW-17	7													10 6	915
67	MW-18	7													10 6	1133
68	onsite domestic	2													10 6	657
69	offsite domestic	2													10 6	733

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB #	MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ 8015 No only	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol 8260B/624	GC/MS Semi Vol 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD TSS pH	Chromium/chlorides	Vox	Lead, Arsenic, Barium, Mag.	Ammonia	Turn Around Time if different from standard	Hold
45362																X					
63																					
64																					
65			X														X	X	X		
66			X														X	X	X		
67			X														X	X	X		
68																					
69																					

Relinquished by: [signature] Date: 10-7-04 Time: 9:24
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Vicki [signature] Date: 10-8-04 Time: 9:42

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 2°C
Log-in Review [initials]

REMARKS: please filter prior to Analysis only run wells 11,12,14,18 if detected in MW 17

☐ Check If Special Reporting Limits Are Needed

Carrier # TNM+O 903-260-727-6

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

ORIGINAL COPY

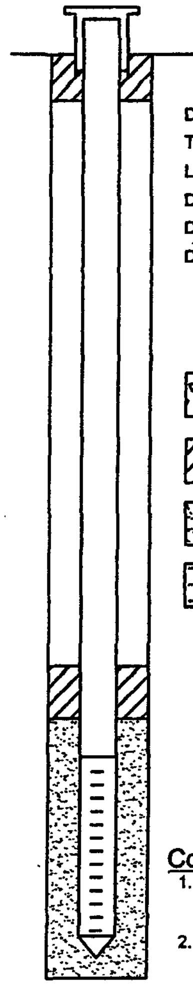
Report Date: November 9, 2004
Champion

Work Order: 4100807
Champion

Attachment 4
Monitor Wells, Soil Boring, Piezometer Boring Logs and Completion Details

Piezometer P-1

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0			None	None	Caliche / sand / soil fill material
		0.0	None	None	Caliche: grayish orange, soft, sandy, damp
					Very pale orange, dry at 8'
10		0.0	None	None	
		0.0	None	None	
20		0.0	None	None	
					Hard at 22' - 24'
		0.0	None	None	
30		0.0	None	None	Grayish orange, soft at 30'
		0.0	None	None	Grayish orange, moderately hard, dry at 35'
40		0.0	None	None	
		0.0	None	None	*Coarse sand to fine gravel: very pale orange to grayish orange* pink, hard, poorly sorted, moderately dense
50		0.0	None	None	Caliche: very pale orange, very hard, dry, moderately sorted
					Platy at 49'
		0.0	None	None	Sand: light brown, very fine grained, well sorted, damp, loose
60		0.0	None	None	
			None	None	
70	TD		None	None	
80					



Piezometer Details

Date Drilled 11-18-03
Thickness of Bentonite Seal 4 ft
Length of PVC Well Screen 15 ft
Depth of PVC Well 68 ft
Depth of Exploratory Well 70 ft
Depth to Groundwater 58 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The Piezometer was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The Piezometer was completed as a temporary monitor well with a temporary surface seal
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Piezometer Log Details

P-1

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

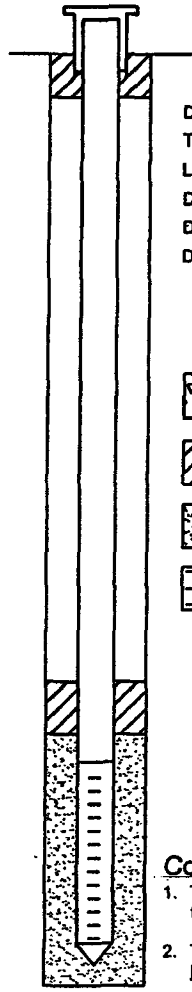
NOVA Safety and Environmental

Prep By: CS Checked By: RE

December 30, 2003

Piezometer P-2

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		0.0	None	None	Caliche / sand / soil fill material
		0.0	None	None	Caliche: moderately brown, soft, damp
10		0.0	None	None	
		0.0	None	None	Caliche: very pale orange, moderately hard, dry
20		0.0	None	None	Increasing hardness at 20'
		0.0	None	None	Grayish orange, moderately hard to hard at 25'
30		0.0	None	None	
		0.0	None	None	Caliche: grayish orange, moderately hard to hard, dry
40		0.0	None	None	
		0.0	None	None	
50		0.0	None	None	Caliche: very pale orange, very hard, dry, platy
		0.0	None	None	
▼		0.0			Sand: light brown, very fine grained, well sorted, damp
60		0.0	None	None	
		0.0	None	None	
70	TD	0.0	None	None	
80					



Piezometer Details

Date Drilled 11-18-03
Thickness of Bentonite Seal 4 ft
Length of PVC Well Screen 15 ft
Depth of PVC Well 68 ft
Depth of Exploratory Well 70 ft
Depth to Groundwater 58 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

▼ Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

PID Head-space reading in ppm obtained with a photo-ionization detector.

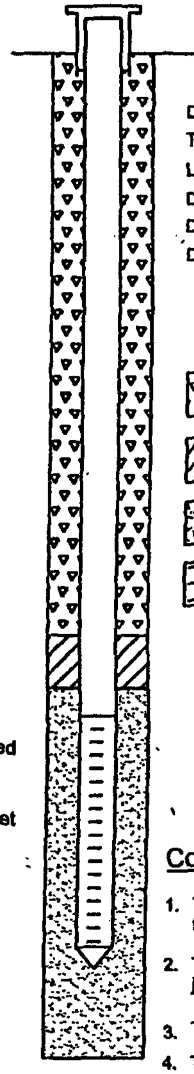
Completion Notes

1. The Piezometer was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The Piezometer was completed as a temporary monitor well with a temporary surface seal
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Piezometer Log Details	NOVA safety and environmental	NOVA Safety and Environmental
P-2		Prep By: CS / Checked By: RE
Champion Technologies, Inc. Hobbs Facility — Hobbs, NM		December 30, 2003

Monitor Well MW-18

Depth (feet)	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		None	None	Caliche / sand / soil fill material
	0.0	None	None	Caliche: grayish orange, soft, damp, trace of sand
10	0.0	None	None	
	0.0	None	None	Color change to pale orange at 15'
20	0.0	None	None	Sand drops out at 20'
	0.0	None	None	
30	0.0	None	None	
	0.0	None	None	Caliche: very pale orange, moderately hard
40	0.0	None	None	Caliche: grayish orange, moderately hard, slightly sandy
	0.0	None	None	Caliche: very pale orange to white, hard, dry
50	0.0	None	None	Sandy caliche: very pale orange, moderately hard, very fine grained sand
	0.0	None	None	Sand: light brown, very fine grained, well sorted, loose, damp to wet
60	0.0	None	None	
	0.0	None	None	
70				
TD				
80				



Monitor Well Log Details

Date Drilled 11-17-03
Thickness of Bentonite Seal 4 ft
Length of PVC Well Screen 20 ft
Depth of PVC Well 69.2 ft
Depth of Exploratory Well 76 ft
Depth to Groundwater 59 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitor well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Monitor Well Log Details
MW-18
Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC
December 30, 2003

Soil Boring SB-65

Date Drilled 11-18-03

Depth (feet)	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0				Caliche: grayish orange, soft, damp
5		None	None	
10		None	None	Sandy, moderately reddish orange at 12'
15		None	None	Caliche: white, moderately hard, dry
20	Sample	None	None	
25		None	None	Very pale orange
				Grayish orange
30		None	None	
35		None	None	Caliche: grayish orange, moderately hard, dry
				Caliche: very pale orange, hard, dry
40		None	None	
45	Sample	None	None	Caliche: very pale orange, very hard, dry
50		None	None	Caliche: grayish orange, moderatly hard to hard, dry, sandy Caliche: grayish orange, very hard, dry
TD	Sample			Sand: light brown, very fine grained, well sorted, sub angular/rounded, loose, damp to moist
60				
70				
80				

Indicates the groundwater level measured on date.

Indicates samples selected for laboratory submittal.

The soil borinbg was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-65

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC

December 30, 2003

Soil Boring SB-66

Depth (feet)	Soil Columns	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0					Asphalt / sand / caliche / soil fill material
					Caliche: light brown, soft, damp
			None	None	
					Caliche: very pale orange, soft, damp
10			None	None	
			None	None	
20		⬭	None	None	
					hard at 22'
			None	None	Caliche: very pale orange, moderately hard, dry, slightly sandy
30			None	None	
			None	None	
					Caliche: grayish orange, moderately hard, slightly sandy
40			None	None	
		⬭	None	None	Sand: grayish orange, very fine to fine grained, moderately sorted, loose
					Caliche: very pale orange to white, very hard, dry
50			None	None	Sand: light brown, very fine grained, well sorted, loose, damp
					Caliche: very pale orange to white, very hard, dry
	TD	⬭			Sand: light brown, very fine grained, well sorted, loose, damp
60					
70					
80					

Date Drilled 11-20-03

Indicates the groundwater level measured on date.

⬭ Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Sopil Boring Log Details

SB-66

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS | Checked By: TKC

December 30, 2003

Soil Boring SB-67

Depth (feet)	Soil Columns	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0					Asphalt / sand / caliche / soil fill material
			None	None	Caliche: very pale orange, soft, damp
10			None	None	Moderately hard at 10'
			None	None	
20		⬭	None	None	
					Hard at 22'
			None	None	Caliche: grayish orange, moderately hard, dry, slightly sandy to 35'
30			None	None	
			None	None	
40			None	None	
		⬭	None	None	Sand: grayish orange, very fine to fine grained, moderately sorted, loose
					Caliche: very pale orange to white, very hard, dry
50			None	None	Sand: light brown, very fine grained, well sorted, loose, damp
					Caliche: very pale orange to white, very hard, dry
	TD	⬭			Sand: light brown, very fine grained, well sorted, loose, damp
60					
70					
80					

Date Drilled 11-20-03

Indicates the groundwater level measured on date.

⬭ Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-67

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS	Checked By: TKC
December 30, 2003	

Soil Boring SB-68

Date Drilled 11-20-03

Depth (feet)	Soil Columns	Lab Sample	Petroleum Odor	Petroleum Stain	Soil Description
0					Asphalt / sand / caliche / soil fill material
			None	None	Caliche: very pale orange, soft, damp
10			None	None	
			None	None	
20		⬭	None	None	Slightly sandy at 20 to 25' Moderately hard to hard at 20'
			None	None	
30			None	None	Caliche: grayish orange, moderately hard to hard, dry
			None	None	
40		⬭	None	None	
			None	None	Caliche: very pale orange to white, very hard, dry
50			None	None	Caliche: light brown, very fine grained, well sorted, subangular to rounded, loose, moist
	TD	⬭			
60					
70					
80					

Indicates the groundwater level measured on date.

⬭ Indicates samples selected for laboratory submittal.

The soil boring was advanced using air rotary drilling techniques

The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

The depths indicated are referenced from the ground surface.

Soil Boring Log Details

SB-68

Champion Technologies, Inc. Hobbs Facility Hobbs, NM

NOVA safety and environmental

NOVA Safety and Environmental

Prep By: CS	Checked By: TKC
December 30, 2003	

Attachment 5
Report on the Slug Test and Pump Test

Report on the Slug Test and Pump Test Results for the Champion Technologies Facility, Hobbs, New Mexico

Prepared For:

Champion Technologies
GW-199
4001 South Highway 18
Hobbs (Lea County), New Mexico

August 7, 2003

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Section 1.0 Introduction

Tests were performed at the Champion Technologies (Champion) Hobbs, Lea County, New Mexico facility to determine the continuity of the hydraulic conductivity, and perform an accurate test to discern the hydraulic conductivity of the aquifer present at the site. To determine the continuity of the hydraulic conductivity and to establish initial pumping rates for the planned pump test, slug tests were performed. A pump test was also performed after the slug tests to establish the hydraulic conductivity of the aquifer.

The slug test and pump test data collected was then evaluated and analyzed to determine the resultant hydraulic conductivities. The software used to perform the data analyses was AquiferTest version 3.5, a product of Waterloo Hydrogeologic Incorporated. Significant discussion of the methodology used will not be presented below, however good references for the test, data processing, and groundwater issues are: The Design, Performance, and Analysis of Slug Tests, Butler, 1997; AquiferTest User's Mannual, Waterloo Hydrogeologic, Inc., 2002; Goundwater, Freeze and Cherry, 1979; and, Applied Hydrology, Fetter, 1988.

Section 2.0 Slug Tests

Slug tests were performed September 8, 2003 on monitoring wells MW-7, MW-9, MW-12, MW-13, MW-14, and MW-15. The process for the slug tests was as follows; the well was gauged for depth to water level and total depth of the well. A transducer was installed approximately six inches to one foot above the bottom of the well, and a constructed slug was installed in the well approximately six inches below the static water surface. The water level in the well was then allowed to re-equilibrate to static level as measured by hand gauging. Recording of the pressure by the transducer was completed to establish a baseline for the test. When it was confirmed that a baseline was established the slug was removed immediately from the well by pulling up forcefully. The test was then recorded by the transducer and checked by hand gauging the depth to water in the well until the water level rose to static level measured at the beginning of the test. The transducer, cable, slug, and water level meter and tape were then decontaminated.

The slug was constructed from two inch schedule 40 polyvinyl chloride (PVC) pipe five feet seven inches long. The ends of the pipe were capped and it was filled with sand. A rope was connected to one end of the slug for it to be lowered and raised from the well casing. The slug was calculated to displace 1.97 ft (feet) of water in a four inch PVC monitor well casing.

The resultant data from the tests were then plotted as time versus change in water level for initial evaluation purposes. An example of a time versus change in water level plot is depicted in Figure 1 for the slug test on monitor well MW-7. The data were then plotted as the ratio of the head to the initial head (h/h_0) versus time and a Bouwer and Rice fit was performed on the data. Figure 2 through Figure 6 display Bouwer and Rice fits to the slug test data for monitor wells MW-7, MW-9, MW-12, MW-13, MW-14, and MW-15.

Section 2.1 Slug Test on Monitor Well MW-7

Monitor well MW-7 was gauged for depth to water to establish the static water level and total depth at 10:15 hours. The depth to static water level was gauged to be 54.49 ft and total depth of the well was gauged as 62.05 ft. After installing the transducer, the slug was lowered into the well at 10:25 hours. At 10:37 hours the water level was measured to have returned to the static water level. At 10:40 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus the change in water level (feet) as displayed in Figure 1. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data as displayed on Figure 2. The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-7 as 3.09 ft/d (feet per day).

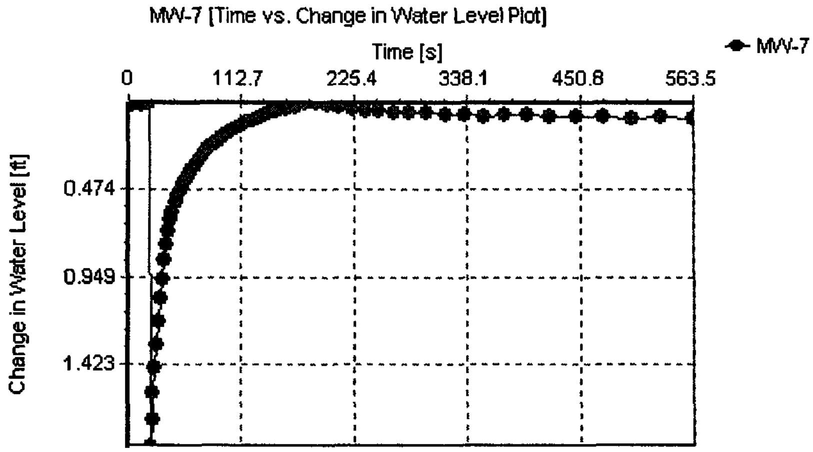

Figure 1: Time (seconds) versus the change in water level plot for the slug test performed on monitor well MW-7. The sharp downward spike depicted on the plot is where the slug was pulled from the well. The water level equilibrated back to the static water level approximately 170 seconds (2.8 minutes) after the slug was pulled from the casing.

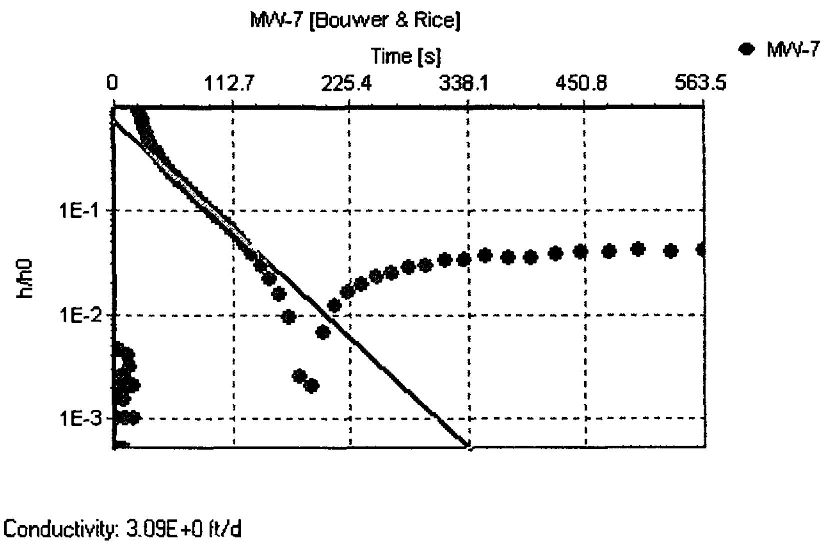

Figure 2: Bouwer and Rice fit to the slug test data from monitor well MW-7. The data is plotted as the ratio of the head to the initial head (h/h_0) versus time in seconds.

Section 2.2 Slug Test on Monitor Well MW-9

Monitor well MW-9 was gauged for depth to water to establish the static water level and total depth at 15:00 hours. The depth to static water level was gauged to be 54.52 ft and total depth of the well was gauged as 61.90 ft. After emplacing the transducer, the slug was lowered into the well at 15:09 hours. At 15:15 hours the water level was measured to have returned to the static water level. At 15:18 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus change in water level (feet) and evaluated. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data as displayed on Figure 3. The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-9 as 1.7 ft/d (feet per day).

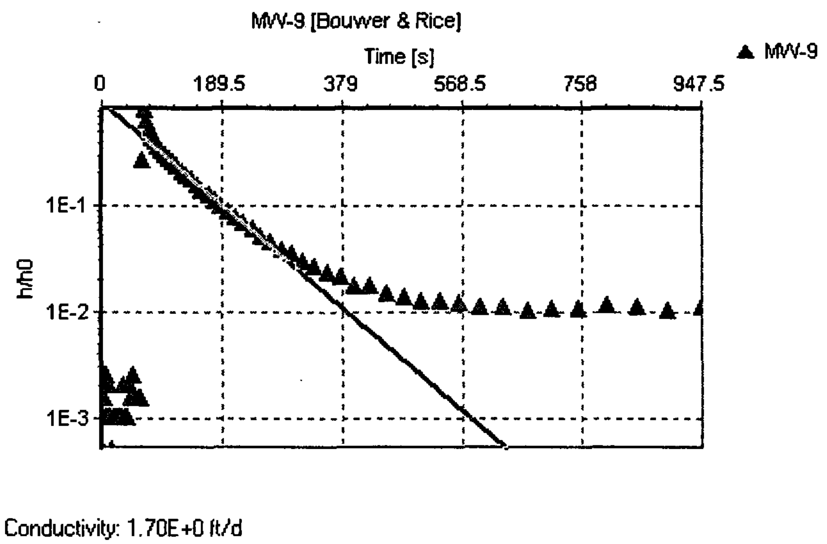

Figure 3: Bouwer and Rice fit to the slug test data from monitor well MW-9. The data is plotted as the ratio of the head to the initial head (h/h_0) versus time in seconds.

Section 2.3 Slug Tests on Monitor Well MW-13

Two slug tests were performed on monitor well MW-13. At 11:10 hours monitor well MW-13 was gauged for depth to the static water level and total depth of the well. The depth to the static water level was gauged as 61.46 ft and the total depth was gauged as 73.38 ft. At 11:14 hours the slug was introduced into the well and emplaced six inches below the static water level. At 11:30 hours the depth to water level had re-equilibrated to the static water level. The transducer was then started and the slug was pulled from the well at 11:34 hours. At 11:58 hours the depth to water level was 0.01 ft (approximately 0.1 inches) below the static water level. It was then decided to leave the transducer recording in the well and perform a slug test on another monitor well. After returning to monitor well MW-13 at 13:02 hours the depth to water level was gauged as 61.44 ft, or 0.02 ft (approximately a quarter of an inch) above the static water level previously gauged. A second slug test was then performed on monitor well MW-13 for comparative purposes. At 13:20 hours the test was started and by 13:30 the well had returned to the static water level as measured by hand gauging. The Bouwer and Rice fits to data for the ratio of head to initial head versus the time are displayed in Figure 4. The fits display a calculated hydraulic conductivity for the first test to be 12 ft/day (feet per day) and the second test to be 9.6 ft/day (feet per day).

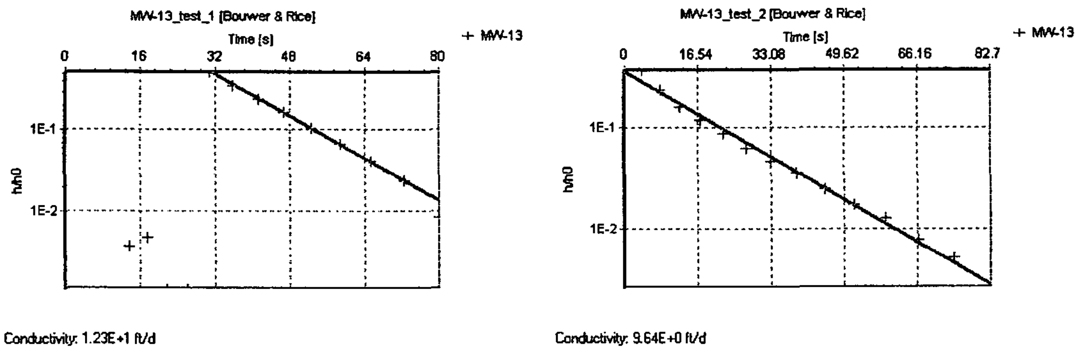

Figure 4: Bouwer and Rice fit to the slug tests data for monitor well MW-13. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 2.4 Slug Test on Monitor Well MW-14

A slug test was performed on monitor well MW-14 after it was determined that monitor well MW-5 did not contain a sufficient column of water to perform the slug test. At 12:30 hours the depth to static water level in monitor well MW-14 was measured to be 58.34 ft and the total depth of the well was measured to be 66.25 feet. The slug was introduced into the monitor well MW-14 at 12:38 hours after the transducer was installed in the well. At 12:45 hours the water level had re-equilibrated to static water level and at

12:47 hours the slug was removed from the well. At 12:53 hours the test was concluded when the water level was measured to have returned to the static level. The data obtained from the slug test performed on monitor well MW-14 were then plotted as change of water level versus time for initial evaluation purposes. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data (Figure 5). The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-14 as 4.5 ft/d (feet per day).

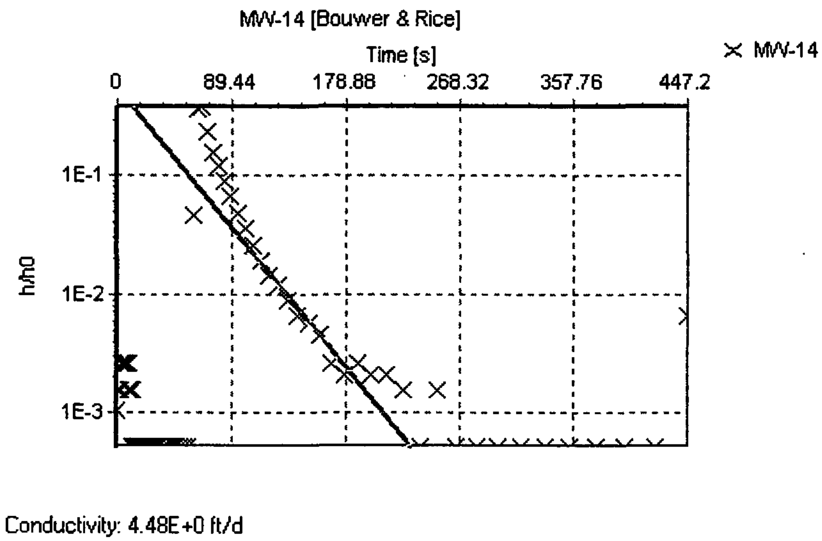

Figure 5: Bouwer and Rice fit to the slug test data from monitor well MW-14. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 2.5 Slug Test on Monitor Well MW-15

Monitor well MW-15 was gauged for depth to water to establish the static water level and total depth at 15:45 hours. The depth to static water level was gauged to be 54.46 ft and total depth of the well was gauged as 66.83 ft. After emplacing the transducer, the slug was lowered into the well at 15:53 hours. At 16:03 hours the water level was measured to have returned to the static water level. At 16:05 hours the slug was pulled from the well after the transducer was started and a baseline for the water level established. The data were plotted as time (seconds) versus change in water level (feet) and evaluated. The data were then plotted as the ratio of head to initial head (h/h_0) versus time (seconds) and a Bouwer and Rice fit was performed on the data (Figure 6). The fit to the data displayed a calculated hydraulic conductivity for monitor well MW-15 as 8.1 ft/d (feet per day).

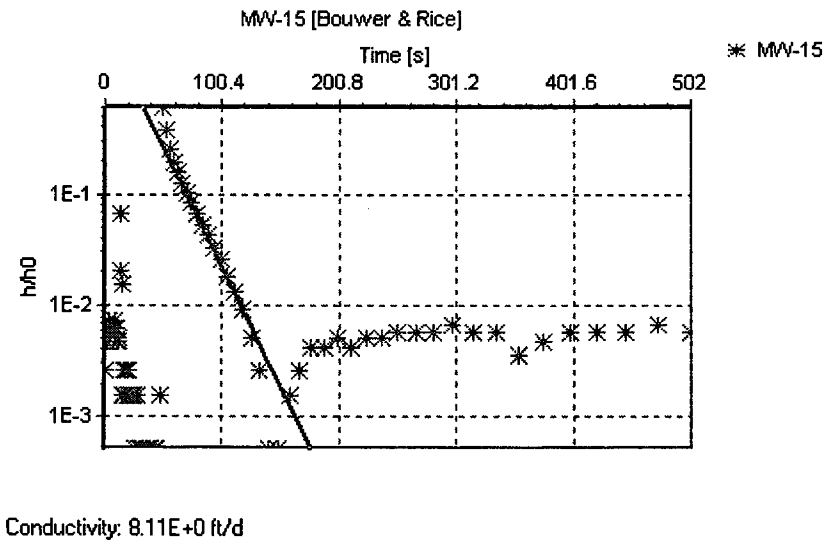

Figure 6: Bouwer and Rice fit to the slug test data from monitor well MW-15. The data is plotted as the ratio of the head to the initial head versus time in seconds.

Section 3:0 Pump Test Performance and Data

On September 9, 2003 a pump test was performed on monitor well MW-9 with monitor wells MW-1 and MW-15 gauged for depth to water level. After initial preparations monitor wells MW-9, MW-1, and MW-15 were gauged for depth to water level and total well depth. For monitor well MW-9 the depth to water level was measured to be 54.54 ft and the total depth was measured to be 61.66 ft. The depth to water level was measured to be 52.12 ft for monitor well MW-1 with a measured total depth of 60.96 ft. Monitor well MW-15 was gauged to have a depth to water level of 54.47 ft with a total depth of 66.83 ft. Transducers were then placed in monitor wells MW-9 and MW-1. A variable speed pump was also placed into monitor well MW-9. The water level in monitor well MW-9 was then allowed to re-equilibrate to the static water level and the test was then started at 14:55 hours. The initial pump rate was determined to be 5.45 GPM (gallons per minute). Four minutes after the onset of the test, surging was noted from the discharge hose. The pump rate, or discharge rate was then reduced and held constant at 4.66 GPM. The effect of the higher initial pump rate is displayed on Figure 7 where the sharp downward spike in the drawdown occurs approximately 265 seconds into the test. After this initial spike in the data, the drawdown exhibited due to the pumping of monitor well MW-9 was approximately constant at over four feet of drawdown. During the course of the pump test, monitor well MW-15 was hand gauged for depth to water level, initially every 5 minutes for 3 hours and 55 minutes, after which the interval between gauging events became 15 minutes for the remainder of the test. At 20:15 hours the pump in monitor well MW-9 was shut off. Within a span of five minutes after the conclusion of the test the water level in monitor well MW-9 had rebounded to the static water level.

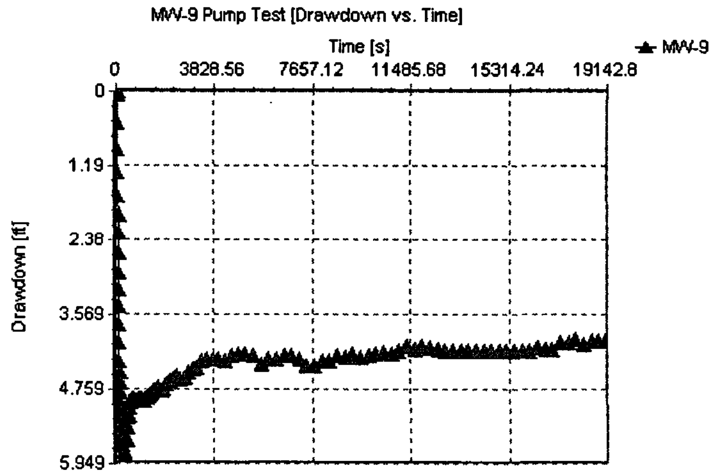

Figure 7: Drawdown (in feet) versus time (in seconds) plot for the pump test data from monitor well MW-9.

The drawdown versus time data from the pump test for monitor wells MW-1 and MW-15 is displayed in Figure 8. Monitor well MW-1 exhibited about 1.7 inches of drawdown, whereas monitor well MW-15 was only drawn down about a half an inch.

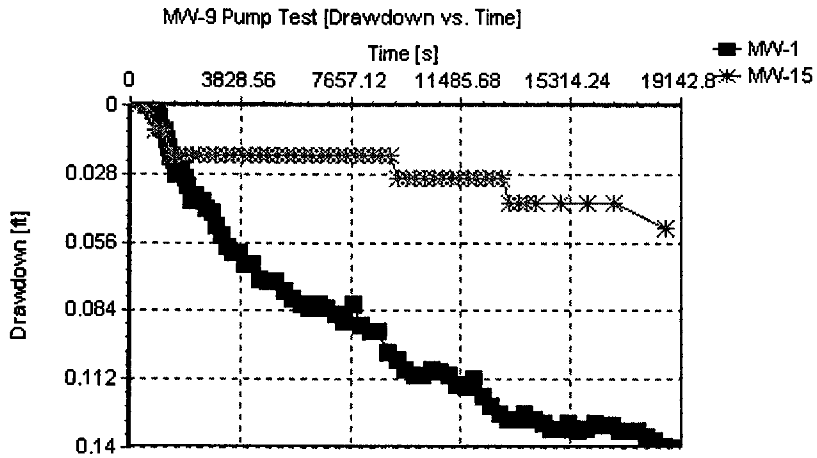

Figure 8: Drawdown (feet) versus time (seconds) plot for monitor wells MW-1 and MW-15.

The difference in the drawdown in monitor wells MW-1 and MW-15 could be due to primarily three factors; the distance of the monitor well from the pumped well, the gradient of the groundwater flow, and the hydraulic continuity of the groundwater flow. In general the closer the monitor well is to the pumping well the more likely it is to observe the influence of the drawdown in the pumping well. The distances of monitor wells MW-1 and MW-15 from the well which was pumped (monitor well MW-9) is approximately 75 ft from monitor well MW-1 to monitor well MW-9, and approximately 125 ft from monitor well MW-15 to monitor well MW-9.

The relationship between the pumping well and the gradient of the groundwater also can cause a differential effect in the drawdown to be seen. The more offset the monitor well is from the vector of the groundwater gradient at the pumped well the less influence was seen. The groundwater gradient at the site has been observed as being higher on the west side of the site and lower on the east side of the site, so in general groundwater flows from east to west. Monitor well MW-15 is up the groundwater gradient and more offset to the south of monitor well MW-9, whereas monitor well MW-1 is more down the groundwater gradient from monitor well MW-9 and therefore more likely to be influenced by the pumping of monitor well MW-9.

The hydraulic continuity and homogeneity of the aquifer necessitates both the slug tests and the pump test to be synthesized and will be addressed below in the discussion.

The drawdown data for monitor wells MW-1 and MW-15 were plotted as dimensionless parameters log(t_{dy})(dimensionless time) on the X axis and log(h_d) (dimensionless head) plotted on the Y axis, with the data scaled to log(t/r^2) (the log of the time divided by the internal radius of the well squared) on the X axis and log(s) (the log of the drawdown) on the Y axis. A Moench fit was then performed on these data with the results displayed in Figure 9. The Moench fit provided a calculated hydraulic conductivity of approximately nine feet per day.

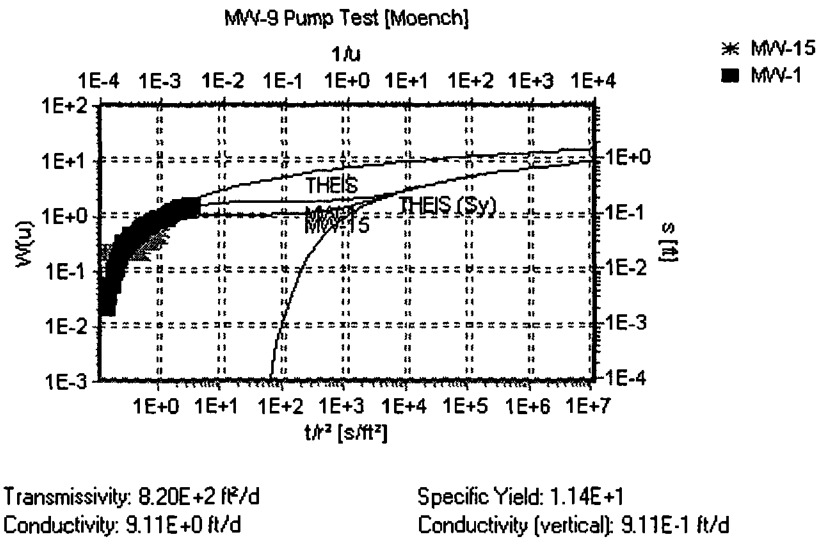

Figure 9: Moench fit to the data for pump test preformed on monitor well MW-9. Parameters for the Moench fit: the ratio of storativity to specific yield (S/S_y) = 0.001, the ratio of the vertical hydraulic conductivity to the horizontal hydraulic conductivity (K_V/K_H) = 0.1, and the dimensionless drawdown parameter $(\gamma) = 1\times10^9$.

A Theis fit was also performed on the drawdown data for monitor wells MW-1 and MW-15 and the result is displayed below in Figure 10. The data are plotted on a logarithmic scale as drawdown (s which is equal to $h-h_0$) versus the time (t) divided by the radius of the well squared (r). The calculated hydraulic conductivity from the Theis fit is about 9.5 ft/d (feet per day) which is in relative agreement with the Moench fit solution.

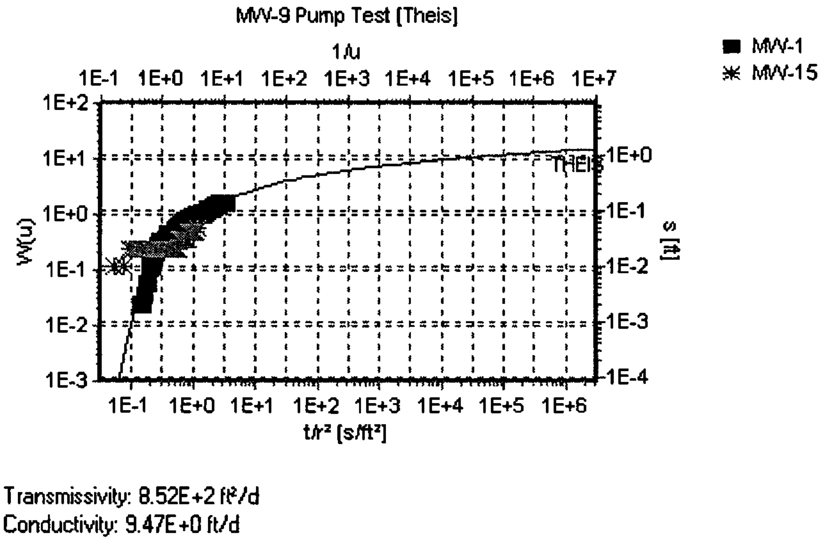

Figure 10: Theis fit for the data for the pump test performed on monitor well MW-9, for the drawdown in monitor wells MW-1 and MW-15.

Section 4.0 Discussion

As noted above the purpose of the slug tests and the pump tests were to establish the homogeneity, continuity, and hydraulic conductivity of the aquifer present at the Champion site in Hobbs, New Mexico. Table 1 displays a compilation of the slug tests and pump test resultant hydraulic conductivity with an average hydraulic conductivity for all tests as 6.9 ft/day, with a range of hydraulic conductivities from 1.7 to 12.3 ft/day. The hydraulic conductivity calculated to be 1.7 ft/day was for monitor well MW-9 which the pump test displayed to have a hydraulic conductivity of approximately nine feet per day. Slug tests are very sensitive to well skin effects and to how the well was completed. Well skins generally form during the drilling process and can either be high K (hydraulic conductivity) or low K well skins. Most often the well skins are of the low K variety, which in turn means that the hydraulic conductivity calculated from a slug test only serves as a lower bound of the true hydraulic conductivity. Pump tests are less sensitive to well skin effects because they are a measurement of water flow in the aquifer between wells, rather than flow into and out of the formation in the immediate vicinity of the well in question.

Table 1: Summary Table of the slug tests and pump test calculated hydraulic conductivities.

Monitor Well	Hydraulic Conductivity (ft/day)	Test Type
MW-7	3.09	Slug
MW-9	1.7	Slug
MW-13 test 1	12.3	Slug
MW-13 test 2	9.64	Slug
MW-14	4.48	Slug
MW-15	8.11	Slug
MW-9	9.11	Pump
Average	**6.9**	

The variability of the calculated hydraulic conductivities for the slug tests could be interpreted such that one could conclude that a non-homogenous aquifer is present on the site. However the variability in the test data results between the slug test and pump test for monitor well MW-9 suggests that the variability is due to well skin effects. Additionally, the form of the curves plotted for the Bouwer and Rice fits, with the exception of the curve for monitor well MW-9, are similar to data plotted for slug tests which did not have sufficient displacement of water. Without sufficient displacement of water in the well recovery occurs to quickly to be accurately measured and plotted. The slug volume was the maximum size possible considering the design of the test and the depth of the water column present in the monitor wells. The average measured displacement for the water column in the monitor wells after the removal of the slug was only 1.33 ft whereas the calculated displacement by the slug is 1.97 ft of water in a four inch monitor well. Instantaneous draining of the sand pack assuming twenty percent effective porosity and no void space in the sand pack would provide approximately one foot of recovery, which means the above 0.64 ft of difference in the average displacement between the slug volume and calculated displacement is within reason. Therefore the necessary conclusion, barring further data collection, is that the hydraulic conductivity of the aquifer was higher than the slug tests were designed to accurately measure.

Generally accepted values for hydraulic conductivities for silty to fine sands range from 10^{-5} to 10^{-3} cm/s (centimeters per second), the results from the slug test are in the upper range of these accepted values at about 2×10^{-3} cm/s. The hydraulic conductivity value is slightly higher than anticipated at the onset of the tests owing to the well logs which describe significant caliche present. However, the caliche is described to be mostly above the water bearing zone, which is in agreement with the test results. Relatively good hydraulic continuity was demonstrated during the pump test which argues against a significant contribution of the groundwater to be due to fracture flow. Fracture flow would be expected if the caliche were the main conductive unit for the groundwater flow.

Section 5.0 Conclusions

The average hydraulic conductivity for the aquifer as evidenced through slug tests and a pump test is 6.9 ft/day. The resultant hydraulic conductivities of the slug tests, though variable, did display an average hydraulic conductivity which was in relative agreement with the resultant hydraulic conductivity from the pump test. The pump test displayed the aquifer to be relatively uniform and homogenous in the area surrounding monitor wells MW-9, MW-1, and MW-15. From the relative agreement between the slug tests and pump test results, it is therefore inferred that the aquifer under the Champion, Hobbs, New Mexico facility is relatively uniform and homogenous.

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GW-199

SUPPLEMENTAL INVESTIGATION WORKPLAN
CHAMPION TECHNOLOGIES INC. SITE ABATEMENT (AP-14)
4001 SOUTH HIGHWAY 18
HOBBS, NEW MEXICO

PREPARED

BY

ENVIRONMENTAL STRATEGIES CONSULTING LLC

MARCH 29, 2005

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Acronym List

ASTM	American Society for Testing and Materials
bgs	below the ground surface
CFR	Code of Federal Regulations
DO	dissolved oxygen
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
IDW	investigation-derived waste
mV	millivolt
NMAC	New Mexico Administrative Code
NMDOT	New Mexico Department of Transportation
NMED	New Mexico Environmental Department
NMOCD	New Mexico Oil Conservation Division
ORP	oxidation-reduction potential
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
WQCC	Water Quality Control Commission

1.0 Introduction

On behalf of Champion Technologies, Inc. (Champion), Environmental Strategies Consulting LLC has prepared this proposed supplemental site investigation plan for the Champion site located at 4001 South Highway 18, Hobbs, New Mexico. This workplan substantially complies with New Mexico Oil Conservation Division (NMOCD) Rule 19, subsections (A), (B), (E)(3) and (E)(4), pursuant to subsection (D). The site has an NMOCD-approved Discharge Plan (GW-199) and has had various Stage 1 and Stage 2 abatement activities already completed. This plan summarizes the site conditions and past abatement activities, presents the rationale for and describes the proposed abatement option, which includes a revised groundwater monitoring plan, and presents a strategy to demonstrate natural attenuation as the groundwater remedial action.

2.0 Site Background Information

2.1 Site Description

The approximately 7-acre site is located in the southeastern quadrant of Section 15 Township 19 South, Range 38 East. The site is within the Hobbs Pool oil and gas field, and approximately 5 miles east of the Monument Pool (Wright, 1941). In the region, the practice of disposing produced water into unlined pits began with the first oil and gas exploration in the early 1940s, with great expansion during World War II. Produced water in the region is known to be highly saline. In 1967, the New Mexico Oil Conservation Commission (OCC) issued Order R-3221, which called for all disposal of produced water, except for some *de minimus* quantities, into unlined pits or in any other manner which would cause a hazard to fresh water to cease by October 31, 1967 (LCWUA, 2000). In the 1970s, groundwater throughout Lea County had salinity concentrations between 1,000 milligrams per liter (mg/l) and 3,000 mg/l (USGS, 1972) and the chloride concentration in groundwater within the Permian formations in the Northwestern Shelf, within 10 miles of the site was 2,900 mg/l to 32,000 mg/l (NMBMMR, 1975).

Champion Technologies has operated at the site for at least 30 years. A portion of the facility is unpaved, and there are two buildings and other facilities, such as aboveground storage tanks and secondary containment structures (Figure 1). Champion Technologies stores and distributes oilfield chemicals, such as corrosion inhibitors. Among the chemicals stored at the site are alcohols, amines, aromatics, ammonium chloride, corrosives, and, formerly, may have included hexavalent chromium. There was a prior commercial or industrial occupant at the site, believed to be a trucking company.

A pit, located in the northern-central part of the site, was identified in the Stage 1 abatement activities. The Enercon documents, prepared on behalf of Champion, stated that, of the three aerial photographs reviewed as part of a site history review, only the 1967 aerial photograph showed pond-like features in what is referred to as Areas 2 and 3. This suggests the pit may have been used by others since some time after the next earlier aerial photograph, taken in 1954 (Enercon, 2000). Currently, there is a commercial operation to the north, vacant land to the west and east, and a residence to the south; the residence has a water supply well located approximately 100 feet south of the site boundary.

2.2 Environmental Setting

This section describes the topographic, geologic, and hydrogeologic conditions at the site.

2.2.1 Topography and Surface Drainage

The site is relatively flat with no concentrated stream flows or ponds. Drainage from the site generally sheetflows to the property's perimeter Stormwater collected in the bulk tanks' secondary containment berms is allowed to evaporate or is used by the facility operations. The average annual precipitation in the Hobbs area is 15.98 inches per year, with 27 days per year with 0.1 inch or more of precipitation, and only 5 days per year with 1 inch or more (WRCC, 2003).

2.2.2 Site Geology

The site is underlain by caliche, sand, silty sand, sandy clay, and sandstone. Boring logs and excavations at the site indicate a 5-foot thick, hard caliche layer from approximately 20 to 25 feet below ground surface (bgs) throughout most of the site, and a second hard caliche layer from approximately 50 to 56 feet bgs (Enercon, 2000 and ETGI, 2003a).

2.2.3 Site Hydrogeology

The site is within the limits of the Lea County Basin, as declared by the New Mexico Office of the State Engineer. In the Lea County Basin, the sole source of drinking water is the Ogallala Aquifer. The depth to groundwater at the site is approximately 50 to 60 feet below the ground surface (bgs), and the water elevation has dropped at an average rate of approximately 0.7 to 1.2 feet per year since the monitoring at the site began in August 2002 (NOVA, 2005). A summary of the historical groundwater elevations is included in Appendix A. As represented in the well log for the onsite supply well, the local water bearing zone is a sandy aquifer ranging from approximately 44 to 138 feet bgs (Eades, 1993). The recent slug and pumping tests indicate the hydraulic conductivity is approximately 3×10^{-3} centimeters per second (cm/s) (NOVA, 2005). The hydraulic gradient has been consistent at approximately 0.003 feet/foot, toward the east (Figure 2). The resulting seepage velocity is 37 feet per year. Based on previous reports, no perched water has been observed and there is no significant surface water body within at least 1 mile of the site.

2.3 Summary of Historic Stage 1 and Stage 2 Abatement Activities

The areas addressed by previous investigations and remediation are depicted on Figure 1. In the previous abatement plans and reports (Enercon, 2000; ETGI, 2003a and 2004; NOVA, 2005) the areas addressed by abatement activities are referred to as follows:

- Area 1- a small area in the north-central part of the site, incorporated into Area 2
- Area 2 – a former waste pit located in the north-central part of the site and incorporates the former Area 1 and Area 4
- Area 3 – an area that had high chloride concentrations in soil, located in the southwestern quadrant of the site
- Area 4 - the northern half of the bulk tank area, incorporated into Area 2
- Area 5 - centered around a soil boring that had high chloride concentrations in soil, located near Champion's water supply well.

The environmental conditions in each area and the groundwater quality are described below.

2.3.1 Soil

Champion's contractor excavated soil and debris between July 2002 and February 2003 during Stage 2 abatement activities at Area 2. In January 2003, the Area 2 excavation was extended into the northern half of Area 4 and stained soil under Area 4 was removed to the extent practicable. The Area 2 excavation also completely removed Area 1. The overall excavation at Areas 1, 2, and 4 measured approximately 200 feet by 150 feet and 18 feet deep, totaling 20,000 cubic yards. The excavation removed a significant amount of the contaminant mass, but some residual chemicals of concern are present in the remaining soil and within fractures of the caliche bottom, at approximately 18 to 20 feet bgs. During the excavation, a pipe running from the warehouse into the pit was discovered and removed. The chemicals of concern in Area 2 soils include chloride (up to 11,000 milligrams per kilogram, mg/kg), chromium (up to 13.4 mg/kg), and total petroleum hydrocarbons (up to 30,000 mg/kg). NMOCD approved the backfilling of the Area 2 excavation on May 8, 2003 (NMOCD, 2003a). Between September 3 and 29, 2003, the excavation was backfilled with soil and caliche from an offsite source. As part of the backfill, a 2-foot thick clay layer was placed from 5 feet to 7 feet bgs, between September 12 and 19, 2003 (NOVA, 2005). Based on a preliminary review of precipitation data from the two closest National Climatic Data Center weather stations, approximately 10 inches of precipitation fell between July 2002 and September 2003 (NCDC, 2004). Thus, during the Stage 2 abatement activities, direct precipitation and runoff from adjacent land areas and building rooftops may have collected in the excavation, of which a significant fraction may have infiltrated.

Champion's contractor also completed a 20-foot deep excavation at Area 3, approximately 40 feet by 80 feet, beginning in July 2002 and backfilled it in September 2003. NMOCD approved the backfilling of the Area 3 excavation on August 13, 2003 (NMOCD, 2003c). The deepest part of the Area 3 excavation extended to a hard caliche caprock layer at 20 feet bgs. Chloride-containing soil remains in Area 3, up to 11,900 mg/kg at a depth of approximately 18 feet bgs. However, soil samples collected beneath the caprock contained low chloride concentrations (less than 100 mg/kg) and the excavation was backfilled with soil and caliche from onsite, and caliche from an offsite source (ETGI, 2004).

The Area 5 soils containing elevated chloride were excavated to a depth of approximately 2 feet bgs; the maximum concentration of remaining chloride was detected in a soil sample at a concentration of 3,680 mg/kg. The stockpile of soil excavated from Area 3 and Area 5 was lined with plastic sheeting and is awaiting disposal (NOVA, 2005).

2.3.2 Groundwater

The chemicals of concern in groundwater are chromium and chloride. Chromium concentrations in groundwater exceed the New Mexico Water Quality Control Commission (WQCC) standard of 0.050 mg/l in groundwater samples collected from only four monitoring wells (MW-4, MW-10, MW-13, and MW-14); the maximum concentration of dissolved chromium was 0.199 mg/l, in the October 2004 sampling event (NOVA 2005). Environmental Strategies conducted a Mann Kendall trend analysis of the chromium concentrations and determined the concentration in the groundwater sample collected from monitoring well MW-4 exhibits a decreasing trend while the trend of concentrations detected in groundwater samples collected from monitoring well MW-10, MW-13, and MW-14 are increasing. The trend analyses are summarized on Figure 3 and the spreadsheets are provided in Appendix B. One primary cause for the apparent increase of concentrations may be the falling water table elevation. Most of the monitoring wells were constructed with less than 10 feet of water column height, which has since decreased approximately 2 feet. For example, MW-10 had only 8 feet of screen below the water table in October 2002 (ETGI, 2003b) and 5.88 feet in October 2004 (Appendix A). The concentration of chromium would have an inverse relation to the water column thickness in the well, and its sensitivity to such decreases would depend on factors such as: 1) the initial ratio of thickness of the mixing zone to the length of the wetted well-screen, 2) the vertical concentration gradient within the plume, and 3) contaminant decay rates. For example, a monitoring well screened into a 4-foot thick, non-degrading plume with its upper 2 feet at 0.20 mg/L chromium and the next 2 feet with 0.02 mg/l, would initially exhibit a concentration of 0.11 mg/l, but it would increase to 0.20 mg/l if the water level dropped by 2 feet.

The onsite supply well is located in the same as the chromium plume, and is screened from 113 to 133 feet bgs. This depth range is likely below the mixing zone of chromium, as indicated by the 8 analytical results of samples collected from this well, none of which have contained detectable chromium concentrations. The residential well, located approximately 100 south of the site, also has been sampled 8 times since August 2002, has not had any detectable chromium concentrations.

There appears to be regional high concentrations of chloride in groundwater, as well as onsite sources of chloride. The presence of the regional high chloride concentrations in groundwater is likely caused in large part by the historical use of unlined evaporation pits for oil and gas exploration brine disposal and is demonstrated by the data indicating that none of the three background wells consistently have chloride concentrations less than the WQCC standard of 250 mg/l (NOVA 2005). These data demonstrate that there is an offsite, upgradient source of chloride in groundwater. The presence of an onsite source is supported by higher chloride concentrations in groundwater samples collected from most onsite monitoring wells than in the groundwater samples collected from upgradient monitoring wells, usually exceeding the WQCC standard. However, the excavations have removed a significant quantity of high chloride soil and the clay layer in the backfill reduces the amount of infiltration.

Only 3 (MW-1, MW-8, and MW-13) of the 16 monitoring wells that have a minimum four groundwater sampling data points, exhibit increasing chloride concentration trends. The trend analyses are summarized in Figure 4 and the spreadsheets are presented in Appendix C. The most significant increase is observed in groundwater samples collected from monitoring well MW-8, which may, in part, be due to the transient decrease in the thickness of the unsaturated zone and accumulation of storm water during the Stage 2 activity at Area 2, from July 2002 to September 2003.

NMOCD's May 8, 2003 letter states that the average chloride concentration in groundwater samples collected from monitoring well MW-15 and two upgradient supply wells (located on the Harmon and Morrow residences) should be used to represent background conditions; as of May 8, 2003, the offsite upgradient wells contained 137 mg/l and 241 mg/l of chloride. MW-15 has 433 mg/l chloride in October 2004.

The Hydrus-1D modeling effort (ETGI, 2003a) evaluated four scenarios and predicts the effects of transport of chloride from soil on chloride concentrations in groundwater. Scenario 1 is a "no action" scenario, and Scenario 2 is only the removal of the chloride soil source; the model predicts an increase of at least 1,000 mg/l of chloride in groundwater for both Scenarios 1 and 2 and will significantly exceed background concentrations in groundwater for approximately 30 years. Scenario 3 is infiltration controls alone with no soil remediation and Scenario 4 was infiltration control in combination with approximately 19 feet of excavation; the model predicts Scenarios 3 and 4 would result in an approximately 100 mg/l increase of chloride in groundwater that would asymptotically approach the background level in approximately 15 years. Scenarios 3 and 4 assumed 70% of the precipitation runs off the site. The excavation and backfill recently completed at the site most closely resemble Scenario 4, however, conditions during the Stage 2 activities resembled Scenario 2.

The most significant increase of chloride levels is observed in groundwater samples collected from monitoring well MW-8, located approximately 20 feet (approximately 6.5 months of travel time) downgradient of the Area 2 excavation (NOVA 2005); by comparison, the closest downgradient well to Area 2 (MW-11) is exhibiting a decreasing trend. Due to the potential for infiltration of accumulated storm water during the 14 months that the excavation was exposed, transient increases of between 100 and 1,000 mg/l chloride in groundwater are expected, however, due to the complexity of the local geology, it is not practicable to precisely predict where the source of the increase concentrations might be located.

Concentrations of 1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), and vinyl chloride) have historically been detected in groundwater samples at concentrations slightly above WQCC standards. Vinyl chloride was detected in only 1 of 44 samples and, thus, the one detection is considered an anomaly and vinyl chloride is not a chemical of concern at the site.

All the historical 1,1-DCA and PCE data were compiled and the 95th upper confidence level of the mean was selected as representative of the 1,1-DCA and PCE plumes (Figures 5 and 6). Environmental Strategies completed a fate and transport modeling, using EPA's BIOCHLOR model (Appendix D), to evaluate the volatile organic compound (VOC) data from monitoring wells MW-6/17, MW-11, MW-12, MW-16, and MW-18, which indicates that the VOCs detected in these wells are stable and are not detected at concentrations consistently above their respective WQCC standards. The calibrated model also indicates that the plume is in steady-state and that there is no significant biological degradation of these compounds occurring under current conditions, thus no significant formation of vinyl chloride. The model simulated migration for 100 years past the date of release to groundwater and predicts the maximum concentration that would be present at the downgradient property boundary: 1,1-DCA (0.012 mg/l) and PCE (0.006 mg/l), which are below the WQCC standards of 0.025 mg/l and 0.02 mg/l, respectively. The model conservatively assumes a continuous source with no degradation, however, the excavation of Area 2 has substantially removed the source and the clay backfill greatly reduces infiltration, thus the model predicts higher concentrations than the actual VOC concentrations. Thus 1,1-DCA and PCE are not chemicals of concern at the site.

Arsenic and lead have also been detected in groundwater samples but none of the samples were above the WQCC standards. Barium and manganese were infrequently detected above their WQCC standards. The barium standard was apparently exceeded in MW-1, located upgradient of the site, and in MW-6 (August 2002) and manganese in MW-6/17 (August 2002 and March 2004), however the samples collected before February 2003 were not filtered and are not appropriate for comparison with WQCC standards since Part 2.3103 of the WQCC regulations states that the numerical standards for metals apply to dissolved portion. Furthermore, barium and manganese were not detected at concentrations exceeding the WQCC standards in samples from MW-11, MW-12, MW-16 and MW-18, which is located approximately 10 feet upgradient of the property boundary (NOVA, 2005). Thus, arsenic, barium, lead, and manganese are not chemical of concern at the site.

3.0 Proposed Abatement Activity

3.1 Basis of Abatement Activity

This section discusses the regulatory basis and interpretation of site-specific data supporting the purpose and rationale for the proposed abatement activity.

3.1.1 Regulatory Basis

The definition of *hazard to public health* in Title 19 of the New Mexico Administrative Code (NMAC) Chapter 15, Part 1.7 includes the language: "In determining whether a release would cause a hazard to public health to exist, the Director shall investigate and consider the purification and dilution reasonably expected to occur from the time and place of the release to the time and place of withdrawal for use as human drinking water." The proposed work will investigate the purification and dilution between the contaminated groundwater source and a conservative point of withdrawal located some 3-dimensional distance away.

As stated in Title 19 NMAC, Chapter 15, Part 1.19, the purpose of Rule 19, pertaining to groundwater, is to abate the vadose zone so that the contaminants in the vadose zone will not with reasonable probability contaminate groundwater above the WQCC standards. The Stage 2 activities completed to date have in large part addressed the vadose zone and the proposed investigation will further delineate the inferred source area of chromium above the WQCC standard in the southern part of the site. Part 2.3103 of the WQCC standards apply to "the dissolved portion of the contaminants specified...", thus, only dissolved-phase concentrations in groundwater will be considered in the evaluation.

3.1.2 Site Specific Basis

Champion Technologies' consultants have submitted and received approval for various Stage 1 and Stage 2 Abatement Plans. In its comment letter, dated May 8, 2003, NMOCD indicated that if Champion Technologies proposed paving the entire yard with concrete or asphalt, then no further investigation need to be conducted (except in the southern part of the site for chromium), nor would any clay or synthetic liners be required in Areas 2 and 3. This activity would require over 6 acres of paving, costing approximately $700,000 to $1,000,000; however, the excavations have already reduced the majority of the known chemical mass in soil and a 2-

foot thick clay layer has been placed in the Area 2 backfill. The installation of the pavement would not appreciably improve the groundwater quality, since the primary source of the chemicals of concern to groundwater has already been removed through the extensive excavation. Therefore, the primary focus of this investigation is to determine whether the groundwater quality constitutes a hazard to human health. If not, then the pavement is not necessary due to its limited expected effectiveness relative to achieving the WQCC standards.

Also in its May 8, 2003 letter, NMOCD required the following system of point-of-compliance and point-of-exposure regarding chromium: "If dissolved chromium reaches or exceeds the site-specific action level of 0.040 mg/l in adjoining property residential wells or onsite active water wells, then immediate corrective action and public protection plan will be implemented and a new domestic water supply well will be installed to provide potable water." The existing data indicate that this site-specific action level has not been exceeded at the residential well nor in the onsite water supply well, thus, no active corrective action to address the presence of chromium is warranted at this time. This action level is a reasonable standard and will be used, among other criteria, in evaluating the data from the proposed investigation.

The 18 monitoring wells existing on, upgradient, and downgradient from the site, were installed according to the NMOCD's letter, dated May 25, 2000 (NMOCD 2000a), which stated: "The initial groundwater monitoring wells shall only be completed to a depth sufficient to hold 15 feet of slotted screen, in which 10 feet shall be below the water table level...", however, as of October 2004 many of the wells have less than 10 feet. In the chloride transport model (Hydrus 1-D) included in the Comprehensive Status Report (ETGI, 2003a), 10 feet was used as the thickness of the mixing zone; NMOCD concurred that 10 feet is appropriate (NMOCD, 2003a). The thickness of the groundwater mixing zone is primarily a function of the length of the affected soil parallel to groundwater flow and secondarily a function of the ratio of the infiltration rate through the contaminated soil to the flux of the aquifer across the contaminated soil; under the current conditions of the site, a mixing zone of 10 feet would be appropriate for a source area that is approximately 100 feet long.

In the letter dated July 10, 2000, the NMOCD stated that Champion shall complete the new monitoring wells as follows: "At least 15 feet of well screen shall be placed across the water table interface with 5 feet of the well screen above....". As of October 2004, only MW-1, MW-11 and MW-15 have 10 feet or more of screen below the water table (Appendix A).

Only one well that is regularly sampled, the onsite supply well, is known to be screened beneath the mixing zone. As shown on Figure 3, this supply well is located in the same area as the monitoring wells which contained dissolved chromium concentrations above the WQCC criterion, nonetheless, it has never had detectable dissolved chromium in any of the 8 samples analyzed since August 2002, when it was first sampled for this abatement program. The supply well is constructed in a manner which is representative of a reasonably expected point of withdrawal. Since the Ogallala water table elevation at the site is declining by approximately 0.7 to 1.2 feet per year, it is reasonable to expect that a person installing a water supply well would screen it to the bottom of the Ogallala to optimize the period of operation before the well becomes inoperable due to insufficient penetration into the groundwater.

3.2 Lines of Evidence

The objective of the proposed investigation is to collect additional data to complete the site characterization and to determine whether: a) sufficient natural dilution is occurring over the travel time and 3-dimensional distance between the onsite source of chromium and a reasonably expected time and place of withdrawal of groundwater for use as human drinking water, using primary lines of evidence, and b) the geochemical conditions of the regional aquifer are amenable to the precipitation of dissolved chromium, thus, further purifying the water at a reasonably expected point of withdrawal, using secondary lines of evidence. Both lines of evidence can be incorporated into predictive models, if needed, to further demonstrate whether or not a *hazard to human health* exists. This objective is consistent with the definition of a *hazard to public health,* as defined in Title 19 NMAC, Chapter 15, Part 1.7).

The goal of this proposed investigation is to demonstrate: 1) the site conditions do not constitute a *hazard to human heath*, so that no further action is warranted, and/or 2) natural attenuation can occur, such that protective concentrations of chemicals of concern may be attained within a reasonable distance from the site and within a reasonable period of time. The existing site data and the data to be collected, as described in Section 3.3, will be used to evaluate primary and secondary lines of evidence.

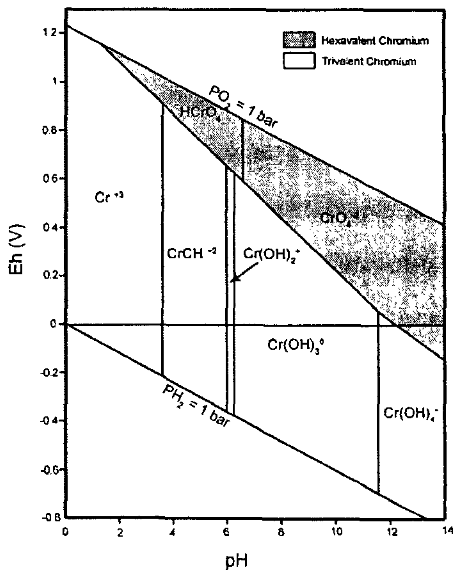
3.2.1 Primary Lines of Evidence

Primary lines of evidence are data from historical samples that demonstrate a clear and meaningful trend of declining contaminant mass and/or concentrations at appropriate monitoring or sampling points. Primary lines of evidence are used to determine whether plumes are expanding, shrinking, or stable. The historical site groundwater data and the data collected during this field program will be evaluated using tools such as linear and nonlinear regression, and Mann Kendall trend analysis. A minimum of four periodic sampling events are required to apply the Mann Kendall trend analysis (EPA, 2000a). Data will also be compared against the predicted concentrations from various models, such as the Hydrus-1D model presented in the 2003 Comprehensive Status Report. Models can be conservatively applied with the assumption that only natural dilution is occurring with no decay of contaminant mass.

3.2.2 Secondary Lines of Evidence

Secondary lines of evidence include data from site characterization that indirectly demonstrate the type of natural attenuation processes active at the site and determine the rate at which such processes will reduce concentrations of chemicals of concern to required levels. For example, the potential for proper geochemical conditions can be determined by measuring the levels of dissolved oxygen (DO), nitrate, iron II (ferrous), sulfide, and other parameters. These factors contribute to the purification of water by decay of the contaminant mass, independent of natural dilution.

Chromium oxidation states are dependent upon pH and oxidation-reduction potential (ORP) (otherwise known as Eh), shown in the diagram to the right. In near-neutral pH conditions and reductive and low oxidative ORP levels, chromium precipitates into an insoluble trivalent hydroxide, the most thermodynamically stable form. Iron II, sulfide, and organic carbon tend to reduce chromium, and reduced chromium is more likely to precipitate or adhere to aquifer matrix solids, removing it from the dissolved phase (EPA, 2000b and Palmer and Wittbrodt, 1991). The Eh is related to the geochemical characteristics, such as DO, iron II, and sulfate.



Source: Palmer and Wittbrodt, 1991

3.3 Investigation Program

Based on a review of the recent groundwater monitoring data, chloride and chromium are the only chemicals of concern at the site. The proposed supplemental soil and groundwater data are discussed below and summarized on Figures 7 and 8, and Tables 1 and 2

3.3.1 Soil Boring and Monitoring Well Installation

Three soil borings, one deep monitoring well, and two shallow monitoring wells are proposed. Based on the distribution of the groundwater concentrations, the source of chromium appears to be less than 50 feet wide, located approximately 100 to 150 feet upgradient of MW-4. The soil borings (ESCSB-1, ESCSB-2, and ESCSB-3) will be drilled upgradient of MW-13 to confirm the lack of a large onsite source area of chromium. One of these borings (ESCSB-1) will be advanced approximately 20 feet into the saturated zone and converted into a monitoring well (MW-19) to more precisely locate the origin of the chromium plume. MW-20 will be installed on private property approximately 100 feet east of MW-10 and the deep monitoring well, MW-4D, approximately 5 feet from MW-4.

The proposed monitoring wells serve two major purposes: 1) to allow for a conservative monitoring point representing a reasonably expected point of withdrawal, and 2) to delineate the longitudinal extent and concentration distribution of the offsite chromium plume and mixing zone. MW-4D will serve as a point of compliance well and it will be used with the onsite water supply well to provide an early warning system of detection to ensure the dissolved chromium criterion of 0.040 mg/l is not exceeded at a theoretical, reasonably expected domestic use supply well located onsite or downgradient of the site.

Consistent with the July 10, 2000, NMOCD letter, MW-19 and MW-20 will be constructed with approximately 25 feet of screen, to ensure that, during the proposed monitoring period, the wells penetrate at least 10 feet into the saturated zone. MW-4D will be constructed to a depth of approximately 120 feet bgs to simulate a reasonably expected water supply well, screened over the entire saturated zone encountered. These wells will be constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) risers and 0.02-inch slotted screens. The top of the screens will be placed 5 feet above the saturated zone as encountered during construction. Sand with an appropriate grain-diameter will be placed around each well-screen from the bottom to 2 feet above, as a filter packing. At least three feet of hydrated bentonite will be used to create a seal on top of the sand filter pack. A bentonite-portland cement grout mixture will be used to seal the remainder of the borehole to the ground surface. The monitoring wells will be completed at the ground surface with a traffic-rated manhole and a watertight protective steel cover, set with a concrete collar. The wells will also be fitted with a locking well cap. Boring logs and well construction logs will be prepared for each drilled location.

The drilling and sampling activities will be conducted with clean equipment. The drilling equipment will be cleaned using a portable pressure washer or steam cleaner, in accordance with Environmental Strategies' Standard Operating Procedures.

A surveyor, licensed in the State of New Mexico, will survey the well locations and elevations. To allow for an accurate determination of the onsite groundwater flow direction, the elevations of the ground surface near each new well and the top of the PVC well casing will be surveyed to the nearest 0.01-foot. The horizontal locations of the new wells will be recorded to the nearest 0.1 foot. The elevations and locations of the existing monitoring wells, piezometers, and selected landmarks, such as building and fence corners will also be surveyed to ensure consistency between the new and existing wells.

The newly installed monitoring wells will be developed to remove sediment and ensure effective communication between the well screens and the surrounding saturated zone. The development activities will be conducted with clean equipment to prevent potential cross-contamination between the well locations. Equipment will be cleaned between each well, with the decontamination procedure dependent on the development method(s) and equipment used. The wells will be developed by surging the screened interval to loosen any fine-grained sediment in the sand filter pack and adjacent aquifer material. Groundwater from the well will then be removed by bailing or pumping. Turbidity, pH, temperature, and other field parameters will be periodically monitored during the development process to ensure that water representative of the screened portion of the aquifer is entering the well. Development will continue until the discharge is relatively free of suspended sediments. In addition, if water is added to the well borehole during the drilling and installation activities, an equal volume of water will be added to the volume removed during well development.

3.3.2 Soil Sampling and Analysis

Previous site investigations have determined that the subsurface is composed of thick horizons of caliche; therefore, the soil borings will be installed using air rotary drilling methods. Soil samples will be collected using 2-foot split spoon samplers during the installation of the three soil borings, at five-foot intervals. The split spoon, which leads the cutter head by approximately an inch, will allow collection of undisturbed soil samples. Borings will be completed to the top of the saturated zone, approximately 50 feet bgs. The soil cuttings will be logged in accordance to ASTM standards. As summarized on Table 1, systematically selected soil samples will be collected for laboratory analysis. The monitoring wells will be installed using air rotary drilling methods without using the split spoon sampler (except the unsaturated soil column at MW-19); however, wherever split spoon samples are not collected, soil cuttings will be logged for lithologic characterization.

3.3.3 Water Sampling and Analysis

The proposed groundwater sampling program is four quarterly sampling events. During each sampling event, before initiating any sampling activities, the depth to water at each monitoring well and piezometer will be measured and an inferred groundwater elevation map will be generated.

The wells specified in Table 2 will be purged of a minimum of three well volumes before sampling using a submersible pump or bailer. During purging, temperature, pH, ORP and dissolved oxygen will be monitored using a water quality meter equipped with a flow-through cell. These measurements will be obtained at least three times during the well purging process. These parameters will be monitored for relative stability before collecting the groundwater samples. Upon completion of the purging, samples for laboratory analyses shall be collected in new containers supplied by the laboratory. The laboratory samples for metals analysis shall be filtered in the field before being placed in acid-preserved containers. Ferrous iron will be measured using Hach® field analysis kits. The field analysis will involve filling Accuvac® vials with groundwater and then analyzing the groundwater samples using a Hach® Colorimetric DR890 portable colorimeter.

All non-dedicated groundwater sampling equipment will be decontaminated in the field using procedures outlined in Environmental Strategies' SOPs. Quality assurance/quality control

(QA/QC) samples, including equipment blanks and duplicates, will be collected in accordance with the SOPs. All samples will be sealed, labeled, and placed in a cooler with ice for shipment to an offsite analytical laboratory. Appropriate chain-of-custody procedures will be followed.

3.3.4 Management of Investigation-Derived Waste

The soil cuttings, decontamination fluids, and well development water generated during the drilling activities will be contained in Department of Transportation (DOT)-approved 55-gallon steel drums. Water generated during drilling and monitoring well sampling will also be contained in drums. All drummed materials will be labeled in accordance with applicable regulations and moved to a staging area at the facility. These investigation-derived wastes (IDW) will be characterized for disposal upon completing the field activities. The characterization and disposal of the soil cuttings shall be conducted in conjunction with the disposal of the existing stockpile remaining from the Area 3 and Area 5 excavations described in Section 2.3.1.

4.0 Implementation

4.1 Property Access

Since this abatement activity is being conducted under a discharge plan and is a supplement to previous abatement activities for which public notices have already been completed, no additional public notices are required.

Before installing the off-property monitoring wells, access for drilling will need to be secured. Access to the existing off-property wells will also be needed before the quarterly sampling is initiated.

4.2 Schedule

The field work will begin as soon as practical after this plan is approved by the NMOCD. Within 15 days of securing access to all proposed monitoring points and after the installation of the monitoring wells, the first of four quarterly sampling events will be conducted. After four quarters of groundwater sampling, the completion report will be prepared and submitted to the NMOCD within 90 days of receipt of the final laboratory analysis report. A proposed project schedule is presented in Figure 9.

4.3 Abatement Plan Termination and Completion Report

The underlying purpose of this supplemental investigation is to obtain NMOCD approval to terminate the abatement plan for the site. As required in Rule 19(K), a completion report shall be prepared upon completion of the work in this investigation plan for submittal to the NMOCD. The purpose of the investigation and report is to document the data that support the hypotheses presented in this plan which would allow for termination of the abatement activity at the site. The primary hypotheses are:

- The source area of the chromium plume does not require further abatement to prevent a *hazard to human health*
- Due to natural dilution and purification, the chromium concentrations in groundwater would not require further abatement to attain the site-specific action level of 0.040 mg/l at a reasonably expected point of withdrawal
- The chloride concentrations in regional offsite groundwater exceed the WQCC standard making onsite abatement to attain the standard at the site infeasible. Additionally, the Stage 2 chloride abatement activity, already completed, has substantially removed the onsite chloride source area and will control future transport of chloride such that no further abatement is required to address chloride in soil or groundwater. It should be noted, that the chloride concentrations onsite are consistent with the Hydrus-1D model that was approved by NMOCD
- The VOCs and metals (other than chromium) identified in previous investigations do not require further abatement, as discussed in Section 2.3.2 of this plan.

The items included in the completion report would be, as applicable: a demonstration that a hazard to human health does not exist; recommendations for long-term maintenance or monitoring; a technical infeasibility demonstration under Rule 19 (B)(5); or an alternate abatement standard petition under Rule 19(B)(6).

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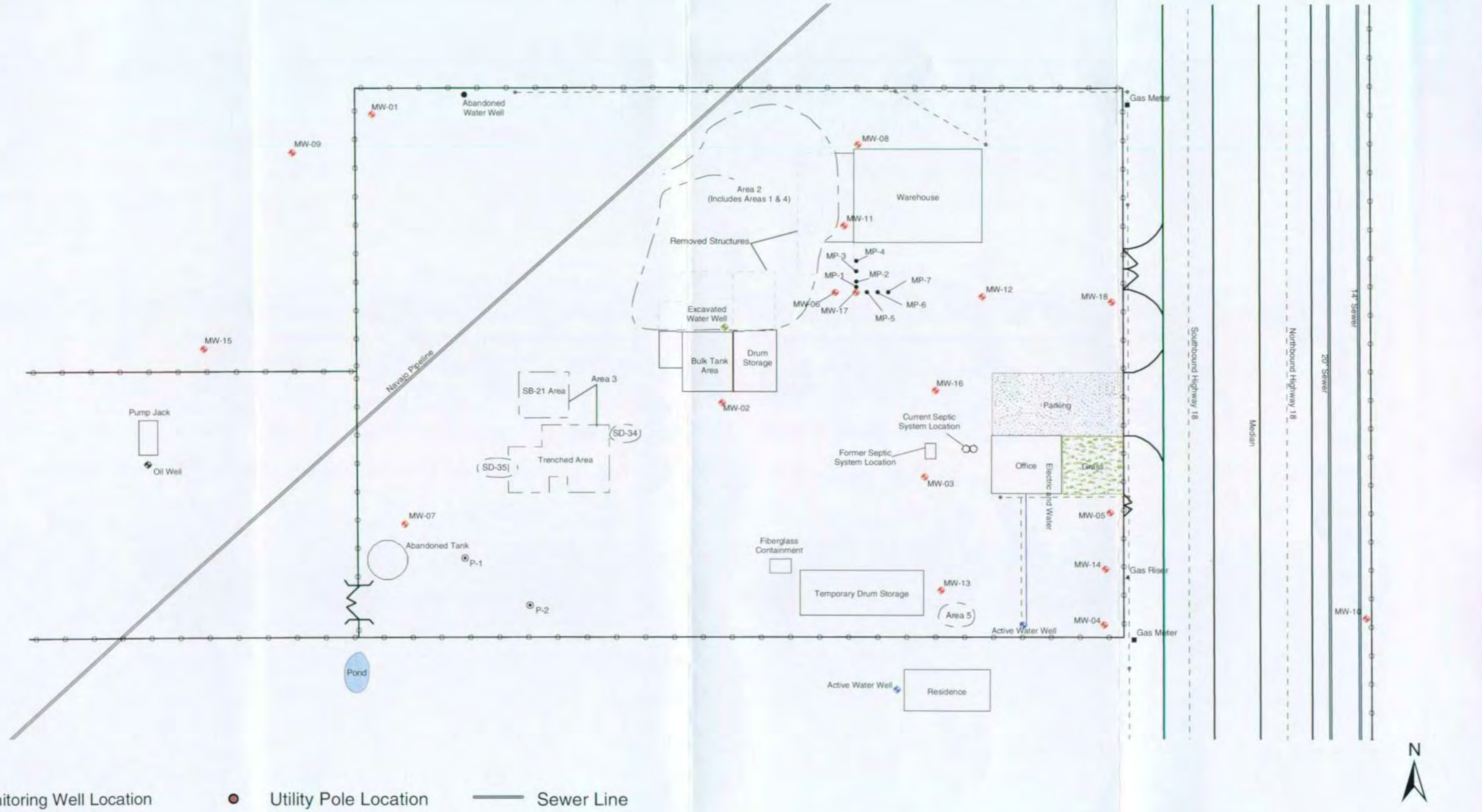
Figures



Legend

- Monitoring Well Location
- Piezometer Location
- Monitoring Point
- Utility Pole Location
- Overhead Utility Line
- Pipeline
- Sewer Line
- Fence
- Former Excavation

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 SOUTH ULSTER STREET, SUITE 930
DENVER, COLORADO 80237
(303) 850-9200

Figure 1
Site Plan
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

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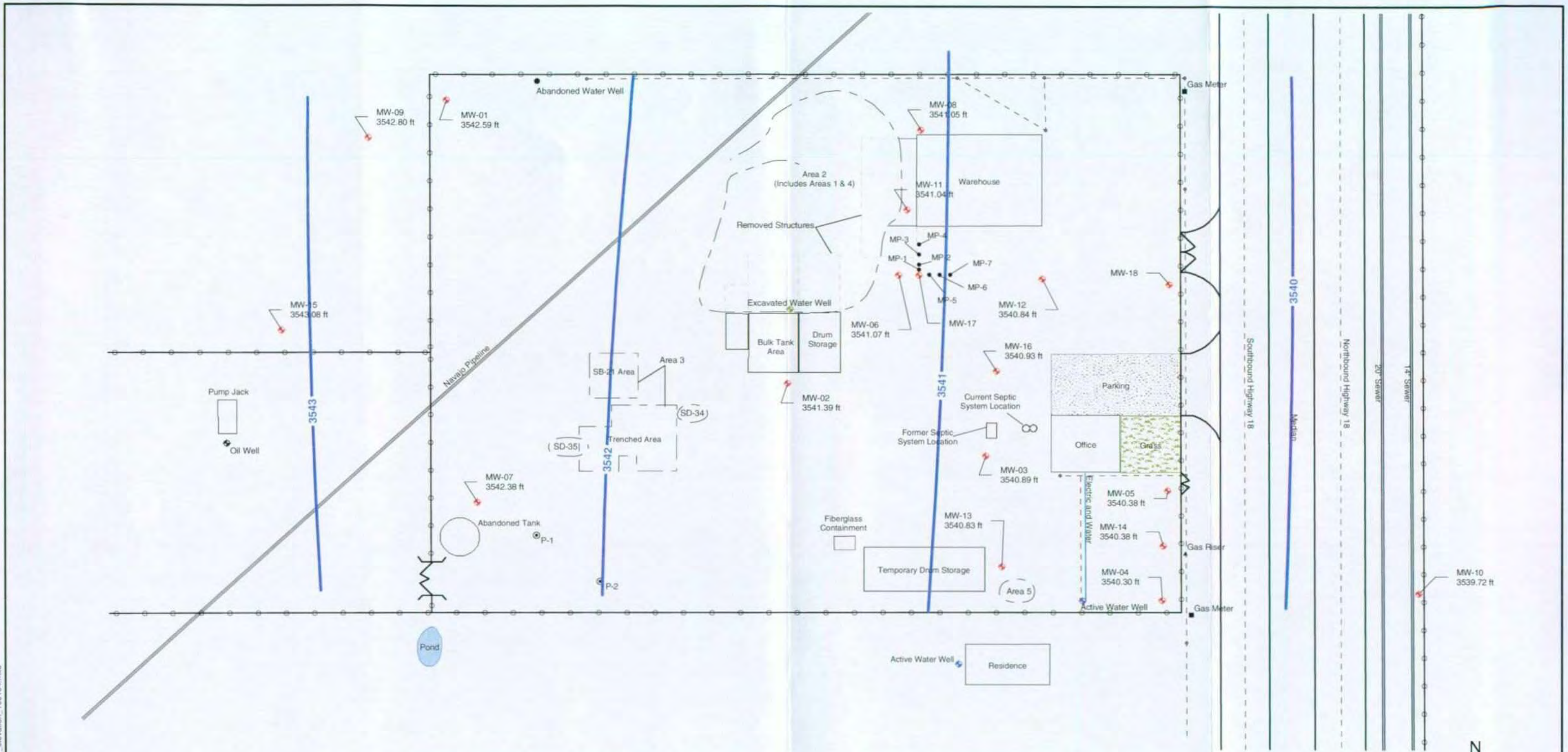

Legend

- Monitoring Well Location
- Piezometer Location
- Monitoring Point
- Sewer Line
- Groundwater Elevation
- Former Excavation

Note: MW-17 and MW-18 were not surveyed; shown for reference only.

Q:\Champion Technologies\Hobbs\GIS_Projects\ARCGIS\GW_elevation_100104.mxd

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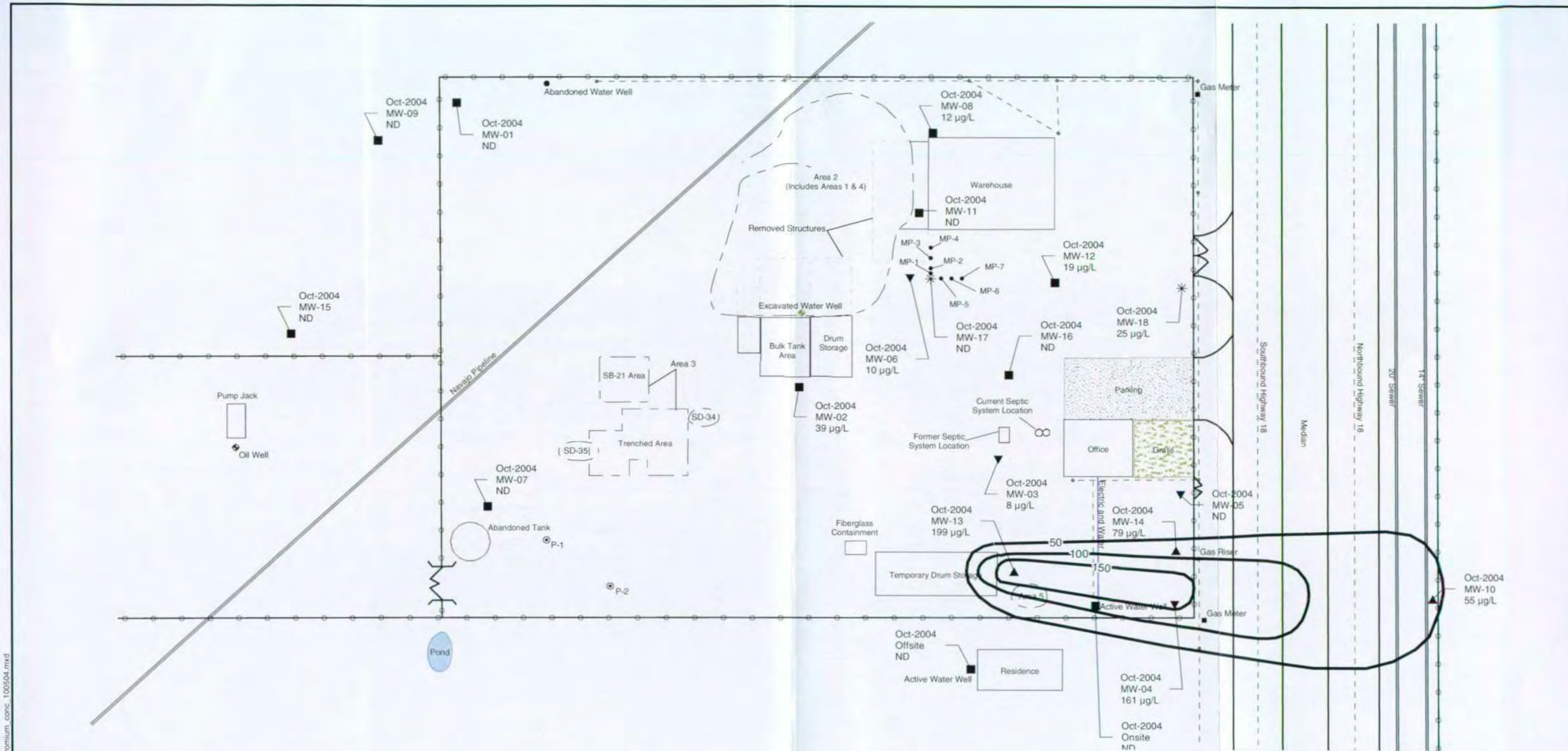
Figure 2
Groundwater Elevation - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM



Legend

- ▲ Monitoring Well - Increasing Chromium trend
- ▼ Monitoring Well - Decreasing Chromium trend
- ■ Monitoring Well - Stable Chromium trend
- ✳ Monitoring Well - no trend
- ⊙ Piezometer Location
- • Monitoring Point
- Contour Line
- Fence
- Former Excavation
- ND- Not Detected
- Sewer Line

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Figure 3
Chromium Concentration Trend - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

Q:\Champion Technologies\Hobbs\GIS_Projects\ARCGIS\Chromium_conc_100504.mxd

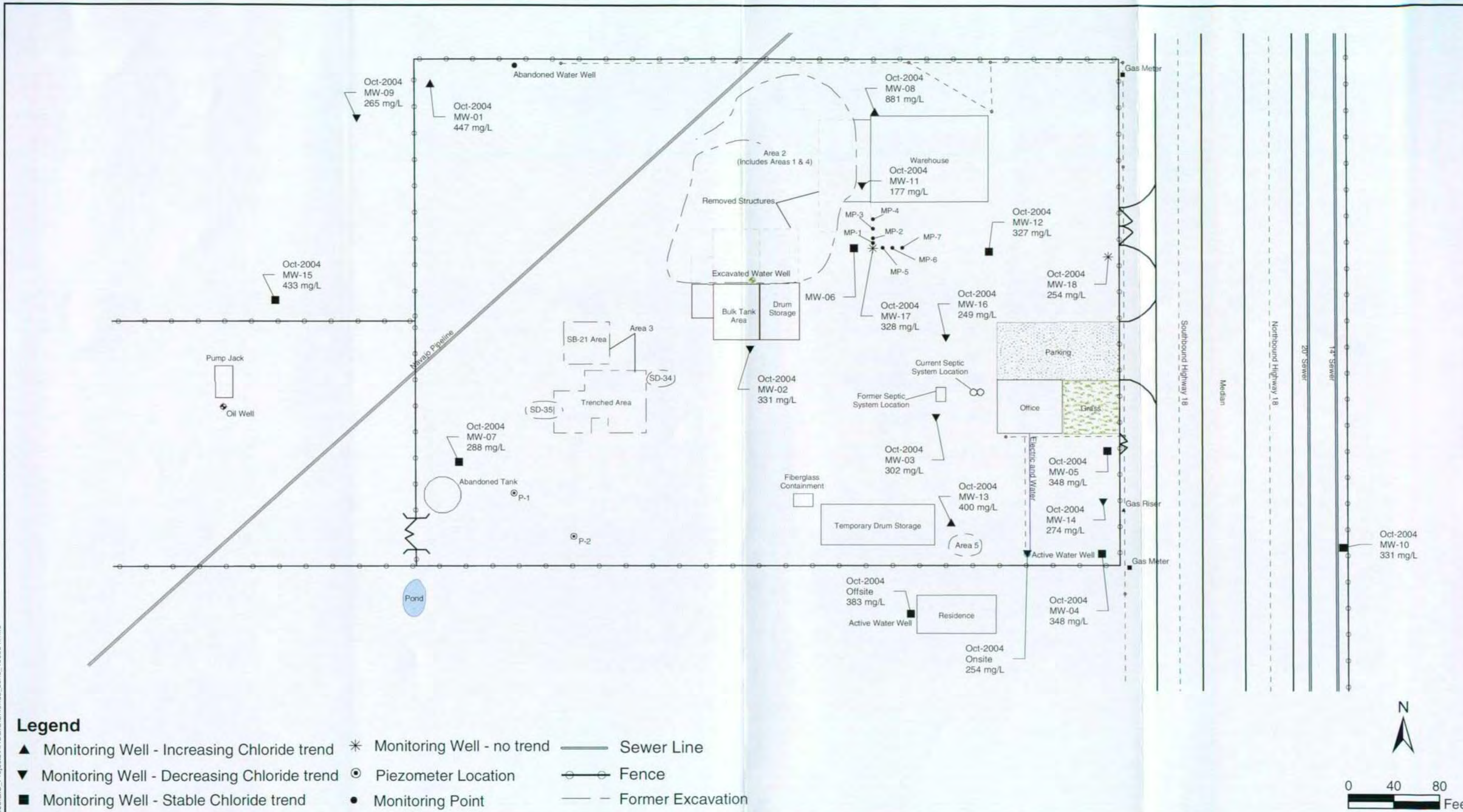

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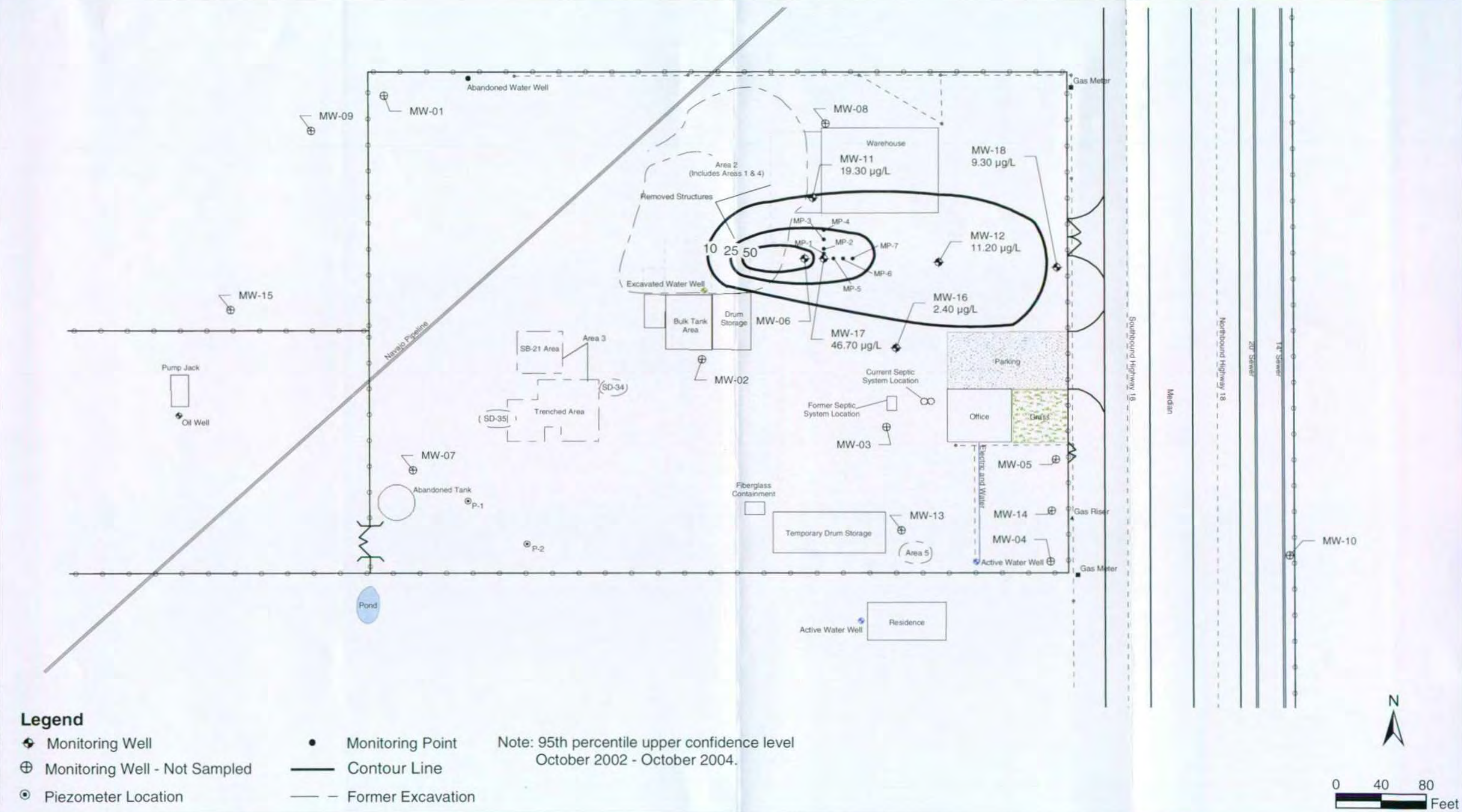
Figure 4
Chloride Concentration Trend - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM



Legend

- Monitoring Well
- Monitoring Well - Not Sampled
- Piezometer Location
- Monitoring Point
- Contour Line
- Former Excavation

Note: 95th percentile upper confidence level October 2002 - October 2004.

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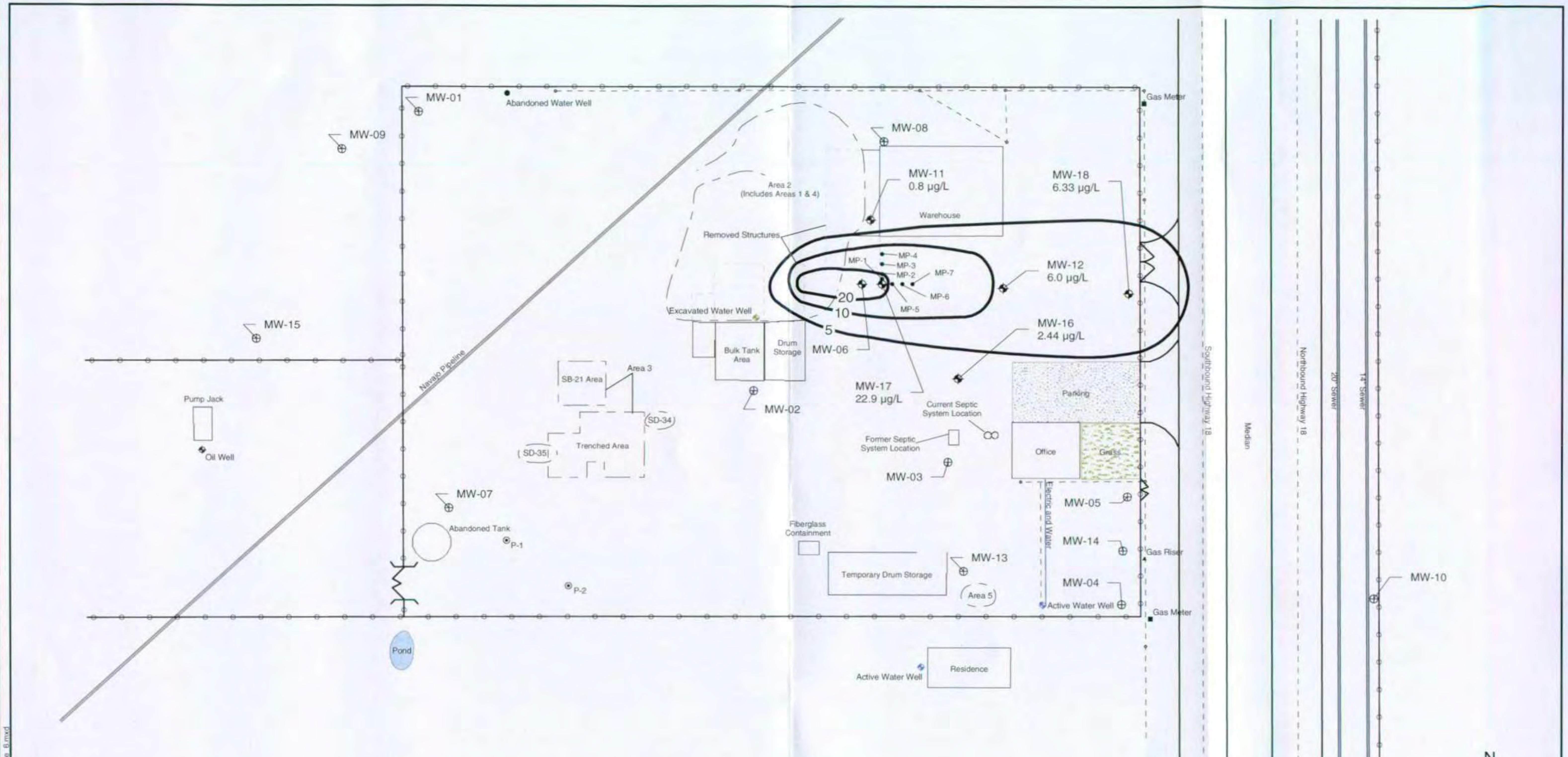
Figure 5
1,1-Dichloroethane Concentrations
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM



Legend

- Monitoring Well
- Monitoring Well - Not Sampled
- Piezometer Location
- Monitoring Point
- Contour Line
- Former Excavation

Note: 95th percentile upper confidence level
October 2002 - October 2004.

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Figure 6
Perchloroethene Concentrations
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

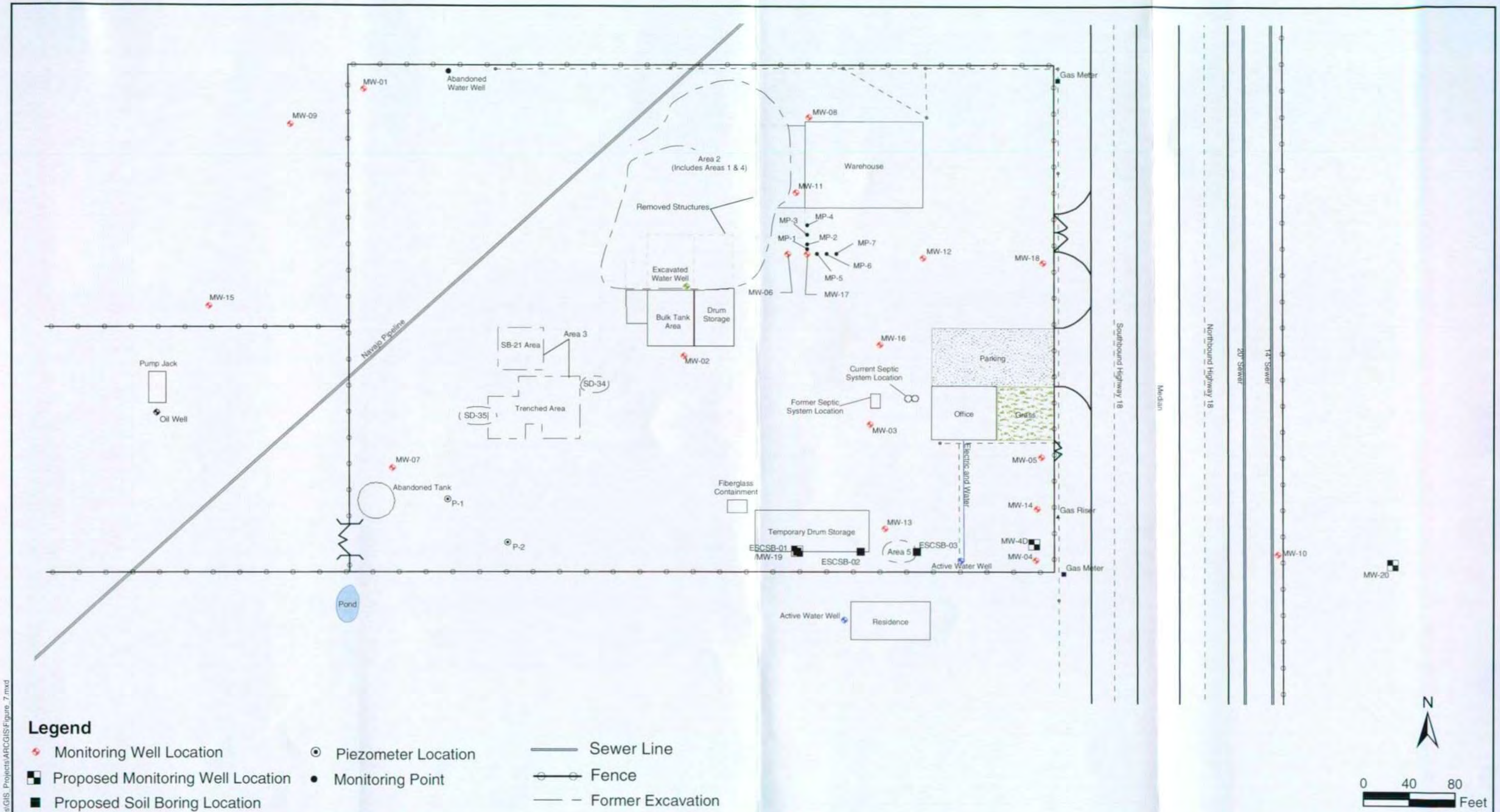

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Figure 7
Proposed Monitoring Wells and Soil Borings
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

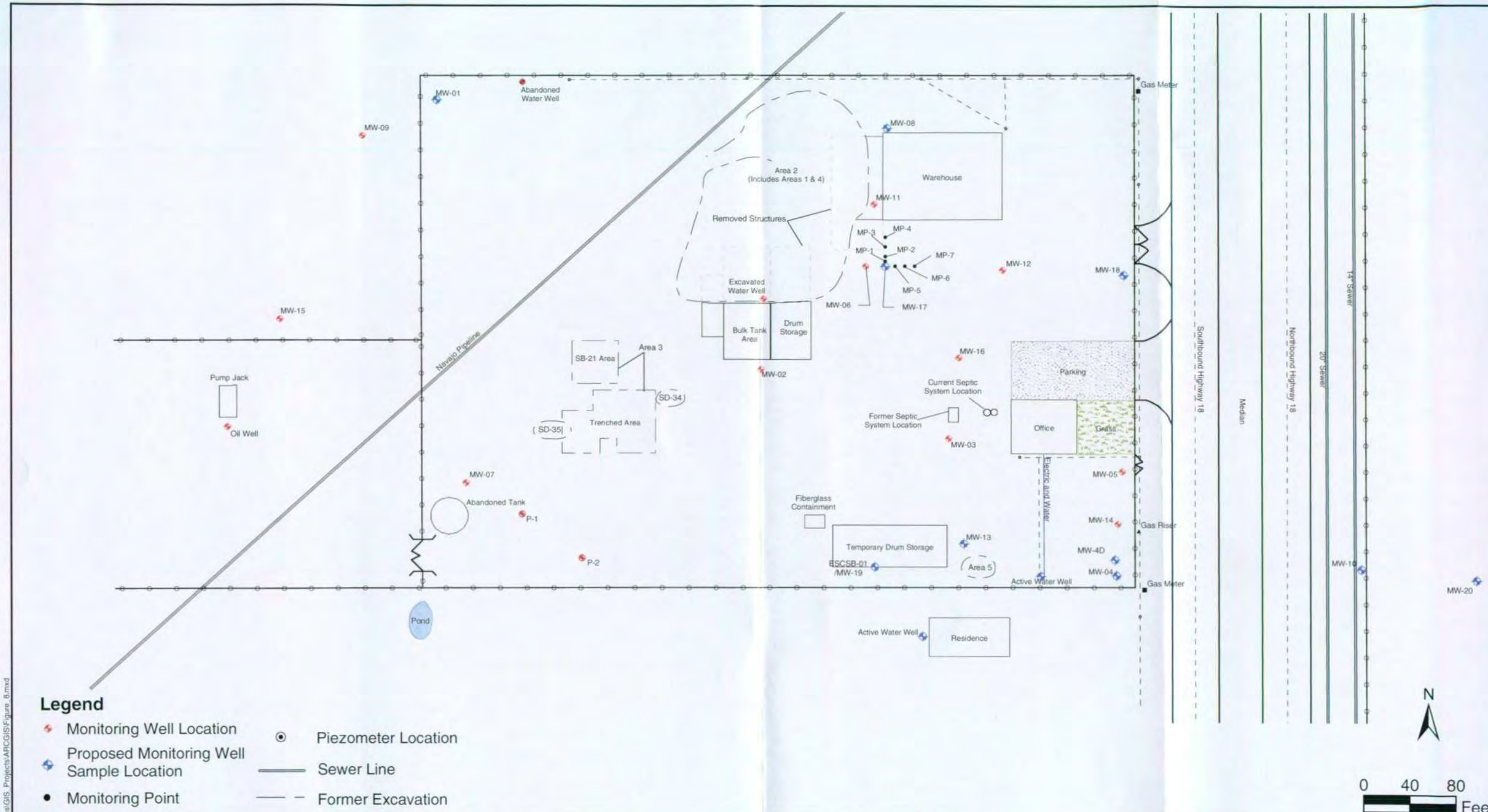

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Figure 8
Proposed Groundwater Monitoring Program
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

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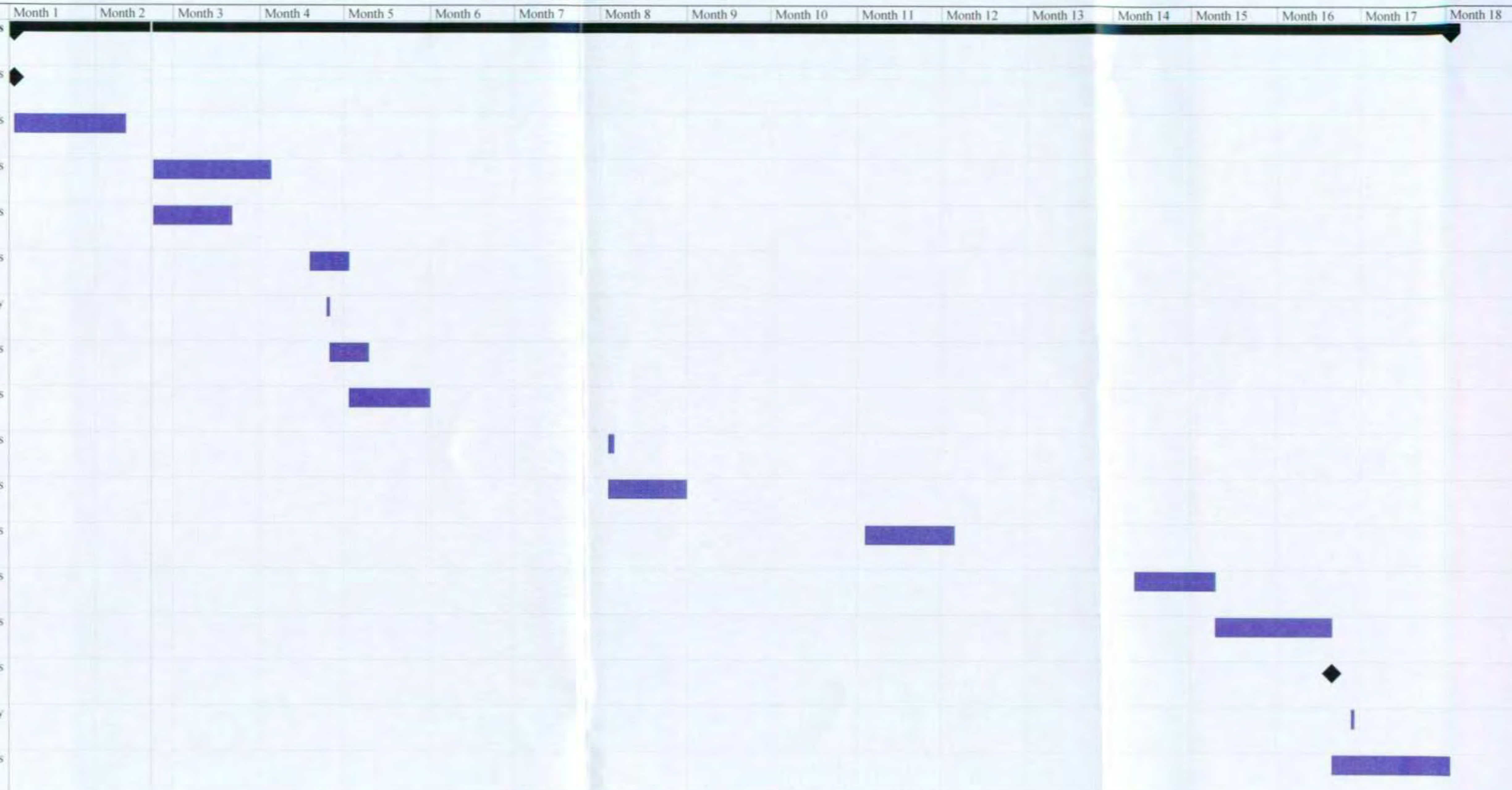
Figure 9
Proposed Project Schedule
Champion Technologies Inc. Site
Hobbs, New Mexico

Task Name	Duration
project summary	**360 days**
submit plan	0 days
OCD review and approval	30 days
access agreements	30 days
procurement	20 days
drill 3 SBs and install/develop 3 MWs	10 days
survey wells	1 day
soil analysis	10 days
Q1 sampling	20 days
T&D stockpile and drilling IDW	2 days
Q2 sampling/manage Q1 IDW	20 days
Q3 sampling/manage Q2 IDW	20 days
Q4 sampling/manage Q3 and Q4 IDW	20 days
evaluate data and prepare report	30 days
submit completion report	0 days
meeting with OCD	1 day
OCD review and approval	30 days



Project: fig10
Date: Mon 2/21/05

Task	Progress	Summary	External Tasks	Deadline
Split	Milestone	Project Summary	External Milestone	

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Tables

Table 1

Summary of Proposed Soil Borings and Monitoring Wells

Site Designation	Approximate Depth (feet bgs)	Soil Sample Depth (feet bgs)	Soil Analyses/Method
ESCSB-1/MW-19	50/80	1, 5, 10, 15, 25, 35 and 50*	Chromium EPA 6010 Chloride EPA 9056 pH EPA 9045
ESCSB-2	50		
ESCSB-3	50		
MW-4D	120	--	--
MW-20	80	--	--

* The deepest sample will be collected as close to the top of the saturated zone as practical.

Table 2
Summary of Groundwater Monitoring Program

Designation	Field Parameters[a)]	Quarterly Lab Analyses[b)]	Additional Lab Analyses (First Two Quarters)[b)]
MW-1 MW-8 MW-17 MW-18 MW-4 MW-4D MW-10 MW-13 MW-19 MW-20 Onsite Supply Well Offsite Supply Well	pH ORP Dissolved Oxygen Ferrous Iron	Chromium EPA 6010 Chloride EPA 300.0	Sulfide EPA 9030 Sulfate EPA 9035 Iron EPA 6010 Total Organic Carbon EPA 9060

a) Ferrous iron, using a HACH kit, is to be completed for the first two quarters of monitoring only.

b) All metals samples shall be filtered through a new 0.45 micron filter prior to placing in an acid-preserved container.

Appendix A – Groundwater Elevations

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-1	8/2/02	3594.44	50.75	3543.69			63.00	12.25
	8/22/02		50.75	3543.69	0.00	0.00		12.25
	9/20/02		50.94	3543.50	-0.19	-1.42		12.06
	10/21/02		50.96	3543.48	-0.21	-0.96		12.04
	11/13/02		51.01	3543.43	-0.26	-0.92		11.99
	2/18/03		51.22	3543.22	-0.47	-0.86		11.78
	11/4/03		52.25	3542.19	-1.50	-1.19		10.75
	3/17/04		52.56	3541.88	-1.81	-1.11		10.44
	6/24/04		52.56	3541.88	-1.81	-0.95		10.44
	10/5/04		51.85	3542.59	-1.10	-0.51		11.15
MW-2	10/21/02	3602.78	60.08	3542.70			63.00	2.92
	2/18/03		60.29	3542.49	-0.21	-0.64		2.71
	11/4/03		61.31	3541.47	-1.23	-1.18		1.69
	3/17/04		61.65	3541.13	-1.57	-1.12		1.35
	6/24/04		61.73	3541.05	-1.65	-0.98		1.27
	10/5/04		61.39	3541.39	-1.31	-0.67		1.61
MW-3	8/2/02	3599.49	56.81	3542.68			63.00	6.19
	8/22/02		56.84	3542.65	0.03	0.55		6.16
	9/20/02		57.02	3542.47	0.00	0.00		5.98
	10/21/02		57.09	3542.40	-0.18	-0.82		5.91
	11/13/02		57.06	3542.43	-0.25	-0.89		5.94
	2/18/03		57.31	3542.18	-0.22	-0.40		5.69
	11/4/03		58.44	3541.05	-0.47	-0.37		4.56
	3/17/04		58.74	3540.75	-1.60	-0.98		4.26
	6/24/04		58.82	3540.67	-1.90	-1.00		4.18
	10/5/04		58.60	3540.89	-1.98	-0.91		4.40

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-4	8/2/02	3599.40	57.13	3542.27			63.00	5.87
	8/22/02		57.17	3542.23	-0.04	-0.73		5.83
	9/20/02		57.37	3542.03	-0.24	-1.79		5.63
	10/21/02		57.45	3541.95	-0.32	-1.46		5.55
	11/13/02		57.47	3541.93	-0.34	-1.20		5.53
	2/18/03		57.61	3541.79	-0.48	-0.88		5.39
	11/4/03		58.76	3540.64	-1.63	-1.30		4.24
	3/17/04		59.10	3540.30	-1.97	-1.21		3.90
	6/24/04		59.21	3540.19	-2.08	-1.10		3.79
	10/5/04		59.10	3540.30	-1.97	-0.90		3.90
MW-5	8/2/02	3599.28	56.97	3542.31			63.00	6.03
	8/22/02		57.00	3542.28	-0.03	-0.55		6.00
	9/20/02		57.19	3542.09	-0.22	-1.64		5.81
	10/21/02		57.28	3542.00	-0.31	-1.41		5.72
	2/18/03		57.50	3541.78	-0.53	-0.97		5.50
	11/4/03		58.63	3540.65	-1.66	-1.32		4.37
	3/17/04		58.94	3540.34	-1.97	-1.21		4.06
	6/24/04		59.02	3540.26	-2.05	-1.08		3.98
	10/5/04		58.90	3540.38	-1.93	-0.89		4.10
MW-6	8/2/02	3599.20	56.38	3542.82			62.00	5.62
	8/22/02		56.44	3542.76	-0.06	-1.09		5.56
	9/20/02	3603.56*	60.98	3542.58	-0.24	-1.79		1.02
	10/21/02		61.04	3542.52	-0.30	-1.37		0.96
	11/13/02		61.08	3542.48	-0.34	-1.20		0.92
	2/18/03		61.30	3542.26	-0.56	-1.02		0.70
	11/4/03		62.68	3540.88	-1.94	-1.54		-0.68
	3/17/04		62.68	3540.88	-1.94	-1.19		-0.68
	6/24/04		62.73	3540.83	-1.99	-1.05		-0.73
	10/5/04		62.49	3541.07	-1.75	-0.80		-0.49

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-7	8/2/02	3596.91	53.16	3543.75			62.00	8.84
	8/22/02		53.28	3543.63	-0.12	-2.19		8.72
	9/20/02		53.40	3543.51	-0.24	-1.79		8.60
	10/21/02		53.46	3543.45	-0.30	-1.37		8.54
	11/13/02		53.51	3543.40	-0.35	-1.24		8.49
	2/18/03		53.70	3543.21	-0.54	-0.99		8.30
	11/4/03		54.67	3542.24	-1.51	-1.20		7.33
	3/17/04		54.97	3541.94	-1.81	-1.11		7.03
	6/24/04		54.97	3541.94	-1.81	-0.95		7.03
	10/5/04		54.53	3542.38	-1.37	-0.63		7.47
MW-8	8/2/02	3602.68	59.87	3542.81			69.00	9.13
	8/22/02		59.98	3542.70	-0.11	-2.01		9.02
	9/20/02		60.12	3542.56	-0.25	-1.86		8.88
	10/21/02		60.18	3542.50	-0.31	-1.41		8.82
	2/18/03		60.38	3542.30	-0.51	-0.93		8.62
	11/4/03		61.50	3541.18	-1.63	-1.30		7.50
	3/17/04		61.87	3540.81	-2.00	-1.23		7.13
	6/24/04		61.90	3540.78	-2.03	-1.07		7.10
	10/5/04		61.63	3541.05	-1.76	-0.81		7.37
MW-9	8/2/02	3597.00	53.15	3543.85			61.00	7.85
	8/22/02		53.12	3543.88	0.03	0.55		7.88
	9/20/02		53.34	3543.66	-0.19	-1.42		7.66
	10/21/02		53.37	3543.63	-0.22	-1.00		7.63
	2/18/03		53.61	3543.39	-0.46	-0.84		7.39
	11/4/03		54.63	3542.37	-1.48	-1.18		6.37
	3/17/04		55.00	3542.00	-1.85	-1.14		6.00
	6/24/04		54.97	3542.03	-1.82	-0.96		6.03
	10/5/04		54.20	3542.80	-1.05	-0.48		6.80

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-10	10/16/02	3600.84	59.38	3541.46			67.00	7.62
	10/21/02		59.37	3541.47	0.01	0.73		7.63
	2/18/03		59.61	3541.23	-0.23	-0.67		7.39
	11/4/03		60.75	3540.09	-1.37	-1.30		6.25
	3/17/04		61.05	3539.79	-1.67	-1.18		5.95
	6/24/04		61.13	3539.71	-1.75	-1.04		5.87
	10/5/04		61.12	3539.72	-1.74	-0.88		5.88
MW-11	10/16/02	3599.63	57.09	3542.54			70.00	12.91
	10/21/02		57.12	3542.51	-0.03	-2.19		12.88
	2/18/03		57.35	3542.28	-0.26	-0.76		12.65
	11/4/03		58.46	3541.17	-1.37	-1.30		11.54
	3/17/04		58.18**	3541.45	-1.09	-0.77		11.82
	6/24/04		58.84	3540.79	-1.75	-1.04		11.16
	10/5/04		58.59	3541.04	-1.50	-0.76		11.41
MW-12	10/16/02	3602.80	60.42	3542.38			70.00	9.58
	10/21/02		60.45	3542.35	-0.03	-2.19		9.55
	2/18/03		60.65	3542.15	-0.23	-0.67		9.35
	11/4/03		61.80	3541.00	-1.38	-1.31		8.20
	3/17/04		62.14	3540.66	-1.72	-1.21		7.86
	6/24/04		62.18	3540.62	-1.76	-1.04		7.82
	10/5/04		61.96	3540.84	-1.54	-0.78		8.04

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-13	10/16/02	3602.68	60.28	3542.40			71.00	10.72
	10/21/02		60.39	3542.29	-0.11	-8.03		10.61
	11/13/02		60.35	3542.33	-0.07	-0.91		10.65
	2/18/03		60.52	3542.16	-0.24	-0.70		10.48
	11/4/03		61.71	3540.97	-1.43	-1.36		9.29
	3/17/04		62.02	3540.66	-1.74	-1.23		8.98
	6/24/04		62.08	3540.60	-1.80	-1.06		8.92
	10/5/04		61.85	3540.83	-1.57	-0.80		9.15
MW-14	10/16/02	3599.23	57.17	3542.06			68.00	10.83
	10/21/02		57.24	3541.99	-0.07	-5.11		10.76
	2/18/03		57.43	3541.80	-0.26	-0.76		10.57
	11/4/03		58.56	3540.67	-1.39	-1.32		9.44
	3/17/04		58.95**	3540.28	-1.78	-1.25		9.05
	6/24/04		58.98	3540.25	-1.81	-1.07		9.02
	10/5/04		58.85	3540.38	-1.68	-0.85		9.15
MW-15	10/16/02	3597.06	53.26	3543.80			68.00	14.74
	10/21/02		53.31	3543.75	-0.05	-3.65		14.69
	11/13/02		53.35	3543.71	-0.09	-1.17		14.65
	2/18/03		53.56	3543.50	-0.30	-0.88		14.44
	11/4/03		54.55	3542.51	-1.29	-1.23		13.45
	3/17/04		54.87	3542.19	-1.61	-1.13		13.13
	6/24/04		54.87	3542.19	-1.61	-0.95		13.13
	10/5/04		53.98	3543.08	-0.72	-0.36		14.02

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-16	10/16/02	3602.56	60.11	3542.45			71.00	10.89
	10/21/02		60.17	3542.39	-0.06	-4.38		10.83
	11/13/02		60.19	3542.37	-0.08	-1.04		10.81
	2/18/03		60.38	3542.18	-0.27	-0.79		10.62
	11/4/03		61.50	3541.06	-1.39	-1.32		9.50
	3/17/04		61.82	3540.74	-1.71	-1.20		9.18
	6/24/04		61.88	3540.68	-1.77	-1.05		9.12
	10/5/04		61.63	3540.93	-1.52	-0.77		9.37
MW - 17	3/17/04		61.93				68.00	6.07
			61.95					6.05
MW - 18	3/17/04		62.09				69.20	7.11
			61.82					7.38
					Typical Average Rate	-1.17		
					Total Record Average Rate	-0.74		

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Appendix B – Mann Kendall Trend Analyses (Chromium)

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Sampling Date (Well ->)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
1	21-Oct-02	ND 5	13	12	**271**	ND 5.5	**97**
2	16-May-03	ND 5	36	11	**201**	ND 10	31
3	11-Aug-03	ND 5	40	ND 5	**187**	ND 5	**57**
4	4-Nov-03	ND 5	22	ND 10	**161**	ND 5	38
5	17-Mar-04	ND 5	12	ND 5	**163**	ND 5	
6	25-Jun-04	ND 5	26	ND 2.5	**117**	ND 2.5	ND 5
7	5-Oct-04	ND 5	39	8	**161**	ND 5.0	10
8							
9							
10							

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
Mann Kendall Statistic (S) =	0.0	3.0	-12.0	-16.0	-11.0	-9.0
Number of Rounds (n) =	7	7	7	7	7	6
Average =	5.00	26.86	7.64	180.14	5.43	39.67
Standard Deviation =	0.000	11.838	3.567	47.873	2.244	33.904
Coefficient of Variation(CV)=	0.000	0.441	0.467	0.266	0.413	0.855
Error Check, Blank if No Errors Detected						
Trend ≥ 80% Confidence Level	No Trend	No Trend	DECREASING	DECREASING	DECREASING	DECREASING
Trend ≥ 90% Confidence Level	No Trend	No Trend	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	CV <= 1 STABLE	CV <= 1 STABLE	NA	NA	NA	NA
Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						-1
	7	0	0	-1	-1	-1	
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Decreasing	Decreasing	Decreasing	Decreasing

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						-1
	7	0	0	-1	-1	-1	
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Decreasing	Decreasing	Decreasing	Decreasing

MW-1

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5				Sum Rows
	0	0	0	0	0	0				0
		0	0	0	0	0				0
			0	0	0	0				0
				0	0	0				0
					0	0				0
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

MW-2

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
13.0	36.0	40.0	22.0	12.0	26.0	39.0				Sum Rows
	1	1	1	-1	1	1				4
		1	-1	-1	-1	1				-1
			-1	-1	-1	-1				-4
				-1	1	1				1
					1	1				2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						3

MW-3

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
12.0	11.0	5.0	10.0	5.0	2.5	8.0				Sum Rows
	-1	-1	-1	-1	-1	-1				-6
		-1	-1	-1	-1	-1				-5
			1	0	-1	1				1
				-1	-1	-1				-3
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-12

MW-4

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
271	201	187	161	163	117	161				Sum Rows
	-1	-1	-1	-1	-1	-1				-6
		-1	-1	-1	-1	-1				-5
			-1	-1	-1	-1				-4
				1	-1	0				0
					-1	-1				-2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-16

MW-5

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5.5	10.0	5.0	5.0	5.0	2.5	5.0				Sum Rows
	1	-1	-1	-1	-1	-1				-4
		-1	-1	-1	-1	-1				-5
			0	0	-1	0				-1
				0	-1	0				-1
					-1	0				-1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-11

MW-6

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
97	31.0	57.0	38.0		5.0	10.0				Sum Rows
	-1	-1	-1		-1	-1				-5
		1	1		-1	-1				0
			-1		-1	-1				-3
					-1	-1				-2
										0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-9

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Sampling Date / Well ->	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
1	21-Oct-02	ND 5	ND 5.0	ND 5	16	ND 5	20
2	16-May-03	ND 5	24	ND 5	22	ND 5	16
3	11-Aug-03	ND 5	25	ND 5	22	ND 5	23
4	4-Nov-03	ND 5	19	ND 5	21	ND 5	16
5	17-Mar-04	ND 5	12	ND 5	48	ND 5	13
6	25-Jun-04	ND 5	8	ND 5	55	ND 5	21
7	5-Oct-04	ND 5	12	ND 10	55	ND 10	19
8							
9							
10							
	Mann Kendall Statistic (S) =	0.0	-4.0	6.0	15.0	6.0	-2.0
	Number of Rounds (n) =	7	7	7	7	7	7
	Average =	5.00	15.00	5.71	34.14	5.71	18.29
	Standard Deviation =	0.000	7.789	1.890	17.601	1.890	3.450
	Coefficient of Variation(CV)=	0.000	0.519	0.331	0.516	0.331	0.189
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	INCREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	INCREASING	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	NA	CV <= 1 STABLE	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 % If +1, Incrsng If -1, decrsng If 0, neither.	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
	4						
	5						
	6						
	7	0	0	0	1	0	0
	8						
	9						
	10						
		Neither	Neither	Neither	Increasing	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 % If +1, Incrsng If -1, decrsng If 0, neither.	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
	4						
	5						
	6						
	7	0	0	0	1	0	0
	8						
	9						
	10						
		Neither	Neither	Neither	Increasing	Neither	Neither

MW-7

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5				Sum Rows
	0	0	0	0	0	0				0
		0	0	0	0	0				0
			0	0	0	0				0
				0	0	0				0
					0	0				0
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

MW-8

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	24	25	19	12	8	12				Sum Rows
	1	1	1	1	1	1				6
		1	-1	-1	-1	-1				-3
			-1	-1	-1	-1				-4
				-1	-1	-1				-3
					-1	0				-1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-4

MW-9

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	10				Sum Rows
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-10

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
16	22	22	21	48	55	55				Sum Rows
	1	1	1	1	1	1				6
		0	-1	1	1	1				2
			-1	1	1	1				2
				1	1	1				3
					1	1				2
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						15

MW-11

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	10				Sum Rows
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-12

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
20	16	23	16	13	21	19				Sum Rows
	-1	1	-1	-1	1	-1				-2
		1	0	-1	1	1				2
			-1	-1	-1	-1				-4
				-1	1	1				1
					1	1				2
						-1				-1
										0
										0
										0
				Mann Kendall Statistic (S) =						-2

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
1	21-Oct-02	**151**	6	ND 5	ND 5		
2	16-May-03	**158**	30	ND 5	ND 5		
3	11-Aug-03	**191**	35	ND 5	ND 5		
4	4-Nov-03	**180**	24	ND 5	ND 5		
5	17-Mar-04	**179**	34	ND 5	ND 5	ND 5	22
6	25-Jun-04	**166**	**55**	ND 5	ND 5	ND 2.5	17
7	5-Oct-04	**199**	**79**	ND 10	ND 10	ND 10	25
8							
9							
10							
	Mann Kendall Statistic (S) =	9.0	15.0	6.0	6.0	1.0	1.0
	Number of Rounds (n) =	7	7	7	7	3	3
	Average =	174.86	37.50	5.71	5.71	5.83	21.33
	Standard Deviation =	17.411	23.486	1.890	1.890	3.819	4.041
	Coefficient of Variation(CV)=	0.100	0.626	0.331	0.331	0.655	0.189
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	INCREASING	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7	1	1	0	0		
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Increasing	Neither	Neither	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7	0	1	0	0		
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Neither	Neither	Neither	Neither

MW-13

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
151	158	191	180	179	166	199				
	1	1	1	1	1	1				6
		1	1	1	1	1				5
			-1	-1	-1	1				-2
				-1	-1	1				-1
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						9

MW-14

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
6	30	35	24	34	55	79				
	1	1	1	1	1	1				6
		1	-1	1	1	1				3
			-1	-1	1	1				0
				1	1	1				3
					1	1				2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						15

MW-15

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
5	5	5	5	5	5	10				
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-16

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
5	5	5	5	5	5	10				
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-17

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
				5	3	10				
										0
										0
										0
										0
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						1

MW-18

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
				22	17	25				
										0
										0
										0
										0
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						1

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

	Well ->	onsite	offsite				
Event	Sampling Date						
1	2-Aug-02	ND 5	ND 5				
2	21-Oct-02	ND 5	ND 5				
3	16-May-03	ND 5	ND 5				
4	11-Aug-03	ND 5	ND 5				
5	4-Nov-03	ND 5	ND 5				
6	17-Mar-04	ND 5	ND 5				
7	25-Jun-04	ND 5	ND 5				
8	5-Oct-04	ND 10	ND 10				
9							
10							
	Mann Kendall Statistic (S) =	7.0	7.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	8	8	0	0	0	0
	Average =	5.63	5.63	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.768	1.768	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.314	0.314	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at		CV <= 1	CV <= 1	n<4	n<4	n<4	n<4
80% Confidence Level		STABLE	STABLE	n<4	n<4	n<4	n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	onsite	offsite	0	0	0	0
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	16-May-03	-1	-1	-1
include	11-Aug-03	-1	-1	-1
a test for	4-Nov-03	-1	-1	-1
consecutive	17-Mar-04	-1	-1	-1
dates and	25-Jun-04	-1	-1	-1
text. Minus	5-Oct-04	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8	0	0				
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Neither	Neither	Neither

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8	0	0				
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Neither	Neither	Neither

onsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5	###			Sum Rows
	0	0	0	0	0	0	1			1
		0	0	0	0	0	1			1
			0	0	0	0	1			1
				0	0	0	1			1
					0	0	1			1
						0	1			1
							1			1
										0
										0
				Mann Kendall Statistic (S) =						7

offsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5	###			Sum Rows
	0	0	0	0	0	0	1			1
		0	0	0	0	0	1			1
			0	0	0	0	1			1
				0	0	0	1			1
					0	0	1			1
						0	1			1
							1			1
										0
										0
				Mann Kendall Statistic (S) =						7

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

Appendix C – Mann Kendall Trend Analyses (Chloride)

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Sampling Date (Well ->)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
1	2-Aug-02	**408**	**372**	**381**	**354**	**346**	**443**
2	21-Oct-02	**356**	**397**	**464**	**377**	**508**	**469**
3	19-Feb-03	**435**	**384**	**658**	**485**	**476**	**533**
4	16-May-03	**365**	**331**	**510**	**363**	**329**	**328**
5	11-Aug-03	**381**	**316**	**359**	**384**	**430**	**431**
6	5-Nov-03	**369**	**227**	**432**	**360**	**432**	**462**
7	17-Mar-04	**419**	**201**	**223**	**326**	**377**	
8	24-Jun-04	**475**	**304**	**313**	**545**	**389**	
9	5-Oct-04	**447**	**331**	**302**	**348**	**348**	
10							
	Mann Kendall Statistic (S) =	16.0	-19.0	-18.0	-4.0	-8.0	-1.0
	Number of Rounds (n) =	9	9	9	9	9	6
	Average =	406.11	318.11	404.67	393.56	403.89	444.33
	Standard Deviation =	41.278	67.101	129.486	72.393	61.785	67.075
	Coefficient of Variation(CV)=	0.102	0.211	0.320	0.184	0.153	0.151
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		INCREASING	DECREASING	DECREASING	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		INCREASING	DECREASING	DECREASING	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	*19-Feb-03*	-1	-1	-1
include	16-May-03	-1	-1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	*Smax@0.2*	*Smax@0.1*
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						0
	7						
	8						
If +1, Incrsng	9	1	-1	-1	0	0	
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Decreasing	Neither	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						0
	7						
	8						
If +1, Incrsng	9	1	-1	-1	0	0	
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Decreasing	Neither	Neither	Neither

MW-1										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
408	356	435	365	381	369	419	475	447		Sum Rows
	-1	1	-1	-1	-1	1	1	1		0
		1	1	1	1	1	1	1		7
			-1	-1	-1	-1	1	1		-2
				1	1	1	1	1		5
					-1	1	1	1		2
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						16

MW-2										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
372	397	384	331	316	227	201	304	331		Sum Rows
	1	1	-1	-1	-1	-1	-1	-1		-4
		-1	-1	-1	-1	-1	-1	-1		-7
			-1	-1	-1	-1	-1	-1		-6
				-1	-1	-1	-1	0		-4
					-1	-1	-1	1		-2
						-1	1	1		1
							1	1		2
								1		1
										0
				Mann Kendall Statistic (S) =						-19

MW-3										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
381	464	658	510	359	432	223	313	302		Sum Rows
	1	1	1	-1	1	-1	-1	-1		0
		1	1	-1	-1	-1	-1	-1		-3
			-1	-1	-1	-1	-1	-1		-6
				-1	-1	-1	-1	-1		-5
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-18

MW-4										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
354	377	485	363	384	360	326	545	348		Sum Rows
	1	1	1	1	1	-1	1	-1		4
		1	-1	1	-1	-1	1	-1		-1
			-1	-1	-1	-1	1	-1		-4
				1	-1	-1	1	-1		-1
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-4

MW-5										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
346	508	476	329	430	432	377	389	348		Sum Rows
	1	1	-1	1	1	1	1	1		6
		-1	-1	-1	-1	-1	-1	-1		-7
			-1	-1	-1	-1	-1	-1		-6
				1	1	1	1	1		5
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							1	-1		0
								-1		-1
										0
				Mann Kendall Statistic (S) =						-8

MW-6										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
443	469	533	328	431	462					Sum Rows
	1	1	-1	-1	1					1
		1	-1	-1	-1					-2
			-1	-1	-1					-3
				1	1					2
					1					1
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						-1

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
1	2-Aug-02	239	**257**	**346**			
2	21-Oct-02	235	**304**	**305**	**260**	298	**357**
3	19-Feb-03	255	**397**	**332**	**355**	298	**353**
4	16-May-03	205	**324**	**299**	**316**	256	**280**
5	11-Aug-03	242	**370**	**329**	**351**	413	**350**
6	5-Nov-03	179	**327**	**263**	**339**	248	**344**
7	17-Mar-04	199	**447**	199	**335**	270	**327**
8	24-Jun-04	**290**	**664**	**295**	**402**	197	**379**
9	5-Oct-04	**288**	**881**	**265**	**331**	177	**327**
10							
	Mann Kendall Statistic (S) =	4.0	28.0	-22.0	4.0	-17.0	-7.0
	Number of Rounds (n) =	9	9	9	8	8	8
	Average =	236.89	441.22	292.56	336.13	269.63	339.63
	Standard Deviation =	38.077	202.994	45.178	39.916	72.382	29.355
	Coefficient of Variation(CV)=	0.161	0.460	0.154	0.119	0.268	0.086
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	INCREASING	DECREASING	No Trend	DECREASING	No Trend
Trend ≥ 90% Confidence Level		No Trend	INCREASING	DECREASING	No Trend	DECREASING	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	NA	CV <= 1 STABLE	NA	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	19-Feb-03	-1	-1	-1
include	16-May-03	-1	-1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8				0	-1	0
If +1, Incrsng	9	0	1	-1			
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Decreasing	Neither	Decreasing	Neither

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8				0	-1	0
If +1, Incrsng	9	0	1	-1			
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Decreasing	Neither	Decreasing	Neither

MW-7

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
239	235	255	205	242	179	199	290	288		
	-1	1	-1	1	-1	-1	1	1		0
		1	-1	1	-1	-1	1	1		1
			-1	-1	-1	-1	1	1		-2
				1	-1	-1	1	1		1
					-1	-1	1	1		0
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						4

MW-8

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
257	304	397	324	370	327	447	664	881		
	1	1	1	1	1	1	1	1		8
		1	1	1	1	1	1	1		7
			-1	-1	-1	1	1	1		0
				1	1	1	1	1		5
					-1	1	1	1		2
						1	1	1		3
							1	1		2
								1		1
										0
				Mann Kendall Statistic (S) =						28

MW-9

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
346	305	332	299	329	263	199	295	265		
	-1	-1	-1	-1	-1	-1	-1	-1		-8
		1	-1	1	-1	-1	-1	-1		-3
			-1	-1	-1	-1	-1	-1		-6
				1	-1	-1	-1	-1		-3
					-1	-1	-1	-1		-4
						-1	1	1		1
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-22

MW-10

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
	260	355	316	351	339	335	402	331		
										0
		1	1	1	1	1	1	1		7
			-1	-1	-1	-1	1	-1		-4
				1	1	1	1	1		5
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	-1		0
								-1		-1
										0
				Mann Kendall Statistic (S) =						4

MW-11

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
	298	298	256	413	248	270	197	177		
										0
		0	-1	1	-1	-1	-1	-1		-4
			-1	1	-1	-1	-1	-1		-4
				1	-1	1	-1	-1		-1
					-1	-1	-1	-1		-4
						1	-1	-1		-1
							-1	-1		-2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-17

MW-12

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
	357	353	280	350	344	327	379	327		
										0
		-1	-1	-1	-1	-1	1	-1		-5
			-1	-1	-1	-1	1	-1		-4
				1	1	1	1	1		5
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	0		1
								-1		-1
										0
				Mann Kendall Statistic (S) =						-7

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
1	21-Oct-02	244	**272**	156	**416**		
2	19-Feb-03	**332**	**342**	221	**474**		
3	16-May-03	**296**	**279**	205	**362**		
4	11-Aug-03	**340**	**299**	165	**410**		
5	5-Nov-03	**310**	**269**	174	**322**		
6	17-Mar-04	**322**	**260**	185	**266**	**301**	333
7	24-Jun-04	**355**	**258**	127	235	224	**291**
8	5-Oct-04	**400**	**274**	**433**	249	**328**	**254**
9							
10							
	Mann Kendall Statistic (S) =	18.0	-12.0	2.0	-22.0	1.0	-3.0
	Number of Rounds (n) =	8	8	8	8	3	3
	Average =	324.88	281.63	208.25	341.75	284.33	292.67
	Standard Deviation =	45.411	27.490	95.320	87.991	53.966	39.526
	Coefficient of Variation(CV)=	0.140	0.098	0.458	0.257	0.190	0.135
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	DECREASING	No Trend	DECREASING	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	DECREASING	No Trend	DECREASING	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	NA	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	19-Feb-03	-1	-1	-1
Checks	16-May-03	-1	-1	-1
include	11-Aug-03	-1	-1	-1
a test for	5-Nov-03	-1	-1	-1
consecutive	17-Mar-04	-1	-1	-1
dates and	24-Jun-04	-1	-1	-1
text. Minus	5-Oct-04	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7						
	8	1	-1	0	-1		
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Neither	Decreasing	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7						
	8	1	-1	0	-1		
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Neither	Decreasing	Neither	Neither

MW-13

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
244	332	296	340	310	322	355	400			Sum Rows
	1	1	1	1	1	1	1			7
		-1	1	-1	-1	1	1			0
			1	1	1	1	1			5
				-1	-1	1	1			0
					1	1	1			3
						1	1			2
							1			1
										0
										0
				Mann Kendall Statistic (S) =						18

MW-14

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
272	342	279	299	269	260	258	274			Sum Rows
	1	1	1	-1	-1	-1	1			1
		-1	-1	-1	-1	-1	-1			-6
			1	-1	-1	-1	-1			-3
				-1	-1	-1	-1			-4
					-1	-1	1			-1
						-1	1			0
							1			1
										0
										0
				Mann Kendall Statistic (S) =						-12

MW-15

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
156	221	205	165	174	185	127	433			Sum Rows
	1	1	1	1	1	-1	1			5
		-1	-1	-1	-1	-1	1			-4
			-1	-1	-1	-1	1			-3
				1	1	-1	1			2
					1	-1	1			1
						-1	1			0
							1			1
										0
										0
				Mann Kendall Statistic (S) =						2

MW-16

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
416	474	362	410	322	266	235	249			Sum Rows
	1	-1	-1	-1	-1	-1	-1			-5
		-1	-1	-1	-1	-1	-1			-6
			1	-1	-1	-1	-1			-3
				-1	-1	-1	-1			-4
					-1	-1	-1			-3
						-1	-1			-2
							1			1
										0
										0
				Mann Kendall Statistic (S) =						-22

MW-17

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
					301	224	328			Sum Rows
										0
										0
										0
										0
										0
						-1	1			0
							1			1
										0
										0
				Mann Kendall Statistic (S) =						1

MW-18

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
					333	291	254			Sum Rows
										0
										0
										0
										0
										0
						-1	-1			-2
							-1			-1
										0
										0
				Mann Kendall Statistic (S) =						-3

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

	Well ->	onsite	offsite				
Event	Sampling Date						
1	2-Aug-02	319	372				
2	21-Oct-02	290	386				
3	19-Feb-03	347	479				
4	16-May-03	258	383				
5	11-Aug-03	295	397				
6	5-Nov-03	377	299				
7	17-Mar-04	240	382				
8	24-Jun-04	236	397				
9	5-Oct-04	254	383				
10							
	Mann Kendall Statistic (S) =	-14.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	9	0	0	0	0
	Average =	290.67	386.44	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	49.265	45.673	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.169	0.118	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at			CV <= 1	n<4	n<4	n<4	n<4
80% Confidence Level		NA	STABLE	n<4	n<4	n<4	n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	onsite	offsite	0	0	0	0
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	19-Feb-03	-1	-1	-1
include	16-May-03	-1	-1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8						
If +1, Incrsng	9	-1	0				
If -1, decrsng	10						
If 0, neither.		Decreasing	Neither	Neither	Neither	Neither	Neither

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8						
If +1, Incrsng	9	-1	0				
If -1, decrsng	10						
If 0, neither.		Decreasing	Neither	Neither	Neither	Neither	Neither

onsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
319	290	347	258	295	377	240	236	254		Sum Rows
	-1	1	-1	-1	1	-1	-1	-1		-4
		1	-1	1	1	-1	-1	-1		-1
			-1	-1	1	-1	-1	-1		-4
				1	1	-1	-1	-1		-1
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							-1	1		0
								1		1
										0
				Mann Kendall Statistic (S) =						-14

offsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
372	386	479	383	397	299	382	397	383		Sum Rows
	1	1	1	1	-1	1	1	1		6
		1	-1	1	-1	-1	1	-1		-1
			-1	-1	-1	-1	-1	-1		-6
				1	-1	-1	1	0		0
					-1	-1	0	-1		-3
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

Appendix D – BIOCHLOR Model (VOCs)

BIOCHLOR Model
Hobbs Facility
Champion Technologies Inc.

Model Selection

A one-dimensional analytical fate and transport model (BIOCHLOR) was used to simulate the hydrogeologic conditions of the Hobbs facility located in Hobbs, New Mexico and predict the concentrations of chlorinated volatile organic compounds (VOCs) in groundwater. The U.S. Environmental Protection Agency (EPA), in association with the Air Force Center for Environmental Excellence (AFCEE), developed BIOCHLOR for simulating remediation through natural attenuation of chlorinated ethenes and ethanes through anaerobic conditions. BIOCHLOR can also be used to simulate solute transport without decay or solute transport with biodegradation modeled as a sequential first-order process. The software, based on the Domenico analytical solute transport model, simulates one-dimensional advection, three-dimensional dispersion, linear adsorption, biotransformation, and first-order decay. This analytical model predicts the concentration of VOCs downgradient of a source, in both the presence and absence of biodegradation.

VOCs (1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride) have been detected in groundwater samples collected from several monitoring wells located at the Hobbs facility. TCE has never been detected above New Mexico Water Quality Control Commission (WQCC) standard and vinyl chloride has only been detected above the WQCC standard in 1 of 44 of the samples. Therefore, the BIOCHLOR model was applied only to the PCE and 1,1-DCA data.

Model Inputs

The inputs for the BIOCHLOR model can be generalized into seven categories: hydrogeologic, dispersion, adsorption, general data (simulation time and domain extents), source data, biodegradation parameters, and field data for comparison. Ranges of values from EPA literature were used for parameters when site-specific data were not available. The model inputs are provided in Figure D-1 for 1,1-DCA and D-6 for PCE.

Hydrogeologic Data

The site is underlain by caliche, sand, silty sand, sandy clay, and sandstone. Boring logs and excavations at the site indicate a 5 foot thick, hard caliche layer from approximately 20 feet to 25 feet below ground surface (bgs), throughout most of the site, and a second hard caliche layer approximately 50 feet bgs which is approximately 6 feet thick (Enercon 2000 and ETGI 2003).

The site is within the limits of the Lea County Basin, as declared by the NMOSE. The sole source drinking water aquifer in the basin is the Ogallala Aquifer. The depth to groundwater at the site is approximately 50 to 60 feet bgs, and the water elevation has dropped steadily at a rate of approximately 1.2 feet per year since the monitoring at the site began in August 2002. The recent slug test and pumping tests conducted on an onsite supply well indicate the hydraulic conductivity is approximately $3x10^{-3}$ centimeters per second (cm/s). Based on model limitations, the hydraulic conductivity was assumed to be horizontally and vertically isotropic. The hydraulic gradient has been consistent at approximately 0.003 feet/foot, toward the east. The resulting seepage velocity, assuming an effective porosity of 0.25, is approximately 37 feet per year. Based on previous reports, no perched water has been observed, nor is there any significant surface water body within at least one mile.

Dispersion

The dispersivity of each pathway was calculated based on a relation that assumes that dispersivity (α) in the longitudinal direction (α_x) is 10 percent of the estimated plume length (EPA 1998); the plume is considered to be the part of the aquifer that contaminants have migrated from the source area as a slug. Based on groundwater quality data obtained in June 2004 (Figure 1), the plume length is approximately 100 to 200 feet. According to the BIOCHLOR manual (EPA 2000) the ratio α_x: α_y is generally 10:1 and α_x: α_z is typically 200:1 (where α_y and α_z are the transverse and vertical dispersivities, respectively). The BIOCHLOR default ratios were assigned to the model.

Adsorption Data

The advective-dispersive transport of dissolved organic compounds in groundwater is primarily controlled by the adsorption of constituents to solids comprising the saturated material.

The potential for adsorption to solids is reflected in the distribution, or partition coefficient (K_d) for the compound. For a given aquifer material, the higher the K_d value for a compound, the greater the relative amount of mass that will adsorb to the solid phase and lower the mobility of the compound in the groundwater. The partitioning of VOCs in the saturated zone at the site is governed by the organic material present in the unconsolidated deposits and the organic carbon partitioning coefficient of the compound (K_{oc}).

The retardation factor of soils is the ratio of the groundwater seepage velocity to the rate that organic chemicals migrate in the groundwater. The degree of retardation depends on both the aquifer properties and the physiochemical properties of the compounds. The retardation calculation is dependent on the fraction of organic carbon, the bulk density, the effective porosity, and the K_{oc} value. Literature-derived values for bulk density, fraction of organic carbon, and effective porosity were assigned.

General Data

The model domain consists of the physical dimensions of the rectangular area to be modeled and the length of time of simulation. Domain dimensions were varied to allow greater resolution depending on the pathway, and the predicted migration of VOCs. The length of the initial simulation used to simulate current conditions was chosen based on the past site history and an estimated date of release to groundwater sometime after 1956. This time period was extended 100 years past the date of release to groundwater, for predictive simulations.

Source Data

For the purposes of determining biodegradation rates, the duration and dimensions of the source must be determined. Version 2.2 of BIOCHLOR can simulate both decaying and continuous sources. As a highly conservative assumption, the source was defined as continuous, although Area 2 has been excavated and the affected soil has been removed between July 2002 and September 2003. Based on site history, the 1956 was assumed to be the earliest release date.

Given the hard caliche with fractures reported (ETGI 2003), the source is considered not to extend the entire areal extent of Area 2, but is thought to be limited to the areas under such fractures, indicating a line-type source. One input parameter for the BIOCHLOR model is the thickness of a vertical plane source. Because the concentrations are far less than those levels that indicated non-aqueous phase liquids, it is reasonable to assume that dissolved-phase VOCs migrated to groundwater. Thus the thickness of the vertical plane source is the thickness of the mixing zone, which is a function of the longest horizontal planar dimension of the source.

Biotransformation Data

Chlorinated VOCs may undergo degradation reactions in the saturated zone under both aerobic and anaerobic conditions. The site data indicated that insignificant biodegradation was occurring, based on the absence of daughter products.

Field Data for Comparison

Calibration of the fate and transport model occurs by comparing observed and predicted chlorinated VOC concentrations at various points along a plume centerline. The 95th percentile upper confidence level (UCL) and maximum concentrations of 1,1-DCA and PCE along the centerline of the plume were used to calibrate the model. To simulate a conservative model, the 95th UCL and maximum are appropriately representative of the plume conditions.

The primary input parameters that were used for calibration were the source dimensions and source concentrations. The BIOCHLOR outputs for 10, 20, 50 and 100 years after the release to groundwater are included in Figures D-2 through D-5 (1,1-DCA) and D-7 through D-12 (PCE).

The distribution of the site data is characteristic of a narrow and thin source; trial and error runs of BIOCHLOR indicated the best fitting curve is a 30-feet wide 3 feet thick source. Other combinations of width and thickness fit the site data, but the one selected provides a conservative estimate of the source area concentrations. The selected dimensions are consistent with the lateral distribution of the data. The model indicates the concentrations in the source area of 0.15 mg/l 1,1-DCA 0.08 mg/l PCE, as a continuous source. These concentrations are far below 1% of the solubility of these compounds; 1% solubility is used by EPA as the threshold above which non-aqueous phase liquids are suspected. However, due to the removal of affected soil from Area 2 and the subsequent backfilling with clay completed between 2002 and 2003, it is expected that the source concentrations will decline over time.

Predictive Simulations

Upon completion of model calibration, the model was used to predict the future distribution of chlorinated VOCs. The simulation indicates the plume attained a steady-state configuration approximately 20 years after the release to groundwater. Based on the results of this modeling effort, the steady-state nature of the VOCs is predicted to remain unchanged. The maximum predicted concentrations of 1,1-DCA (0.012 mg/l) and PCE (0.006 mg/l) at the property boundary are below the WQCC of 0.025 mg/l and 0.02 mg/l, respectively. These concentrations are conservative because they assume a continuous source and no biotic or abiotic degradation throughout the plume.

Conclusions

The BIOCHLOR modeling indicates that the current distribution of chlorinated VOCs in groundwater at the site is consistent with a plume not undergoing biodegradation. Based on the BIOCHLOR model results, the VOC plume is stable and the maximum predicted PCE and 1,1-DCA concentrations at the property boundary are below the WQCC standards. Furthermore, the excavation of Area 2 has substantially removed the source and the clay backfill greatly reduces infiltration, thus, the model is conservative for predicting migration of residual 1,1-DCA or PCE.

References

ATSDR, 1990. *Toxicological Profile for 1,1-Dichloroethane.* Agency for Toxic Substances and Disease Registry. December 1990.

ATDSR, 1997. *Toxicological Profile for Tetrachloroethylene.* Agency for Toxic Substances and Disease Registry. September 1997.

Enercon, 2000. *Revised Stage 1 Abatement Plan Proposal AP-14.* Enercon Services, Inc. June 29, 2000.

EPA, 1993. *Evaluation of the Likelihood of DNAPL Presence at NPL Sites, National Results.* Office of Research and Development. EPA 540 R 93 073. September 1993.

EPA, 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water.* Office of Research and Development. EPA 600 R 98 128. September 1998.

EPA, 2000. *Natural Attenuation Decision Support System User's Manual.* Office of Research and Development. EPA 600 R 00 008. January 2000.

ETGI, 2003. *Comprehensive Status Report.* Environmental Technology Group, Inc. March 31, 2003.

ETGI, 2004. Letter to Mr. Ralph Corry, Champion Technologies, Inc., RE: Abatement Plan Proposal AP-14 from Chan Patel and Steve Sellpack, ETGI. January 4, 2004.

NOVA, 2005. Letter to Mr. Dean Sibert, Champion Technologies, Inc., RE: Abatement Plan AP-14, Stage 2 Abatement Plan, Status Update Letter to Comprehensive Status Report, from Todd Choban, NOVA Safety and Environmental. March 24, 2005.

Appendix D Figures

Figure D-1
Champion Technologies Inc. Site
Hobbs, New Mexico

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
or 2. Calculate by filling in gray
0.02 cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ○ Ethanes ●

1. ADVECTION

Seepage Velocity*	Vs	37.2	(ft/yr)
or			
Hydraulic Conductivity	K	3.0E-03	(cm/sec)
Hydraulic Gradient	i	0.003	(ft/ft)
Effective Porosity	n	0.25	(-)

2. DISPERSION

Alpha x*	10	(ft)	Calc. Alpha x
(Alpha y) / (Alpha x)*	0.1	(-)	
(Alpha z) / (Alpha x)*	5.E-02	(-)	

3. ADSORPTION

Retardation Factor* → R

or

Soil Bulk Density, rho	1.7	(kg/L)		
FractionOrganicCarbon, foc	1.0E-3	(-)		
Partition Coefficient	Koc			
TCA		(L/kg)		(-)
DCA	58	(L/kg)	1.39	(-)
CA		(L/kg)		(-)

Common R (used in model)* = 1.39

4. BIOTRANSFORMATION **-1st Order Decay Coefficient***

Zone 1

	λ (1/yr)	half-life (yrs)	Yield
TCA → DCA	0.000		0.74
DCA → CA	0.000		0.65
CA → Ethane	0.000		0.47

Zone 2

	λ (1/yr)	half-life (yrs)
TCA → DCA	0.000	
DCA → CA	0.000	
CA → Ethane	0.000	

λ HELP

5. GENERAL

Simulation Time*	100	(yr)
Modeled Area Width*	200	(ft)
Modeled Area Length*	500	(ft)
Zone 1 Length*	500	(ft)
Zone 2 Length*	0	(ft)

L W Zone 2= L - Zone 1

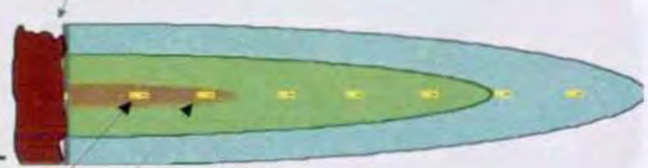
6. SOURCE DATA TYPE: Continuous Single Planar

Source Options

Source Thickness in Sat. Zone* 3 (ft)

	Y1	
Width* (ft)	30	
Conc. (mg/L)*	C1	k_s* (1/yr)
TCA		0
DCA	.15	0
CA		0

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

TCA Conc. (mg/L)											
DCA Conc. (mg/L)		.066	.018	.009	.047	.011	.007				
CA Conc. (mg/L)											
Distance from Source (ft)		30	140	245	30	140	245				

Max and 95th%UCL

8. CHOOSE TYPE OF OUTPUT TO SEE:

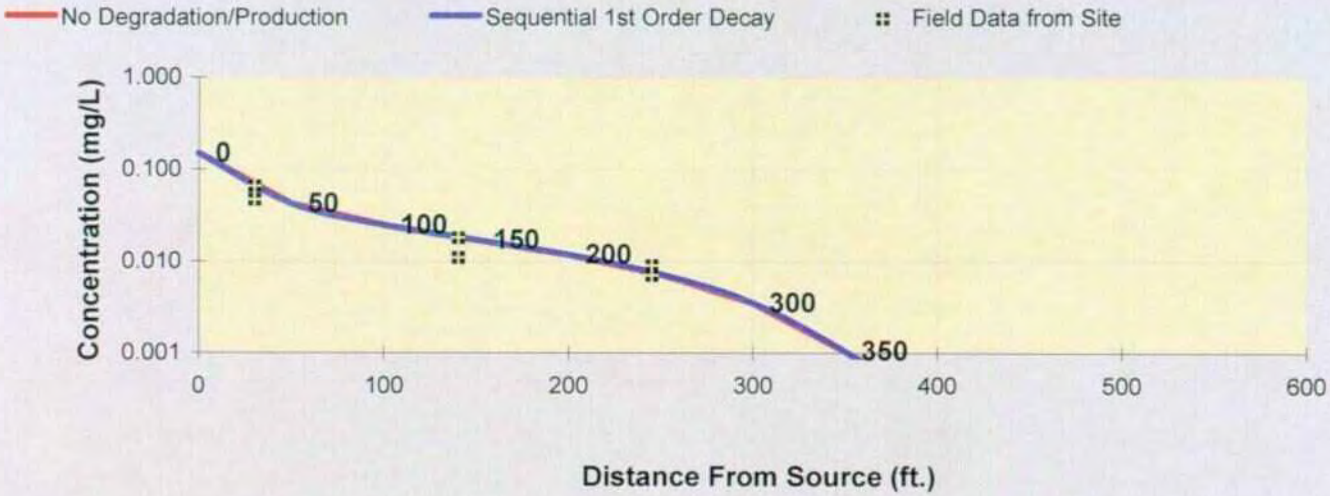
RUN CENTERLINE | RUN ARRAY | Help | Restore Formulas | RESET | SEE OUTPUT | Paste Example

Figure D-2
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

	Distance from Source (ft)										
DCA	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.017	0.012	0.007	0.004	0.001	0.000	0.000	0.000
Biotransformation	0.1500	0.043	0.025	0.017	0.012	0.007	0.004	0.001	0.000	0.000	0.000

	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

10.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

Figure D-3
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

DCA	Distance from Source (ft)										
	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.005	0.004
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.005	0.004
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				

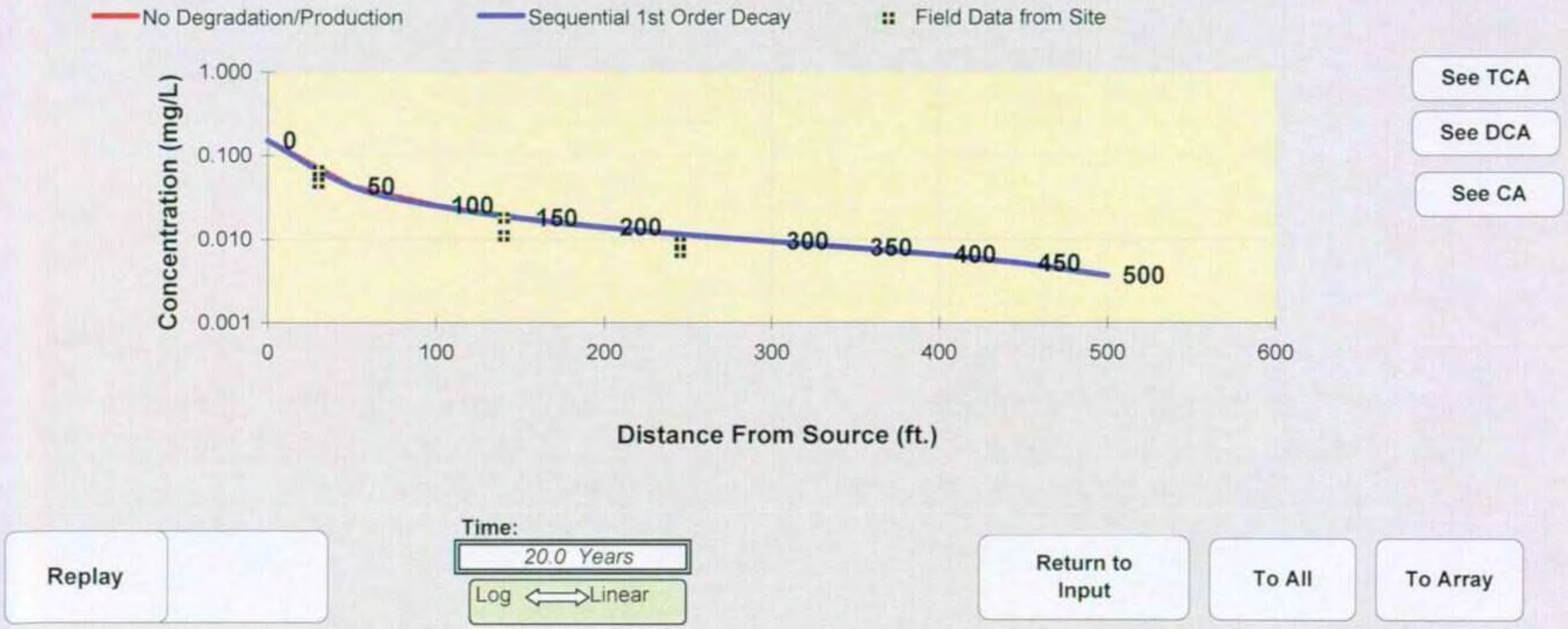
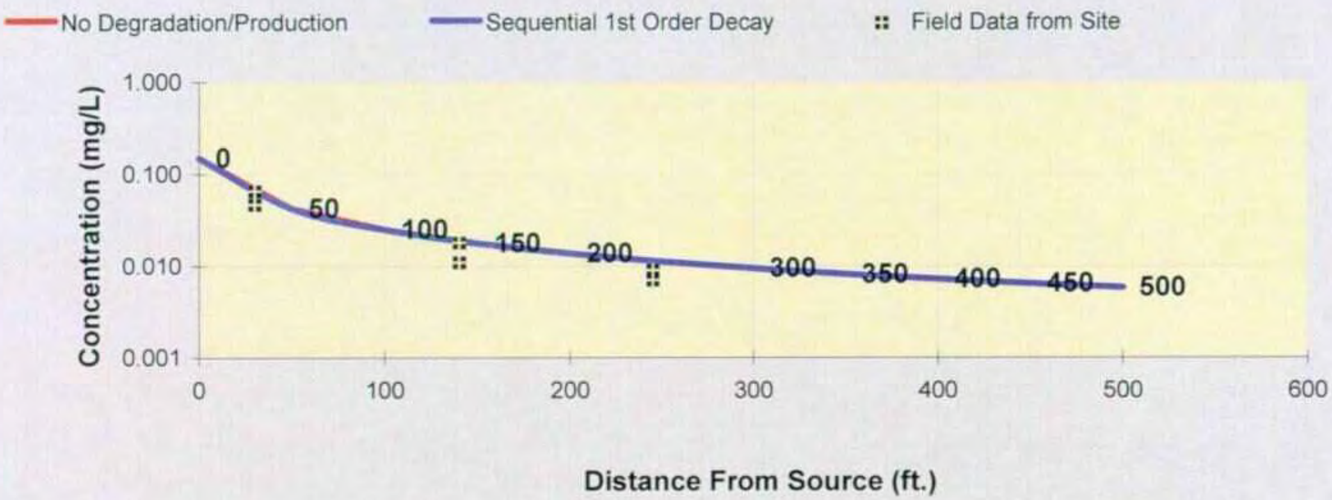


Figure D-4
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

DCA	Distance from Source (ft)										
	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

50.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

Figure D-5
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCA	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006

Monitoring Well Locations (ft)

		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				

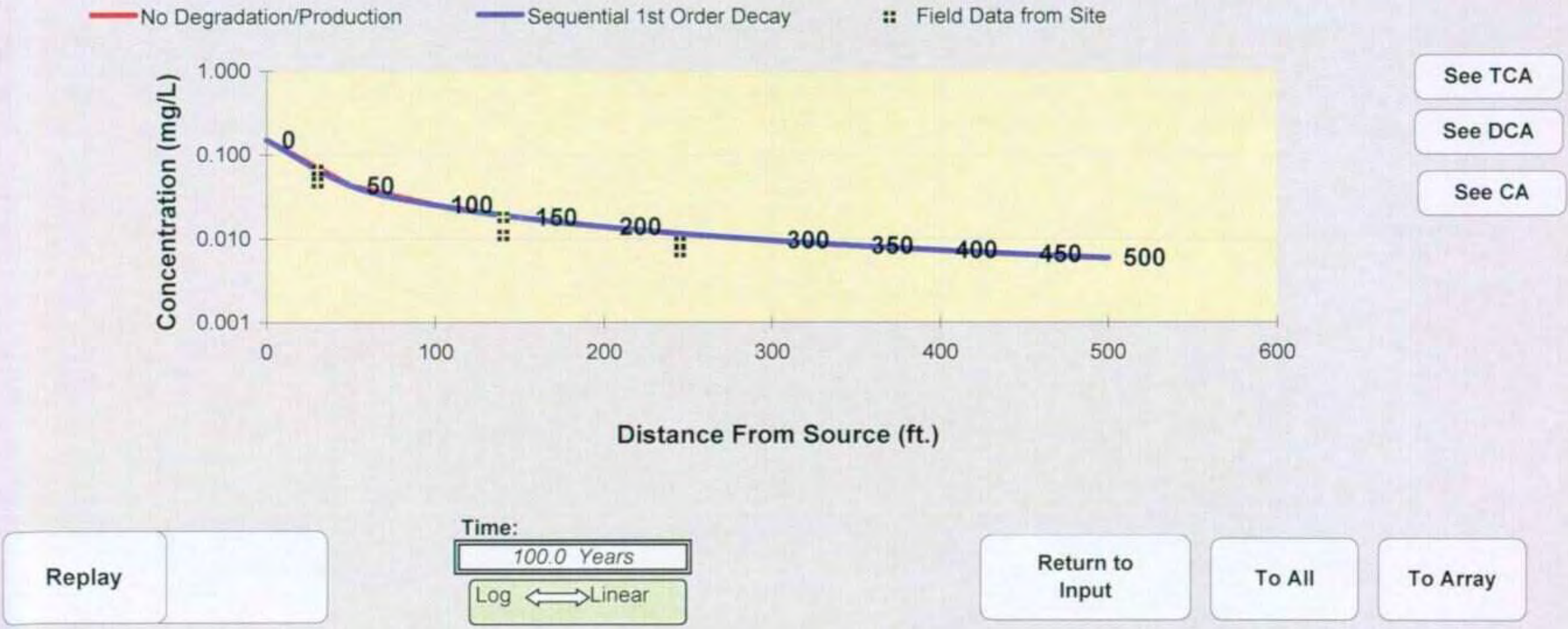


Figure D-6
Champion Technologies Inc. Site
Hobbs, New Mexico

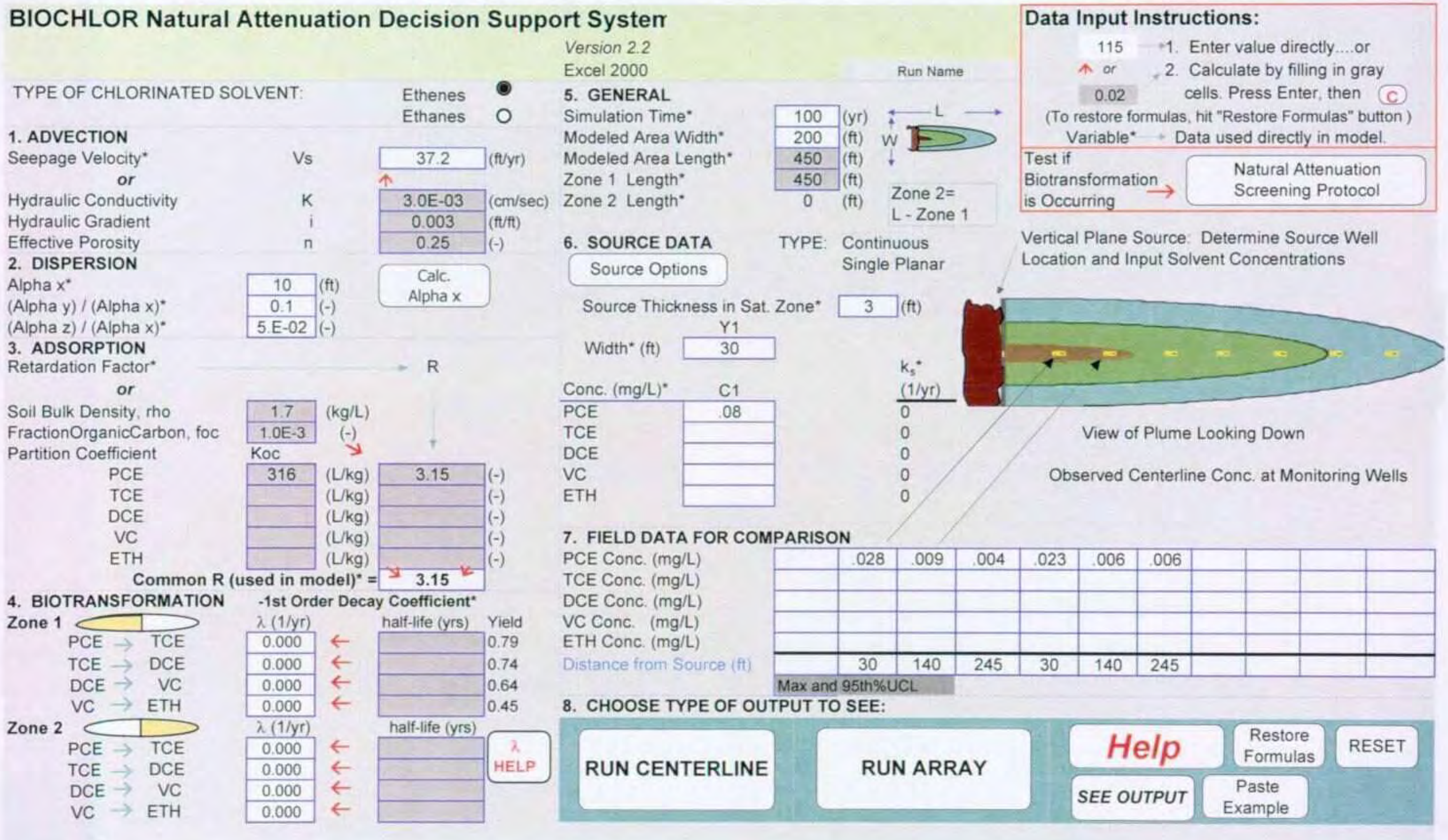
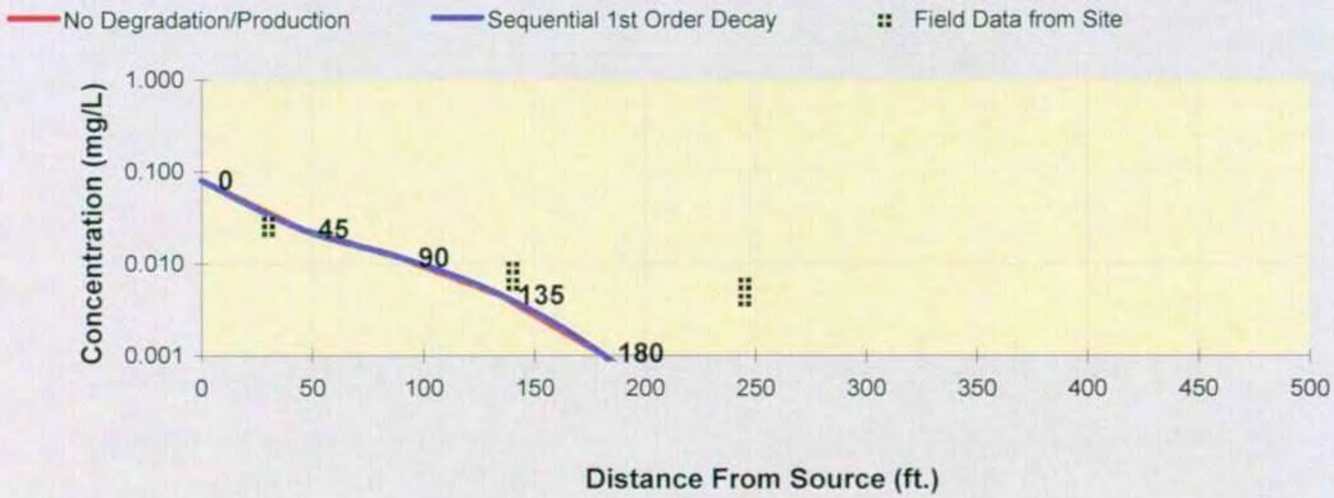


Figure D-7
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.012	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.0800	0.024	0.012	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000

	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE
See TCE
See DCE
See VC
See ETH

Replay

Time:
10.0 Years
Log ⟺ Linear

Return to Input

To All

To Array

Figure D-8
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

	Distance from Source (ft)										
PCE	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.007	0.004	0.002	0.001	0.000	0.000	0.000
Biotransformation	0.0800	0.024	0.015	0.010	0.007	0.004	0.002	0.001	0.000	0.000	0.000

	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				

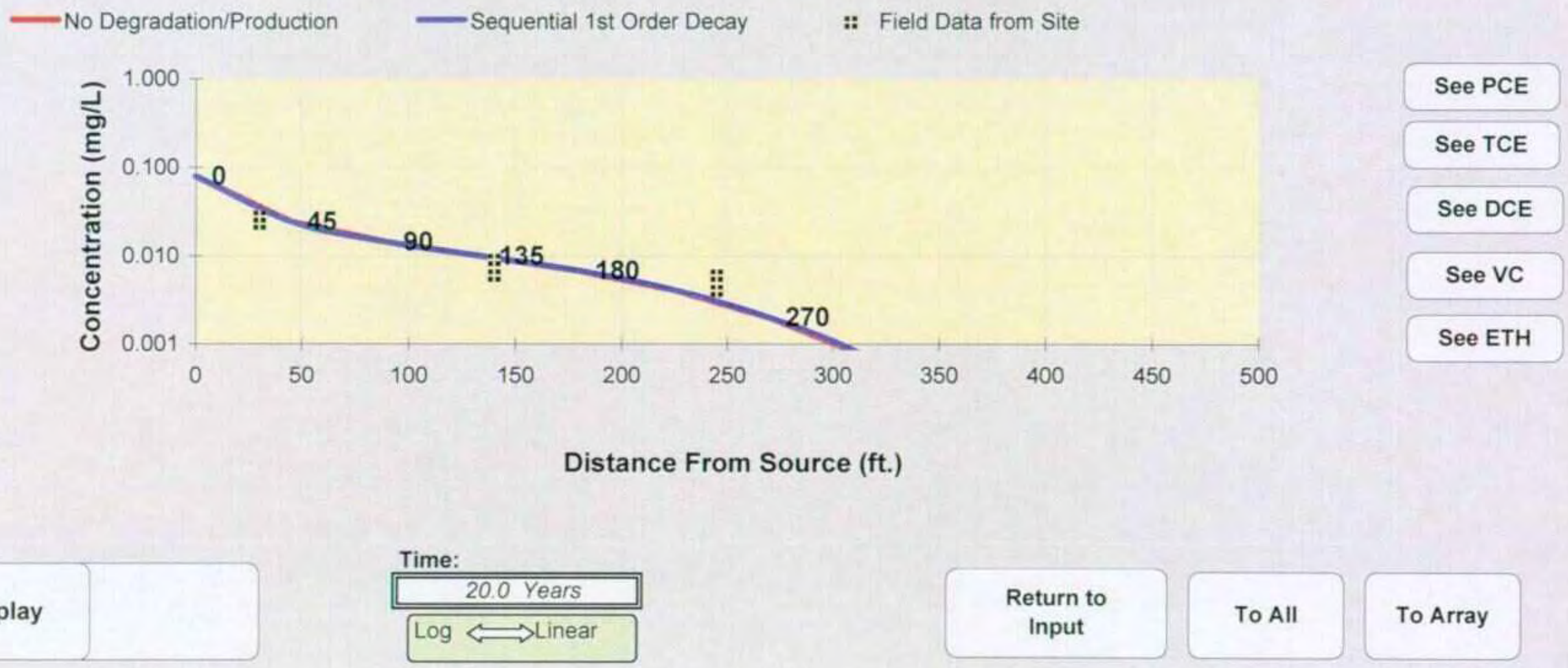


Figure D-9
Champion Technologies Inc. Site
Hobbs, New Mexico

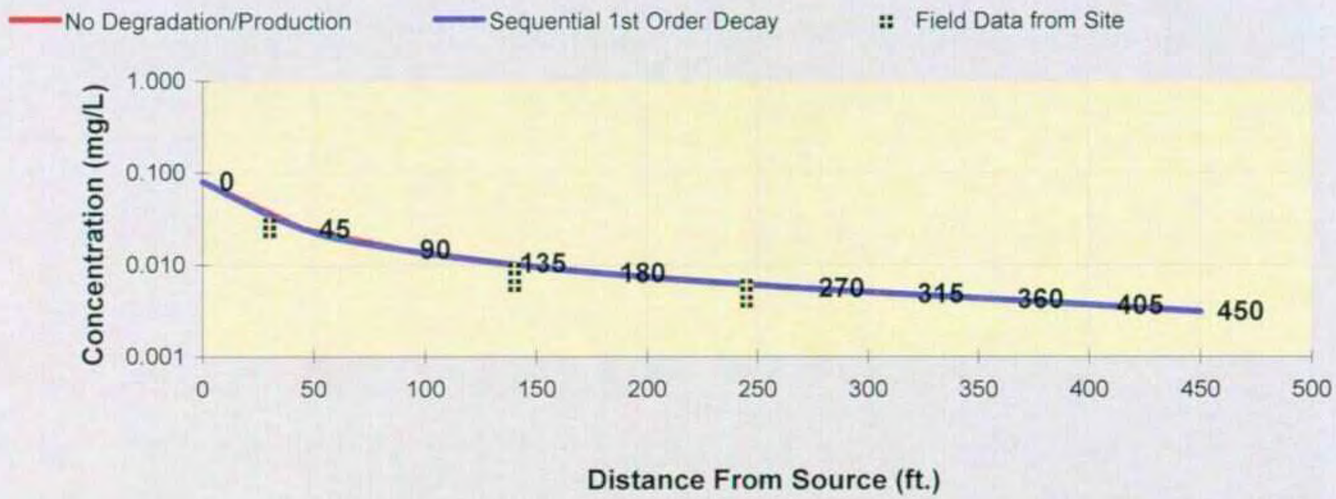
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
Biotransformation	0.0800	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003

Monitoring Well Locations (ft)

		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE

See TCE

See DCE

See VC

See ETH

Replay

Time:

50.0 Years

Log ⟺ Linear

Return to Input

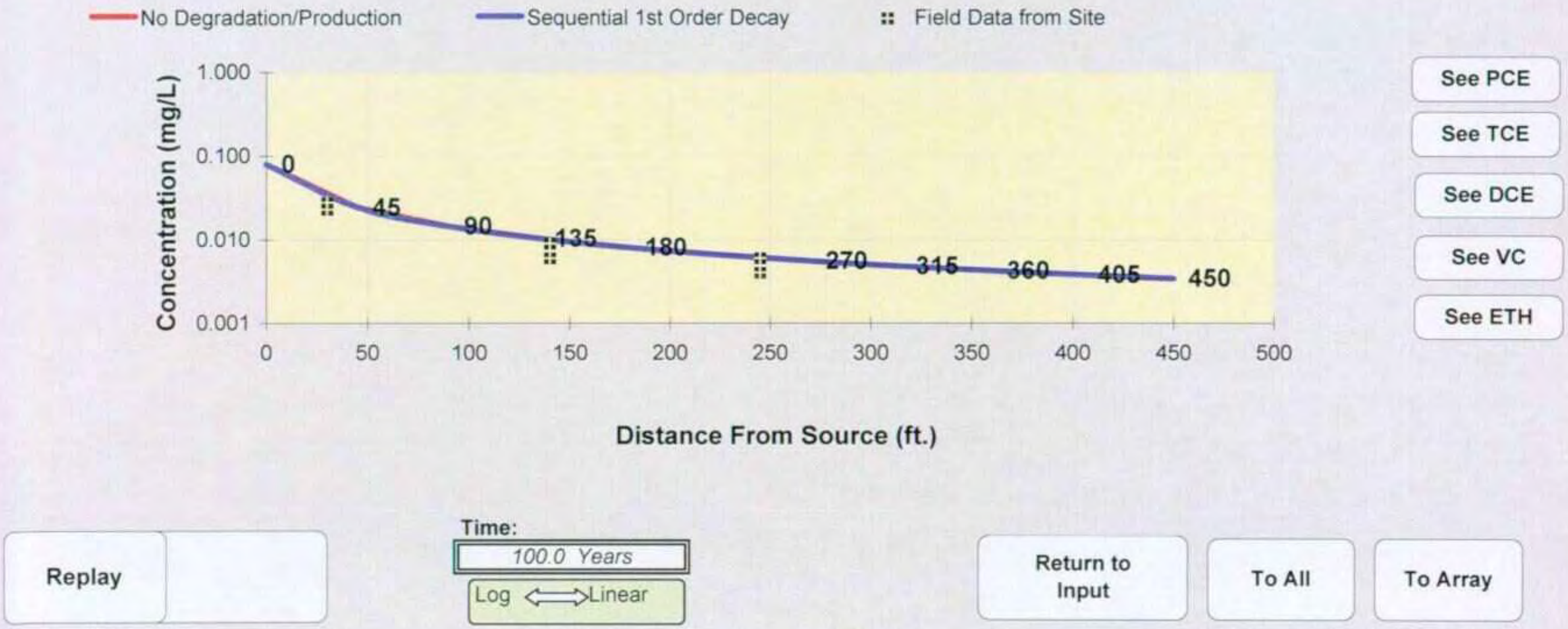
To All

To Array

Figure D-10
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
Biotransformation	0.0800	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



Appendix D Tables

Table D-1
Data Summary - VOCs (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

1,1-Dichloroethane (µg/L)

	Well ->	MW-6/17	MW-11	MW-12	MW-16	MW-18
Event Number	Sampling Date					
1	21-Oct-02	5	2	1	2	
2	19-Feb-03	**29**	1	3	2	
3	16-May-03	**26**	4	3	2	
4	11-Aug-03	**66**	**27**	5	2	
5	4-Nov-03	**53**	10	5	2	
6	17-Mar-04	ND 5	**26.8**	6.05	2.83	4.78
7	25-Jun-04	15.4	8.96	11.4	2.45	7.19
8	13-Oct-04	**28.9**	3.62	18	2.22	6.64

Perchloroethene (µg/L)

	Well ->	MW-6/17	MW-11	MW-12	MW-16	MW-18
Event Number	Sampling Date					
1	21-Oct-02	**20**	ND 0.50	6	1	
2	19-Feb-03	15	ND 0.50	2	2	
3	16-May-03	14	ND 0.50	ND 0.50	2	
4	11-Aug-03	**25**	1	2	2	
5	4-Nov-03	**28**	ND 0.50	ND 0.50	2	
6	17-Mar-04	ND 5.00	1.04	3.15	2.71	2.38
7	25-Jun-04	8.84	ND 0.50	5.38	2.32	4.33
8	13-Oct-04	15.9	ND 0.50	8.77	2.22	4.18

Concentrations in **BOLD** are greater than or equal to the WQCC standard.

Table D-2
Statistical Summary - VOCs (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Compound	Solubility[a]	log K_{ow}[a]	Well	Mean Detection	95th %ile UCL	Maximum Detection	Maximum Relative Solubility
1,1-Dichloroethane (µg/L)	55,000	1.76	MW-6/17	28.5	46.7	66	0.120%
			MW-12	6.6	11.2	18	0.033%
			MW-18	6.2	9.3	7.19	0.017%
			MW-11	10.4	19.3	27	0.049%
			MW-16	2.2	2.4	2.83	0.005%
Perchloroethene (µg/L)	150,000	2.50	MW-6/17	16.5	22.9	28	0.019%
			MW-12	3.5	6.0	8.77	0.006%
			MW-18	3.63	6.33	4.33	0.004%
			MW-11	0.6	0.8	1.04	0.001%
			MW-16	2.03	2.44	2.71	0.002%

a) Source: Agency for Toxic Substances and Disease Registry (1990 and 1997)

ENVIRONMENTAL STRATEGIES CONSULTING LLC

GW-199

SUPPLEMENTAL INVESTIGATION WORKPLAN

CHAMPION TECHNOLOGIES INC.
SITE ABATEMENT (AP-14)
4001 SOUTH HIGHWAY 18
HOBBS, NEW MEXICO

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 South Ulster Street, Suite 930 ▪ Denver, CO 80237 ▪ (303) 850-9200 ▪ Fax (303) 850-9214

March 29, 2005

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St Francis Drive
Santa Fe, NM 87505

Re: Supplemental Investigation Workplan, Champion Technologies Inc. Site (AP-14)
4001 South Highway 18, Hobbs, New Mexico

Dear Mr. Price:

Please find enclosed 2 copies of the proposed supplemental investigation workplan for the above-referenced site.

If you have any questions regarding this workplan, please contact me at (303) 517-7985 or mtom@escden.com.

Sincerely,

Manley Tom, P.E.
Technical Manager

Enclosure

cc/encl: Chris Williams – New Mexico Oil Conservation Division
Dean Sibert – Champion Technologies Inc.
Dwight Vorpahl - Champion Technologies Inc.
John Simon – Environmental Strategies Consulting, LLC

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 South Ulster, Suite 930 · Denver, Colorado 80237 · (303) 850-9200 · Fax (303) 850-9214

SUPPLEMENTAL INVESTIGATION WORKPLAN
CHAMPION TECHNOLOGIES INC. SITE ABATEMENT (AP-14)
4001 SOUTH HIGHWAY 18
HOBBS, NEW MEXICO

PREPARED

BY

ENVIRONMENTAL STRATEGIES CONSULTING LLC

MARCH 29, 2005

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Acronym List

ASTM	American Society for Testing and Materials
bgs	below the ground surface
CFR	Code of Federal Regulations
DO	dissolved oxygen
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
IDW	investigation-derived waste
mV	millivolt
NMAC	New Mexico Administrative Code
NMDOT	New Mexico Department of Transportation
NMED	New Mexico Environmental Department
NMOCD	New Mexico Oil Conservation Division
ORP	oxidation-reduction potential
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
WQCC	Water Quality Control Commission

1.0 Introduction

On behalf of Champion Technologies, Inc. (Champion), Environmental Strategies Consulting LLC has prepared this proposed supplemental site investigation plan for the Champion site located at 4001 South Highway 18, Hobbs, New Mexico. This workplan substantially complies with New Mexico Oil Conservation Division (NMOCD) Rule 19, subsections (A), (B), (E)(3) and (E)(4), pursuant to subsection (D). The site has an NMOCD-approved Discharge Plan (GW-199) and has had various Stage 1 and Stage 2 abatement activities already completed. This plan summarizes the site conditions and past abatement activities, presents the rationale for and describes the proposed abatement option, which includes a revised groundwater monitoring plan, and presents a strategy to demonstrate natural attenuation as the groundwater remedial action.

2.0 Site Background Information

2.1 Site Description

The approximately 7-acre site is located in the southeastern quadrant of Section 15 Township 19 South, Range 38 East. The site is within the Hobbs Pool oil and gas field, and approximately 5 miles east of the Monument Pool (Wright, 1941). In the region, the practice of disposing produced water into unlined pits began with the first oil and gas exploration in the early 1940s, with great expansion during World War II. Produced water in the region is known to be highly saline. In 1967, the New Mexico Oil Conservation Commission (OCC) issued Order R-3221, which called for all disposal of produced water, except for some *de minimus* quantities, into unlined pits or in any other manner which would cause a hazard to fresh water to cease by October 31, 1967 (LCWUA, 2000). In the 1970s, groundwater throughout Lea County had salinity concentrations between 1,000 milligrams per liter (mg/l) and 3,000 mg/l (USGS, 1972) and the chloride concentration in groundwater within the Permian formations in the Northwestern Shelf, within 10 miles of the site was 2,900 mg/l to 32,000 mg/l (NMBMMR, 1975).

Champion Technologies has operated at the site for at least 30 years. A portion of the facility is unpaved, and there are two buildings and other facilities, such as aboveground storage tanks and secondary containment structures (Figure 1). Champion Technologies stores and distributes oilfield chemicals, such as corrosion inhibitors. Among the chemicals stored at the site are alcohols, amines, aromatics, ammonium chloride, corrosives, and, formerly, may have included hexavalent chromium. There was a prior commercial or industrial occupant at the site, believed to be a trucking company.

A pit, located in the northern-central part of the site, was identified in the Stage 1 abatement activities. The Enercon documents, prepared on behalf of Champion, stated that, of the three aerial photographs reviewed as part of a site history review, only the 1967 aerial photograph showed pond-like features in what is referred to as Areas 2 and 3. This suggests the pit may have been used by others since some time after the next earlier aerial photograph, taken in 1954 (Enercon, 2000). Currently, there is a commercial operation to the north, vacant land to the west and east, and a residence to the south; the residence has a water supply well located approximately 100 feet south of the site boundary.

2.2 Environmental Setting

This section describes the topographic, geologic, and hydrogeologic conditions at the site.

2.2.1 Topography and Surface Drainage

The site is relatively flat with no concentrated stream flows or ponds. Drainage from the site generally sheetflows to the property's perimeter Stormwater collected in the bulk tanks' secondary containment berms is allowed to evaporate or is used by the facility operations. The average annual precipitation in the Hobbs area is 15.98 inches per year, with 27 days per year with 0.1 inch or more of precipitation, and only 5 days per year with 1 inch or more (WRCC, 2003).

2.2.2 Site Geology

The site is underlain by caliche, sand, silty sand, sandy clay, and sandstone. Boring logs and excavations at the site indicate a 5-foot thick, hard caliche layer from approximately 20 to 25 feet below ground surface (bgs) throughout most of the site, and a second hard caliche layer from approximately 50 to 56 feet bgs (Enercon, 2000 and ETGI, 2003a).

2.2.3 Site Hydrogeology

The site is within the limits of the Lea County Basin, as declared by the New Mexico Office of the State Engineer. In the Lea County Basin, the sole source of drinking water is the Ogallala Aquifer. The depth to groundwater at the site is approximately 50 to 60 feet below the ground surface (bgs), and the water elevation has dropped at an average rate of approximately 0.7 to 1.2 feet per year since the monitoring at the site began in August 2002 (NOVA, 2005). A summary of the historical groundwater elevations is included in Appendix A. As represented in the well log for the onsite supply well, the local water bearing zone is a sandy aquifer ranging from approximately 44 to 138 feet bgs (Eades, 1993). The recent slug and pumping tests indicate the hydraulic conductivity is approximately $3x10^{-3}$ centimeters per second (cm/s) (NOVA, 2005). The hydraulic gradient has been consistent at approximately 0.003 feet/foot, toward the east (Figure 2). The resulting seepage velocity is 37 feet per year. Based on previous reports, no perched water has been observed and there is no significant surface water body within at least 1 mile of the site.

MAY HAVE RISEN DUE TO EXTENSIVE RAINS 2004 & 05

CHECK!

THEN WHAT? VADOSE ZONE?

2.3 Summary of Historic Stage 1 and Stage 2 Abatement Activities

The areas addressed by previous investigations and remediation are depicted on Figure 1. In the previous abatement plans and reports (Enercon, 2000; ETGI, 2003a and 2004; NOVA, 2005) the areas addressed by abatement activities are referred to as follows:

- Area 1- a small area in the north-central part of the site, incorporated into Area 2
- Area 2 – a former waste pit located in the north-central part of the site and incorporates the former Area 1 and Area 4
- Area 3 – an area that had high chloride concentrations in soil, located in the southwestern quadrant of the site
- Area 4 - the northern half of the bulk tank area, incorporated into Area 2
- Area 5 - centered around a soil boring that had high chloride concentrations in soil, located near Champion's water supply well.

The environmental conditions in each area and the groundwater quality are described below.

2.3.1 Soil

Champion's contractor excavated soil and debris between July 2002 and February 2003 during Stage 2 abatement activities at Area 2. In January 2003, the Area 2 excavation was extended into the northern half of Area 4 and stained soil under Area 4 was removed to the extent practicable. The Area 2 excavation also completely removed Area 1. The overall excavation at Areas 1, 2, and 4 measured approximately 200 feet by 150 feet and 18 feet deep, totaling 20,000 cubic yards. The excavation removed a significant amount of the contaminant mass, but some residual chemicals of concern are present in the remaining soil and within fractures of the caliche bottom, at approximately 18 to 20 feet bgs. During the excavation, a pipe running from the warehouse into the pit was discovered and removed. The chemicals of concern in Area 2 soils include chloride (up to 11,000 milligrams per kilogram, mg/kg), chromium (up to 13.4 mg/kg), and total petroleum hydrocarbons (up to 30,000 mg/kg). NMOCD approved the backfilling of the Area 2 excavation on May 8, 2003 (NMOCD, 2003a). Between September 3 and 29, 2003, the excavation was backfilled with soil and caliche from an offsite source. As part of the backfill, a 2-foot thick clay layer was placed from 5 feet to 7 feet bgs, between September 12 and 19, 2003 (NOVA, 2005). Based on a preliminary review of precipitation data from the two closest National Climatic Data Center weather stations, approximately 10 inches of precipitation fell between July 2002 and September 2003 (NCDC, 2004). Thus, during the Stage 2 abatement activities, direct precipitation and runoff from adjacent land areas and building rooftops may have collected in the excavation, of which a significant fraction may have infiltrated.

Champion's contractor also completed a 20-foot deep excavation at Area 3, approximately 40 feet by 80 feet, beginning in July 2002 and backfilled it in September 2003. NMOCD approved the backfilling of the Area 3 excavation on August 13, 2003 (NMOCD, 2003c). The deepest part of the Area 3 excavation extended to a hard caliche caprock layer at 20 feet bgs. Chloride-containing soil remains in Area 3, up to 11,900 mg/kg at a depth of approximately 18 feet bgs. However, soil samples collected beneath the caprock contained low chloride concentrations (less than 100 mg/kg) and the excavation was backfilled with soil and caliche from onsite, and caliche from an offsite source (ETGI, 2004).

The Area 5 soils containing elevated chloride were excavated to a depth of approximately 2 feet bgs; the maximum concentration of remaining chloride was detected in a soil sample at a concentration of 3,680 mg/kg. The stockpile of soil excavated from Area 3 and Area 5 was lined with plastic sheeting and is awaiting disposal (NOVA, 2005).

2.3.2 Groundwater

The chemicals of concern in groundwater are chromium and chloride. Chromium concentrations in groundwater exceed the New Mexico Water Quality Control Commission (WQCC) standard of 0.050 mg/l in groundwater samples collected from only four monitoring wells (MW-4, MW-10, MW-13, and MW-14); the maximum concentration of dissolved chromium was 0.199 mg/l, in the October 2004 sampling event (NOVA 2005). Environmental Strategies conducted a Mann Kendall trend analysis of the chromium concentrations and determined the concentration in the groundwater sample collected from monitoring well MW-4 exhibits a decreasing trend while the trend of concentrations detected in groundwater samples collected from monitoring well MW-10, MW-13, and MW-14 are increasing. The trend analyses are summarized on Figure 3 and the spreadsheets are provided in Appendix B. One primary cause for the apparent increase of concentrations may be the falling water table elevation. Most ?? of the monitoring wells were constructed with less than 10 feet of water column height, which has since decreased approximately 2 feet. For example, MW-10 had only 8 feet of screen below the water table in October 2002 (ETGI, 2003b) and 5.88 feet in October 2004 (Appendix A). The concentration of chromium would have an inverse relation to the water column thickness in the well, and its sensitivity to such decreases would depend on factors such as: 1) the initial ratio of thickness of the mixing zone to the length of the wetted well-screen, 2) the vertical concentration gradient within the plume, and 3) contaminant decay rates. For example, a monitoring well screened into a 4-foot thick, non-degrading plume with its upper 2 feet at 0.20 mg/L chromium and the next 2 feet with 0.02 mg/l, would initially exhibit a concentration of 0.11 mg/l, but it would increase to 0.20 mg/l if the water level dropped by 2 feet.

The onsite supply well is located in the same as the chromium plume, and is screened from 113 to 133 feet bgs. This depth range is likely below the mixing zone of chromium, as indicated by the 8 analytical results of samples collected from this well, none of which have contained detectable chromium concentrations. The residential well, located approximately 100 south of the site, also has been sampled 8 times since August 2002, has not had any detectable chromium concentrations.

There appears to be regional high concentrations of chloride in groundwater, as well as onsite sources of chloride. The presence of the regional high chloride concentrations in groundwater is likely caused in large part by the historical use of unlined evaporation pits for oil and gas exploration brine disposal and is demonstrated by the data indicating that none of the three background wells consistently have chloride concentrations less than the WQCC standard of 250 mg/l (NOVA 2005). These data demonstrate that there is an offsite, upgradient source of chloride in groundwater. The presence of an onsite source is supported by higher chloride concentrations in groundwater samples collected from most onsite monitoring wells than in the groundwater samples collected from upgradient monitoring wells, usually exceeding the WQCC standard. However, the excavations have removed a significant quantity of high chloride soil and the clay layer in the backfill reduces the amount of infiltration.

Only 3 (MW-1, MW-8, and MW-13) of the 16 monitoring wells that have a minimum four groundwater sampling data points, exhibit increasing chloride concentration trends. The trend analyses are summarized in Figure 4 and the spreadsheets are presented in Appendix C. The most significant increase is observed in groundwater samples collected from monitoring well MW-8, which may, in part, be due to the transient decrease in the thickness of the unsaturated zone and accumulation of storm water during the Stage 2 activity at Area 2, from July 2002 to September 2003.

NMOCD's May 8, 2003 letter states that the average chloride concentration in groundwater samples collected from monitoring well MW-15 and two upgradient supply wells (located on the Harmon and Morrow residences) should be used to represent background conditions; as of May 8, 2003, the offsite upgradient wells contained 137 mg/l and 241 mg/l of chloride. MW-15 has 433 mg/l chloride in October 2004.

The Hydrus-1D modeling effort (ETGI, 2003a) evaluated four scenarios and predicts the effects of transport of chloride from soil on chloride concentrations in groundwater. Scenario 1 is a "no action" scenario, and Scenario 2 is only the removal of the chloride soil source; the model predicts an increase of at least 1,000 mg/l of chloride in groundwater for both Scenarios 1 and 2 and will significantly exceed background concentrations in groundwater for approximately 30 years. Scenario 3 is infiltration controls alone with no soil remediation and Scenario 4 was infiltration control in combination with approximately 19 feet of excavation; the model predicts Scenarios 3 and 4 would result in an approximately 100 mg/l increase of chloride in groundwater that would asymptotically approach the background level in approximately 15 years. Scenarios 3 and 4 assumed 70% of the precipitation runs off the site. The excavation and backfill recently completed at the site most closely resemble Scenario 4, however, conditions during the Stage 2 activities resembled Scenario 2.

The most significant increase of chloride levels is observed in groundwater samples collected from monitoring well MW-8, located approximately 20 feet (approximately 6.5 months of travel time) downgradient of the Area 2 excavation (NOVA 2005); by comparison, the closest downgradient well to Area 2 (MW-11) is exhibiting a decreasing trend. Due to the potential for infiltration of accumulated storm water during the 14 months that the excavation was exposed, transient increases of between 100 and 1,000 mg/l chloride in groundwater are expected, however, due to the complexity of the local geology, it is not practicable to precisely predict where the source of the increase concentrations might be located.

Concentrations of 1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), and vinyl chloride) have historically been detected in groundwater samples at concentrations slightly above WQCC standards. Vinyl chloride was detected in only 1 of 44 samples and, thus, the one detection is considered an anomaly and vinyl chloride is not a chemical of concern at the site.

All the historical 1,1-DCA and PCE data were compiled and the 95th upper confidence level of the mean was selected as representative of the 1,1-DCA and PCE plumes (Figures 5 and 6). Environmental Strategies completed a fate and transport modeling, using EPA's BIOCHLOR model (Appendix D), to evaluate the volatile organic compound (VOC) data from monitoring wells MW-6/17, MW-11, MW-12, MW-16, and MW-18, which indicates that the VOCs detected in these wells are stable and are not detected at concentrations consistently above their respective WQCC standards. The calibrated model also indicates that the plume is in steady-state and that there is no significant biological degradation of these compounds occurring under current conditions, thus no significant formation of vinyl chloride. The model simulated migration for 100 years past the date of release to groundwater and predicts the maximum concentration that would be present at the downgradient property boundary: 1,1-DCA (0.012 mg/l) and PCE (0.006 mg/l), which are below the WQCC standards of 0.025 mg/l and 0.02 mg/l, respectively. The model conservatively assumes a continuous source with no degradation, however, the excavation of Area 2 has substantially removed the source and the clay backfill greatly reduces infiltration, thus the model predicts higher concentrations than the actual VOC concentrations. Thus 1,1-DCA and PCE are not chemicals of concern at the site. — "THEY WILL REMAIN COC"

WQCC .001 mg/l

Arsenic and lead have also been detected in groundwater samples but none of the samples were above the WQCC standards. Barium and manganese were infrequently detected above their WQCC standards. The barium standard was apparently exceeded in MW-1, located upgradient of the site, and in MW-6 (August 2002) and manganese in MW-6/17 (August 2002 and March 2004), however the samples collected before February 2003 were not filtered and are not appropriate for comparison with WQCC standards since Part 2.3103 of the WQCC regulations states that the numerical standards for metals apply to dissolved portion. Furthermore, barium and manganese were not detected at concentrations exceeding the WQCC standards in samples from MW-11, MW-12, MW-16 and MW-18, which is located approximately 10 feet upgradient of the property boundary (NOVA, 2005). Thus, arsenic, barium, lead, and manganese are not chemical of concern at the site.

Bio?

IF THEY EXCEED THEY ARE "COC"

3.0 Proposed Abatement Activity

3.1 Basis of Abatement Activity

This section discusses the regulatory basis and interpretation of site-specific data supporting the purpose and rationale for the proposed abatement activity.

3.1.1 Regulatory Basis

The definition of *hazard to public health* in Title 19 of the New Mexico Administrative Code (NMAC) Chapter 15, Part 1.7 includes the language: "In determining whether a release would cause a hazard to public health to exist, the Director shall investigate and consider the purification and dilution reasonably expected to occur from the time and place of the release to the time and place of withdrawal for use as human drinking water." The proposed work will investigate the purification and dilution between the contaminated groundwater source and a conservative point of withdrawal located some 3-dimensional distance away.

As stated in Title 19 NMAC, Chapter 15, Part 1.19, the purpose of Rule 19, pertaining to groundwater, is to abate the vadose zone so that the contaminants in the vadose zone will not with reasonable probability contaminate groundwater above the WQCC standards. The Stage 2 activities completed to date have in large part addressed the vadose zone and the proposed investigation will further delineate the inferred source area of chromium above the WQCC standard in the southern part of the site. Part 2.3103 of the WQCC standards apply to "the dissolved portion of the contaminants specified...", thus, only dissolved-phase concentrations in groundwater will be considered in the evaluation.

3.1.2 Site Specific Basis

Champion Technologies' consultants have submitted and received approval for various Stage 1 and Stage 2 Abatement Plans. In its comment letter, dated May 8, 2003, NMOCD indicated that if Champion Technologies proposed paving the entire yard with concrete or asphalt, then no further investigation need to be conducted (except in the southern part of the site for chromium), nor would any clay or synthetic liners be required in Areas 2 and 3. This activity would require over 6 acres of paving, costing approximately $700,000 to $1,000,000; however, the excavations have already reduced the majority of the known chemical mass in soil and a 2-

foot thick clay layer has been placed in the Area 2 backfill. The installation of the pavement would not appreciably improve the groundwater quality, since the primary source of the chemicals of concern to groundwater has already been removed through the extensive excavation. Therefore, the primary focus of this investigation is to determine whether the groundwater quality constitutes a hazard to human health. If not, then the pavement is not necessary due to its limited expected effectiveness relative to achieving the WQCC standards.

Also in its May 8, 2003 letter, NMOCD required the following system of point-of-compliance and point-of-exposure regarding chromium: "If dissolved chromium reaches or exceeds the site-specific action level of 0.040 mg/l in adjoining property residential wells or onsite active water wells, then immediate corrective action and public protection plan will be implemented and a new domestic water supply well will be installed to provide potable water." The existing data indicate that this site-specific action level has not been exceeded at the residential well nor in the onsite water supply well, thus, no active corrective action to address the presence of chromium is warranted at this time. This action level is a reasonable standard and will be used, among other criteria, in evaluating the data from the proposed investigation.

The 18 monitoring wells existing on, upgradient, and downgradient from the site, were installed according to the NMOCD's letter, dated May 25, 2000 (NMOCD 2000a), which stated: "The initial groundwater monitoring wells shall only be completed to a depth sufficient to hold 15 feet of slotted screen, in which 10 feet shall be below the water table level...", however, as of October 2004 many of the wells have less than 10 feet. In the chloride transport model (Hydrus 1-D) included in the Comprehensive Status Report (ETGI, 2003a), 10 feet was used as the thickness of the mixing zone; NMOCD concurred that 10 feet is appropriate (NMOCD, 2003a). The thickness of the groundwater mixing zone is primarily a function of the length of the affected soil parallel to groundwater flow and secondarily a function of the ratio of the infiltration rate through the contaminated soil to the flux of the aquifer across the contaminated soil; under the current conditions of the site, a mixing zone of 10 feet would be appropriate for a source area that is approximately 100 feet long.

In the letter dated July 10, 2000, the NMOCD stated that Champion shall complete the new monitoring wells as follows: "At least 15 feet of well screen shall be placed across the water table interface with 5 feet of the well screen above....". As of October 2004, only MW-1, MW-11 and MW-15 have 10 feet or more of screen below the water table (Appendix A).

Only one well that is regularly sampled, the onsite supply well, is known to be screened beneath the mixing zone. As shown on Figure 3, this supply well is located in the same area as the monitoring wells which contained dissolved chromium concentrations above the WQCC criterion, nonetheless, it has never had detectable dissolved chromium in any of the 8 samples analyzed since August 2002, when it was first sampled for this abatement program. The supply well is constructed in a manner which is representative of a reasonably expected point of withdrawal. Since the Ogallala water table elevation at the site is declining by approximately 0.7 to 1.2 feet per year, it is reasonable to expect that a person installing a water supply well would screen it to the bottom of the Ogallala to optimize the period of operation before the well becomes inoperable due to insufficient penetration into the groundwater.

3.2 Lines of Evidence

The objective of the proposed investigation is to collect additional data to complete the site characterization and to determine whether: a) sufficient natural dilution is occurring over the travel time and 3-dimensional distance between the onsite source of chromium and a reasonably expected time and place of withdrawal of groundwater for use as human drinking water, using primary lines of evidence, and b) the geochemical conditions of the regional aquifer are amenable to the precipitation of dissolved chromium, thus, further purifying the water at a reasonably expected point of withdrawal, using secondary lines of evidence. Both lines of evidence can be incorporated into predictive models, if needed, to further demonstrate whether or not a *hazard to human health* exists. This objective is consistent with the definition of a *hazard to public health,* as defined in Title 19 NMAC, Chapter 15, Part 1.7).

The goal of this proposed investigation is to demonstrate: 1) the site conditions do not constitute a *hazard to human heath*, so that no further action is warranted, and/or 2) natural attenuation can occur, such that protective concentrations of chemicals of concern may be attained within a reasonable distance from the site and within a reasonable period of time. The existing site data and the data to be collected, as described in Section 3.3, will be used to evaluate primary and secondary lines of evidence.

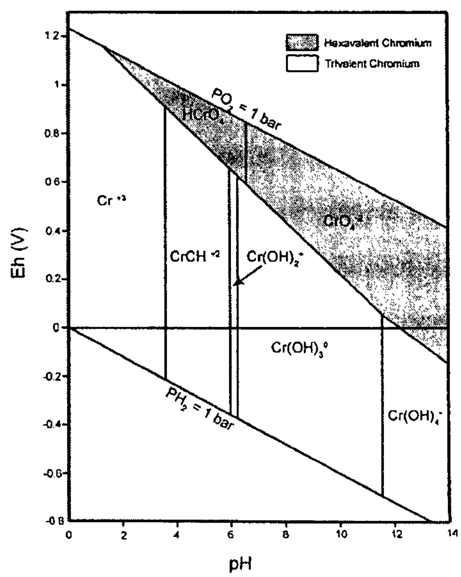
3.2.1 Primary Lines of Evidence

Primary lines of evidence are data from historical samples that demonstrate a clear and meaningful trend of declining contaminant mass and/or concentrations at appropriate monitoring or sampling points. Primary lines of evidence are used to determine whether plumes are expanding, shrinking, or stable. The historical site groundwater data and the data collected during this field program will be evaluated using tools such as linear and nonlinear regression, and Mann Kendall trend analysis. A minimum of four periodic sampling events are required to apply the Mann Kendall trend analysis (EPA, 2000a). Data will also be compared against the predicted concentrations from various models, such as the Hydrus-1D model presented in the 2003 Comprehensive Status Report. Models can be conservatively applied with the assumption that only natural dilution is occurring with no decay of contaminant mass.

3.2.2 Secondary Lines of Evidence

Secondary lines of evidence include data from site characterization that indirectly demonstrate the type of natural attenuation processes active at the site and determine the rate at which such processes will reduce concentrations of chemicals of concern to required levels. For example, the potential for proper geochemical conditions can be determined by measuring the levels of dissolved oxygen (DO), nitrate, iron II (ferrous), sulfide, and other parameters. These factors contribute to the purification of water by decay of the contaminant mass, independent of natural dilution.

Chromium oxidation states are dependent upon pH and oxidation-reduction potential (ORP) (otherwise known as Eh), shown in the diagram to the right. In near-neutral pH conditions and reductive and low oxidative ORP levels, chromium precipitates into an insoluble trivalent hydroxide, the most thermodynamically stable form. Iron II, sulfide, and organic carbon tend to reduce chromium, and reduced chromium is more likely to precipitate or adhere to aquifer matrix solids, removing it from the dissolved phase (EPA, 2000b and Palmer and Wittbrodt, 1991). The Eh is related to the geochemical characteristics, such as DO, iron II, and sulfate.



Source: Palmer and Wittbrodt, 1991

3.3 Investigation Program

Based on a review of the recent groundwater monitoring data, chloride and chromium are the only chemicals of concern at the site. The proposed supplemental soil and groundwater data are discussed below and summarized on Figures 7 and 8, and Tables 1 and 2

3.3.1 Soil Boring and Monitoring Well Installation

Three soil borings, one deep monitoring well, and two shallow monitoring wells are proposed. Based on the distribution of the groundwater concentrations, the source of chromium appears to be less than 50 feet wide, located approximately 100 to 150 feet upgradient of MW-4. The soil borings (ESCSB-1, ESCSB-2, and ESCSB-3) will be drilled upgradient of MW-13 to confirm the lack of a large onsite source area of chromium. One of these borings (ESCSB-1) will be advanced approximately 20 feet into the saturated zone and converted into a monitoring well (MW-19) to more precisely locate the origin of the chromium plume. MW-20 will be installed on private property approximately 100 feet east of MW-10 and the deep monitoring well, MW-4D, approximately 5 feet from MW-4.

The proposed monitoring wells serve two major purposes: 1) to allow for a conservative monitoring point representing a reasonably expected point of withdrawal, and 2) to delineate the longitudinal extent and concentration distribution of the offsite chromium plume and mixing zone. MW-4D will serve as a point of compliance well and it will be used with the onsite water supply well to provide an early warning system of detection to ensure the dissolved chromium criterion of 0.040 mg/l is not exceeded at a theoretical, reasonably expected domestic use supply well located onsite or downgradient of the site.

Consistent with the July 10, 2000, NMOCD letter, MW-19 and MW-20 will be constructed with approximately 25 feet of screen, to ensure that, during the proposed monitoring period, the wells penetrate at least 10 feet into the saturated zone. MW-4D will be constructed to a depth of approximately 120 feet bgs to simulate a reasonably expected water supply well, screened over the entire saturated zone encountered. These wells will be constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) risers and 0.02-inch slotted screens. The top of the screens will be placed 5 feet above the saturated zone as encountered during construction. Sand with an appropriate grain-diameter will be placed around each well-screen from the bottom to 2 feet above, as a filter packing. At least three feet of hydrated bentonite will be used to create a seal on top of the sand filter pack. A bentonite-portland cement grout mixture will be used to seal the remainder of the borehole to the ground surface. The monitoring wells will be completed at the ground surface with a traffic-rated manhole and a watertight protective steel cover, set with a concrete collar. The wells will also be fitted with a locking well cap. Boring logs and well construction logs will be prepared for each drilled location.

The drilling and sampling activities will be conducted with clean equipment. The drilling equipment will be cleaned using a portable pressure washer or steam cleaner, in accordance with Environmental Strategies' Standard Operating Procedures.

A surveyor, licensed in the State of New Mexico, will survey the well locations and elevations. To allow for an accurate determination of the onsite groundwater flow direction, the elevations of the ground surface near each new well and the top of the PVC well casing will be surveyed to the nearest 0.01-foot. The horizontal locations of the new wells will be recorded to the nearest 0.1 foot. The elevations and locations of the existing monitoring wells, piezometers, and selected landmarks, such as building and fence corners will also be surveyed to ensure consistency between the new and existing wells.

The newly installed monitoring wells will be developed to remove sediment and ensure effective communication between the well screens and the surrounding saturated zone. The development activities will be conducted with clean equipment to prevent potential cross-contamination between the well locations. Equipment will be cleaned between each well, with the decontamination procedure dependent on the development method(s) and equipment used. The wells will be developed by surging the screened interval to loosen any fine-grained sediment in the sand filter pack and adjacent aquifer material. Groundwater from the well will then be removed by bailing or pumping. Turbidity, pH, temperature, and other field parameters will be periodically monitored during the development process to ensure that water representative of the screened portion of the aquifer is entering the well. Development will continue until the discharge is relatively free of suspended sediments. In addition, if water is added to the well borehole during the drilling and installation activities, an equal volume of water will be added to the volume removed during well development.

need QA/QC

3.3.2 Soil Sampling and Analysis

Previous site investigations have determined that the subsurface is composed of thick horizons of caliche; therefore, the soil borings will be installed using air rotary drilling methods. Soil samples will be collected using 2-foot split spoon samplers during the installation of the three soil borings, at five-foot intervals. The split spoon, which leads the cutter head by approximately an inch, will allow collection of undisturbed soil samples. Borings will be completed to the top of the saturated zone, approximately 50 feet bgs. The soil cuttings will be logged in accordance to ASTM standards. As summarized on Table 1, systematically selected soil samples will be collected for laboratory analysis. The monitoring wells will be installed using air rotary drilling methods without using the split spoon sampler (except the unsaturated soil column at MW-19); however, wherever split spoon samples are not collected, soil cuttings will be logged for lithologic characterization.

3.3.3 Water Sampling and Analysis

The proposed groundwater sampling program is four quarterly sampling events. During each sampling event, before initiating any sampling activities, the depth to water at each monitoring well and piezometer will be measured and an inferred groundwater elevation map will be generated.

The wells specified in Table 2 will be purged of a minimum of three well volumes before sampling using a submersible pump or bailer. During purging, temperature, pH, ORP and dissolved oxygen will be monitored using a water quality meter equipped with a flow-through cell. These measurements will be obtained at least three times during the well purging process. These parameters will be monitored for relative stability before collecting the groundwater samples. Upon completion of the purging, samples for laboratory analyses shall be collected in new containers supplied by the laboratory. The laboratory samples for metals analysis shall be filtered in the field before being placed in acid-preserved containers. Ferrous iron will be measured using Hach® field analysis kits. The field analysis will involve filling Accuvac® vials with groundwater and then analyzing the groundwater samples using a Hach® Colorimetric DR890 portable colorimeter.

All non-dedicated groundwater sampling equipment will be decontaminated in the field using procedures outlined in Environmental Strategies' SOPs. Quality assurance/quality control

(QA/QC) samples, including equipment blanks and duplicates, will be collected in accordance with the SOPs. All samples will be sealed, labeled, and placed in a cooler with ice for shipment to an offsite analytical laboratory. Appropriate chain-of-custody procedures will be followed.

3.3.4 Management of Investigation-Derived Waste

The soil cuttings, decontamination fluids, and well development water generated during the drilling activities will be contained in Department of Transportation (DOT)-approved 55-gallon steel drums. Water generated during drilling and monitoring well sampling will also be contained in drums. All drummed materials will be labeled in accordance with applicable regulations and moved to a staging area at the facility. These investigation-derived wastes (IDW) will be characterized for disposal upon completing the field activities. The characterization and disposal of the soil cuttings shall be conducted in conjunction with the disposal of the existing stockpile remaining from the Area 3 and Area 5 excavations described in Section 2.3.1.

4.0 Implementation

4.1 Property Access

Since this abatement activity is being conducted under a discharge plan and is a supplement to previous abatement activities for which public notices have already been completed, no additional public notices are required.

Before installing the off-property monitoring wells, access for drilling will need to be secured. Access to the existing off-property wells will also be needed before the quarterly sampling is initiated.

4.2 Schedule

The field work will begin as soon as practical after this plan is approved by the NMOCD. Within 15 days of securing access to all proposed monitoring points and after the installation of the monitoring wells, the first of four quarterly sampling events will be conducted. After four quarters of groundwater sampling, the completion report will be prepared and submitted to the NMOCD within 90 days of receipt of the final laboratory analysis report. A proposed project schedule is presented in Figure 9.

4.3 Abatement Plan Termination and Completion Report

The underlying purpose of this supplemental investigation is to obtain NMOCD approval to terminate the abatement plan for the site. As required in Rule 19(K), a completion report shall be prepared upon completion of the work in this investigation plan for submittal to the NMOCD. The purpose of the investigation and report is to document the data that support the hypotheses presented in this plan which would allow for termination of the abatement activity at the site. The primary hypotheses are:

- The source area of the chromium plume does not require further abatement to prevent a *hazard to human health*
- Due to natural dilution and purification, the chromium concentrations in groundwater would not require further abatement to attain the site-specific action level of 0.040 mg/l at a reasonably expected point of withdrawal
- The chloride concentrations in regional offsite groundwater exceed the WQCC standard making onsite abatement to attain the standard at the site infeasible. Additionally, the Stage 2 chloride abatement activity, already completed, has substantially removed the onsite chloride source area and will control future transport of chloride such that no further abatement is required to address chloride in soil or groundwater. It should be noted, that the chloride concentrations onsite are consistent with the Hydrus-1D model that was approved by NMOCD
- The VOCs and metals (other than chromium) identified in previous investigations do not require further abatement, as discussed in Section 2.3.2 of this plan.

need monitoring

The items included in the completion report would be, as applicable: a demonstration that a hazard to human health does not exist; recommendations for long-term maintenance or monitoring; a technical infeasibility demonstration under Rule 19 (B)(5); or an alternate abatement standard petition under Rule 19(B)(6).

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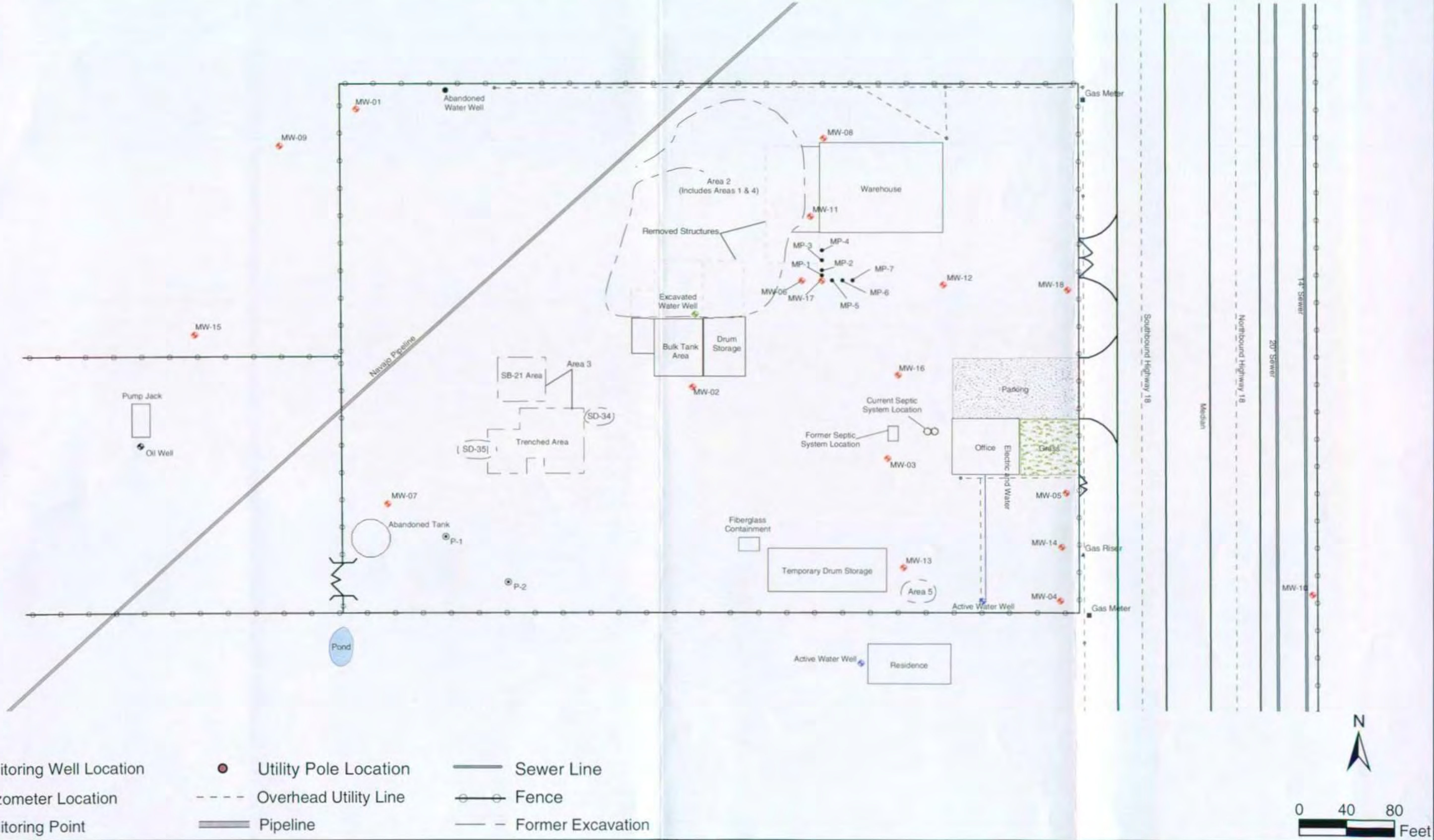
Figures



Legend

- Monitoring Well Location
- Piezometer Location
- Monitoring Point
- Utility Pole Location
- Overhead Utility Line
- Pipeline
- Sewer Line
- Fence
- Former Excavation

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Figure 1
Site Plan
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

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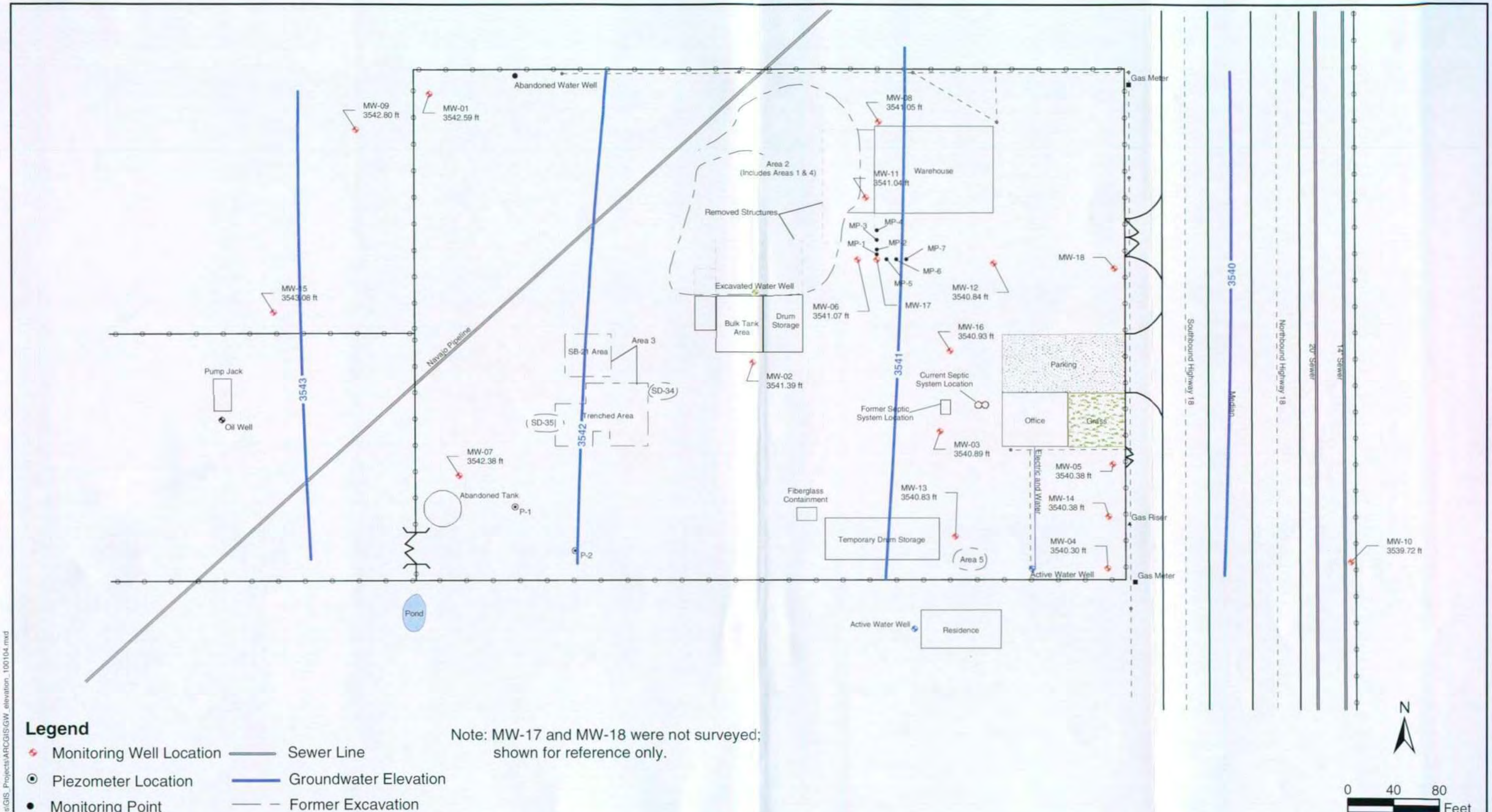

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Figure 2
Groundwater Elevation - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

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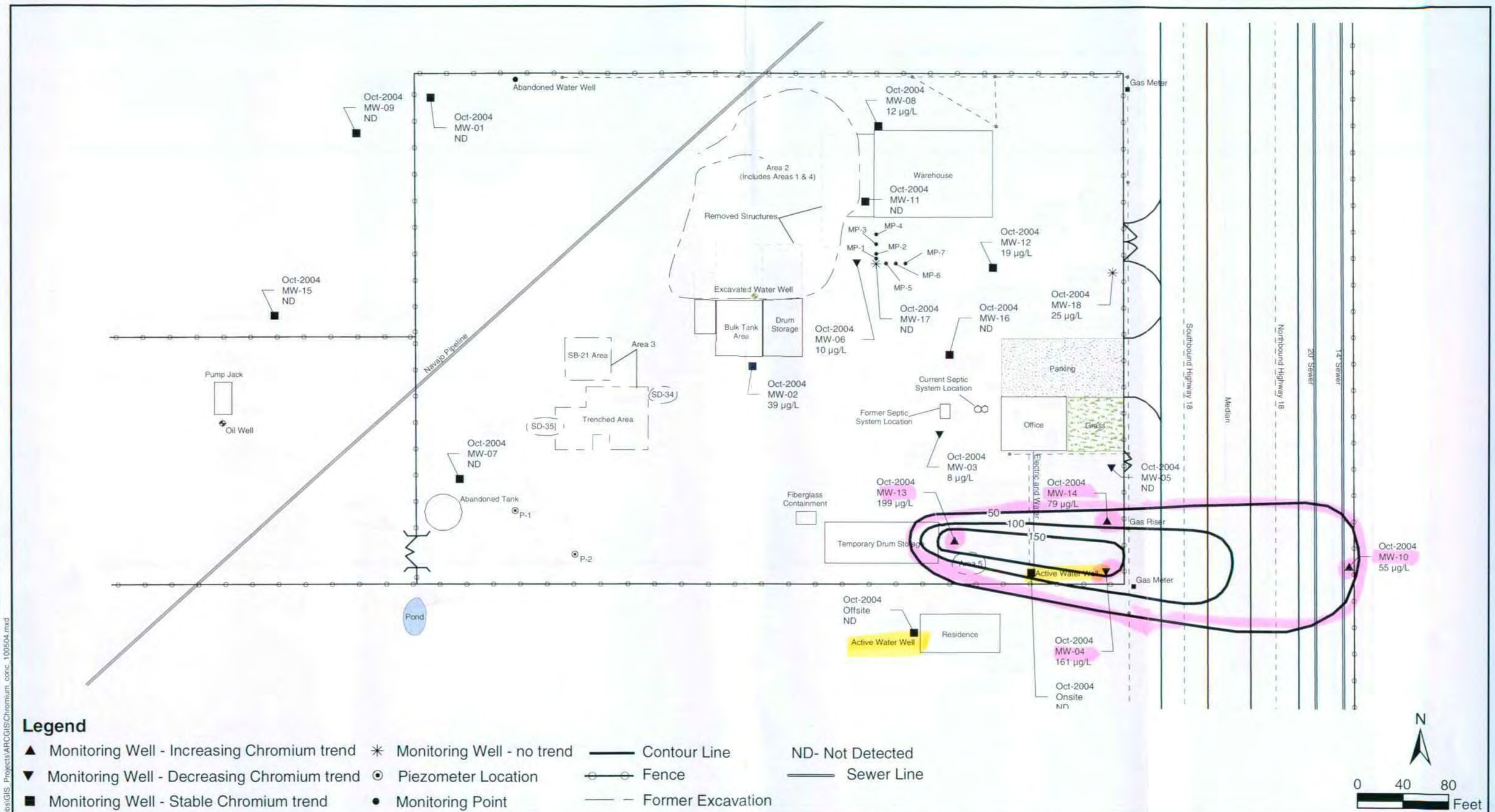

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Figure 3
Chromium Concentration Trend - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

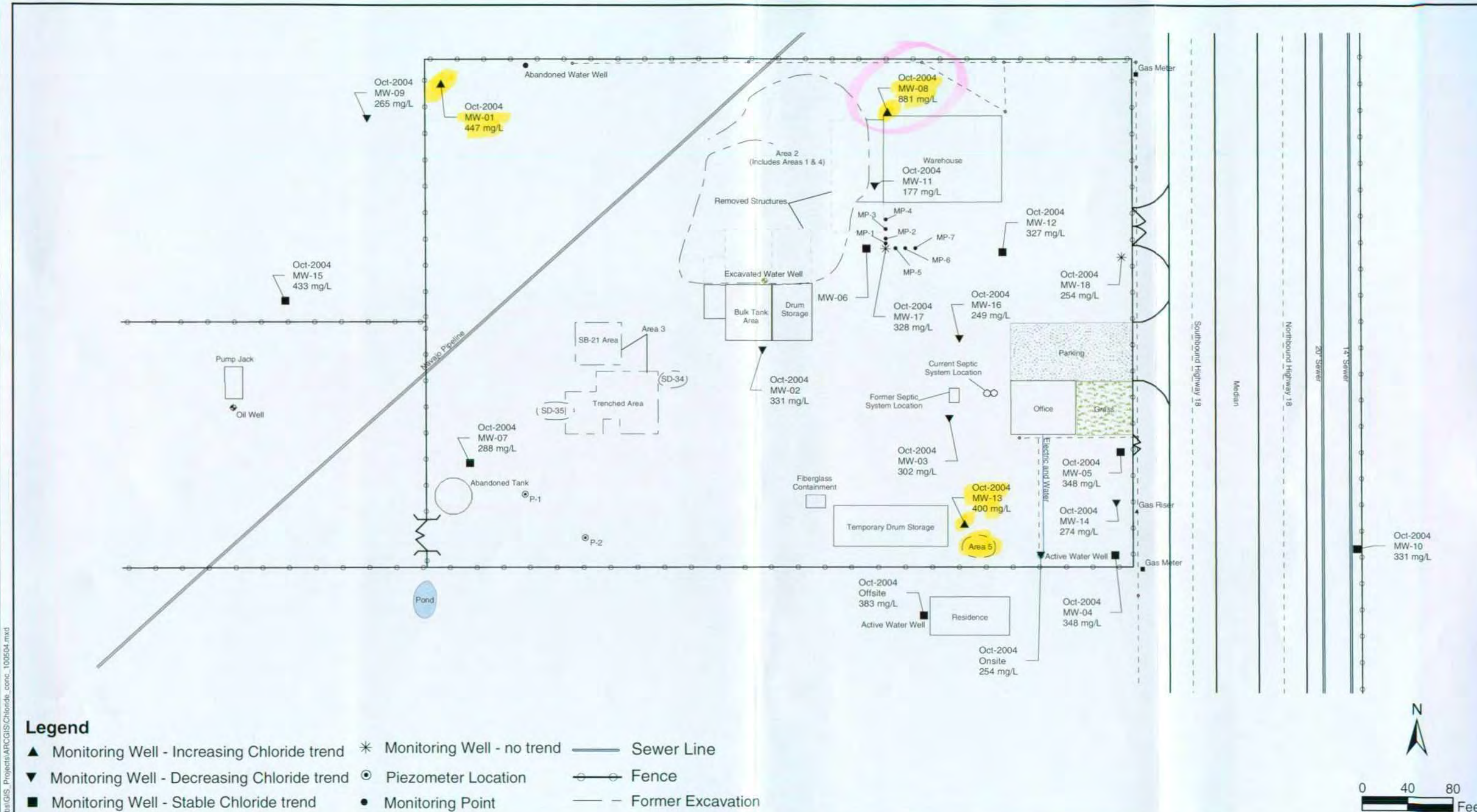

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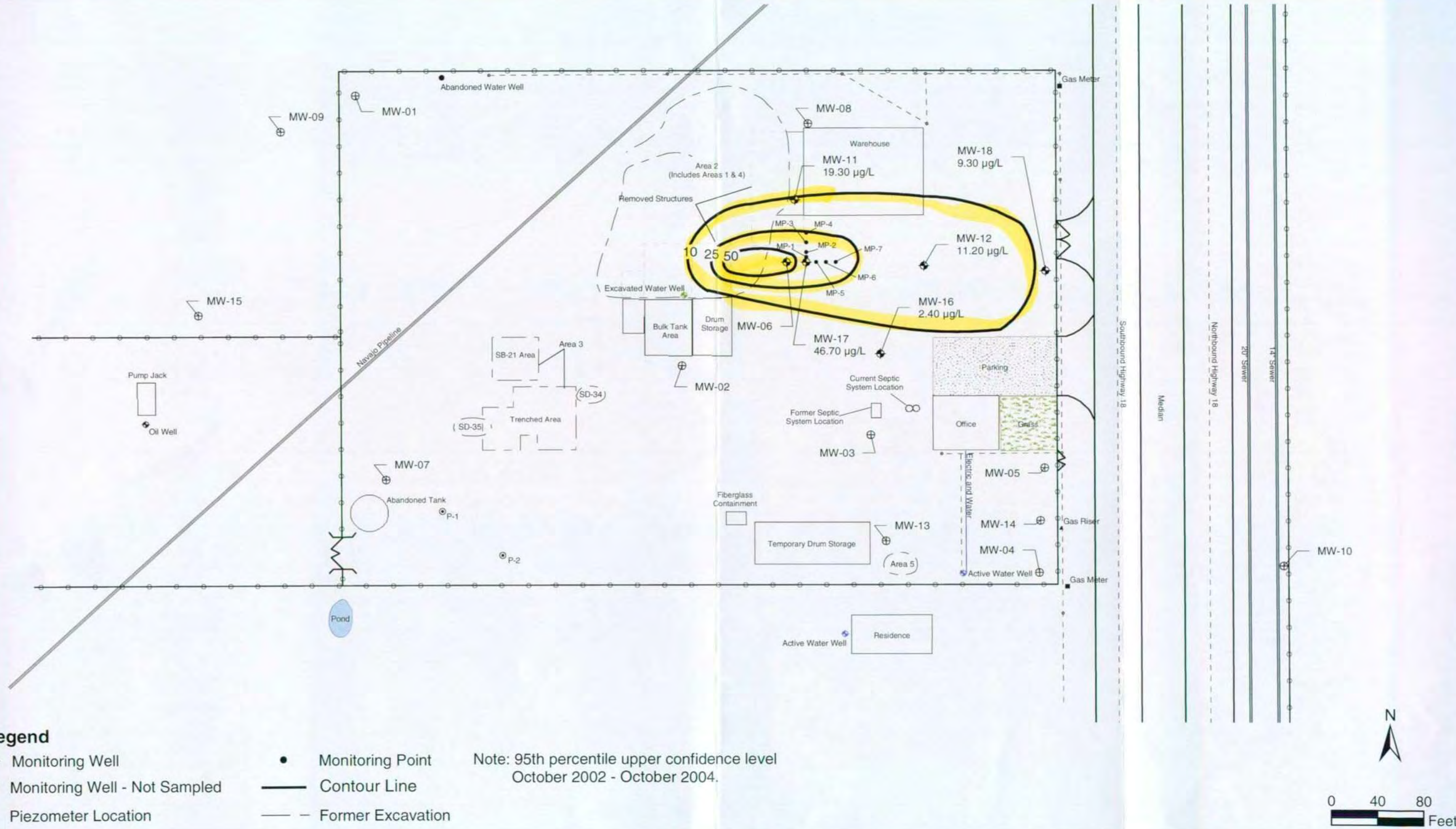
Figure 4
Chloride Concentration Trend - October 2004
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM



Legend

- Monitoring Well
- Monitoring Well - Not Sampled
- Piezometer Location
- Monitoring Point
- Contour Line
- Former Excavation

Note: 95th percentile upper confidence level
October 2002 - October 2004.

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Figure 5
1,1-Dichloroethane Concentrations
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

WQCC = .025 mg/l
25 µg/l

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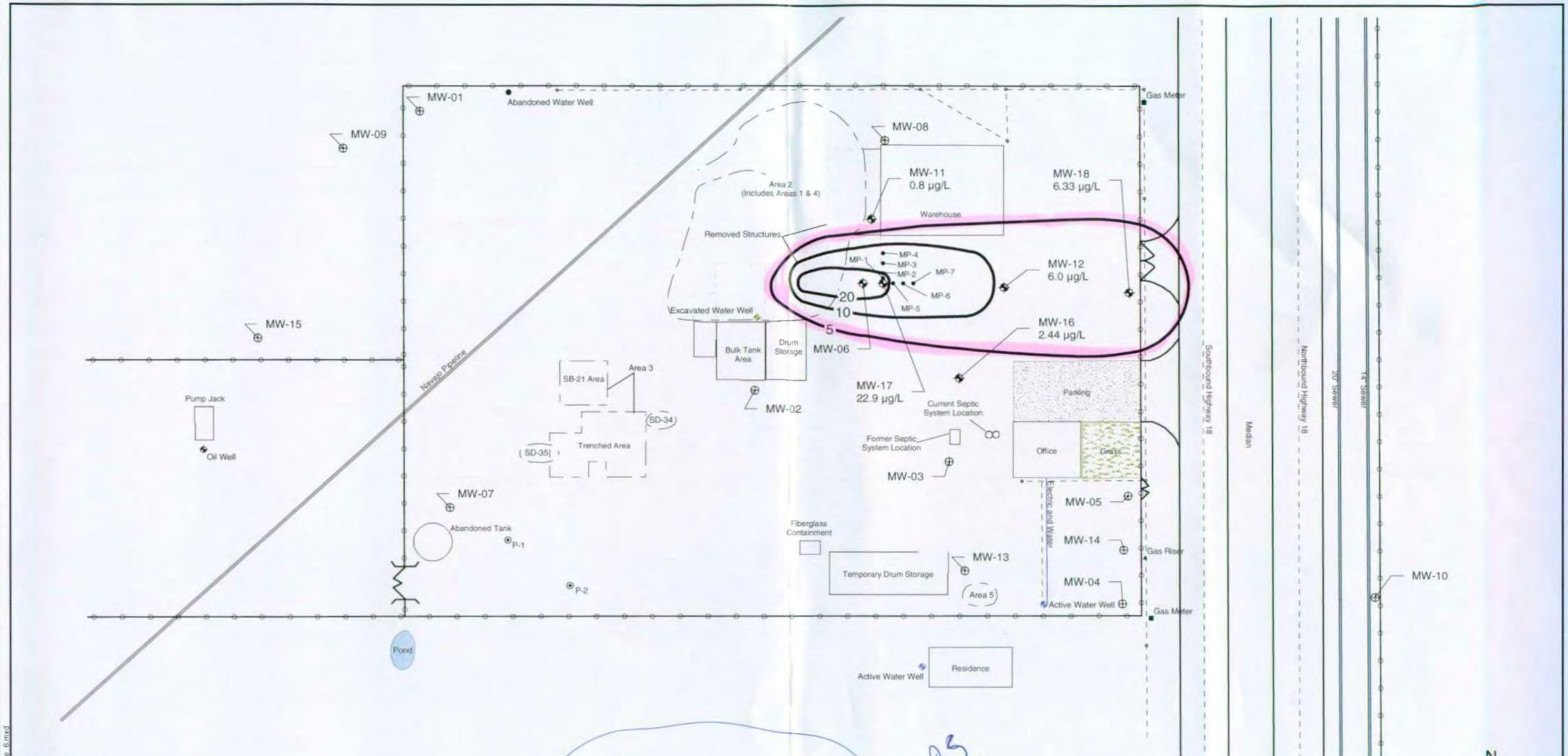

Legend

- Monitoring Well
- Monitoring Well - Not Sampled
- Piezometer Location
- Monitoring Point
- Contour Line
- Former Excavation

Note: 95th percentile upper confidence level
October 2002 - October 2004.

BS

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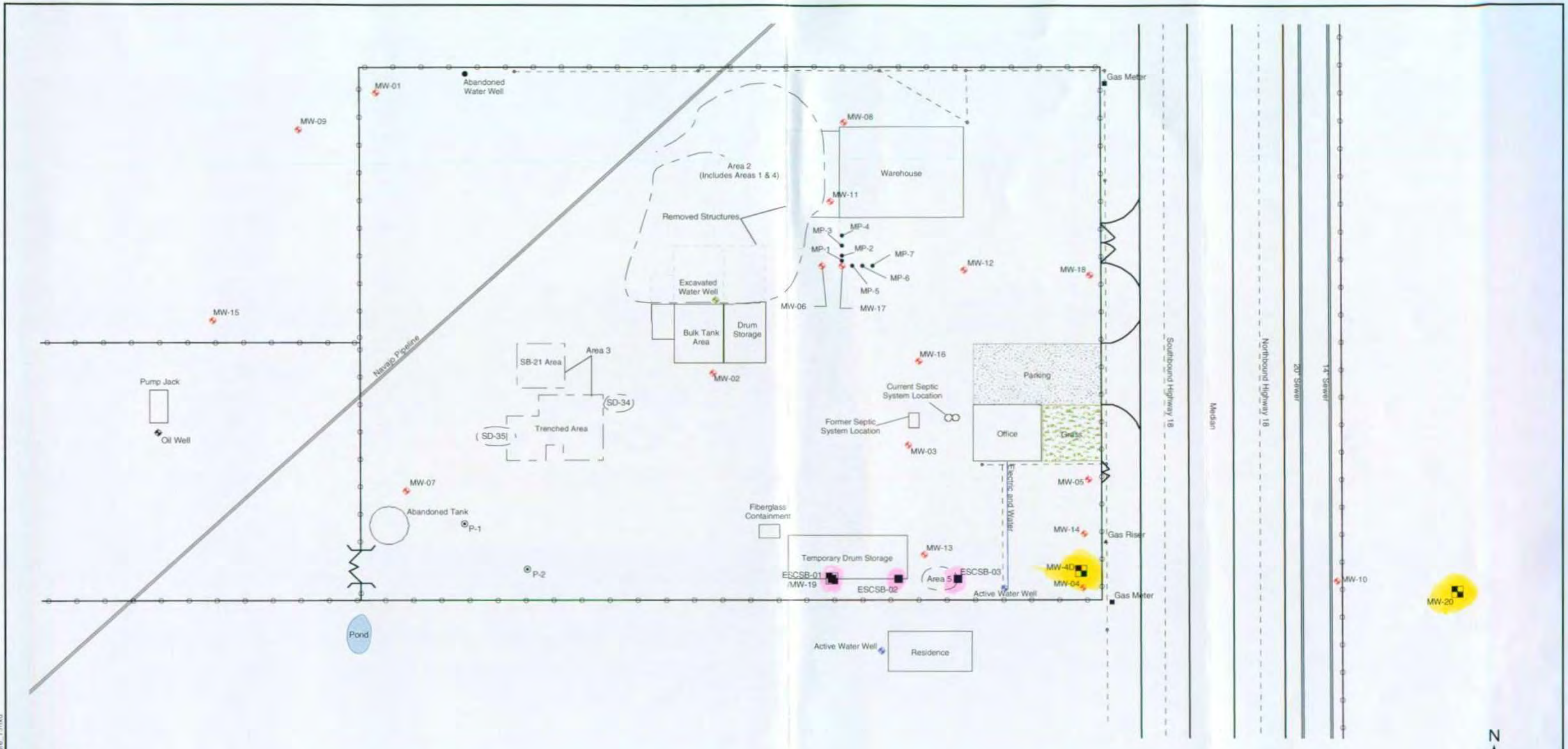
Figure 6
Perchloroethene Concentrations
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

WQCC = .02 mg/l
20 µg/l



Legend

- Monitoring Well Location
- Proposed Monitoring Well Location
- Proposed Soil Boring Location
- Piezometer Location
- Monitoring Point
- Sewer Line
- Fence
- Former Excavation

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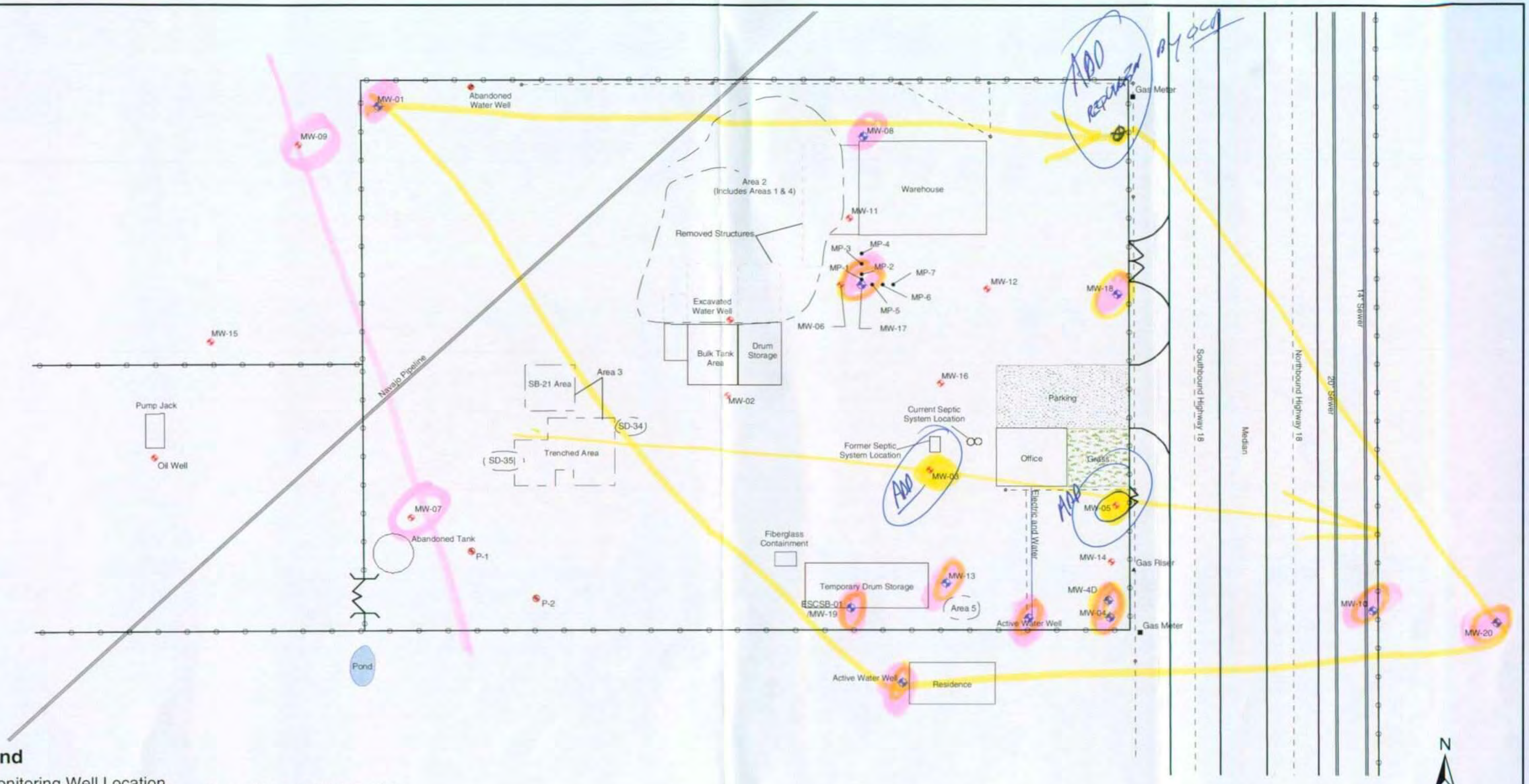
Figure 7
Proposed Monitoring Wells and Soil Borings
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM



Legend

- Monitoring Well Location
- Proposed Monitoring Well Sample Location
- Monitoring Point
- Piezometer Location
- Sewer Line
- Former Excavation

0 40 80 Feet

N

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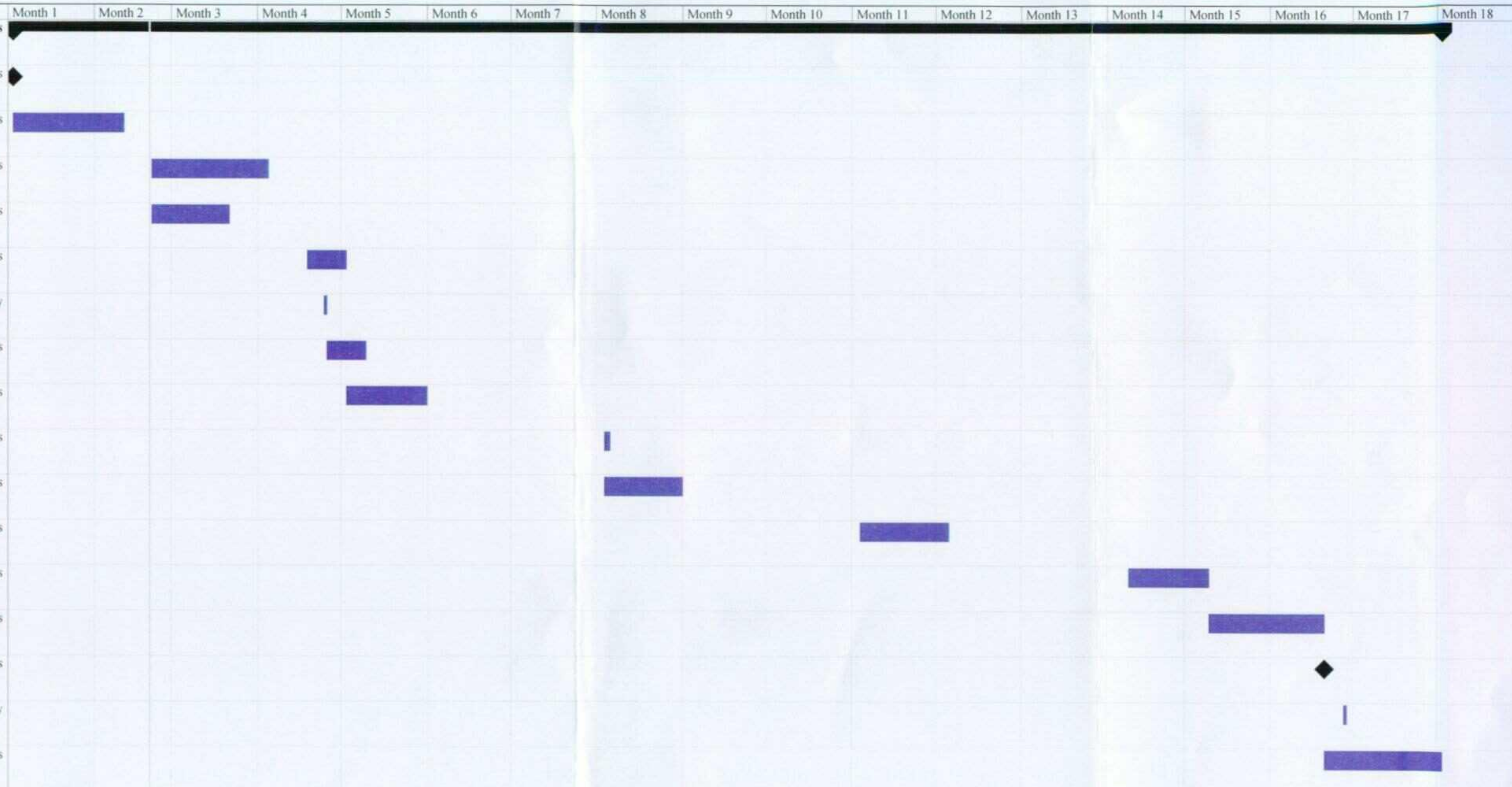
4600 SOUTH ULSTER STREET, SUITE 930
DENVER, COLORADO 80237
(303) 850-9200

Figure 8
Proposed Groundwater Monitoring Program
Champion Technologies Inc.
Hobbs Facility
Hobbs, NM

Figure 9
Proposed Project Schedule
Champion Technologies Inc. Site
Hobbs, New Mexico

Task Name	Duration
project summary	**360 days**
submit plan	0 days
OCD review and approval	30 days
access agreements	30 days
procurement	20 days
drill 3 SBs and install/develop 3 MWs	10 days
survey wells	1 day
soil analysis	10 days
Q1 sampling	20 days
T&D stockpile and drilling IDW	2 days
Q2 sampling/manage Q1 IDW	20 days
Q3 sampling/manage Q2 IDW	20 days
Q4 sampling/manage Q3 and Q4 IDW	20 days
evaluate data and prepare report	30 days
submit completion report	0 days
meeting with OCD	1 day
OCD review and approval	30 days



Project: fig10
Date: Mon 2/21/05

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Environmental Strategies Consulting LLC
4600 South Ulster Street, Suite 930
Denver, Colorado 80237

Tables

Table 1

Summary of Proposed Soil Borings and Monitoring Wells

Site Designation	Approximate Depth (feet bgs)	Soil Sample Depth (feet bgs)	Soil Analyses/Method
ESCSB-1/MW-19	50/80	1, 5, 10, 15, 25, 35 and 50*	Chromium EPA 6010 Chloride EPA 9056 pH EPA 9045
ESCSB-2	50		
ESCSB-3	50		
MW-4D	120	--	--
MW-20	80	--	--

* The deepest sample will be collected as close to the top of the saturated zone as practical.

Table 2
Summary of Groundwater Monitoring Program

Designation	Field Parameters [a]	Quarterly Lab Analyses [b]	Additional Lab Analyses (First Two Quarters) [b]
MW-1	pH ORP Dissolved Oxygen Ferrous Iron	Chromium EPA 6010 Chloride EPA 300.0	Sulfide EPA 9030 Sulfate EPA 9035 Iron EPA 6010 Total Organic Carbon EPA 9060
MW-8			
MW-17			
MW-18			
MW-4			
MW-4D			
MW-10			
MW-13			
MW-19			
MW-20			
Onsite Supply Well			
Offsite Supply Well			

a) Ferrous iron, using a HACH kit, is to be completed for the first two quarters of monitoring only.

b) All metals samples shall be filtered through a new 0.45 micron filter prior to placing in an acid-preserved container.

Appendix A – Groundwater Elevations

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-1	8/2/02	3594.44	50.75	3543.69			63.00	12.25
	8/22/02		50.75	3543.69	0.00	0.00		12.25
	9/20/02		50.94	3543.50	-0.19	-1.42		12.06
	10/21/02		50.96	3543.48	-0.21	-0.96		12.04
	11/13/02		51.01	3543.43	-0.26	-0.92		11.99
	2/18/03		51.22	3543.22	-0.47	-0.86		11.78
	11/4/03		52.25	3542.19	-1.50	-1.19		10.75
	3/17/04		52.56	3541.88	-1.81	-1.11		10.44
	6/24/04		52.56	3541.88	-1.81	-0.95		10.44
	10/5/04		51.85	3542.59	-1.10	-0.51		11.15
MW-2	10/21/02	3602.78	60.08	3542.70			63.00	2.92
	2/18/03		60.29	3542.49	-0.21	-0.64		2.71
	11/4/03		61.31	3541.47	-1.23	-1.18		1.69
	3/17/04		61.65	3541.13	-1.57	-1.12		1.35
	6/24/04		61.73	3541.05	-1.65	-0.98		1.27
	10/5/04		61.39	3541.39	-1.31	-0.67		1.61
MW-3	8/2/02	3599.49	56.81	3542.68			63.00	6.19
	8/22/02		56.84	3542.65	0.03	0.55		6.16
	9/20/02		57.02	3542.47	0.00	0.00		5.98
	10/21/02		57.09	3542.40	-0.18	-0.82		5.91
	11/13/02		57.06	3542.43	-0.25	-0.89		5.94
	2/18/03		57.31	3542.18	-0.22	-0.40		5.69
	11/4/03		58.44	3541.05	-0.47	-0.37		4.56
	3/17/04		58.74	3540.75	-1.60	-0.98		4.26
	6/24/04		58.82	3540.67	-1.90	-1.00		4.18
	10/5/04		58.60	3540.89	-1.98	-0.91		4.40

* Top of Casing raised on 9-18-02

** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-4	8/2/02	3599.40	57.13	3542.27			63.00	5.87
	8/22/02		57.17	3542.23	-0.04	-0.73		5.83
	9/20/02		57.37	3542.03	-0.24	-1.79		5.63
	10/21/02		57.45	3541.95	-0.32	-1.46		5.55
	11/13/02		57.47	3541.93	-0.34	-1.20		5.53
	2/18/03		57.61	3541.79	-0.48	-0.88		5.39
	11/4/03		58.76	3540.64	-1.63	-1.30		4.24
	3/17/04		59.10	3540.30	-1.97	-1.21		3.90
	6/24/04		59.21	3540.19	-2.08	-1.10		3.79
	10/5/04		59.10	3540.30	-1.97	-0.90		3.90
MW-5	8/2/02	3599.28	56.97	3542.31			63.00	6.03
	8/22/02		57.00	3542.28	-0.03	-0.55		6.00
	9/20/02		57.19	3542.09	-0.22	-1.64		5.81
	10/21/02		57.28	3542.00	-0.31	-1.41		5.72
	2/18/03		57.50	3541.78	-0.53	-0.97		5.50
	11/4/03		58.63	3540.65	-1.66	-1.32		4.37
	3/17/04		58.94	3540.34	-1.97	-1.21		4.06
	6/24/04		59.02	3540.26	-2.05	-1.08		3.98
	10/5/04		58.90	3540.38	-1.93	-0.89		4.10
MW-6	8/2/02	3599.20	56.38	3542.82			62.00	5.62
	8/22/02		56.44	3542.76	-0.06	-1.09		5.56
	9/20/02	3603.56*	60.98	3542.58	-0.24	-1.79		1.02
	10/21/02		61.04	3542.52	-0.30	-1.37		0.96
	11/13/02		61.08	3542.48	-0.34	-1.20		0.92
	2/18/03		61.30	3542.26	-0.56	-1.02		0.70
	11/4/03		62.68	3540.88	-1.94	-1.54		-0.68
	3/17/04		62.68	3540.88	-1.94	-1.19		-0.68
	6/24/04		62.73	3540.83	-1.99	-1.05		-0.73
	10/5/04		62.49	3541.07	-1.75	-0.80		-0.49

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-7	8/2/02	3596.91	53.16	3543.75			62.00	8.84
	8/22/02		53.28	3543.63	-0.12	-2.19		8.72
	9/20/02		53.40	3543.51	-0.24	-1.79		8.60
	10/21/02		53.46	3543.45	-0.30	-1.37		8.54
	11/13/02		53.51	3543.40	-0.35	-1.24		8.49
	2/18/03		53.70	3543.21	-0.54	-0.99		8.30
	11/4/03		54.67	3542.24	-1.51	-1.20		7.33
	3/17/04		54.97	3541.94	-1.81	-1.11		7.03
	6/24/04		54.97	3541.94	-1.81	-0.95		7.03
	10/5/04		54.53	3542.38	-1.37	-0.63		7.47
MW-8	8/2/02	3602.68	59.87	3542.81			69.00	9.13
	8/22/02		59.98	3542.70	-0.11	-2.01		9.02
	9/20/02		60.12	3542.56	-0.25	-1.86		8.88
	10/21/02		60.18	3542.50	-0.31	-1.41		8.82
	2/18/03		60.38	3542.30	-0.51	-0.93		8.62
	11/4/03		61.50	3541.18	-1.63	-1.30		7.50
	3/17/04		61.87	3540.81	-2.00	-1.23		7.13
	6/24/04		61.90	3540.78	-2.03	-1.07		7.10
	10/5/04		61.63	3541.05	-1.76	-0.81		7.37
MW-9	8/2/02	3597.00	53.15	3543.85			61.00	7.85
	8/22/02		53.12	3543.88	0.03	0.55		7.88
	9/20/02		53.34	3543.66	-0.19	-1.42		7.66
	10/21/02		53.37	3543.63	-0.22	-1.00		7.63
	2/18/03		53.61	3543.39	-0.46	-0.84		7.39
	11/4/03		54.63	3542.37	-1.48	-1.18		6.37
	3/17/04		55.00	3542.00	-1.85	-1.14		6.00
	6/24/04		54.97	3542.03	-1.82	-0.96		6.03
	10/5/04		54.20	3542.80	-1.05	-0.48		6.80

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-10	10/16/02	3600.84	59.38	3541.46			67.00	7.62
	10/21/02		59.37	3541.47	0.01	0.73		7.63
	2/18/03		59.61	3541.23	-0.23	-0.67		7.39
	11/4/03		60.75	3540.09	-1.37	-1.30		6.25
	3/17/04		61.05	3539.79	-1.67	-1.18		5.95
	6/24/04		61.13	3539.71	-1.75	-1.04		5.87
	10/5/04		61.12	3539.72	-1.74	-0.88		5.88
MW-11	10/16/02	3599.63	57.09	3542.54			70.00	12.91
	10/21/02		57.12	3542.51	-0.03	-2.19		12.88
	2/18/03		57.35	3542.28	-0.26	-0.76		12.65
	11/4/03		58.46	3541.17	-1.37	-1.30		11.54
	3/17/04		58.18**	3541.45	-1.09	-0.77		11.82
	6/24/04		58.84	3540.79	-1.75	-1.04		11.16
	10/5/04		58.59	3541.04	-1.50	-0.76		11.41
MW-12	10/16/02	3602.80	60.42	3542.38			70.00	9.58
	10/21/02		60.45	3542.35	-0.03	-2.19		9.55
	2/18/03		60.65	3542.15	-0.23	-0.67		9.35
	11/4/03		61.80	3541.00	-1.38	-1.31		8.20
	3/17/04		62.14	3540.66	-1.72	-1.21		7.86
	6/24/04		62.18	3540.62	-1.76	-1.04		7.82
	10/5/04		61.96	3540.84	-1.54	-0.78		8.04

* Top of Casing raised on 9-18-02

** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-13	10/16/02	3602.68	60.28	3542.40			71.00	10.72
	10/21/02		60.39	3542.29	-0.11	-8.03		10.61
	11/13/02		60.35	3542.33	-0.07	-0.91		10.65
	2/18/03		60.52	3542.16	-0.24	-0.70		10.48
	11/4/03		61.71	3540.97	-1.43	-1.36		9.29
	3/17/04		62.02	3540.66	-1.74	-1.23		8.98
	6/24/04		62.08	3540.60	-1.80	-1.06		8.92
	10/5/04		61.85	3540.83	-1.57	-0.80		9.15
MW-14	10/16/02	3599.23	57.17	3542.06			68.00	10.83
	10/21/02		57.24	3541.99	-0.07	-5.11		10.76
	2/18/03		57.43	3541.80	-0.26	-0.76		10.57
	11/4/03		58.56	3540.67	-1.39	-1.32		9.44
	3/17/04		58.95**	3540.28	-1.78	-1.25		9.05
	6/24/04		58.98	3540.25	-1.81	-1.07		9.02
	10/5/04		58.85	3540.38	-1.68	-0.85		9.15
MW-15	10/16/02	3597.06	53.26	3543.80			68.00	14.74
	10/21/02		53.31	3543.75	-0.05	-3.65		14.69
	11/13/02		53.35	3543.71	-0.09	-1.17		14.65
	2/18/03		53.56	3543.50	-0.30	-0.88		14.44
	11/4/03		54.55	3542.51	-1.29	-1.23		13.45
	3/17/04		54.87	3542.19	-1.61	-1.13		13.13
	6/24/04		54.87	3542.19	-1.61	-0.95		13.13
	10/5/04		53.98	3543.08	-0.72	-0.36		14.02

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Well Elevation	Depth to Water	Elevation	Change from Baseline (ft)	Average Rate (ft/yr)	Total Depth	Water Colum Height
MW-16	10/16/02	3602.56	60.11	3542.45			71.00	10.89
	10/21/02		60.17	3542.39	-0.06	-4.38		10.83
	11/13/02		60.19	3542.37	-0.08	-1.04		10.81
	2/18/03		60.38	3542.18	-0.27	-0.79		10.62
	11/4/03		61.50	3541.06	-1.39	-1.32		9.50
	3/17/04		61.82	3540.74	-1.71	-1.20		9.18
	6/24/04		61.88	3540.68	-1.77	-1.05		9.12
	10/5/04		61.63	3540.93	-1.52	-0.77		9.37
MW - 17	3/17/04		61.93				68.00	6.07
			61.95					6.05
MW - 18	3/17/04		62.09				69.20	7.11
			61.82					7.38
					Typical Average Rate	-1.17		
					Total Record Average Rate	-0.74		

* Top of Casing raised on 9-18-02
** Anomalous Gauge Measurement

Appendix B – Mann Kendall Trend Analyses (Chromium)

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
1	21-Oct-02	ND 5	13	12	**271**	ND 5.5	**97**
2	16-May-03	ND 5	36	11	**201**	ND 10	31
3	11-Aug-03	ND 5	40	ND 5	**187**	ND 5	**57**
4	4-Nov-03	ND 5	22	ND 10	**161**	ND 5	38
5	17-Mar-04	ND 5	12	ND 5	**163**	ND 5	
6	25-Jun-04	ND 5	26	ND 2.5	**117**	ND 2.5	ND 5
7	5-Oct-04	ND 5	39	8	**161**	ND 5.0	10
8							
9							
10							
	Mann Kendall Statistic (S) =	0.0	3.0	-12.0	-16.0	-11.0	-9.0
	Number of Rounds (n) =	7	7	7	7	7	6
	Average =	5.00	26.86	7.64	180.14	5.43	39.67
	Standard Deviation =	0.000	11.838	3.567	47.873	2.244	33.904
	Coefficient of Variation(CV)=	0.000	0.441	0.467	0.266	0.413	0.855
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	DECREASING	DECREASING	DECREASING	DECREASING
Trend ≥ 90% Confidence Level		No Trend	No Trend	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	NA	NA	NA	NA
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						-1
	7	0	0	-1	-1	-1	
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Decreasing	Decreasing	Decreasing	Decreasing

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						-1
	7	0	0	-1	-1	-1	
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Decreasing	Decreasing	Decreasing	Decreasing

MW-1										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5				Sum Rows
	0	0	0	0	0	0				0
		0	0	0	0	0				0
			0	0	0	0				0
				0	0	0				0
					0	0				0
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

MW-2										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
13.0	36.0	40.0	22.0	12.0	26.0	39.0				Sum Rows
	1	1	1	-1	1	1				4
		1	-1	-1	-1	1				-1
			-1	-1	-1	-1				-4
				-1	1	1				1
					1	1				2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						3

MW-3										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
12.0	11.0	5.0	10.0	5.0	2.5	8.0				Sum Rows
	-1	-1	-1	-1	-1	-1				-6
		-1	-1	-1	-1	-1				-5
			1	0	-1	1				1
				-1	-1	-1				-3
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-12

MW-4										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
271	201	187	161	163	117	161				Sum Rows
	-1	-1	-1	-1	-1	-1				-6
		-1	-1	-1	-1	-1				-5
			-1	-1	-1	-1				-4
				1	-1	0				0
					-1	-1				-2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-16

MW-5										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5.5	10.0	5.0	5.0	5.0	2.5	5.0				Sum Rows
	1	-1	-1	-1	-1	-1				-4
		-1	-1	-1	-1	-1				-5
			0	0	-1	0				-1
				0	-1	0				-1
					-1	0				-1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-11

MW-6										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
97	31.0	57.0	38.0		5.0	10.0				Sum Rows
	-1	-1	-1		-1	-1				-5
		1	1		-1	-1				0
			-1		-1	-1				-3
					-1	-1				-2
										0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-9

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
1	21-Oct-02	ND 5	ND 5.0	ND 5	16	ND 5	20
2	16-May-03	ND 5	24	ND 5	22	ND 5	16
3	11-Aug-03	ND 5	25	ND 5	22	ND 5	23
4	4-Nov-03	ND 5	19	ND 5	21	ND 5	16
5	17-Mar-04	ND 5	12	ND 5	48	ND 5	13
6	25-Jun-04	ND 5	8	ND 5	55	ND 5	21
7	5-Oct-04	ND 5	12	ND 10	55	ND 10	19
8							
9							
10							
	Mann Kendall Statistic (S) =	0.0	-4.0	6.0	15.0	6.0	-2.0
	Number of Rounds (n) =	7	7	7	7	7	7
	Average =	5.00	15.00	5.71	34.14	5.71	18.29
	Standard Deviation =	0.000	7.789	1.890	17.601	1.890	3.450
	Coefficient of Variation(CV)=	0.000	0.519	0.331	0.516	0.331	0.189
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	INCREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	INCREASING	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE	NA	CV <= 1 STABLE	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7	0	0	0	1	0	0
@ 80 %	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Increasing	Neither	Neither

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7	0	0	0	1	0	0
@ 90 %	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Increasing	Neither	Neither

MW-7										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5				Sum Rows
	0	0	0	0	0	0				0
		0	0	0	0	0				0
			0	0	0	0				0
				0	0	0				0
					0	0				0
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

MW-8										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	24	25	19	12	8	12				Sum Rows
	1	1	1	1	1	1				6
		1	-1	-1	-1	-1				-3
			-1	-1	-1	-1				-4
				-1	-1	-1				-3
					-1	0				-1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						-4

MW-9										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	10				Sum Rows
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-10										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
16	22	22	21	48	55	55				Sum Rows
	1	1	1	1	1	1				6
		0	-1	1	1	1				2
			-1	1	1	1				2
				1	1	1				3
					1	1				2
						0				0
										0
										0
										0
				Mann Kendall Statistic (S) =						15

MW-11										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	10				Sum Rows
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-12										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
20	16	23	16	13	21	19				Sum Rows
	-1	1	-1	-1	1	-1				-2
		1	0	-1	1	1				2
			-1	-1	-1	-1				-4
				-1	1	1				1
					1	1				2
						-1				-1
										0
										0
										0
				Mann Kendall Statistic (S) =						-2

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
1	21-Oct-02	**151**	6	ND 5	ND 5		
2	16-May-03	**158**	30	ND 5	ND 5		
3	11-Aug-03	**191**	35	ND 5	ND 5		
4	4-Nov-03	**180**	24	ND 5	ND 5		
5	17-Mar-04	**179**	34	ND 5	ND 5	ND 5	22
6	25-Jun-04	**166**	55	ND 5	ND 5	ND 2.5	17
7	5-Oct-04	**199**	79	ND 10	ND 10	ND 10	25
8							
9							
10							
	Mann Kendall Statistic (S) =	9.0	15.0	6.0	6.0	1.0	1.0
	Number of Rounds (n) =	7	7	7	7	3	3
	Average =	174.86	37.50	5.71	5.71	5.83	21.33
	Standard Deviation =	17.411	23.486	1.890	1.890	3.819	4.041
	Coefficient of Variation(CV)=	0.100	0.626	0.331	0.331	0.655	0.189
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	No Trend	No Trend	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	INCREASING	No Trend	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	16-May-03	-1	-1	-1
Checks	11-Aug-03	-1	-1	-1
include	4-Nov-03	-1	-1	-1
a test for	17-Mar-04	-1	-1	-1
consecutive	25-Jun-04	-1	-1	-1
dates and	5-Oct-04	-1	-1	-1
text. Minus	BLANK	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7	1	1	0	0		
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Increasing	Neither	Neither	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
	4						
	5						
	6						
	7	0	1	0	0		
	8						
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Neither	Neither	Neither	Neither

MW-13

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
151	158	191	180	179	166	199				
	1	1	1	1	1	1				6
		1	1	1	1	1				5
			-1	-1	-1	1				-2
				-1	-1	1				-1
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						9

MW-14

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
6	30	35	24	34	55	79				
	1	1	1	1	1	1				6
		1	-1	1	1	1				3
			-1	-1	1	1				0
				1	1	1				3
					1	1				2
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						15

MW-15

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
5	5	5	5	5	5	10				
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-16

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
5	5	5	5	5	5	10				
	0	0	0	0	0	1				1
		0	0	0	0	1				1
			0	0	0	1				1
				0	0	1				1
					0	1				1
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						6

MW-17

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
				5	3	10				
										0
										0
										0
										0
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						1

MW-18

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
				22	17	25				
										0
										0
										0
										0
					-1	1				0
						1				1
										0
										0
										0
				Mann Kendall Statistic (S) =						1

Mann Kendall Trend Analysis - Chromium (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

	Well ->	onsite	offsite				
Event	Sampling Date						
1	2-Aug-02	ND 5	ND 5				
2	21-Oct-02	ND 5	ND 5				
3	16-May-03	ND 5	ND 5				
4	11-Aug-03	ND 5	ND 5				
5	4-Nov-03	ND 5	ND 5				
6	17-Mar-04	ND 5	ND 5				
7	25-Jun-04	ND 5	ND 5				
8	5-Oct-04	ND 10	ND 10				
9							
10							
	Mann Kendall Statistic (S) =	7.0	7.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	8	8	0	0	0	0
	Average =	5.63	5.63	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.768	1.768	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.314	0.314	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 50 µg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	onsite	offsite	0	0	0	0
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	16-May-03	-1	-1	-1
include	11-Aug-03	-1	-1	-1
a test for	4-Nov-03	-1	-1	-1
consecutive	17-Mar-04	-1	-1	-1
dates and	25-Jun-04	-1	-1	-1
text. Minus	5-Oct-04	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8	0	0				
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Neither	Neither	Neither

TEST	Number of Rounds	onsite	offsite	0	0	0	0
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8	0	0				
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Neither	Neither	Neither	Neither	Neither	Neither

onsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5	###			Sum Rows
	0	0	0	0	0	0	1			1
		0	0	0	0	0	1			1
			0	0	0	0	1			1
				0	0	0	1			1
					0	0	1			1
						0	1			1
							1			1
										0
										0
				Mann Kendall Statistic (S) =						7

offsite										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
5	5	5	5	5	5	5	###			Sum Rows
	0	0	0	0	0	0	1			1
		0	0	0	0	0	1			1
			0	0	0	0	1			1
				0	0	0	1			1
					0	0	1			1
						0	1			1
							1			1
										0
										0
				Mann Kendall Statistic (S) =						7

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0										
# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

Appendix C – Mann Kendall Trend Analyses (Chloride)

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
1	2-Aug-02	**408**	**372**	**381**	**354**	**346**	**443**
2	21-Oct-02	**356**	**397**	**464**	**377**	**508**	**469**
3	19-Feb-03	**435**	**384**	**658**	**485**	**476**	**533**
4	16-May-03	**365**	**331**	**510**	**363**	**329**	**328**
5	11-Aug-03	**381**	**316**	**359**	**384**	**430**	**431**
6	5-Nov-03	**369**	227	**432**	**360**	**432**	**462**
7	17-Mar-04	**419**	201	223	**326**	**377**	
8	24-Jun-04	**475**	**304**	**313**	**545**	**389**	
9	5-Oct-04	**447**	**331**	**302**	**348**	**348**	
10							
	Mann Kendall Statistic (S) =	16.0	-19.0	-18.0	-4.0	-8.0	-1.0
	Number of Rounds (n) =	9	9	9	9	9	6
	Average =	406.11	318.11	404.67	393.56	403.89	444.33
	Standard Deviation =	41.278	67.101	129.486	72.393	61.785	67.075
	Coefficient of Variation(CV)=	0.102	0.211	0.320	0.184	0.153	0.151
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		INCREASING	DECREASING	DECREASING	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level		INCREASING	DECREASING	DECREASING	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	CV <= 1 STABLE	CV <= 1 STABLE	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.

Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE_ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	19-Feb-03	-1	-1	-1
include	16-May-03	-1	-1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						0
	7						
	8						
If +1, Incrsng	9	1	-1	-1	0	0	
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Decreasing	Neither	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	4						
	5						
	6						0
	7						
	8						
If +1, Incrsng	9	1	-1	-1	0	0	
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Decreasing	Neither	Neither	Neither

MW-1

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
408	356	435	365	381	369	419	475	447		Sum Rows
	-1	1	-1	-1	-1	1	1	1		0
		1	1	1	1	1	1	1		7
			-1	-1	-1	-1	1	1		-2
				1	1	1	1	1		5
					-1	1	1	1		2
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						16

MW-2

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
372	397	384	331	316	227	201	304	331		Sum Rows
	1	1	-1	-1	-1	-1	-1	-1		-4
		-1	-1	-1	-1	-1	-1	-1		-7
			-1	-1	-1	-1	-1	-1		-6
				-1	-1	-1	-1	0		-4
					-1	-1	-1	1		-2
						-1	1	1		1
							1	1		2
								1		1
										0
				Mann Kendall Statistic (S) =						-19

MW-3

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
381	464	658	510	359	432	223	313	302		Sum Rows
	1	1	1	-1	1	-1	-1	-1		0
		1	1	-1	-1	-1	-1	-1		-3
			-1	-1	-1	-1	-1	-1		-6
				-1	-1	-1	-1	-1		-5
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-18

MW-4

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
354	377	485	363	384	360	326	545	348		Sum Rows
	1	1	1	1	1	-1	1	-1		4
		1	-1	1	-1	-1	1	-1		-1
			-1	-1	-1	-1	1	-1		-4
				1	-1	-1	1	-1		-1
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-4

MW-5

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
346	508	476	329	430	432	377	389	348		Sum Rows
	1	1	-1	1	1	1	1	1		6
		-1	-1	-1	-1	-1	-1	-1		-7
			-1	-1	-1	-1	-1	-1		-6
				1	1	1	1	1		5
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							1	-1		0
								-1		-1
										0
				Mann Kendall Statistic (S) =						-8

MW-6

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
443	469	533	328	431	462					Sum Rows
	1	1	-1	-1	1					1
		1	-1	-1	-1					-2
			-1	-1	-1					-3
				1	1					2
					1					1
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						-1

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Sampling Date (Well ->)	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
1	2-Aug-02	239	**257**	**346**			
2	21-Oct-02	235	**304**	**305**	**260**	**298**	**357**
3	19-Feb-03	255	**397**	**332**	**355**	**298**	**353**
4	16-May-03	205	**324**	**299**	**316**	**256**	**280**
5	11-Aug-03	242	**370**	**329**	**351**	**413**	**350**
6	5-Nov-03	179	**327**	**263**	**339**	248	**344**
7	17-Mar-04	199	**447**	199	**335**	**270**	**327**
8	24-Jun-04	**290**	**664**	**295**	**402**	197	**379**
9	5-Oct-04	**288**	**881**	**265**	**331**	177	**327**
10							
	Mann Kendall Statistic (S) =	4.0	28.0	-22.0	4.0	-17.0	-7.0
	Number of Rounds (n) =	9	9	9	8	8	8
	Average =	236.89	441.22	292.56	336.13	269.63	339.63
	Standard Deviation =	38.077	202.994	45.178	39.916	72.382	29.355
	Coefficient of Variation(CV)=	0.161	0.460	0.154	0.119	0.268	0.086
Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level		No Trend	INCREASING	DECREASING	No Trend	DECREASING	No Trend
Trend ≥ 90% Confidence Level		No Trend	INCREASING	DECREASING	No Trend	DECREASING	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	NA	CV <= 1 STABLE	NA	CV <= 1 STABLE
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	19-Feb-03	-1	-1	-1
include	16-May-03	-1	-1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8				0	-1	0
If +1, Incrsng	9	0	1	-1			
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Decreasing	Neither	Decreasing	Neither

TEST	Number of Rounds	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8				0	-1	0
If +1, Incrsng	9	0	1	-1			
If -1, decrsng	10						
If 0, neither.		Neither	Increasing	Decreasing	Neither	Decreasing	Neither

MW-7

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
239	235	255	205	242	179	199	290	288		Sum Rows
	-1	1	-1	1	-1	-1	1	1		0
		1	-1	1	-1	-1	1	1		1
			-1	-1	-1	-1	1	1		-2
				1	-1	-1	1	1		1
					-1	-1	1	1		0
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						4

MW-8

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
257	304	397	324	370	327	447	664	881		Sum Rows
	1	1	1	1	1	1	1	1		8
		1	1	1	1	1	1	1		7
			-1	-1	-1	1	1	1		0
				1	1	1	1	1		5
					-1	1	1	1		2
						1	1	1		3
							1	1		2
								1		1
										0
				Mann Kendall Statistic (S) =						28

MW-9

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
346	305	332	299	329	263	199	295	265		Sum Rows
	-1	-1	-1	-1	-1	-1	-1	-1		-8
		1	-1	1	-1	-1	-1	-1		-3
			-1	-1	-1	-1	-1	-1		-6
				1	-1	-1	-1	-1		-3
					-1	-1	-1	-1		-4
						-1	1	1		1
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-22

MW-10

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
	260	355	316	351	339	335	402	331		Sum Rows
										0
		1	1	1	1	1	1	1		7
			-1	-1	-1	-1	1	-1		-4
				1	1	1	1	1		5
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	-1		0
								-1		-1
										0
				Mann Kendall Statistic (S) =						4

MW-11

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
	298	298	256	413	248	270	197	177		Sum Rows
										0
		0	-1	1	-1	-1	-1	-1		-4
			-1	1	-1	-1	-1	-1		-4
				1	-1	1	-1	-1		-1
					-1	-1	-1	-1		-4
						1	-1	-1		-1
							-1	-1		-2
								-1		-1
										0
				Mann Kendall Statistic (S) =						-17

MW-12

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
	357	353	280	350	344	327	379	327		Sum Rows
										0
		-1	-1	-1	-1	-1	1	-1		-5
			-1	-1	-1	-1	1	-1		-4
				1	1	1	1	1		5
					-1	-1	1	-1		-2
						-1	1	-1		-1
							1	0		1
								-1		-1
										0
				Mann Kendall Statistic (S) =						-7

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
1	21-Oct-02	244	**272**	156	**416**		
2	19-Feb-03	**332**	**342**	221	**474**		
3	16-May-03	**296**	**279**	205	**362**		
4	11-Aug-03	**340**	199	165	**410**		
5	5-Nov-03	**310**	**269**	174	**322**		
6	17-Mar-04	**322**	**260**	185	**266**	**301**	**333**
7	24-Jun-04	**355**	**258**	127	235	224	**291**
8	5-Oct-04	**400**	**274**	**433**	249	**328**	**254**
9							
10							
	Mann Kendall Statistic (S) =	18.0	-12.0	2.0	-22.0	1.0	-3.0
	Number of Rounds (n) =	8	8	8	8	3	3
	Average =	324.88	281.63	208.25	341.75	284.33	292.67
	Standard Deviation =	45.411	27.490	95.320	87.991	53.966	39.526
	Coefficient of Variation(CV)=	0.140	0.098	0.458	0.257	0.190	0.135
Error Check, Blank if No Errors Detected						n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	DECREASING	No Trend	DECREASING	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	DECREASING	No Trend	DECREASING	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	NA	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are **BOLDFACE**

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	21-Oct-02	-1	-1	-1
	19-Feb-03	-1	-1	-1
Checks	16-May-03	-1	-1	-1
include	11-Aug-03	-1	-1	-1
a test for	5-Nov-03	-1	-1	-1
consecutive	17-Mar-04	-1	-1	-1
dates and	24-Jun-04	-1	-1	-1
text. Minus	5-Oct-04	-1	-1	-1
one (-1)	BLANK	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 80 %	8	1	-1	0	-1		
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Neither	Decreasing	Neither	Neither

TEST	Number of Rounds	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
FOR							
INCREASING	4						
OR	5						
DECREASING	6						
TREND	7						
@ 90 %	8	1	-1	0	-1		
If +1, Incrsng	9						
If -1, decrsng	10						
If 0, neither.		Increasing	Decreasing	Neither	Decreasing	Neither	Neither

MW-13

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
244	332	296	340	310	322	355	400			Sum Rows
	1	1	1	1	1	1	1			7
		-1	1	-1	-1	1	1			0
			1	1	1	1	1			5
				-1	-1	1	1			0
					1	1	1			3
						1	1			2
							1			1
										0
										0
					Mann Kendall Statistic (S) =					18

MW-14

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
272	342	279	299	269	260	258	274			Sum Rows
	1	1	1	-1	-1	-1	1			1
		-1	-1	-1	-1	-1	-1			-6
			1	-1	-1	-1	-1			-3
				-1	-1	-1	-1			-4
					-1	-1	1			-1
						-1	1			0
							1			1
										0
										0
					Mann Kendall Statistic (S) =					-12

MW-15

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
156	221	205	165	174	185	127	433			Sum Rows
	1	1	1	1	1	-1	1			5
		-1	-1	-1	-1	-1	1			-4
			-1	-1	-1	-1	1			-3
				1	1	-1	1			2
					1	-1	1			1
						-1	1			0
							1			1
										0
										0
					Mann Kendall Statistic (S) =					2

MW-16

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
416	474	362	410	322	266	235	249			Sum Rows
	1	-1	-1	-1	-1	-1	-1			-5
		-1	-1	-1	-1	-1	-1			-6
			1	-1	-1	-1	-1			-3
				-1	-1	-1	-1			-4
					-1	-1	-1			-3
						-1	-1			-2
							1			1
										0
										0
					Mann Kendall Statistic (S) =					-22

MW-17

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
					301	224	328			Sum Rows
										0
										0
										0
										0
										0
						-1	1			0
							1			1
										0
										0
					Mann Kendall Statistic (S) =					1

MW-18

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
					333	291	254			Sum Rows
										0
										0
										0
										0
										0
						-1	-1			-2
							-1			-1
										0
										0
					Mann Kendall Statistic (S) =					-3

Mann Kendall Trend Analysis - Chloride (mg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Event	Well -> / Sampling Date	onsite	offsite				
1	2-Aug-02	319	372				
2	21-Oct-02	290	386				
3	19-Feb-03	347	479				
4	16-May-03	258	383				
5	11-Aug-03	295	397				
6	5-Nov-03	377	299				
7	17-Mar-04	240	382				
8	24-Jun-04	236	397				
9	5-Oct-04	254	383				
10							
	Mann Kendall Statistic (S) =	-14.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	9	0	0	0	0
	Average =	290.67	386.44	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	49.265	45.673	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.169	0.118	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By = MT		Date = 21-Nov-04		Checked By = MT		

WQCC standard is 250 mg/L.
Concentration exceeding the standard are BOLDFACE

THIS BLOCK OF CELLS IS USED TO SEARCH FOR DATA ENTRY ERRORS							
DATA ERR	Event Number	onsite	offsite	0	0	0	0
CHECKS	1	-1	-1	-1	-1	-1	-1
Checks	2	-1	-1	-1	-1	-1	-1
for data with	3	-1	-1	-1	-1	-1	-1
values less	4	-1	-1	-1	-1	-1	-1
than zero or	5	-1	-1	-1	-1	-1	-1
text (a space	6	-1	-1	-1	-1	-1	-1
is seen as	7	-1	-1	-1	-1	-1	-1
text in Excel).	8	-1	-1	-1	-1	-1	-1
Minus one (-1)	9	-1	-1	-1	-1	-1	-1
shown if no	10	-1	-1	-1	-1	-1	-1
error.	Data error in column?	no err	no err	no err	no err	no err	no err

THIS BLOCK OF CELLS USED TO FIND ERRORS IN DATES				
DATE ERR	Date	Text in Date?	Consecutive?	Data w no date?
CHECKS	2-Aug-02	-1	-1	-1
	21-Oct-02	-1	-1	-1
Checks	19-Feb-03	-1	-1	-1
include	16-May-03	-1	. -1	-1
a test for	11-Aug-03	-1	-1	-1
consecutive	5-Nov-03	-1	-1	-1
dates and	17-Mar-04	-1	-1	-1
text. Minus	24-Jun-04	-1	-1	-1
one (-1)	5-Oct-04	-1	-1	-1
shown if no	BLANK	-1	-1	-1
error.	Date Error?	no err	no err	no err

S Values From Lookup Table in		
MNA Guidance		
Values of n	Smax@0.2	Smax@0.1
4	-4	-6
5	-5	-7
6	-6	-8
7	-7	-10
8	-8	-11
9	-10	-14
10	-11	-16

TEST FOR INCREASING OR DECREASING TREND @ 80 %	Number of Rounds	onsite	offsite	0	0	0	0
	4						
	5						
	6						
	7						
	8						
If +1, Incrsng	9	-1	0				
If -1, decrsng	10						
If 0, neither.		Decreasing	Neither	Neither	Neither	Neither	Neither

TEST FOR INCREASING OR DECREASING TREND @ 90 %	Number of Rounds	onsite	offsite	0	0	0	0
	4						
	5						
	6						
	7						
	8						
If +1, Incrsng	9	-1	0				
If -1, decrsng	10						
If 0, neither.		Decreasing	Neither	Neither	Neither	Neither	Neither

onsite

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
319	290	347	258	295	377	240	236	254		Sum Rows
	-1	1	-1	-1	1	-1	-1	-1		-4
		1	-1	1	1	-1	-1	-1		-1
			-1	-1	1	-1	-1	-1		-4
				1	1	-1	-1	-1		-1
					1	-1	-1	-1		-2
						-1	-1	-1		-3
							-1	1		0
								1		1
										0
				Mann Kendall Statistic (S) =						-14

offsite

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	
372	386	479	383	397	299	382	397	383		Sum Rows
	1	1	1	1	-1	1	1	1		6
		1	-1	1	-1	-1	1	-1		-1
			-1	-1	-1	-1	-1	-1		-6
				1	-1	-1	1	0		0
					-1	-1	0	-1		-3
						1	1	1		3
							1	1		2
								-1		-1
										0
				Mann Kendall Statistic (S) =						0

0

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

0

# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	Sum Rows
										0
										0
										0
										0
										0
										0
										0
										0
										0
				Mann Kendall Statistic (S) =						0

Appendix D – BIOCHLOR Model (VOCs)

BIOCHLOR Model
Hobbs Facility
Champion Technologies Inc.

Model Selection

A one-dimensional analytical fate and transport model (BIOCHLOR) was used to simulate the hydrogeologic conditions of the Hobbs facility located in Hobbs, New Mexico and predict the concentrations of chlorinated volatile organic compounds (VOCs) in groundwater. The U.S. Environmental Protection Agency (EPA), in association with the Air Force Center for Environmental Excellence (AFCEE), developed BIOCHLOR for simulating remediation through natural attenuation of chlorinated ethenes and ethanes through anaerobic conditions. BIOCHLOR can also be used to simulate solute transport without decay or solute transport with biodegradation modeled as a sequential first-order process. The software, based on the Domenico analytical solute transport model, simulates one-dimensional advection, three-dimensional dispersion, linear adsorption, biotransformation, and first-order decay. This analytical model predicts the concentration of VOCs downgradient of a source, in both the presence and absence of biodegradation.

VOCs (1,1-dichloroethane (1,1-DCA), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride) have been detected in groundwater samples collected from several monitoring wells located at the Hobbs facility. TCE has never been detected above New Mexico Water Quality Control Commission (WQCC) standard and vinyl chloride has only been detected above the WQCC standard in 1 of 44 of the samples. Therefore, the BIOCHLOR model was applied only to the PCE and 1,1-DCA data.

Model Inputs

The inputs for the BIOCHLOR model can be generalized into seven categories: hydrogeologic, dispersion, adsorption, general data (simulation time and domain extents), source data, biodegradation parameters, and field data for comparison. Ranges of values from EPA literature were used for parameters when site-specific data were not available. The model inputs are provided in Figure D-1 for 1,1-DCA and D-6 for PCE.

Hydrogeologic Data

The site is underlain by caliche, sand, silty sand, sandy clay, and sandstone. Boring logs and excavations at the site indicate a 5 foot thick, hard caliche layer from approximately 20 feet to 25 feet below ground surface (bgs), throughout most of the site, and a second hard caliche layer approximately 50 feet bgs which is approximately 6 feet thick (Enercon 2000 and ETGI 2003).

The site is within the limits of the Lea County Basin, as declared by the NMOSE. The sole source drinking water aquifer in the basin is the Ogallala Aquifer. The depth to groundwater at the site is approximately 50 to 60 feet bgs, and the water elevation has dropped steadily at a rate of approximately 1.2 feet per year since the monitoring at the site began in August 2002. The recent slug test and pumping tests conducted on an onsite supply well indicate the hydraulic conductivity is approximately $3x10^{-3}$ centimeters per second (cm/s). Based on model limitations, the hydraulic conductivity was assumed to be horizontally and vertically isotropic. The hydraulic gradient has been consistent at approximately 0.003 feet/foot, toward the east. The resulting seepage velocity, assuming an effective porosity of 0.25, is approximately 37 feet per year. Based on previous reports, no perched water has been observed, nor is there any significant surface water body within at least one mile.

Dispersion

The dispersivity of each pathway was calculated based on a relation that assumes that dispersivity (α) in the longitudinal direction (α_x) is 10 percent of the estimated plume length (EPA 1998); the plume is considered to be the part of the aquifer that contaminants have migrated from the source area as a slug. Based on groundwater quality data obtained in June 2004 (Figure 1), the plume length is approximately 100 to 200 feet. According to the BIOCHLOR manual (EPA 2000) the ratio α_x: α_y is generally 10:1 and α_x: α_z is typically 200:1 (where α_y and α_z are the transverse and vertical dispersivities, respectively). The BIOCHLOR default ratios were assigned to the model.

Adsorption Data

The advective-dispersive transport of dissolved organic compounds in groundwater is primarily controlled by the adsorption of constituents to solids comprising the saturated material.

The potential for adsorption to solids is reflected in the distribution, or partition coefficient (K_d) for the compound. For a given aquifer material, the higher the K_d value for a compound, the greater the relative amount of mass that will adsorb to the solid phase and lower the mobility of the compound in the groundwater. The partitioning of VOCs in the saturated zone at the site is governed by the organic material present in the unconsolidated deposits and the organic carbon partitioning coefficient of the compound (K_{oc}).

The retardation factor of soils is the ratio of the groundwater seepage velocity to the rate that organic chemicals migrate in the groundwater. The degree of retardation depends on both the aquifer properties and the physiochemical properties of the compounds. The retardation calculation is dependent on the fraction of organic carbon, the bulk density, the effective porosity, and the K_{oc} value. Literature-derived values for bulk density, fraction of organic carbon, and effective porosity were assigned.

General Data

The model domain consists of the physical dimensions of the rectangular area to be modeled and the length of time of simulation. Domain dimensions were varied to allow greater resolution depending on the pathway, and the predicted migration of VOCs. The length of the initial simulation used to simulate current conditions was chosen based on the past site history and an estimated date of release to groundwater sometime after 1956. This time period was extended 100 years past the date of release to groundwater, for predictive simulations.

Source Data

For the purposes of determining biodegradation rates, the duration and dimensions of the source must be determined. Version 2.2 of BIOCHLOR can simulate both decaying and continuous sources. As a highly conservative assumption, the source was defined as continuous, although Area 2 has been excavated and the affected soil has been removed between July 2002 and September 2003. Based on site history, the 1956 was assumed to be the earliest release date.

Given the hard caliche with fractures reported (ETGI 2003), the source is considered not to extend the entire areal extent of Area 2, but is thought to be limited to the areas under such fractures, indicating a line-type source. One input parameter for the BIOCHLOR model is the thickness of a vertical plane source. Because the concentrations are far less than those levels that indicated non-aqueous phase liquids, it is reasonable to assume that dissolved-phase VOCs migrated to groundwater. Thus the thickness of the vertical plane source is the thickness of the mixing zone, which is a function of the longest horizontal planar dimension of the source.

Biotransformation Data

Chlorinated VOCs may undergo degradation reactions in the saturated zone under both aerobic and anaerobic conditions. The site data indicated that insignificant biodegradation was occurring, based on the absence of daughter products.

Field Data for Comparison

Calibration of the fate and transport model occurs by comparing observed and predicted chlorinated VOC concentrations at various points along a plume centerline. The 95th percentile upper confidence level (UCL) and maximum concentrations of 1,1-DCA and PCE along the centerline of the plume were used to calibrate the model. To simulate a conservative model, the 95th UCL and maximum are appropriately representative of the plume conditions.

The primary input parameters that were used for calibration were the source dimensions and source concentrations. The BIOCHLOR outputs for 10, 20, 50 and 100 years after the release to groundwater are included in Figures D-2 through D-5 (1,1-DCA) and D-7 through D-12 (PCE).

The distribution of the site data is characteristic of a narrow and thin source; trial and error runs of BIOCHLOR indicated the best fitting curve is a 30-feet wide 3 feet thick source. Other combinations of width and thickness fit the site data, but the one selected provides a conservative estimate of the source area concentrations. The selected dimensions are consistent with the lateral distribution of the data. The model indicates the concentrations in the source area of 0.15 mg/l 1,1-DCA 0.08 mg/l PCE, as a continuous source. These concentrations are far below 1% of the solubility of these compounds; 1% solubility is used by EPA as the threshold above which non-aqueous phase liquids are suspected. However, due to the removal of affected soil from Area 2 and the subsequent backfilling with clay completed between 2002 and 2003, it is expected that the source concentrations will decline over time.

Predictive Simulations

Upon completion of model calibration, the model was used to predict the future distribution of chlorinated VOCs. The simulation indicates the plume attained a steady-state configuration approximately 20 years after the release to groundwater. Based on the results of this modeling effort, the steady-state nature of the VOCs is predicted to remain unchanged. The maximum predicted concentrations of 1,1-DCA (0.012 mg/l) and PCE (0.006 mg/l) at the property boundary are below the WQCC of 0.025 mg/l and 0.02 mg/l, respectively. These concentrations are conservative because they assume a continuous source and no biotic or abiotic degradation throughout the plume.

Conclusions

The BIOCHLOR modeling indicates that the current distribution of chlorinated VOCs in groundwater at the site is consistent with a plume not undergoing biodegradation. Based on the BIOCHLOR model results, the VOC plume is stable and the maximum predicted PCE and 1,1-DCA concentrations at the property boundary are below the WQCC standards. Furthermore, the excavation of Area 2 has substantially removed the source and the clay backfill greatly reduces infiltration, thus, the model is conservative for predicting migration of residual 1,1-DCA or PCE.

References

ATSDR, 1990. *Toxicological Profile for 1,1-Dichloroethane.* Agency for Toxic Substances and Disease Registry. December 1990.

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EPA, 1993. *Evaluation of the Likelihood of DNAPL Presence at NPL Sites, National Results.* Office of Research and Development. EPA 540 R 93 073. September 1993.

EPA, 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water.* Office of Research and Development. EPA 600 R 98 128. September 1998.

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ETGI, 2003. *Comprehensive Status Report.* Environmental Technology Group, Inc. March 31, 2003.

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NOVA, 2005. Letter to Mr. Dean Sibert, Champion Technologies, Inc., RE: Abatement Plan AP-14, Stage 2 Abatement Plan, Status Update Letter to Comprehensive Status Report, from Todd Choban, NOVA Safety and Environmental. March 24, 2005.

Appendix D Figures

Figure D-1
Champion Technologies Inc. Site
Hobbs, New Mexico

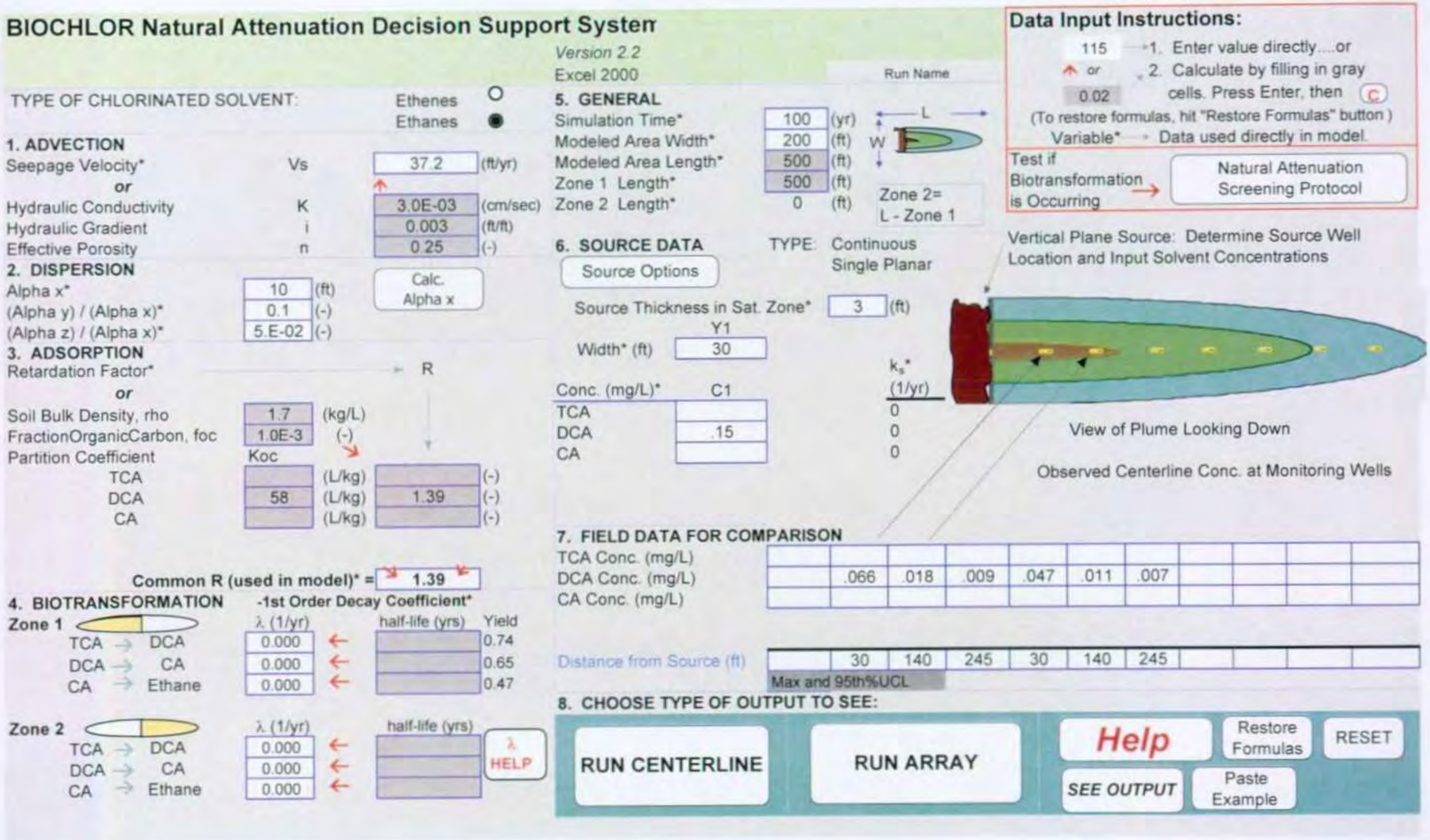
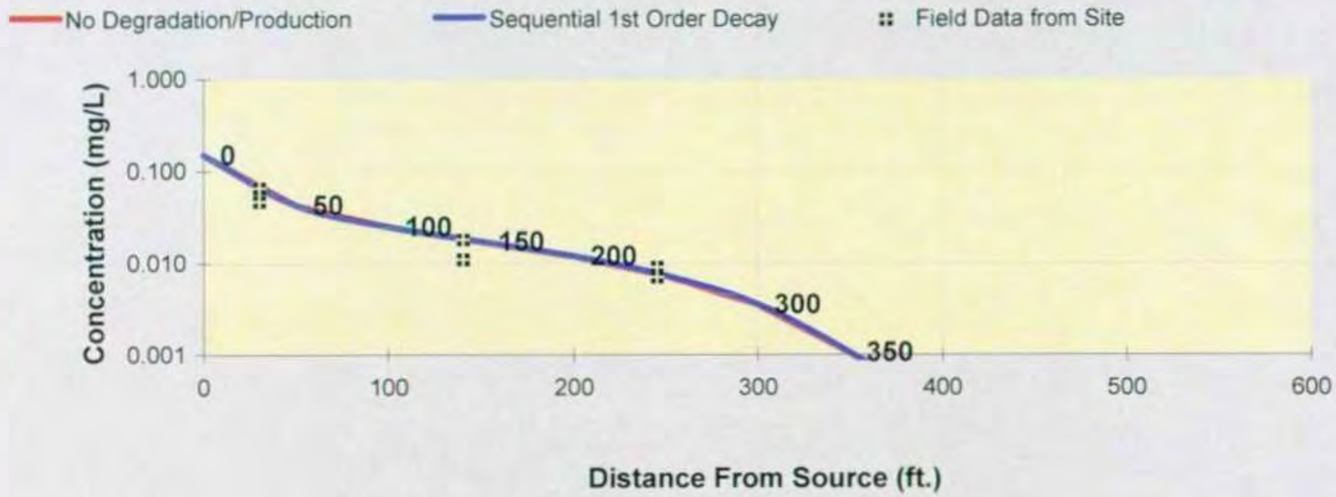


Figure D-2
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

DCA	Distance from Source (ft)										
	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.017	0.012	0.007	0.004	0.001	0.000	0.000	0.000
Biotransformation	0.1500	0.043	0.025	0.017	0.012	0.007	0.004	0.001	0.000	0.000	0.000

	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

10.0 Years

Log ⟺ Linear

Return to Input

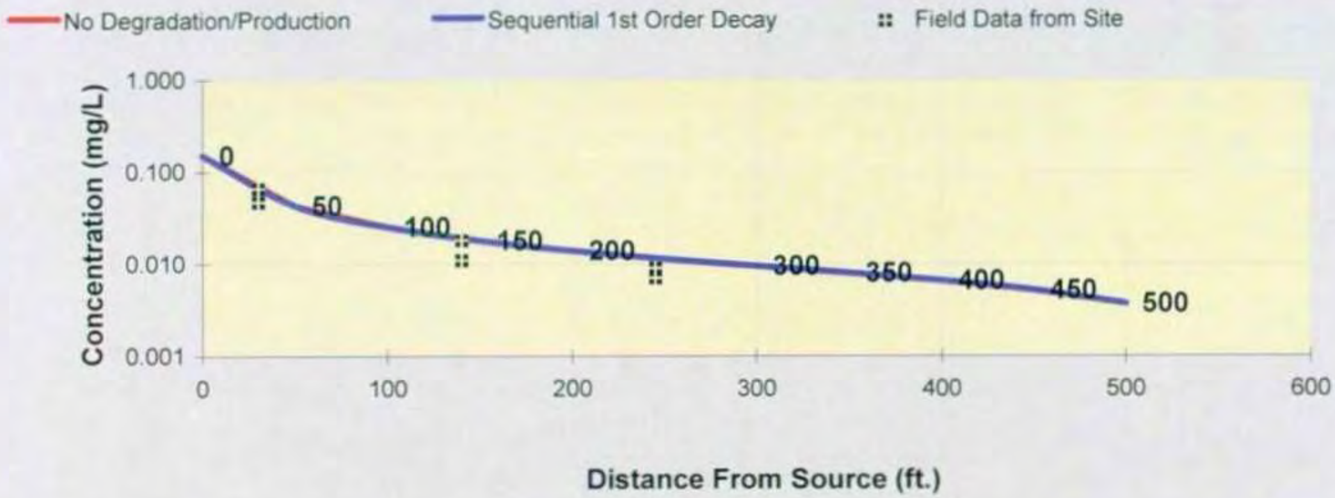
To All

To Array

Figure D-3
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

	Distance from Source (ft)										
DCA	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.005	0.004
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.005	0.004
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

20.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

Figure D-4
Champion Technologies Inc. Site
Hobbs, New Mexico

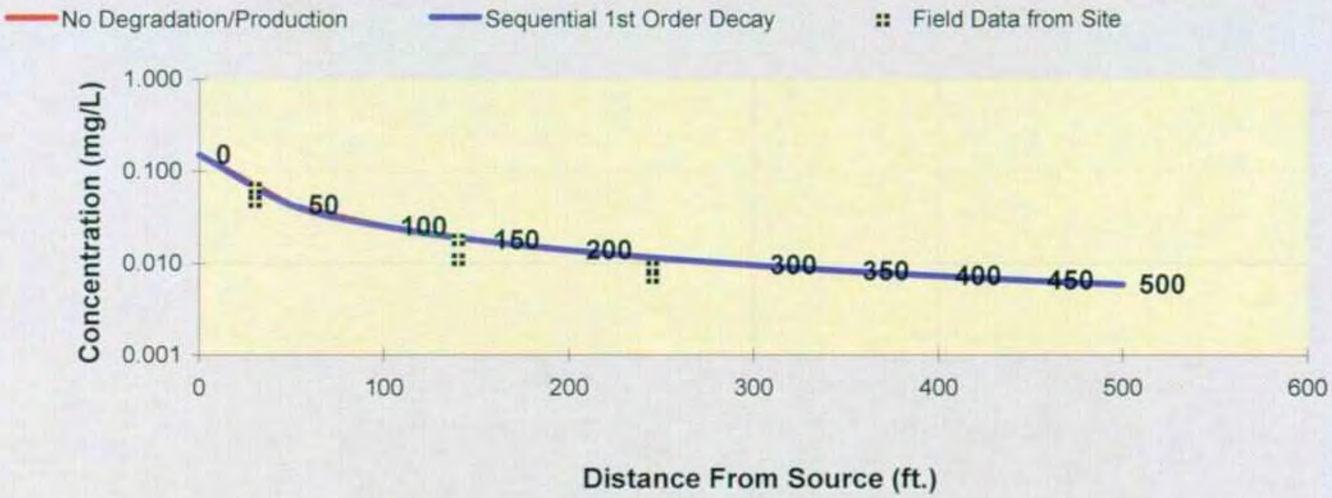
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

DCA	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006

Monitoring Well Locations (ft)

		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

50.0 Years

Log ⟺ Linear

Return to Input

To All

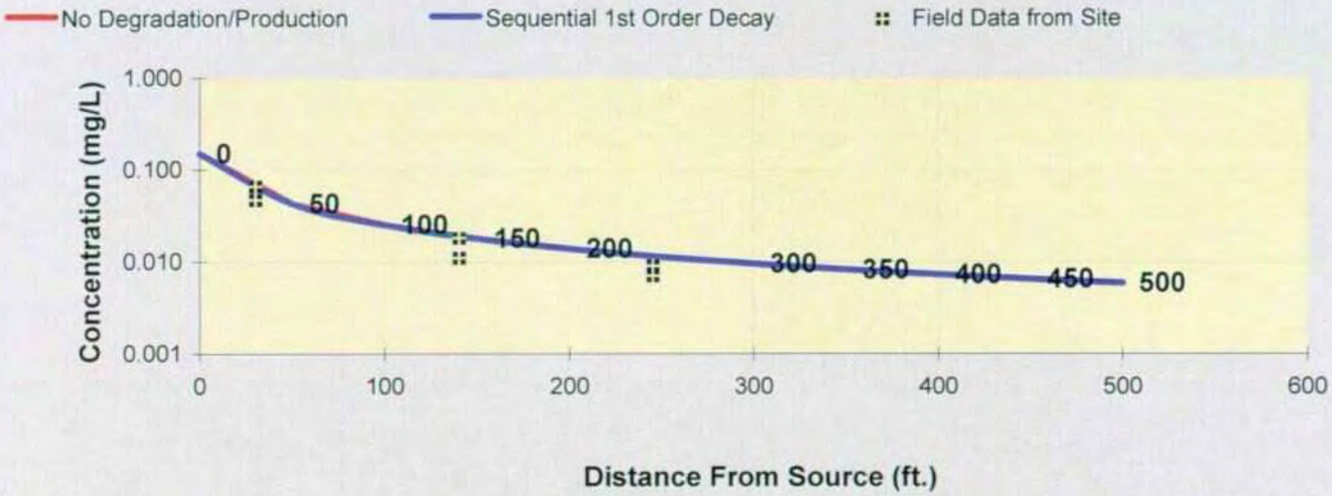
To Array

Figure D-5
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

	Distance from Source (ft)										
DCA	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.150	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006
Biotransformation	0.1500	0.043	0.025	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.006

	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.066	0.018	0.009	0.047	0.011	0.007				



See TCA

See DCA

See CA

Replay

Time:

100.0 Years

Log ⟺ Linear

Return to Input

To All

To Array

Figure D-6
Champion Technologies Inc. Site
Hobbs, New Mexico

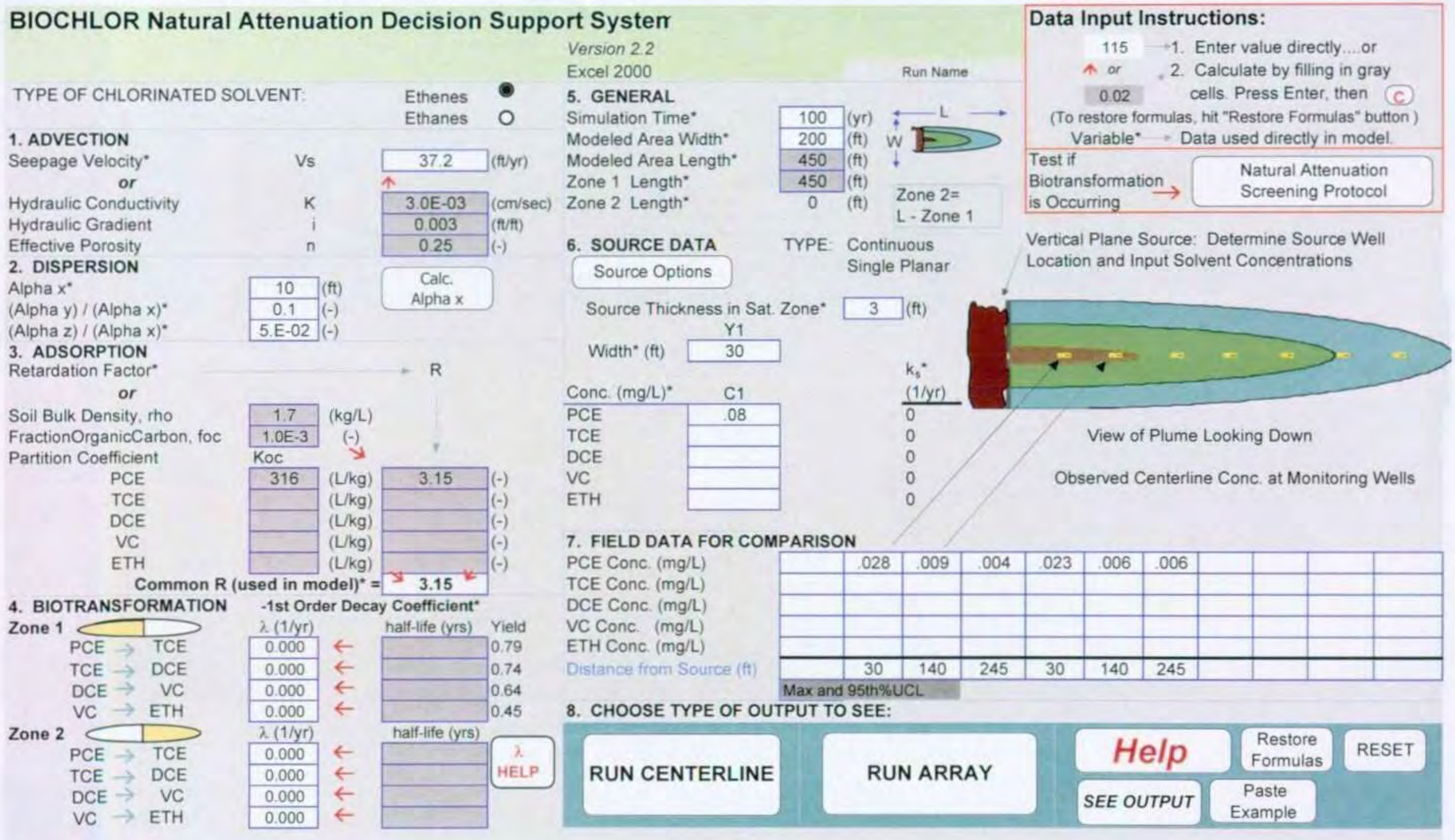
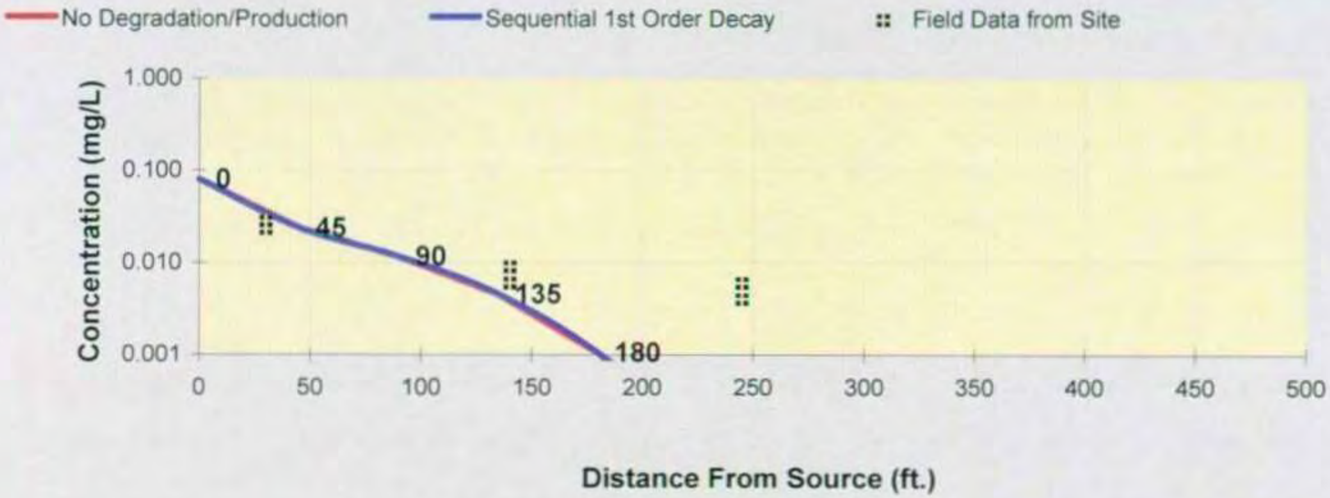


Figure D-7
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

PCE	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.012	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.0800	0.024	0.012	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE
See TCE
See DCE
See VC
See ETH

Replay

Time: 10.0 Years

Log ⇔ Linear

Return to Input

To All

To Array

Figure D-8
Champion Technologies Inc. Site
Hobbs, New Mexico

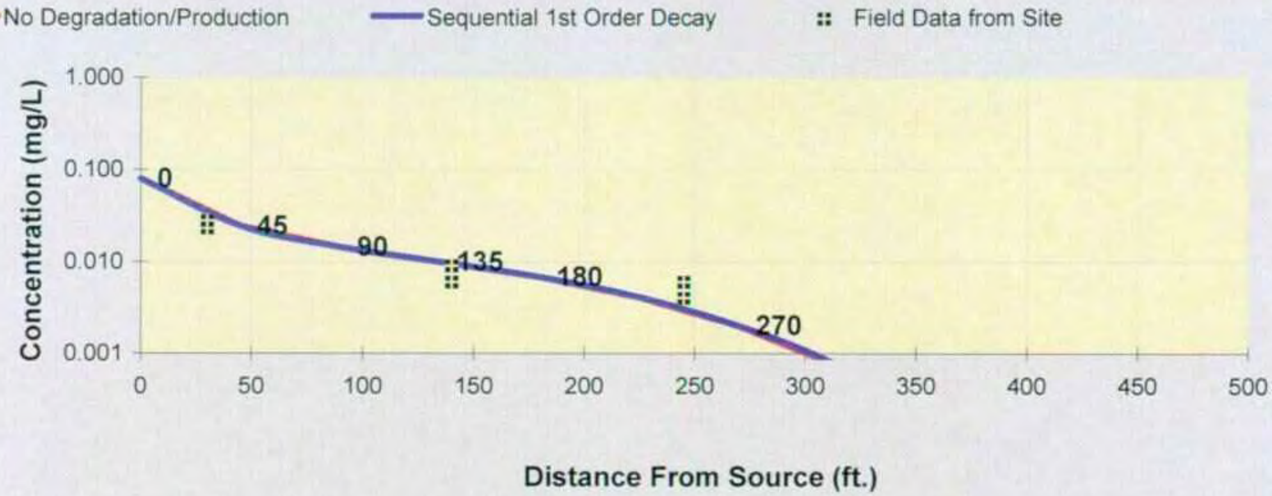
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.007	0.004	0.002	0.001	0.000	0.000	0.000
Biotransformation	0.0800	0.024	0.015	0.010	0.007	0.004	0.002	0.001	0.000	0.000	0.000

Monitoring Well Locations (ft)

		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE
See TCE
See DCE
See VC
See ETH

Replay

Time:
20.0 Years
Log ⇔ Linear

Return to Input

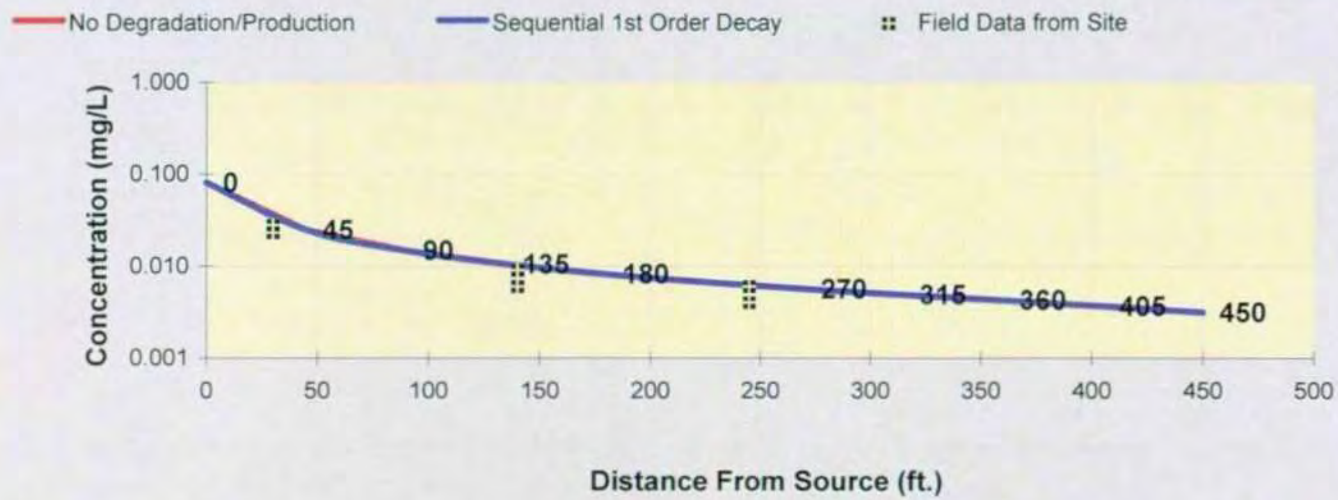
To All

To Array

Figure D-9
Champion Technologies Inc. Site
Hobbs, New Mexico

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

	Distance from Source (ft)										
PCE	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
Biotransformation	0.0800	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
	Monitoring Well Locations (ft)										
		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE
See TCE
See DCE
See VC
See ETH

Replay

Time:
50.0 Years
Log ⟺ Linear

Return to Input

To All

To Array

Figure D-10
Champion Technologies Inc. Site
Hobbs, New Mexico

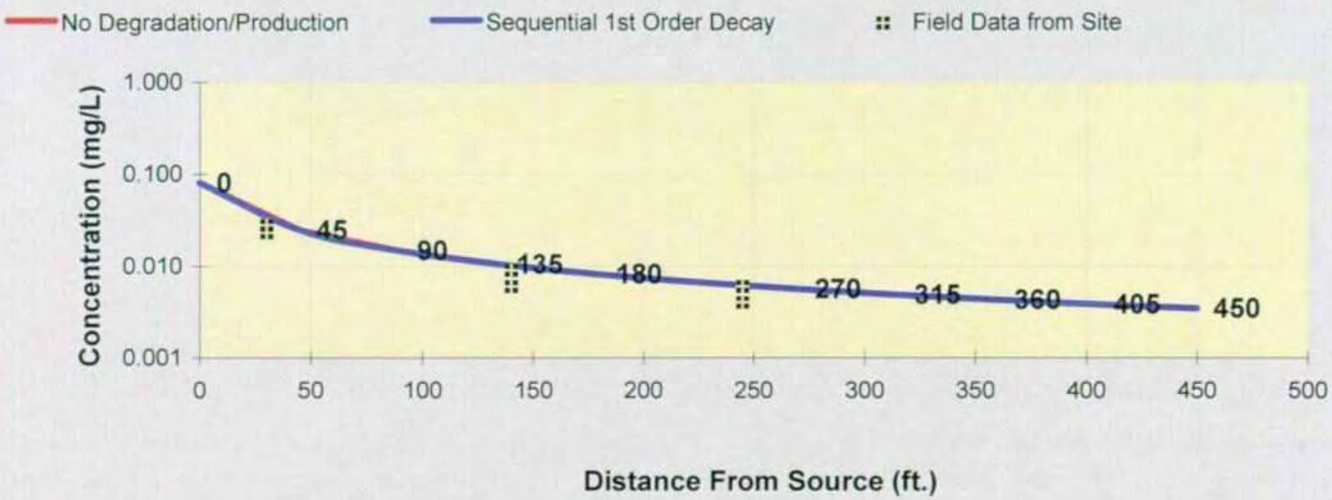
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE (mg/L) at Z=0

Distance from Source (ft)

PCE	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.080	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003
Biotransformation	0.0800	0.024	0.015	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003

Monitoring Well Locations (ft)

		30	140	245	30	140	245				
Field Data from Site		0.028	0.009	0.004	0.023	0.006	0.006				



See PCE
See TCE
See DCE
See VC
See ETH

Replay

Time:
100.0 Years
Log ⟺ Linear

Return to Input

To All

To Array

Appendix D Tables

Table D-1
Data Summary - VOCs (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

1,1-Dichloroethane (µg/L)

	Well ->	MW-6/17	MW-11	MW-12	MW-16	MW-18
Event Number	Sampling Date					
1	21-Oct-02	5	2	1	2	
2	19-Feb-03	**29**	1	3	2	
3	16-May-03	**26**	4	3	2	
4	11-Aug-03	**66**	**27**	5	2	
5	4-Nov-03	**53**	10	5	2	
6	17-Mar-04	ND 5	**26.8**	6.05	2.83	4.78
7	25-Jun-04	15.4	8.96	11.4	2.45	7.19
8	13-Oct-04	**28.9**	3.62	18	2.22	6.64

Perchloroethene (µg/L)

	Well ->	MW-6/17	MW-11	MW-12	MW-16	MW-18
Event Number	Sampling Date					
1	21-Oct-02	**20**	ND 0.50	6	1	
2	19-Feb-03	15	ND 0.50	2	2	
3	16-May-03	14	ND 0.50	ND 0.50	2	
4	11-Aug-03	**25**	1	2	2	
5	4-Nov-03	**28**	ND 0.50	ND 0.50	2	
6	17-Mar-04	ND 5.00	1.04	3.15	2.71	2.38
7	25-Jun-04	8.84	ND 0.50	5.38	2.32	4.33
8	13-Oct-04	15.9	ND 0.50	8.77	2.22	4.18

Concentrations in **BOLD** are greater than or equal to the WQCC standard.

Table D-2
Statistical Summary - VOCs (µg/L)
Champion Technologies Inc. Site
Hobbs, New Mexico

Compound	Solubility[a]	log K_{ow}[a]	Well	Mean Detection	95th %ile UCL	Maximum Detection	Maximum Relative Solubility
1,1-Dichloroethane (µg/L)	55,000	1.76	MW-6/17	28.5	46.7	66	0.120%
			MW-12	6.6	11.2	18	0.033%
			MW-18	6.2	9.3	7.19	0.017%
			MW-11	10.4	19.3	27	0.049%
			MW-16	2.2	2.4	2.83	0.005%
Perchloroethene (µg/L)	150,000	2.50	MW-6/17	16.5	22.9	28	0.019%
			MW-12	3.5	6.0	8.77	0.006%
			MW-18	3.63	6.33	4.33	0.004%
			MW-11	0.6	0.8	1.04	0.001%
			MW-16	2.03	2.44	2.71	0.002%

a) Source: Agency for Toxic Substances and Disease Registry (1990 and 1997)

ENVIRONMENTAL STRATEGIES
CONSULTING LLC

GW-199

SUPPLEMENTAL INVESTIGATION REPORT

CHAMPION TECHNOLOGIES INC.
SITE ABATEMENT (AP-14)
4001 SOUTH HIGHWAY 18
HOBBS, NEW MEXICO

A QUANTA TECHNICAL SERVICES COMPANY

ENVIRONMENTAL STRATEGIES CONSULTING LLC
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SUPPLEMENTAL INVESTIGATION REPORT
CHAMPION TECHNOLOGIES INC. SITE ABATEMENT (AP-14)
4001 SOUTH HIGHWAY 18
HOBBS, NEW MEXICO

PREPARED

BY

ENVIRONMENTAL STRATEGIES CONSULTING LLC

JULY 12, 2006

A QUANTA TECHNICAL SERVICES COMPANY

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Acronym List

ASTM	American Society for Testing and Materials
bgs	below the ground surface
CD-ROM	compact disc – read only memory
cm/s	centimeters per second
COC	chemical of concern
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
IDW	investigation-derived waste
MCAWW	Methods for Chemical Analysis of Water and Wastes
mg/kg	milligram per kilogram
mg/l	milligram per liter
mV	millivolt
NCDC	National Climatic Data Center
NMAC	New Mexico Administrative Code
NMOCD	New Mexico Oil Conservation Division
NMOSE	New Mexico Office of the State Engineer
ORP	oxidation-reduction potential
VOC	volatile organic compound
WQCC	Water Quality Control Commission

1.0 Introduction

On behalf of Champion Technologies, Inc. (Champion), Environmental Strategies Consulting LLC has prepared this supplemental site investigation report for the Champion site located at 4001 South Highway 18, Hobbs, New Mexico. This report summarizes the findings collected pursuant to the Supplemental Site Investigation Workplan (Workplan), dated March 29, 2005, and subsequent correspondence with the New Mexico Oil Conservation Division (NMOCD). The site has an NMOCD-approved Discharge Plan, GW-199, and has had various Stage 1 and Stage 2 abatement activities already completed. This report summarizes the site conditions and past abatement activities, and presents the data collected to demonstrate natural attenuation as the groundwater remedial action. Natural attenuation processes include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These *in-situ* processes include biodegradation, dispersion, dilution, sorption, volatilization, radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants (EPA, 1999). This site has favorable conditions for physical natural attenuation processes.

2.0 Site Background Information

2.1 Site Description

The approximately 7-acre site is located in the southeastern quadrant of Section 15 Township 19 South, Range 38 East (Figure 1). The site is within the Hobbs Pool oil and gas field, and approximately 5 miles east of the Monument Pool (Wright, 1941). Regionally, the practice of disposing produced water into unlined pits began with the first oil and gas exploration in the early 1940s, with great expansion during World War II. Produced water in the region is known to be highly saline. In 1967, the New Mexico Oil Conservation Commission issued Order R-3221, which called for all disposal of produced water, except for some *de minimus* quantities, into unlined pits or in any other manner which would cause a hazard to fresh water to cease by October 31, 1967 (LCWUA, 2000). In the 1970s, groundwater throughout Lea County had salinity concentrations between 1,000 milligrams per liter (mg/l) and 3,000 mg/l (USGS, 1972) and the chloride concentration in groundwater within the Permian formations in the Northwestern Shelf, within 10 miles of the site was 2,900 mg/l to 32,000 mg/l (NMBMMR, 1975).

Champion has operated at the site for at least 30 years. Most of the facility is unpaved, and there are two buildings and other facilities, such as aboveground storage tanks and secondary containment structures (Figure 2). Champion stores and distributes oilfield chemicals, such as corrosion inhibitors. Among the chemicals stored at the site are alcohols, amines, aromatics, ammonium chloride, corrosives, and, formerly, may have included hexavalent chromium. There was a prior commercial or industrial occupant at the site, believed to be a trucking company.

A pit, located in the northern-central part of the site, was identified in the Stage 1 abatement activities. Of the three aerial photographs reviewed as part of a site history review, only the 1967 aerial photograph showed pond-like features in what is referred to as Areas 2 and 3. This suggests the pit may have been used by others since some time after the next earlier aerial photograph, taken in 1954 (Enercon, 2000). Currently, there is a commercial oil field services operation to the north; vacant land to the west and east, each with oil or gas wells and pipelines; and a residence to the south; the residence has a water supply well located approximately 30 feet south of the site boundary.

2.2 Environmental Setting

This section describes the topographic, geologic, and hydrogeologic conditions at the site.

2.2.1 Topography and Surface Drainage

Regionally, the land undulates with numerous depressions throughout. There are many apparent playas in sections 16, 17 and 18 directly west of the site (USGS, 1979a and USGS, 1979b). The ground cover at the unpaved areas of the site consists of a coarse silty gravel caliche fill which has a moderately high hydraulic conductivity, between 4.56 x 10^{-5} and 1.46 x 10^{-4} centimeters per second (cm/s) (NOVA, 2005). The site is relatively flat with no concentrated stream flows or ponds, with a mild crowning at the central part of the site and a gentle slope to the west. Such conditions would allow surface drainage to sheet-flow to the property's perimeter only when high-intensity rainfall exceeds the surface fill's infiltrative capacity. Normal-intensity rainfall would percolate into the surface fill, a large portion of which would evaporate. Storm water collected in the bulk tanks' secondary containment is generally allowed to evaporate. The average annual precipitation in the Hobbs area is approximately 16 inches per year, with 27 days per year with 0.1 inch or more of precipitation, and only 5 days per year with 1 inch or more (WRCC, 2003). Evaporation in the region is approximately 79 inches per year and over 95 percent of all precipitation is lost by direct evaporation; typical recharge to the aquifer is approximately 0.5 inch/year (USGS, 2000).

2.2.2 Site Geology

The vadose zone at the site is mostly silty caliche. Boring logs and excavations at the site indicate a 5-foot thick, hard caliche layer from approximately 20 to 25 feet below the ground surface (bgs) throughout most of the site, and a second hard caliche layer from approximately 50 to 56 feet bgs (Enercon, 2000 and ETGI, 2003a). Environmental Strategies' findings, as documented on soil borings and monitoring well construction diagrams (Appendix A), were consistent with the historical information.

2.2.3 Site Hydrogeology

The site is within the limits of the Lea County Basin, as declared by the New Mexico Office of the State Engineer (NMOSE). In the Lea County Basin, the sole source of drinking water is the Ogallala Aquifer. The depth to groundwater at the site is approximately 50 to 60 feet bgs, and NMOSE records indicate the depth to groundwater generally decreases to the west. Water levels in Sections 16 and 17 are 20 to 30 feet bgs, and there are no well records for Section 18. In the Southern High Plains area, which includes the Ogallala, approximately 95 percent of the groundwater recharge occurs in playas that cover approximately 5 percent of the land surface; within the playas, up to 80 percent of the recharge occurs through macropores, such as cracks and burrow holes, and the remaining 20 percent, through interstitial spaces in the soil (Wood, et al, 1997 and USGS, 2000). Based on these data, the estimated infiltration rate for the general land area is approximately 360 times slower than that which occurs in playas, and the typical infiltration rate through the vast majority of the land would be approximately 0.03 inch per year.

Between August 2002 and March 2004, the groundwater elevations onsite dropped at an average rate of approximately 0.7 to 1.2 feet per year, since the monitoring at the site began (NOVA, 2005). Between March 2004 and April 2006, elevations exhibited an arrested decline, then a rebound of approximately 1 foot. Historic groundwater elevations are presented on Table 1 and Graph 1. Water-use records available from NMOSE for sections 14 and 15 indicate that withdrawal for irrigation was more than 200 acre-feet per year in 2001 and 2002, declining to between 100 and 138 acre-feet per year in 2003, 2004 and 2005. Precipitation data available from the National Climatic Data Center (NCDC) for the local weather stations indicate that rainfall was variable, with approximately 13.5, 21.8, 7.2, 31.8 and 19.4 inches per year between 2001 and 2005. As stated earlier, the typical recharge in the Southern High Plains is approximately 0.5 inch per year, thus in a year having twice the normal rainfall, the recharge would be on the order of 1 inch per year, far less than the groundwater fluctuations observed. Thus, groundwater elevations are primarily influenced by the local withdrawal rate and, to a lesser degree, rainfall. No perched water has been observed in soil borings and excavations, confirming low infiltration.

As represented in the well log for the onsite supply well, the local water bearing zone is a sandy aquifer ranging from approximately 44 to 138 feet bgs (Eades, 1993). Environmental Strategies' findings, as documented on monitoring well construction diagrams (Appendix A), are consistent with the historical information. The recent slug and pumping tests indicate the hydraulic conductivity is approximately 3×10^{-3} cm/s (NOVA, 2005). There appears to be very low silt content in the aquifer sand. Using an empirical formula that estimates hydraulic conductivity for clean sand based on grain-size, Environmental Strategies calculated the conductivity of the water-bearing sand to be between 1 x 10^{-2} and 3 x 10^{-2} cm/s, consistent with finding by the Texas Water Development Board for western Gaines County, approximately 3.5 miles east of the site (TWDB, 1984). The hydraulic gradient has been consistent at approximately 0.003 feet/foot, toward the east at a bearing of approximately S 85° E (Figures 3A to 3D). The resulting seepage velocity is between 37 and 370 feet per year.

2.3 Summary of Historic Stage 1 and Stage 2 Abatement Activities

The areas addressed by previous investigations and remediation are depicted on Figure 2. In the previous abatement plans and reports (Enercon, 2000; ETGI, 2003a and 2004; NOVA, 2005) the areas addressed by abatement activities are referred to as follows:

- Area 1- a small area in the north-central part of the site, incorporated into Area 2
- Area 2 – a former waste pit located in the north-central part of the site and incorporates the former Area 1 and Area 4
- Area 3 – an area that had high chloride concentrations in soil, located in the southwestern quadrant of the site
- Area 4 - the northern half of the bulk tank area, incorporated into Area 2
- Area 5 - centered around a soil boring that had high chloride concentrations in soil, located near Champion's water supply well.

The post-abatement conditions of the vadose zone in each area are described below and the groundwater quality is discussed in Section 3.

Champion's contractor excavated soil and debris between July 2002 and February 2003, during Stage 2 abatement activities at Area 2. In January 2003, the Area 2 excavation was extended into the northern half of Area 4 and stained soil under Area 4 was removed to the extent practicable. The Area 2 excavation also completely removed Area 1. The overall excavation at Areas 1, 2, and 4 measured approximately 200 feet by 150 feet and 18 feet deep, totaling 20,000 cubic yards. The excavation removed a significant amount of the contaminant mass, but some residual chemicals of concern (COCs) are present in the remaining soil and within fractures of the caliche bottom, at approximately 18 to 20 feet bgs. During the excavation, a pipe running from the warehouse into the pit was discovered and removed. The COCs in Area 2 soils include chloride up to 11,000 milligrams per kilogram (mg/kg), chromium up to 13.4 mg/kg, and total petroleum hydrocarbons up to 30,000 mg/kg. NMOCD approved the backfilling of the Area 2 excavation on May 8, 2003 (NMOCD, 2003a). Between September 3 and 29, 2003, the excavation was backfilled with soil and caliche from an offsite source. As part of the backfill, a 2-foot thick clay layer was placed from 5 feet to 7 feet bgs, between September 12 and 19, 2003 (NOVA, 2005). Much of the area has since been constructed over.

Based on a review of precipitation data from the closest weather station with a continuous record for the period, approximately 19 inches of precipitation fell between July 2002 and September 2003 (NCDC, 2004). Thus, during the Stage 2 abatement activities, direct precipitation and runoff from adjacent land areas and building rooftops may have collected in the excavation, of which a significant fraction may have infiltrated into the temporary man-made, playa-like features.

Champion's contractor also completed a 20-foot deep excavation at Area 3, approximately 40 feet by 80 feet, beginning in July 2002 and backfilled it in September 2003. NMOCD approved the backfilling of the Area 3 excavation on August 13, 2003 (NMOCD, 2003c). The deepest part of the Area 3 excavation extended to a hard caliche caprock layer at 20 feet bgs. Chloride-containing soil remains in Area 3, up to 11,900 mg/kg at a depth of approximately 18 feet bgs. However, soil samples collected beneath the caprock contained low chloride concentrations (less than 100 mg/kg) and the excavation was backfilled with soil and caliche from onsite, and caliche from an offsite source (ETGI, 2004).

The Area 5 soils containing elevated chloride were excavated to a depth of approximately 2 feet bgs; the maximum concentration of remaining chloride was detected in a soil sample at a concentration of 3,680 mg/kg. The stockpile of soil excavated from Area 3 and Area 5 was lined with plastic sheeting. In late 2003, ETGI injected diluted molasses into the MW-6 area as a pilot test, which was halted before completion. (NOVA, 2005).

As identified in the Workplan and subsequent correspondence with NMOCD, COCs for the current site investigation were: chromium, chloride, barium, manganese, 1,1-dichloroethane (1,1-DCA), perchloroethylene (PCE), and vinyl chloride.

3.0 Investigation Findings

3.1 Description of Investigation Activities

Between July 19 and 25, 2005, five soil borings, one deep monitoring well, and three shallow monitoring wells were completed by Eades Drilling and Pump Service, a New Mexico-licensed well driller. The locations are shown on Figure 2. Four of the soil borings (ESCSB-01, ESCSB-02, ESCSB-03, and ESCSB-05) were drilled upgradient of MW-13 to confirm the lack of a large onsite source area of chromium. A total of 28 soil samples were collected from these borings. Boring ESCSB-05 was advanced approximately 20 feet into the saturated zone and converted into monitoring well, MW-19. The fifth soil boring (ESCSB-04) was drilled through the backfill in the Area 3 excavation, from which five soil samples were collected. Undisturbed samples were collected from the vadose zone soil using a 24-inch long split spoon, with a 2.5-inch inner diameter.

Monitoring well MW-20 was installed on private property, approximately 100 feet east of MW-10; MW-21 was installed near the eastern fence of the facility, approximately 160 ft east of MW-8; and the deep monitoring well, MW-4D, was installed approximately 5 feet from MW-4. These wells were constructed of 2-inch diameter Schedule 40 polyvinyl chloride risers and 0.010-inch slotted screen. MW-19 and MW-20 have 20 feet of screen, MW-21 has 20 feet and MW-4D has 65 feet. The top of the screens for all these wells were placed approximately 5 feet above the saturated zone as encountered during construction or overlapping the hard calcrete layer immediately above the water-bearing sand layer; the total depth and screen intervals are shown on the well construction diagrams in Appendix A. A 12-20 sand filter pack was placed around each well-screen, from the bottom to 2 feet above. Hydrated bentonite was used to create a seal on top of the sand filter pack. Portland cement concrete was used to seal the remainder of the borehole to the ground surface and to set a traffic-rated water-tight protective steel cover. The wells were fitted with a locking well cap. The newly installed wells were developed to remove drilling fluids and sediment accumulation. The new and existing wells were surveyed by John West Surveying Co., a New Mexico-licensed land surveyor.

As prescribed in the Workplan and subsequent correspondence with NMOCD, selected wells were sampled for analysis for specific COCs in July 2005, October 2005, January 2006, and April 2006. The wells were purged of three times the borehole volume and field parameters (temperature, conductivity, oxidation-reduction potential [ORP], dissolved oxygen [DO], and pH) were monitored for stability, according to Environmental Strategies' Standard Operating Procedures. The metals samples were filtered before analysis to measure the dissolved fraction, consistent with the Water Quality Control Commission (WQCC) regulations and standards found in Title 20 of the New Mexico Administrative Code, Chapter 6, Part 6.2.3103 (20.6.2.3103 NMAC). As part of the July and October 2005 sampling, supplemental samples were collected for total organic carbon, total dissolved solids, sulfide and sulfate analyses. Environmental Strategies also measured ferrous iron in the field using Hach® Accuvac® vials and a DR890 colorimeter in those sampling events. The samples were analyzed using the following EPA methods:

- 160.1 (total dissolved solids)
- 300.0A (chloride and sulfate)
- 415.1 (total organic carbon)
- 6010B (metals)
- 8260B (VOCs)
- 9030B/9034 (sulfides)

In October 2005, the pilot-test injection well and six monitoring points were plugged and abandoned, and MW-6, -12, -16, -17 and P-1 and P-2 were retrofitted with flush-mounted covers, to accommodate increased truck traffic at the facility. These wells were resurveyed by John West Surveying Co.

Wherever using dedicated sampling supplies was not practical, sampling tools and equipment were decontaminated before collecting each sample. All investigation-derived waste (IDW) was contained and disposed of at the Controlled Recovery, Inc., facility in western Lea County, New Mexico. The stockpile of soil from the Area 3 and Area 5 excavations was disposed of along with the IDW. Copies of the waste disposal records are presented on a CD-ROM in Appendix B.

3.2 Soil Findings

As described in Section 2.2.2, the soils encountered by Environmental Strategies were consistent with the soils identified in the previous investigations. Boring logs and excavations at the site indicate a 5-foot thick, hard caliche layer from approximately 20 to 25 feet bgs throughout most of the site, and a second hard caliche or sandstone layer from approximately 50 to 56 feet bgs that has been consistently encountered throughout all site investigations reviewed to date. Boring logs and well construction diagrams are presented in Appendix A.

The 28 samples collected in the MW-13 area were analyzed for chromium, pH, and chloride by EPA methods 6010B, 9045C and 9056, respectively. The five samples collected in the Area 3 backfill were analyzed for chloride and one representative sample was also analyzed for hydraulic conductivity, by ASTM D5084. The results of the chemical analyses are presented in Table 2. The maximum chromium result was 10 mg/kg and pH results range from 7.9 to 9.6. In the MW-13 area, the chloride concentrations ranged from 10 mg/kg to 2,600 mg/kg, all less than the highest confirmation sample result from the Area 5 excavation described in Section 2.3.1. In general, the chloride concentrations decrease laterally with distance from the Area 5 excavation but have no distinct vertical pattern, except that the maximum and average concentration in samples collected below the hard caliche layer (found at approximately 50 ft) are at least one order-of-magnitude lower than those above it. This indicates that the primary mass of chloride in the area has been removed during the Area 5 excavation and that the caliche/sandstone layer at approximately 50 ft may serve to limit migration of chloride from the upper vadose zone to groundwater.

The chloride results in Area 3 backfill range from 58 to 790 mg/kg, with an average of 324 mg/kg. The hydraulic conductivity of the backfill was measured as 2.39 x 10^{-6} cm/s, which is at least four times less permeable than the solid waste landfill cover specifications required by the New Mexico solid waste landfill regulations (20.9.1.500 NMAC). The backfill soil closely resembles the native soil encountered at other soil borings, so the conductivity of the native soils is likely similar in magnitude.

Copies of the analytical reports are included on a CD-ROM in Appendix C.

3.3 Groundwater Findings

Representative concentrations for chromium, chloride, and volatile organic compounds (VOCs) from relevant wells for the current and past investigations are presented in Tables 3 through 5; graphical representations of the historical data are presented in Graphs 2 through 6.

Barium and manganese were not regularly included in the past analyses so only the current data are considered in this report.

The chromium concentrations are generally exhibiting a decreasing or stable trend. In the April 2006 sampling, all of the onsite wells in the historical chromium plume area had dissolved chromium concentrations below the WQCC standard of 0.05 mg/L. Furthermore, the supply wells (both onsite and the well located at 4027 South Eunice Highway) have never had chromium detected above one-eighth the WQCC standard. In April 2006, upgradient well MW-7 was analyzed for dissolved chromium to investigate anomalous results (discussed below); it contained 0.058 mg/L, slightly higher than the WQCC standard but less than the New Mexico drinking water standard of 0.1 mg/L adopted in 20.7.10.100 NMAC. The current investigation results for dissolved chromium are depicted on Figures 4A though 4D.

The chloride concentrations are generally exhibiting a decreasing or stable trend, with some wells exhibiting increasing trends. Most of the wells, including those upgradient of the facility, have chloride concentrations above the WQCC standard of 250 mg/L. The current investigation results for chloride are depicted on Figures 5A though 5D.

The current results of VOC analyses are depicted on Figure 6; no VOC was detected above its respective WQCC standards. The concentrations of 1,1-DCA and PCE are currently less than the maximum levels historically detected and overall are exhibiting decreasing trends; vinyl chloride has not been detected.

Although barium and manganese were occasionally detected above WQCC standards in previous investigations, they were not detected in the current investigation at or above the WQCC standards; the current investigation results are depicted on Figure 7.

Geochemical parameters relating to secondary lines of evidence for chemical reduction of chromium and reductive dechlorination of the VOCs are summarized in Table 6. The measurements indicate the aquifer is mildly oxidizing; the average ORP is 54 millivolts (mV) and the average DO is 4.7 mg/L, and the groundwater is neutral to slightly alkaline with an average pH of 7.3. As would be expected in an aquifer with these conditions, ferrous iron, organic matter, and reduced sulfur compounds are not present in significant concentrations and reductive reactions are not likely occurring. This indicates that the declining chromium and VOC plumes observed are caused by physical natural attenuation, primarily dispersion and dilution. Of all the natural attenuation processes, these physical processes are the least susceptible to alter over time.

Copies of the analytical reports are included on a CD-ROM in Appendix C.

4.0 Conclusions

This section presents an interpretation of the findings to date, with respect to COCs grouped by chemical similarity or behavior. The goal of this investigation was to demonstrate: 1) the site conditions do not constitute a *hazard to public heath*, as defined in 19.15.1.7 NMAC, so that no further abatement is warranted, and/or 2) natural attenuation is occurring such that protective concentrations of COCs may be attained within a reasonable distance from the site and within a reasonable period of time.

The definition of *hazard to public health* applies only to chemicals that either have *human health standards* listed in 20.6.2.3103(A) NMAC or are listed as *toxic pollutants* 20.6.2.7(VV) NMAC. Chloride does not have a human health standard nor is it listed as a toxic pollutant. The only COC that currently exceeds WQCC standards and to which hazard to public health applies is chromium. The definition of hazard to public health includes the language: "In determining whether a release would cause a hazard to public health to exist, the Director shall investigate and consider the purification and dilution reasonably expected to occur from the time and place of the release to the time and place of withdrawal for use as human drinking water." The natural attenuation processes that are occurring at the site are physical, including dispersion and dilution.

As stated in 19.15.1.19 NMAC, the purpose of NMOCD Rule 19, pertaining to groundwater, is to abate the vadose zone so that the contaminants in the vadose zone will not with reasonable probability contaminate groundwater above the WQCC standards. The Stage 2 activities completed to date have addressed the vadose zone and the current investigation further delineated the inferred source area of chromium above the WQCC standard in the southern part of the site.

The underlying purpose of this supplemental investigation was to obtain NMOCD approval to terminate the abatement plan for the site. As required in Rule 19(K), a completion report shall be prepared upon completion of the work in this investigation plan for submittal to the NMOCD. The purpose of the investigation and report is to document the data that support the hypotheses presented in this plan which would allow for termination of the abatement activity at the site. The primary hypotheses presented in the Workplan were:

- The source area of the chromium plume does not require further abatement to prevent a *hazard to public health*
- Due to natural dilution and purification, the chromium concentrations in groundwater would not require further abatement to attain the site-specific action level of 0.040 mg/l at a reasonably expected point of withdrawal
- The chloride concentrations in regional offsite groundwater exceed the WQCC standard making onsite abatement to attain the standard at the site infeasible. Additionally, the Stage 2 chloride abatement activity, already completed, has substantially removed the onsite chloride source area and will control the potential migration pathway. It should be noted, that the chloride concentrations onsite are consistent with the Hydrus-1D model that was approved by NMOCD
- The VOCs and metals (other than chromium) identified in previous investigations do not require further abatement.

During the course of the current investigation, additional hypotheses were developed, including:

- If there was an onsite source of chromium in groundwater, it has abated to concentrations indistinguishable from background soil and, thus, will not continue to contribute an elevated chromium loading to groundwater. Offsite, upgradient sources of chromium in groundwater may also be present.
- Chloride concentrations are increasing in background groundwater, indicating an offsite, upgradient source or sources.

Consideration of the historical data is necessary in the interpretation of the COC behavior in groundwater at this site. When evaluating the potential for natural attenuation, it is important to look at the primary lines of evidence. Primary lines of evidence are data from historical samples that demonstrate a clear and meaningful trend of declining contaminant mass and/or concentrations at appropriate monitoring or sampling points. Primary lines of evidence are used to determine whether plumes are expanding, shrinking, or stable. The data are also compared to the predictive results from the Hydrus-1D model presented in the 2003 Comprehensive Status Report and the BIOCHLOR model in the 2005 Workplan. These models were conservatively applied to the data with the assumption that only natural dilution and dispersion are occurring with no decay of contaminant mass.

4.1 Chromium

The southeastern quadrant of the site has had historic chromium in groundwater above the WQCC standard of 0.05 mg/L. The investigations since 2000 included a total of 37 soil samples collected from 11 soil borings and 2 trenches in this area, which have yet to identify a source of chromium contamination. The results were less than the mean concentration for the western United States of 41 mg/kg (USGS, 1984) and for southeastern New Mexico of 20 to 22 mg/kg (USGS, 2001). As of April 2006, the onsite groundwater concentrations in the historical plume area have declined to below the WQCC standard; nonetheless, the concentration in MW-20 exhibited anomalous fluctuation and has been above the WQCC standard, but has been consistently below the New Mexico drinking water standard.

In its May 8, 2003 letter, NMOCD required the following system of point-of-compliance and point-of-exposure regarding chromium: "If dissolved chromium reaches or exceeds the site-specific action level of 0.040 mg/l in adjoining property residential wells or onsite active water wells, then immediate corrective action and public protection plan will be implemented and a new domestic water supply well will be installed to provide potable water." The site-specific action level has never been exceeded at the neighboring residential well nor in the onsite water supply well, thus, active remediation is not warranted to address the presence of chromium.

4.2 Chloride

In the WQCC regulations, chloride is not a *toxic pollutant* nor does it have a *human health standard*. Furthermore in 20.6.2.3109(D) NMAC, the New Mexico Environmental Department allows discharges to leach non-toxic pollutants from the vadose zone (except for solution mining, industrial/commercial effluent treatment, storage or disposal, and cooling water lakes). The historic site use did not likely include any of these sources. Regionally, high chloride concentrations in groundwater are likely caused in large part by the historical use of unlined evaporation pits for oil and gas exploration and production brine disposal. Additionally, septic systems and playas may leach naturally occurring chloride from the vadose zone into groundwater, but over time the chloride content in the wetted vadose zone will decrease to a negligible amount. More importantly, residences that use water softeners and septic drain fields may be a continuing source of chloride (likely hundreds of pounds per year for the hard water that is typical in the region) and certain agricultural operations generally discharge chlorides.

The excavations have already reduced the majority of the known chloride mass in the soil, and clayey soil has been placed as the Area 2 and Area 3 backfill to reduce infiltration. A concrete containment structure has been constructed over approximately 50 percent of Area 2, thus, further minimizing infiltration in this area of the site. The data indicate that the three upgradient wells, (MW-7, -9, and -15) have had chloride concentrations above the WQCC standard of 250 mg/l, either chronically or acutely, indicating regionally high chloride concentrations with some local variability. As defined in 19.15.1.7(B) NMAC, *background*, means the amount of groundwater contaminants naturally occurring from undisturbed geologic sources, or water contaminants occurring from a source other than the responsible person's facility. The data with respect to chloride suggest both of these conditions apply to the local groundwater, including the upgradient water having concentrations above the WQCC standard.

The onsite chloride impacts attributable to the site operations, detected at MW-4D and MW-8, are finite; and the conditions that would cause contamination of groundwater from the vadose zone have been abated by excavation, backfill, and construction of impermeable structures. Eventually, such finite masses of contaminants will, by dispersion and dilution, have negligible impact at a reasonably foreseeable time and place of withdrawal, including at the original place of release. At MW-4D, the increase of chloride was most likely caused by the circulation of drill cutting and drilling fluids in contact with the silty caliche in the vadose zone that may have contained elevated chloride concentrations. Despite having pumped out approximately three-times the estimated volume of drilling fluids lost to the formation during the installation and development of MW-4D, chloride ions may have diffused beyond the diameter captured by the development pump. The background concentration approaching the site from the west (MW-7) has exceeded 250 mg/L; in the current investigation it was as high as 3,000 mg/L. The impact detected at MW-8 is likely caused by the temporary man-made playa-like feature created during excavation of Area 2. The background water encroaching the site's western boundary, as represented by MW-9, is chronically above 250 mg/L while water leaving the site's eastern boundary (MW-21) averages less than 250 mg/L. The most reasonable compliance stations are at the eastern property boundary (MW-21 and MW-4D).

Scenarios 3 and 4 of the Hydrus 1D model most closely simulate the type of release to groundwater thought to have occurred at the Area 2 excavation and during the installation of MW-4D; the model predicts that concentrations will return to background levels asymptotically in 15 to 20 years, but did not account for increasing background concentrations. Extrapolation of the upper-bound detections indicate the concentrations will decrease to the higher of the background level or the WQCC standard, approximately in February 2017 at MW-8 and July 2007 at MW-4 and -4D (Graphs 4 and 6).

Furthermore, the best available technologies to remove chloride involve pump-and-treat technology, which can exacerbate the migration of the upgradient chloride. The treatment systems (reverse osmosis, electro-dialysis, and distillation) are all energy intensive and are very expensive; the preliminary cost estimate for this site is $1,500,000 of which $650,000 is capital cost. These technologies also produce a large volume of concentrated brine waste, typically 20 percent of the treated volume resulting in the depletion of a significant amount of groundwater. The difficulty of distinguishing the encroaching high chloride background water from the finite on-site impacts will complicate determining the termination criteria for such a treatment system. It is not feasible to implement such remediation because the extracted groundwater would simply be replaced by an unknown quantity of contaminated groundwater migrating from upgradient sources.

4.3 Barium and Manganese

During the current investigation, dissolved barium and manganese have not been detected at concentrations above the WQCC standards and, thus, should not be considered COCs.

4.4 VOCs

The concentrations of VOCs in and downgradient of the inferred source area, represented by MW-17, are currently less than the WQCC standards. The downgradient well, MW-18, has never had VOCs detected above WQCC standards. Furthermore, the data for both wells clearly exhibit declining trends. VOCs should no longer be considered COCs at this site.

The results are consistent with the fate and transport modeling Environmental Strategies completed in the Workplan, using EPA's BIOCHLOR model, to evaluate the VOC data from monitoring wells MW-6/17 and MW-18. The calibrated model indicates that the plume is in steady-state and that there is no significant biological degradation of these compounds occurring under current conditions, hence, there is no significant formation of vinyl chloride. This means that dispersion and dilution are in effect to reduce concentrations. The model simulated migration for 100 years past the date of release to groundwater and predicts the maximum concentration that would be present at the downgradient property boundary would be 0.012 mg/l of 1,1-DCA and 0.006 mg/L of PCE, which are below the WQCC standards of 0.025 mg/l and 0.02 mg/l, respectively. The site data and modeling results indicate that the original concentrations at the time of release were far below the level that would indicate a non-aqueous phase release. The excavation of Area 2 has substantially removed the source while the clay backfill and recent construction greatly reduce infiltration, and the overall declining trend observed in the wells nearest the inferred source area confirms that the model is conservative.

5.0 Recommendations

Given the findings and conclusions presented in this report, the following recommendations are proposed:

a) Terminate abatement activity with respect to 1,1-DCA, PCE, and vinyl chloride.

b) Terminate abatement activity with respect to barium and manganese.

c) Terminate abatement activity with respect to chloride because the chloride concentrations downgradient of the site are generally lower than the background levels, and the finite on-site impacts will naturally attenuate to background concentrations in a reasonable timeframe.

d) Confirm that a hazard to public health does not exist with respect to dissolved chromium concentrations in groundwater potentially attributable to the site operations, by monitoring MW-13, MW-4D and MW-20, demonstrated when two consecutive periodic sampling events (3 to 6 months apart) exhibiting concentrations less than or equal to the WQCC standard in MW-20. Chromium is also present above the WQCC standard in background well MW-7.

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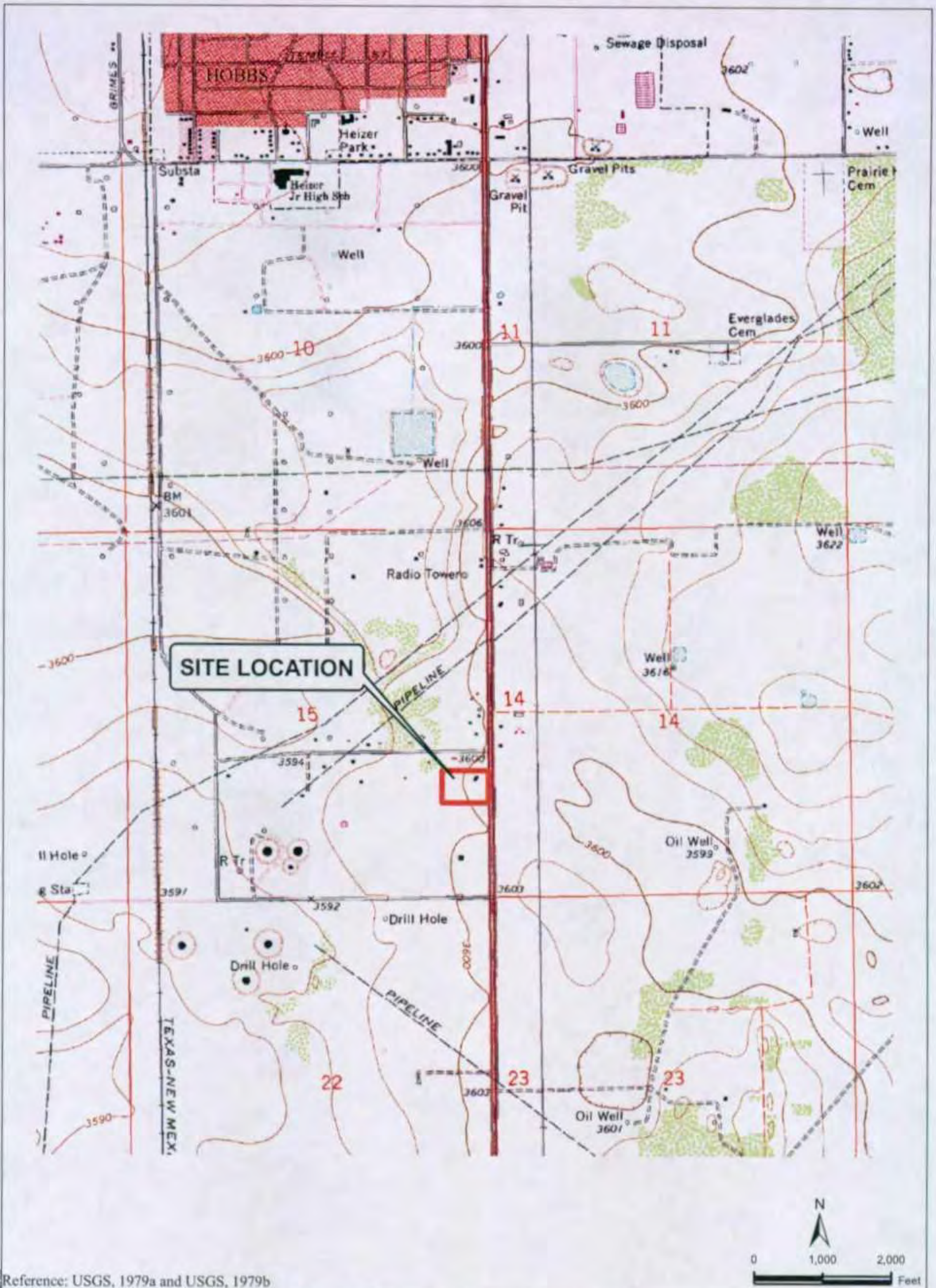
Figures



Reference: USGS, 1979a and USGS, 1979b

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DENVER, COLORADO 80237
303-850-9200

Figure 1
Site Location
Champion Technologies Inc.
Hobbs, New Mexico

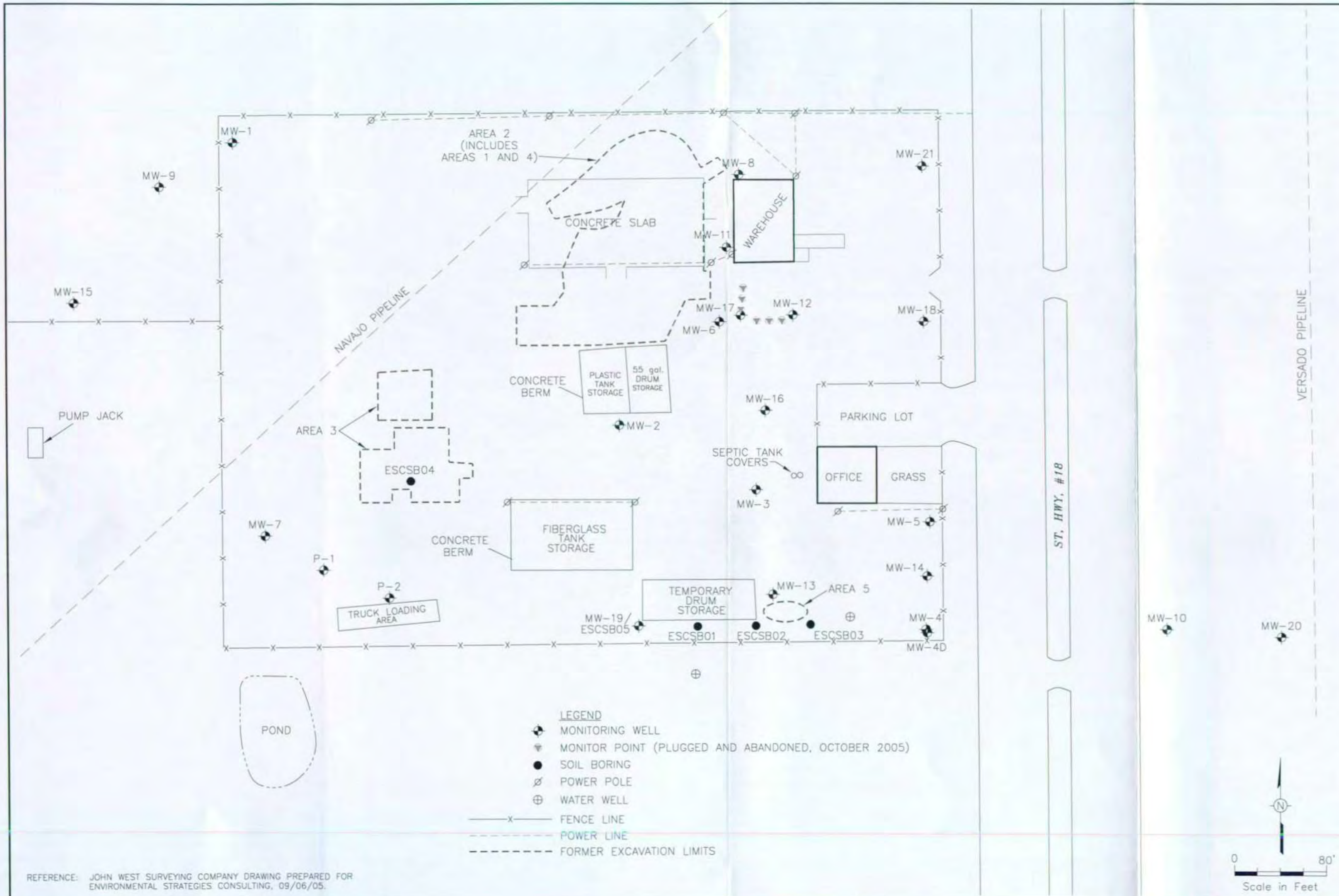

Figure 2
Site Plan
Champion Technologies Inc.
Hobbs, New Mexico

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1310420I.DWG

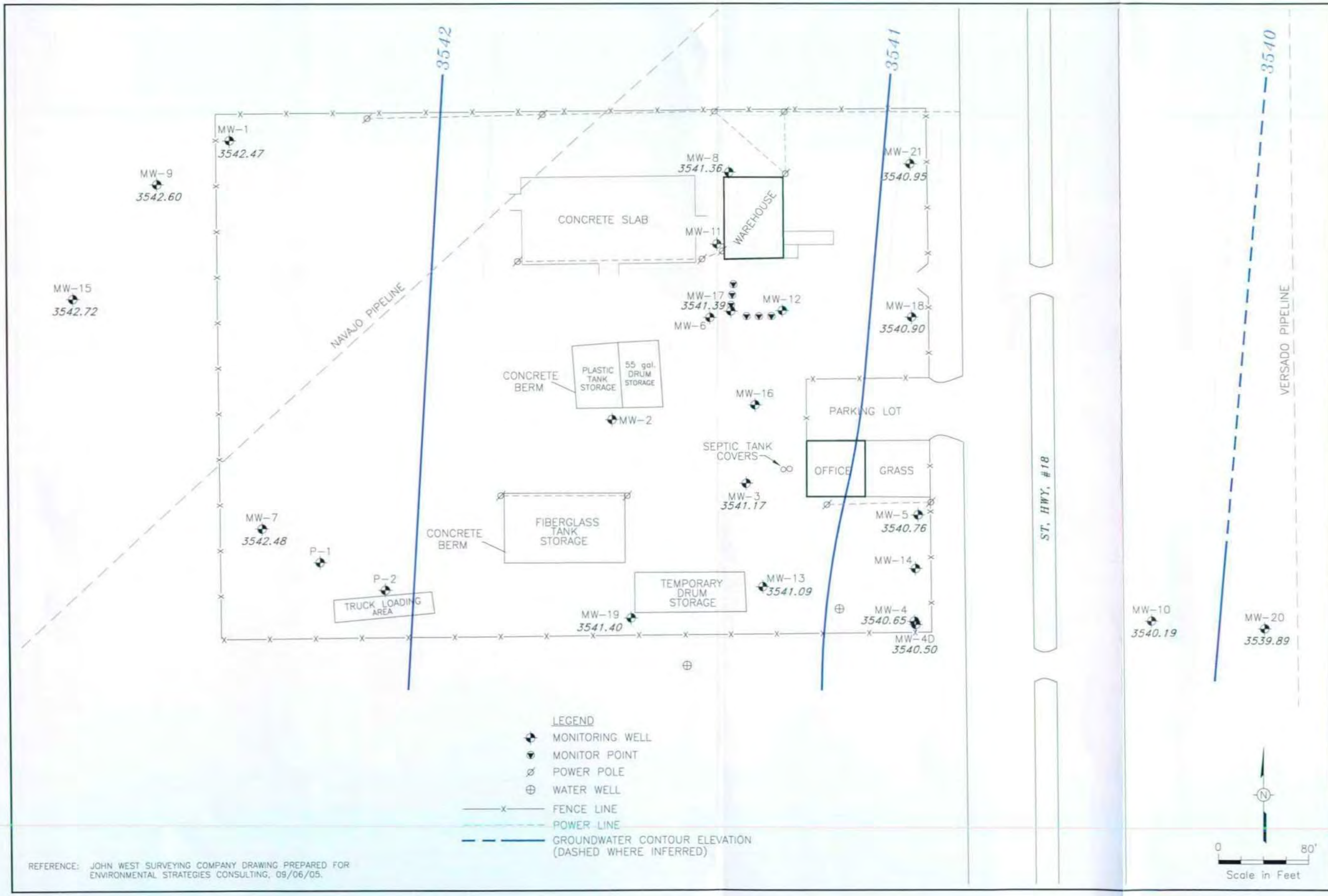

Figure 3A
Groundwater Elevation - July 2005
Champion Technologies Inc.
Hobbs, New Mexico

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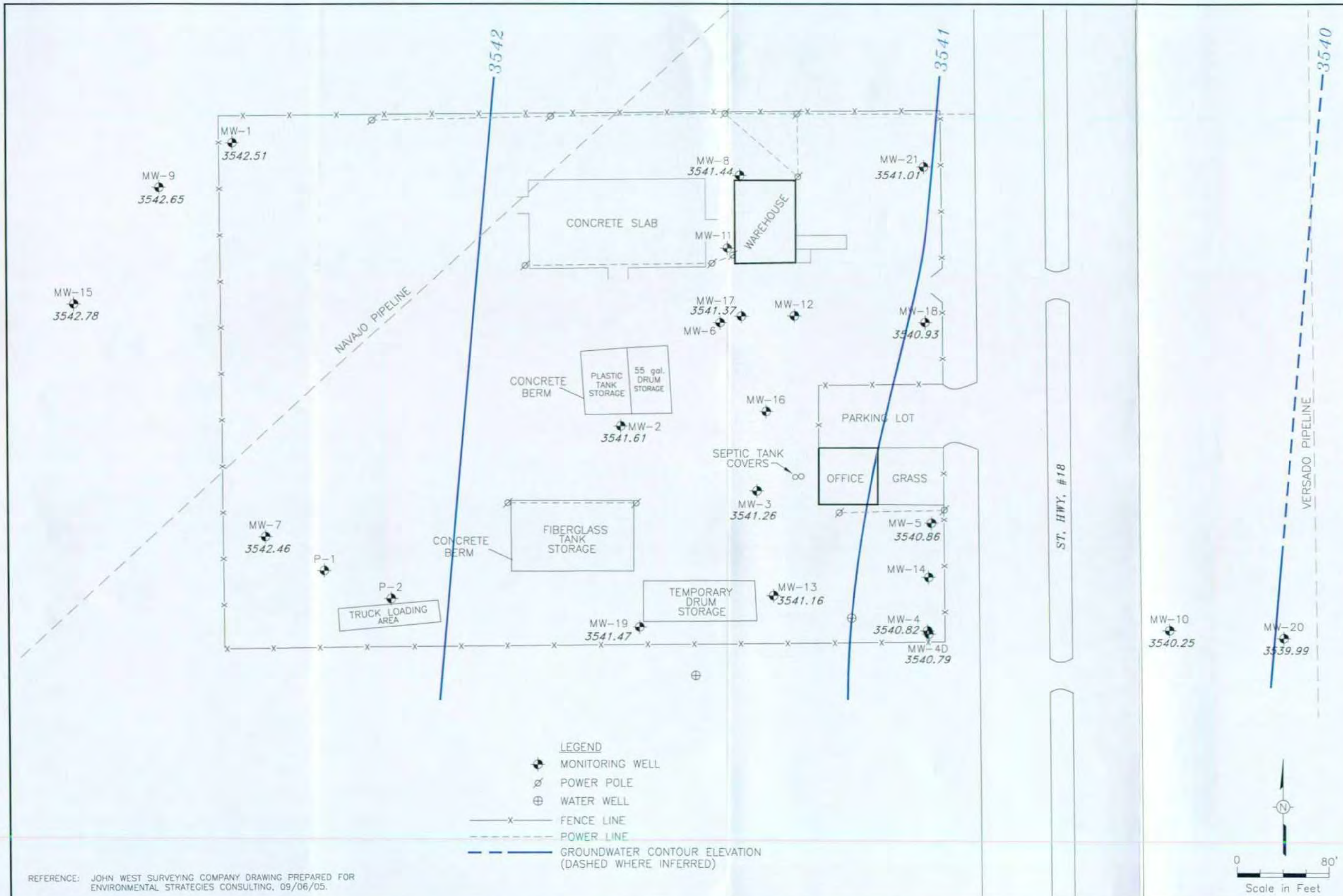

Figure 3C
Groundwater Elevation - January 2006
Champion Technologies Inc.
Hobbs, New Mexico

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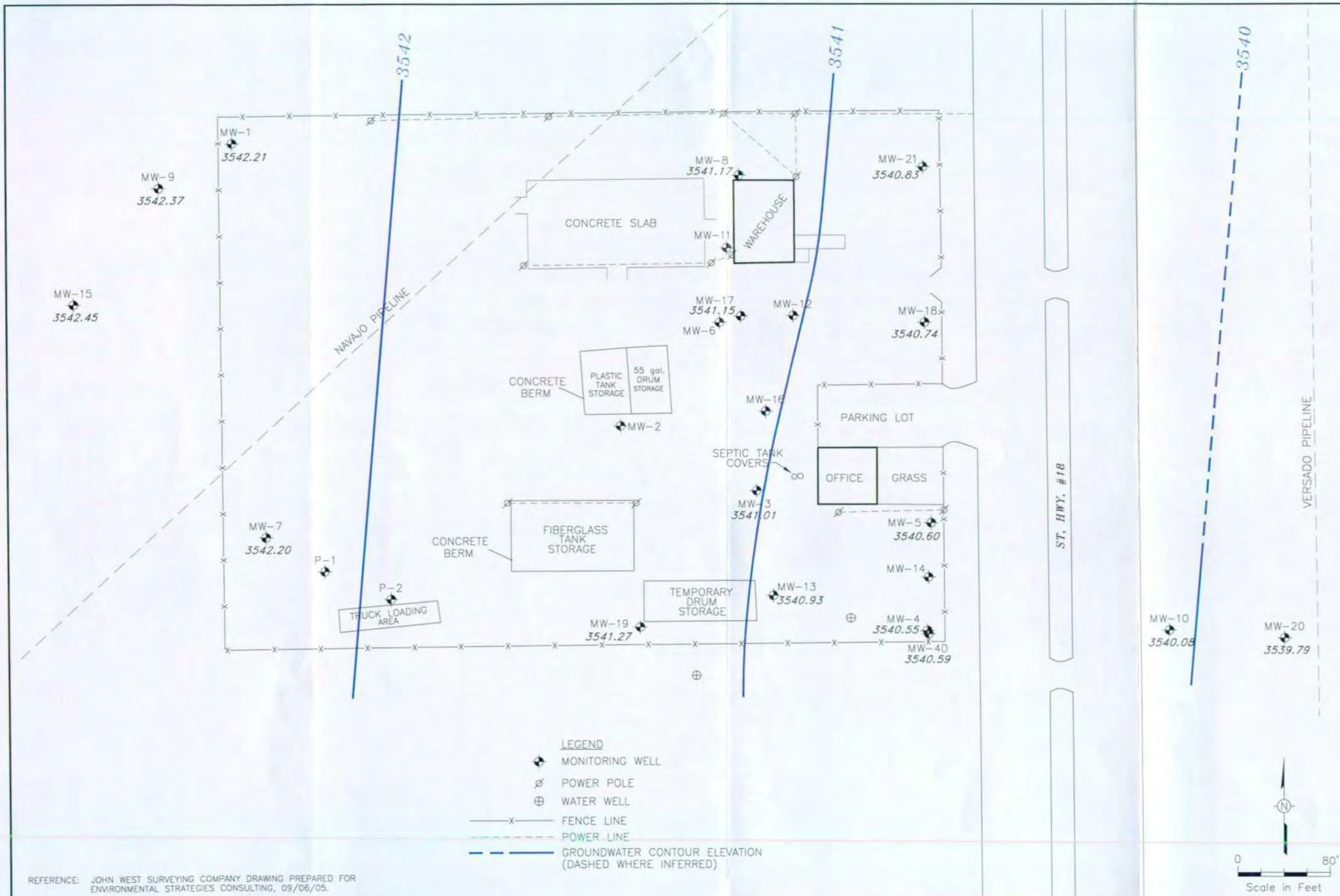

Figure 3D
Groundwater Elevation - April 2006
Champion Technologies Inc.
Hobbs, New Mexico

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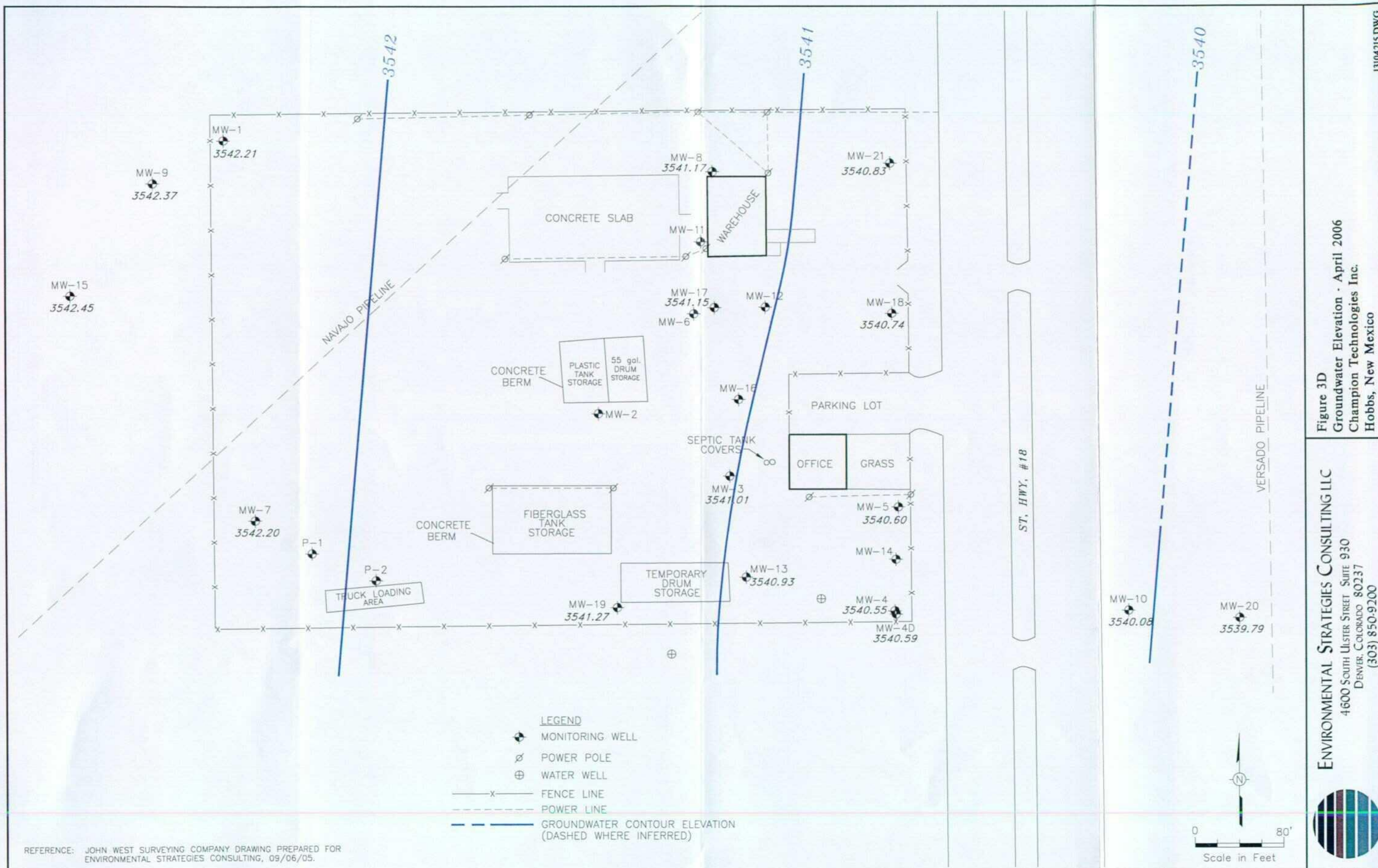

3542
3541
3540
MW-1
3542.21
MW-9
3542.37
MW-15
3542.45
MW-7
3542.20
P-1
P-2
TRUCK LOADING AREA
NAVAJO PIPELINE
MW-8
3541.17
MW-11
CONCRETE SLAB
WAREHOUSE
MW-17
3541.15
MW-6
MW-12
MW-21
3540.83
MW-18
3540.74
CONCRETE BERM
PLASTIC TANK STORAGE
55 gal. DRUM STORAGE
MW-2
MW-16
PARKING LOT
SEPTIC TANK COVERS
OFFICE
GRASS
MW-3
3541.01
MW-5
3540.60
CONCRETE BERM
FIBERGLASS TANK STORAGE
MW-14
TEMPORARY DRUM STORAGE
MW-13
3540.93
MW-19
3541.27
MW-4
3540.55
MW-4D
3540.59
ST. HWY. #18
MW-10
3540.08
MW-20
3539.79
VERSADO PIPELINE
LEGEND
MONITORING WELL
POWER POLE
WATER WELL
FENCE LINE
POWER LINE
GROUNDWATER CONTOUR ELEVATION (DASHED WHERE INFERRED)
N
0
80'
Scale in Feet
REFERENCE: JOHN WEST SURVEYING COMPANY DRAWING PREPARED FOR ENVIRONMENTAL STRATEGIES CONSULTING, 09/06/05.
Figure 3D
Groundwater Elevation · April 2006
Champion Technologies Inc.
Hobbs, New Mexico
Environmental Strategies Consulting LLC
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1310421S.DWG

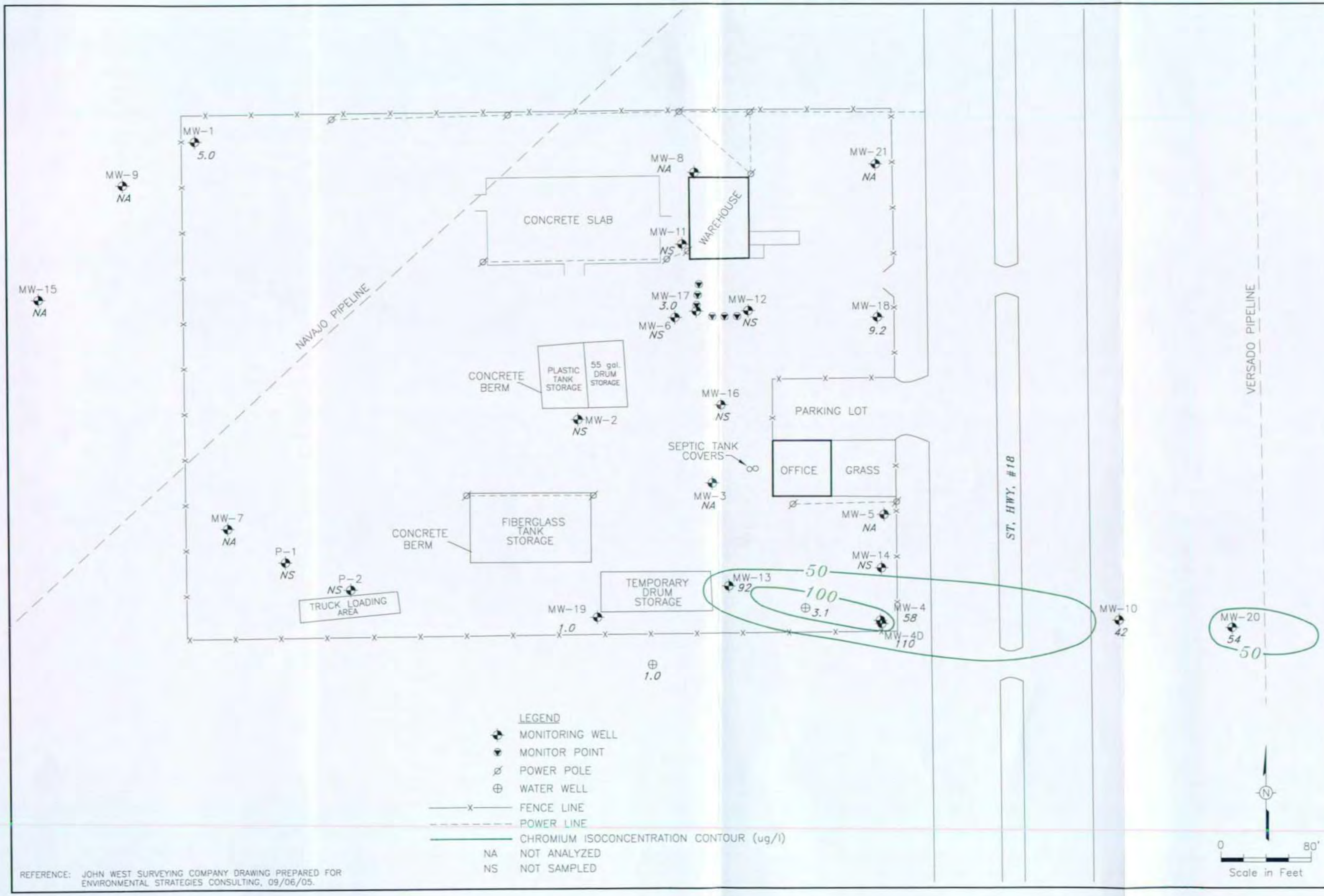

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Figure 4A
Chromium Concentrations (ug/l) July 2005
Champion Technologies Inc.
Hobbs, New Mexico

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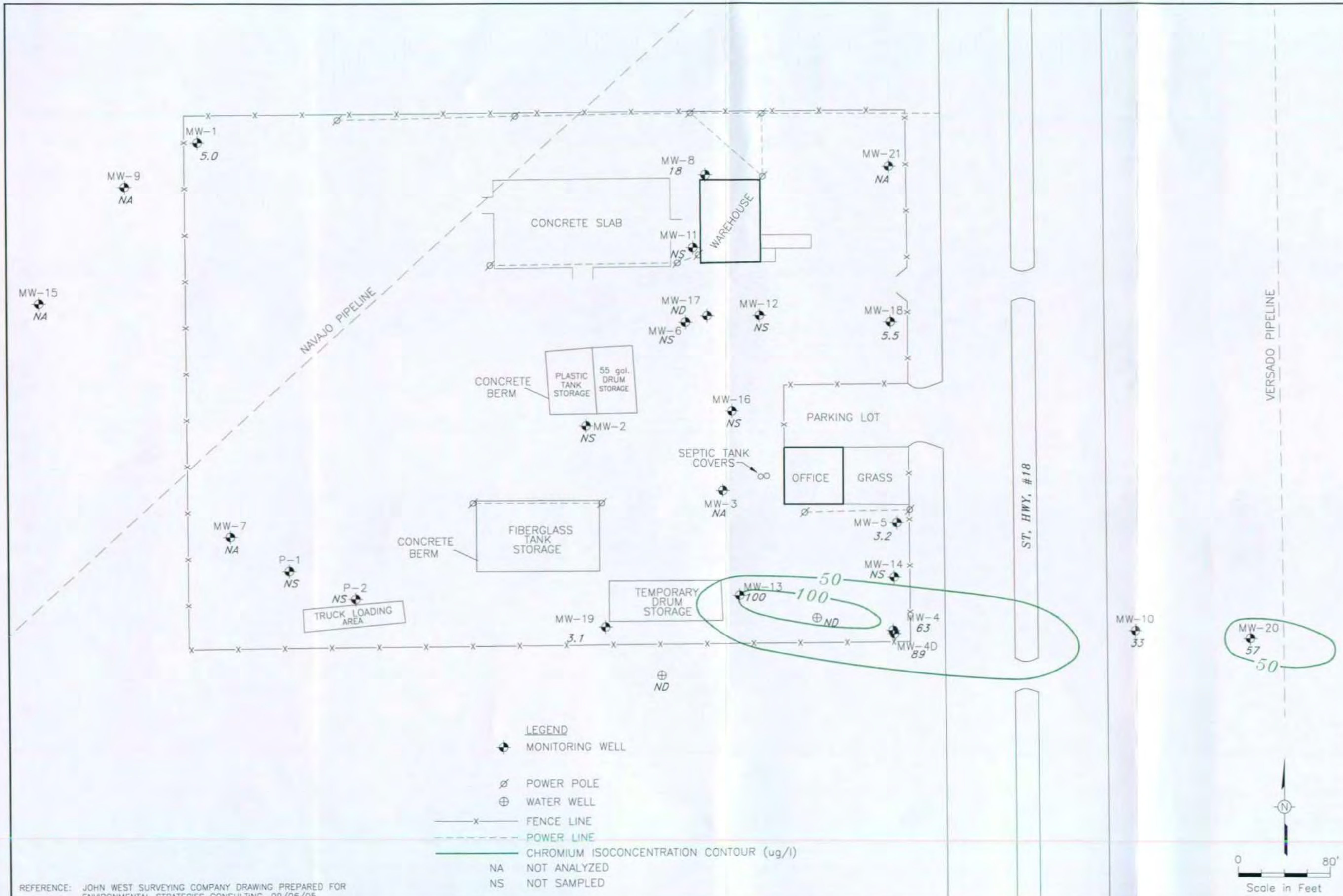

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Figure 4B
Chromium Concentrations (ug/l) October 2005
Champion Technologies Inc.
Hobbs, New Mexico

1310420S.DWG

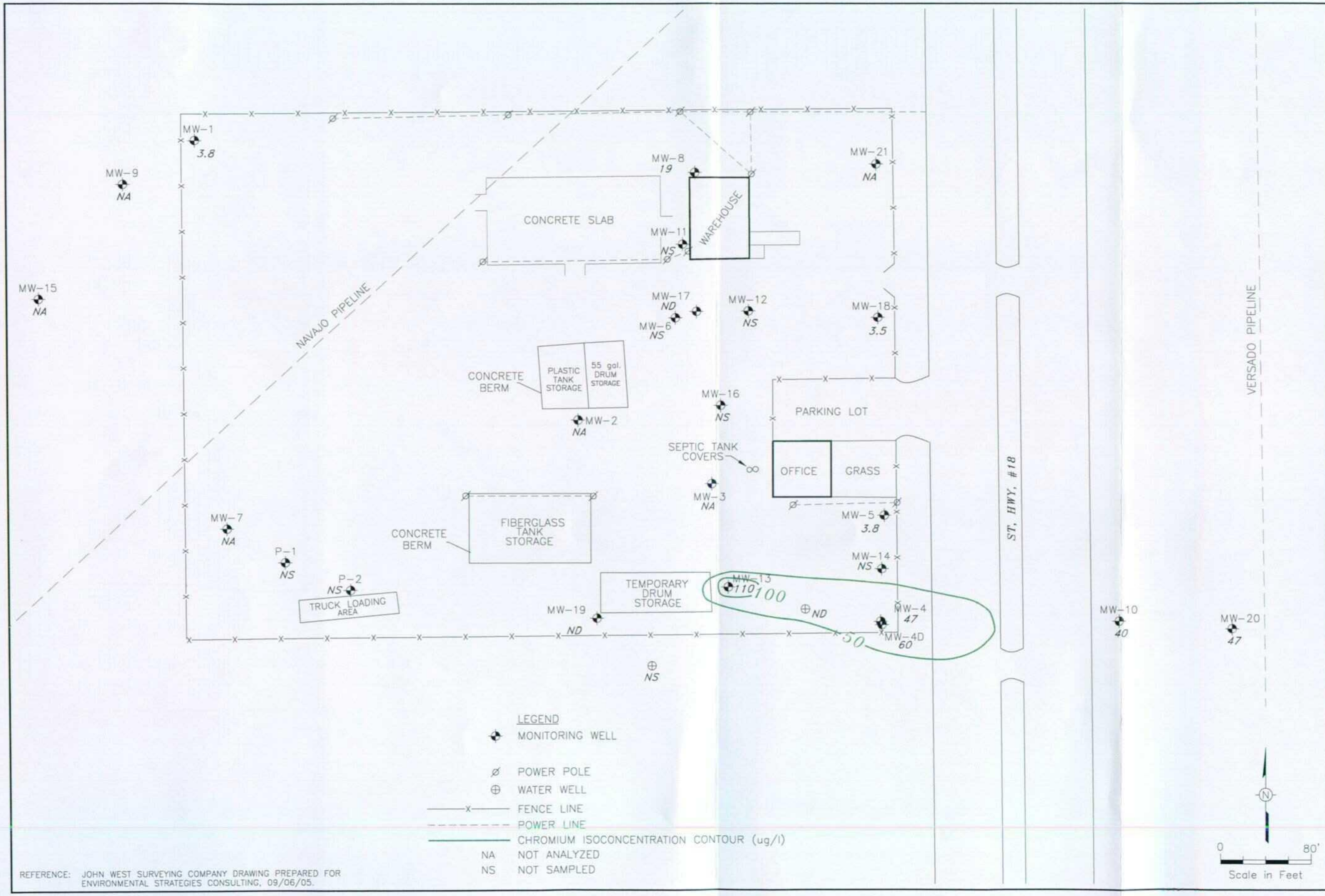

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Figure 4C
Chromium Concentrations (ug/l) January 2006
Champion Technologies Inc.
Hobbs, New Mexico

1310421A.DWG

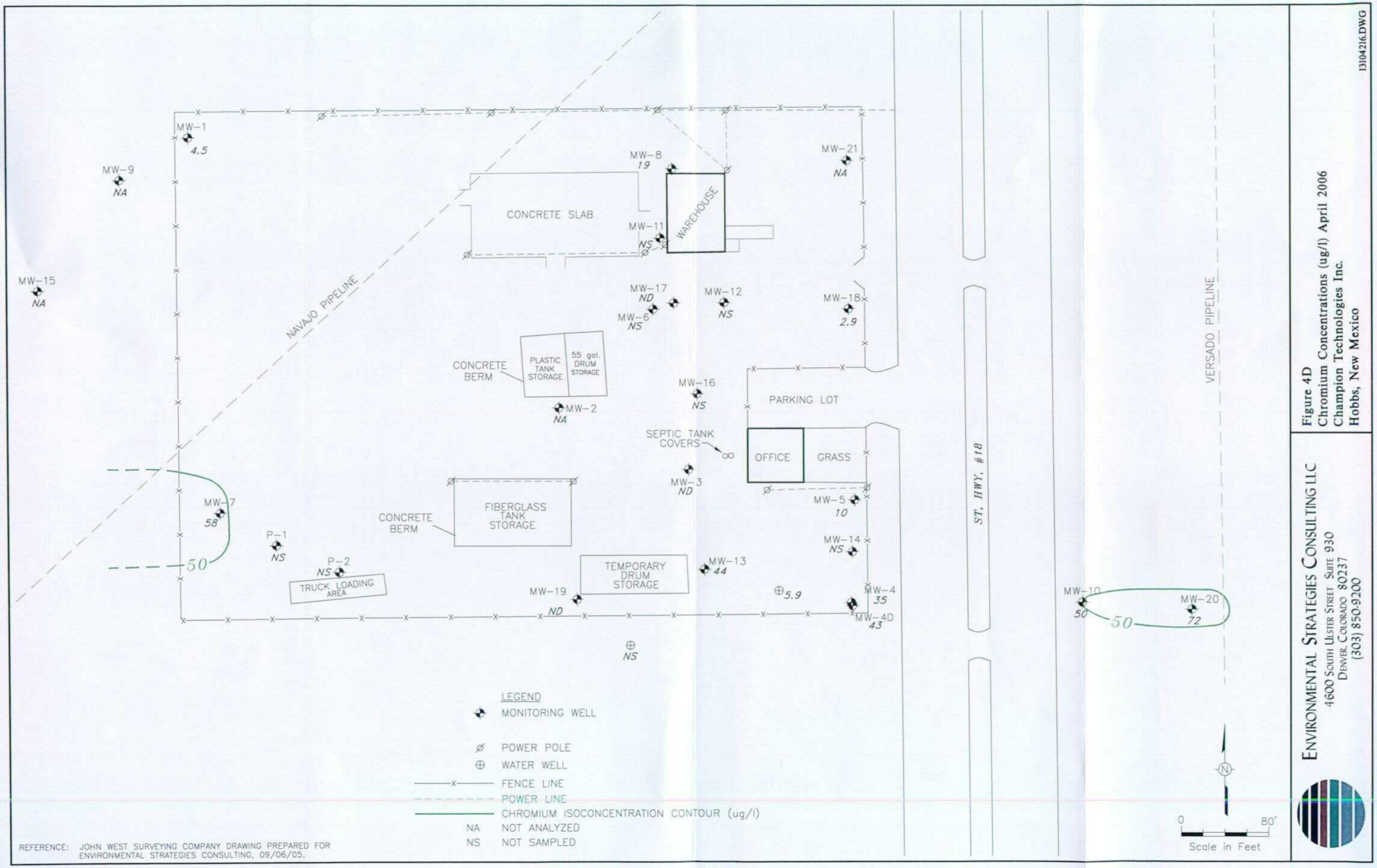

Figure 4D
Chromium Concentrations (ug/l) April 2006
Champion Technologies Inc.
Hobbs, New Mexico

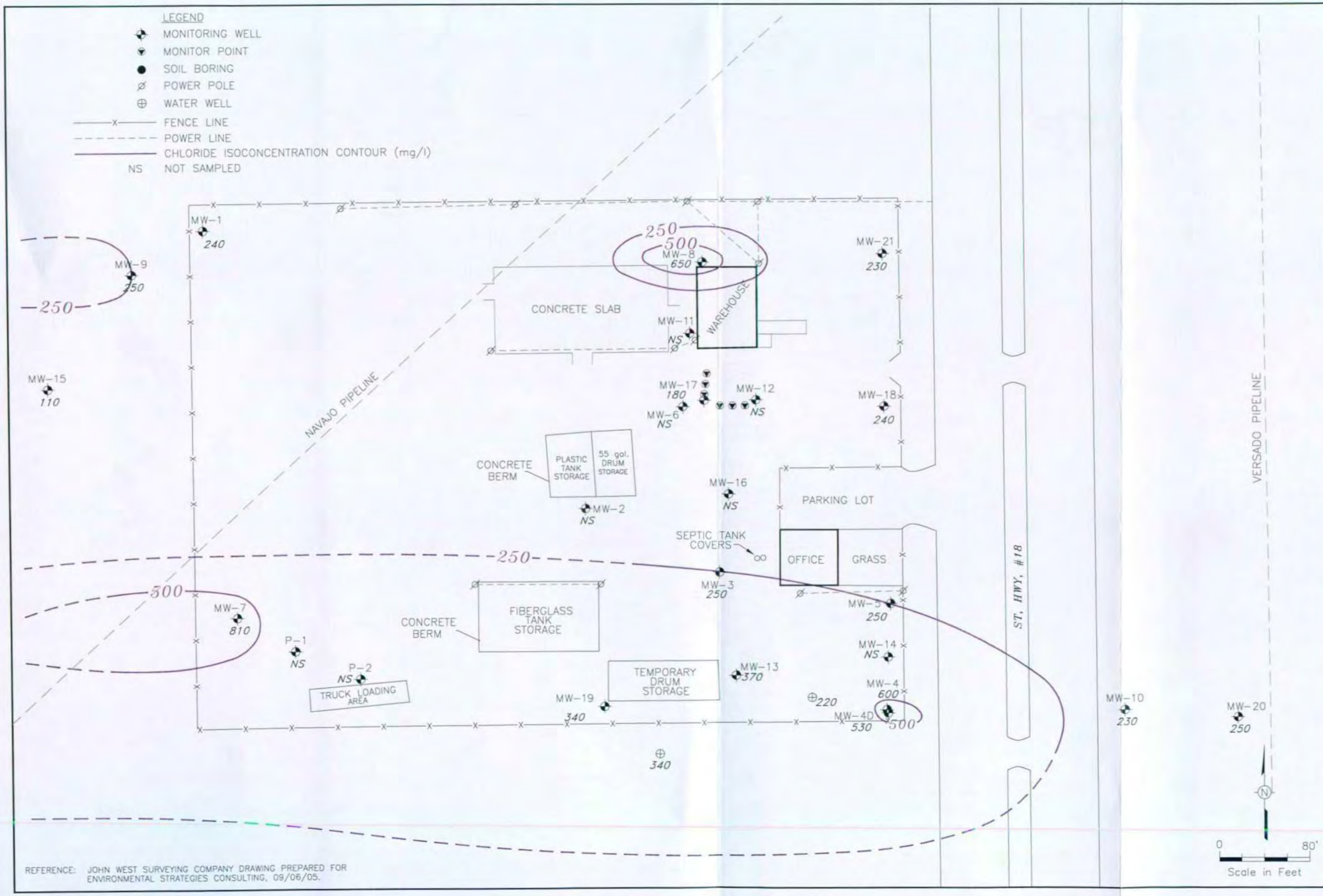

Figure 5A
Chloride Concentrations (mg/l) July 2005
Champion Technologies Inc.
Hobbs, New Mexico

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 South Ulster Street Suite 930
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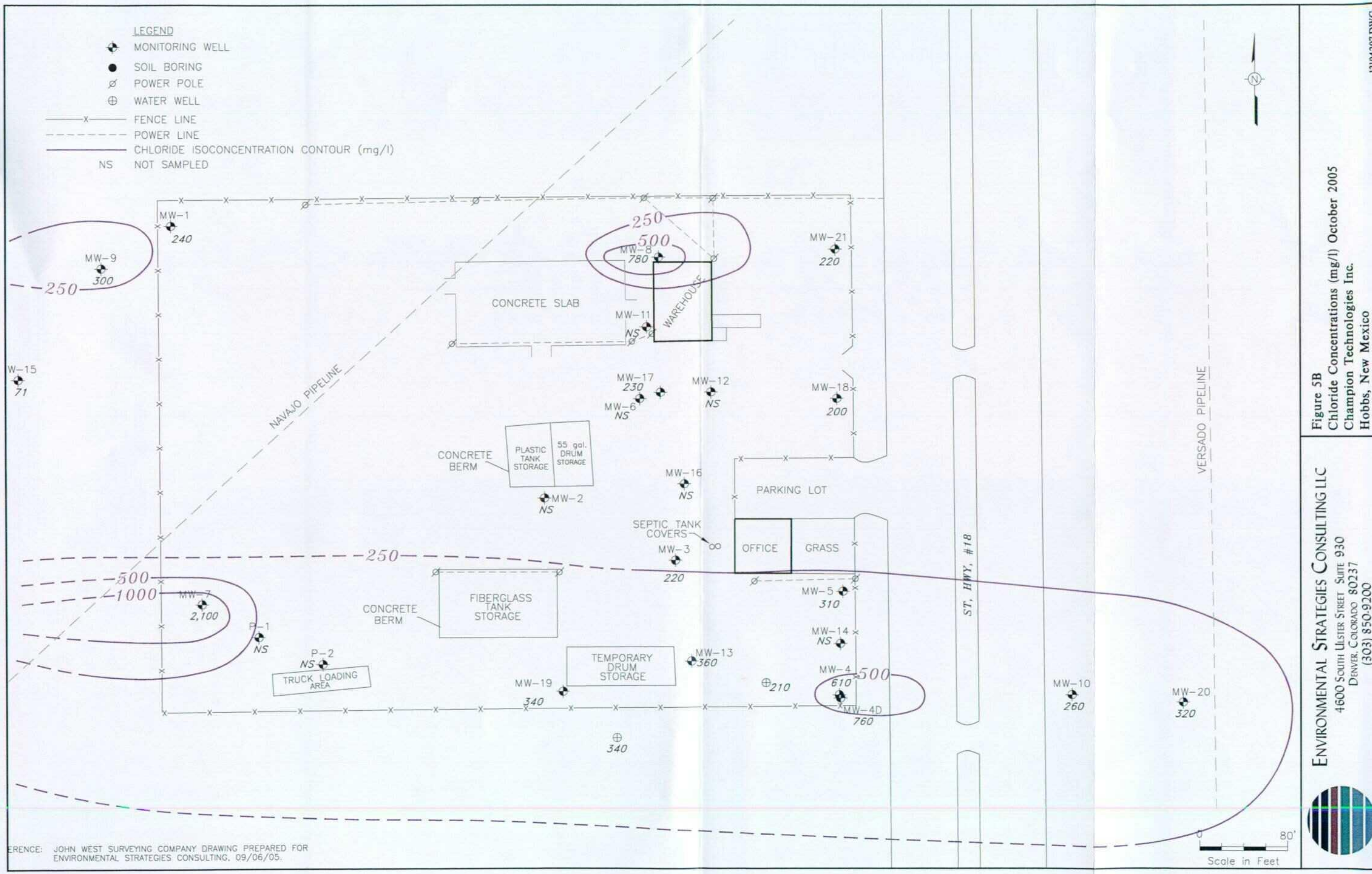
LEGEND
MONITORING WELL
SOIL BORING
POWER POLE
WATER WELL
FENCE LINE
POWER LINE
CHLORIDE ISOCONCENTRATION CONTOUR (mg/l)
NS NOT SAMPLED
MW-1 240
MW-9 300
250
500
1000
MW-8 780
MW-21 220
CONCRETE SLAB
WAREHOUSE
MW-11 NS
MW-15 71
NAVAJO PIPELINE
MW-17 230
MW-6 NS
MW-12 NS
MW-18 200
CONCRETE BERM
PLASTIC TANK STORAGE
55 gal. DRUM STORAGE
MW-2 NS
MW-16 NS
PARKING LOT
SEPTIC TANK COVERS
OFFICE
GRASS
MW-3 220
MW-7 2,100
P-1 NS
FIBERGLASS TANK STORAGE
MW-5 310
MW-14 NS
P-2 NS
TRUCK LOADING AREA
TEMPORARY DRUM STORAGE
MW-13 360
MW-19 340
210
MW-4 610
MW-4D 760
340
ST. HWY. #18
MW-10 260
MW-20 320
VERSADO PIPELINE
N
0 80'
Scale in Feet
ERENCE: JOHN WEST SURVEYING COMPANY DRAWING PREPARED FOR ENVIRONMENTAL STRATEGIES CONSULTING, 09/06/05.
Figure 5B
Chloride Concentrations (mg/l) October 2005
Champion Technologies Inc.
Hobbs, New Mexico
Environmental Strategies Consulting LLC
4600 South Ulster Street Suite 930
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(303) 850-9200
13104207.DWG

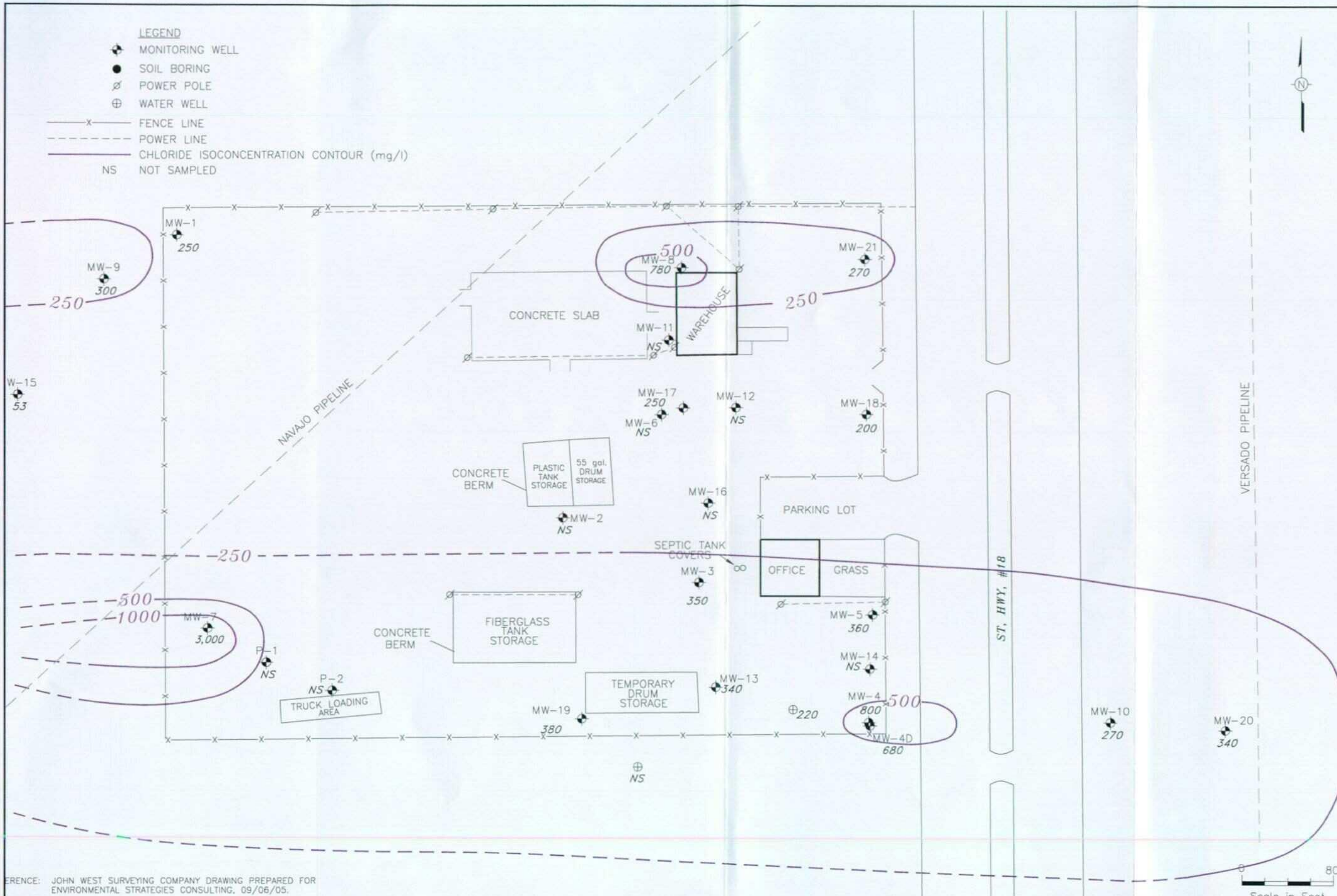

Figure 5C
Chloride Concentrations (mg/l) January 2006
Champion Technologies Inc.
Hobbs, New Mexico

1310421I.DWG

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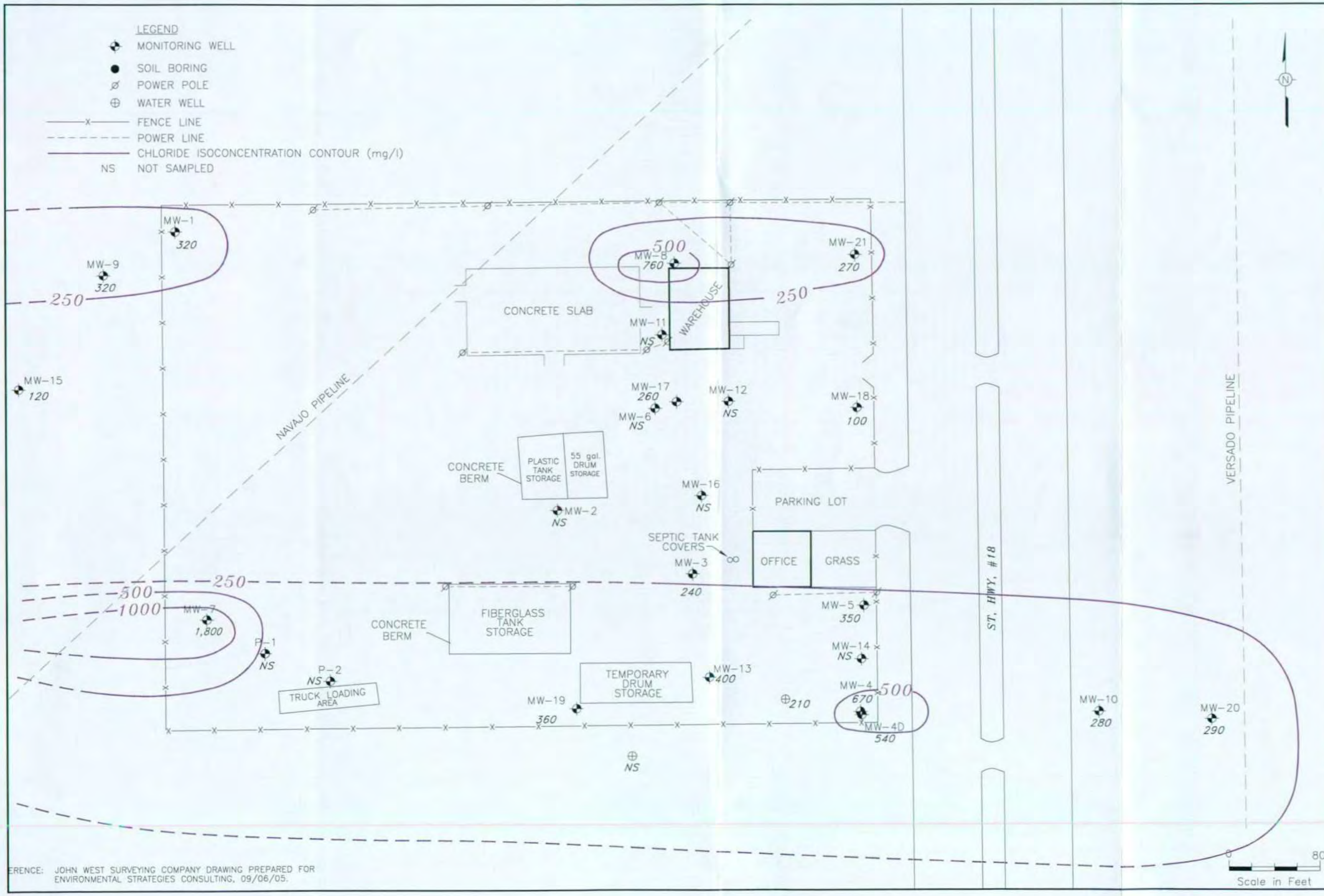

Figure 5D
Chloride Concentrations (mg/l) April 2006
Champion Technologies Inc.
Hobbs, New Mexico

ENVIRONMENTAL STRATEGIES CONSULTING LLC
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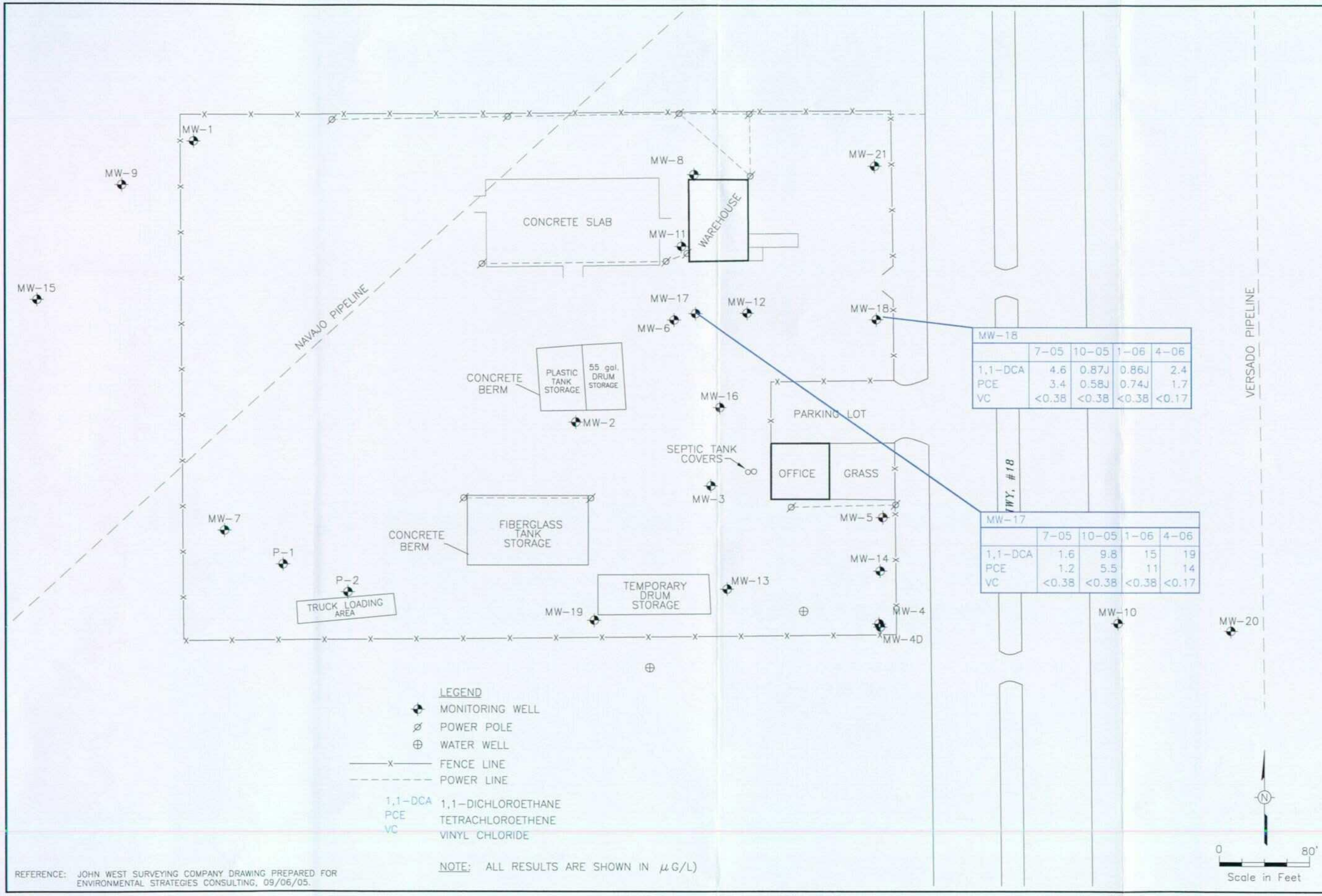

MW-18

	7-05	10-05	1-06	4-06
1,1-DCA	4.6	0.87J	0.86J	2.4
PCE	3.4	0.58J	0.74J	1.7
VC	<0.38	<0.38	<0.38	<0.17

MW-17

	7-05	10-05	1-06	4-06
1,1-DCA	1.6	9.8	15	19
PCE	1.2	5.5	11	14
VC	<0.38	<0.38	<0.38	<0.17

REFERENCE: JOHN WEST SURVEYING COMPANY DRAWING PREPARED FOR ENVIRONMENTAL STRATEGIES CONSULTING, 09/06/05.

Figure 6
VOC Concentrations
Champion Technologies Inc.
Hobbs, New Mexico

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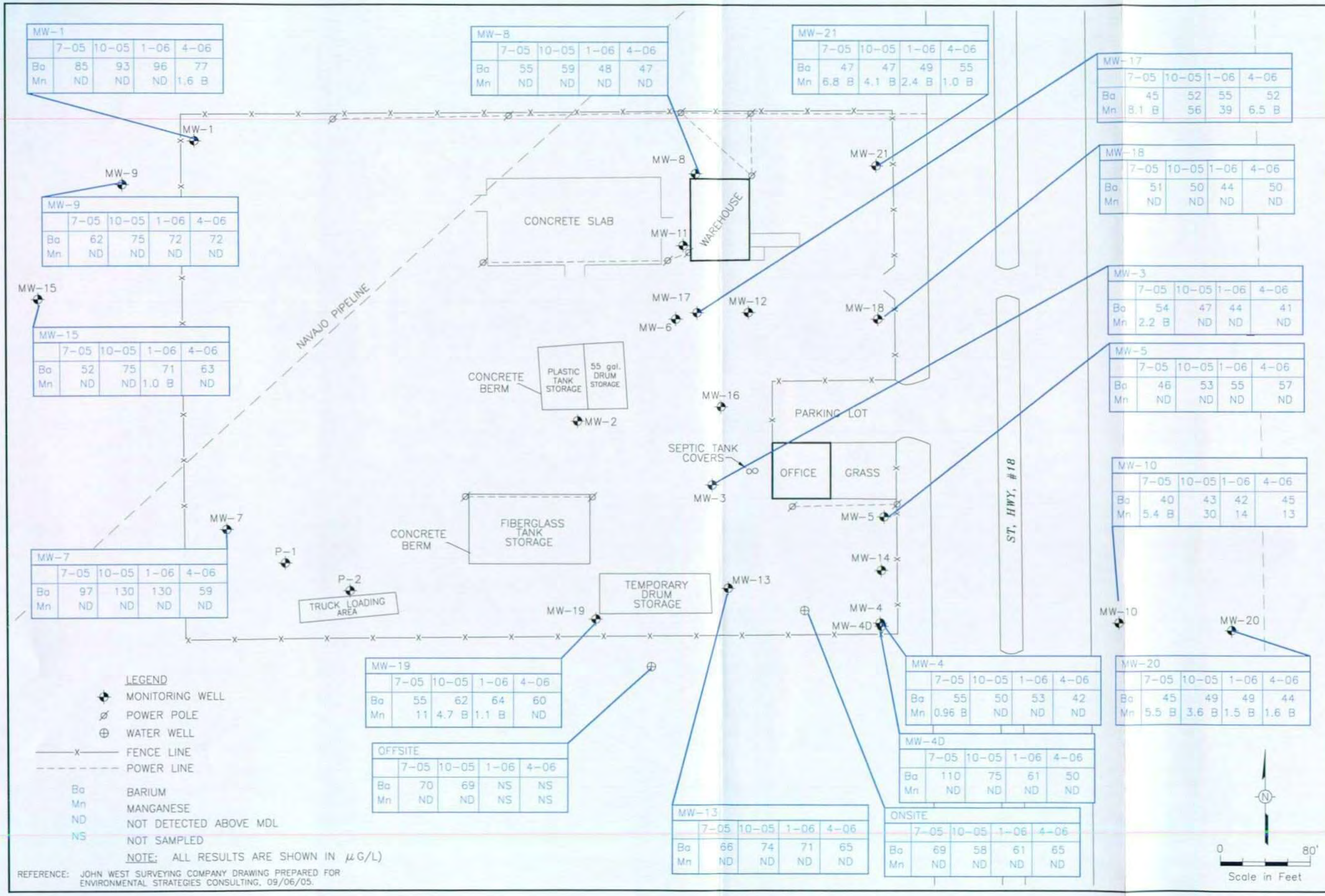
1310421 9.DWG



MW-1

	7-05	10-05	1-06	4-06
Ba	85	93	96	77
Mn	ND	ND	ND	1.6 B

MW-8

	7-05	10-05	1-06	4-06
Ba	55	59	48	47
Mn	ND	ND	ND	ND

MW-21

	7-05	10-05	1-06	4-06
Ba	47	47	49	55
Mn	6.8 B	4.1 B	2.4 B	1.0 B

MW-17

	7-05	10-05	1-06	4-06
Ba	45	52	55	52
Mn	8.1 B	56	39	6.5 B

MW-9

	7-05	10-05	1-06	4-06
Ba	62	75	72	72
Mn	ND	ND	ND	ND

MW-18

	7-05	10-05	1-06	4-06
Ba	51	50	44	50
Mn	ND	ND	ND	ND

MW-15

	7-05	10-05	1-06	4-06
Ba	52	75	71	63
Mn	ND	ND	1.0 B	ND

MW-3

	7-05	10-05	1-06	4-06
Ba	54	47	44	41
Mn	2.2 B	ND	ND	ND

MW-5

	7-05	10-05	1-06	4-06
Ba	46	53	55	57
Mn	ND	ND	ND	ND

MW-10

	7-05	10-05	1-06	4-06
Ba	40	43	42	45
Mn	5.4 B	30	14	13

MW-7

	7-05	10-05	1-06	4-06
Ba	97	130	130	59
Mn	ND	ND	ND	ND

MW-19

	7-05	10-05	1-06	4-06
Ba	55	62	64	60
Mn	11	4.7 B	1.1 B	ND

MW-4

	7-05	10-05	1-06	4-06
Ba	55	50	53	42
Mn	0.96 B	ND	ND	ND

MW-20

	7-05	10-05	1-06	4-06
Ba	45	49	49	44
Mn	5.5 B	3.6 B	1.5 B	1.6 B

OFFSITE

	7-05	10-05	1-06	4-06
Ba	70	69	NS	NS
Mn	ND	ND	NS	NS

MW-4D

	7-05	10-05	1-06	4-06
Ba	110	75	61	50
Mn	ND	ND	ND	ND

MW-13

	7-05	10-05	1-06	4-06
Ba	66	74	71	65
Mn	ND	ND	ND	ND

ONSITE

	7-05	10-05	1-06	4-06
Ba	69	58	61	65
Mn	ND	ND	ND	ND

1310421B.DWG

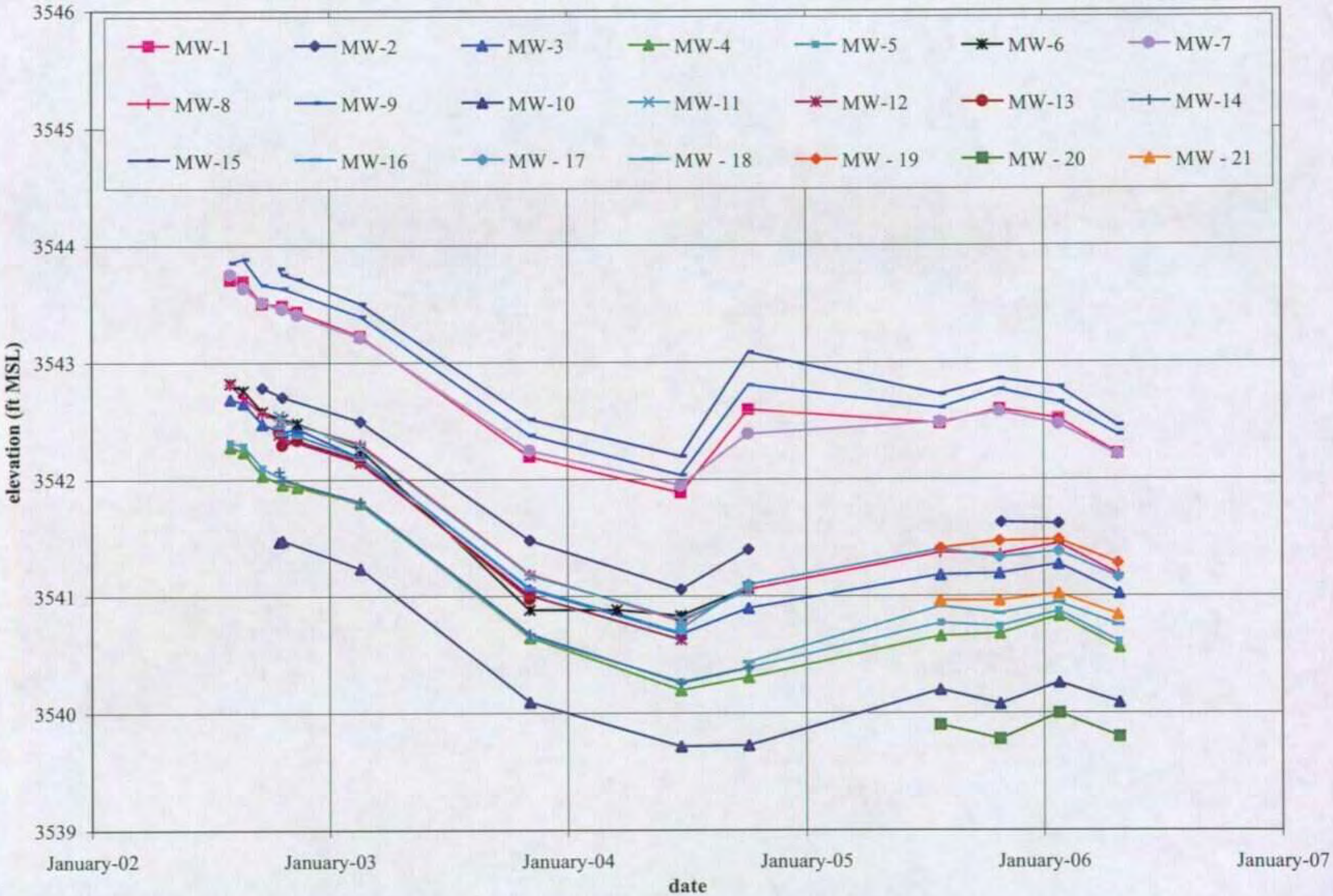
Figure 7
Barium and Manganese Concentrations
Champion Technologies Inc.
Hobbs, New Mexico

ENVIRONMENTAL STRATEGIES CONSULTING LLC
4600 South Ulster Street Suite 930
Denver, Colorado 80237
(303) 850-9200

Graphs

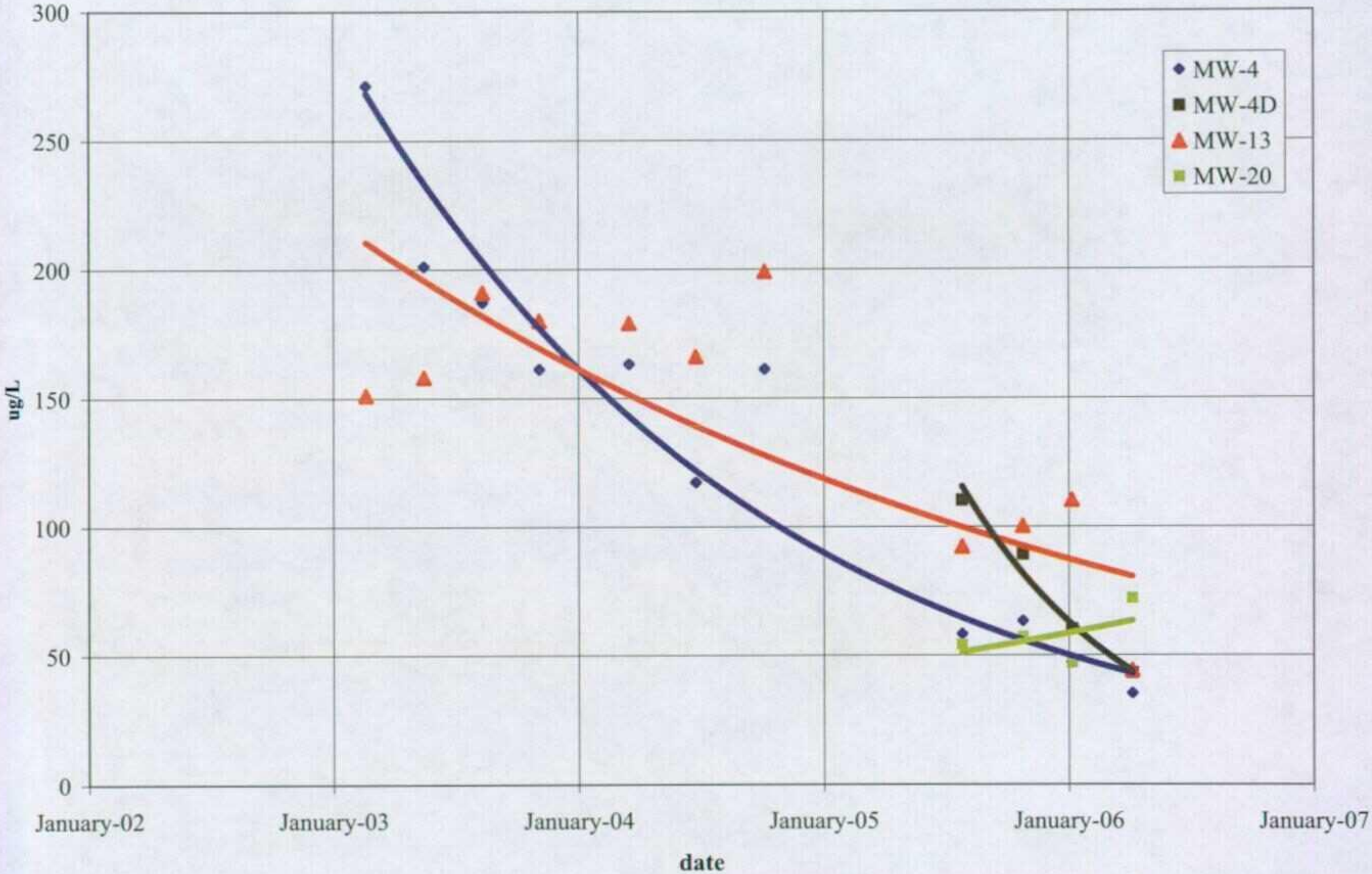
Graph 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico



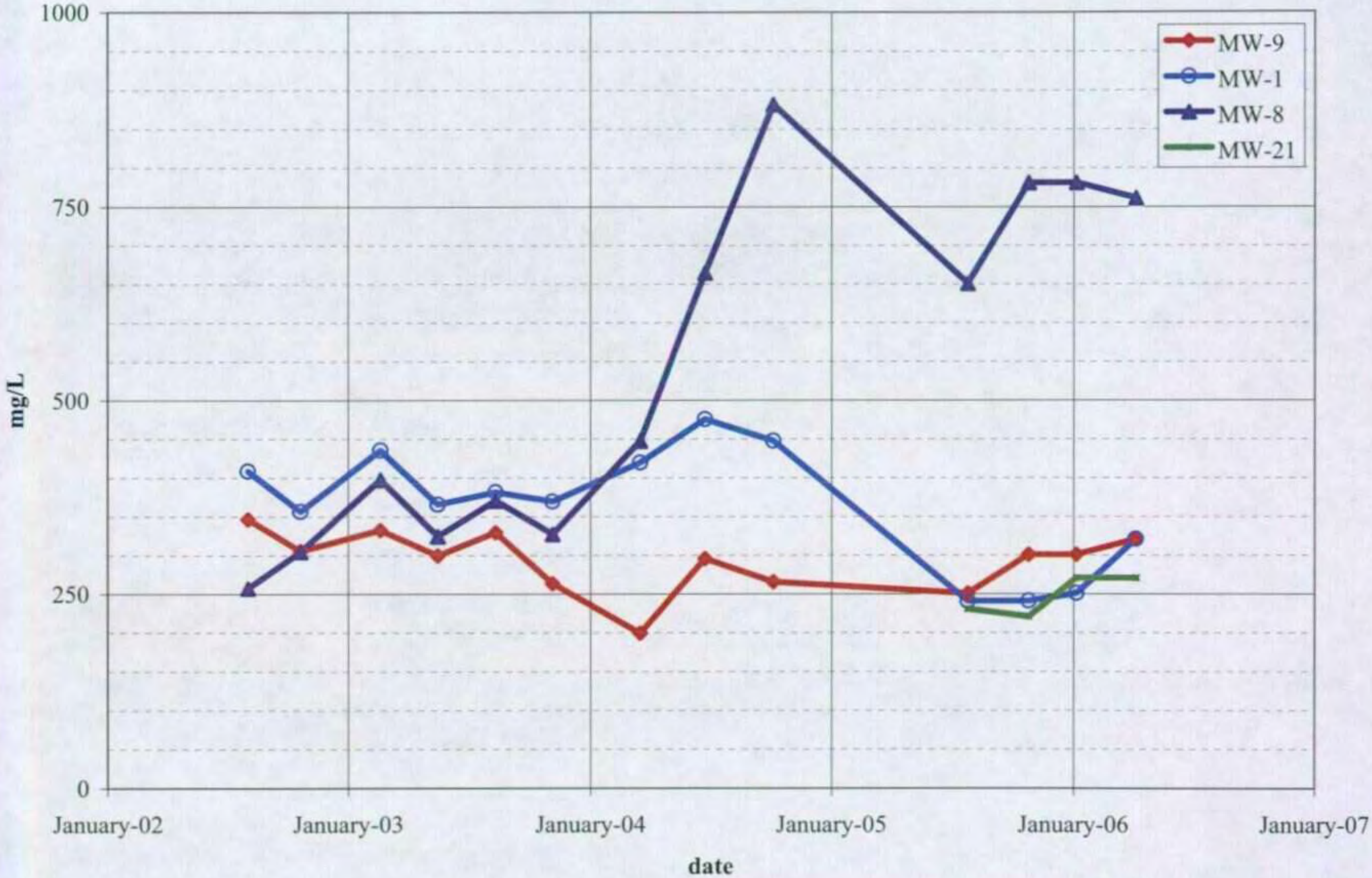
Graph 2

Groundwater Analytical Results - Chromium
Champion Technologies, Inc. Site
Hobbs, New Mexico



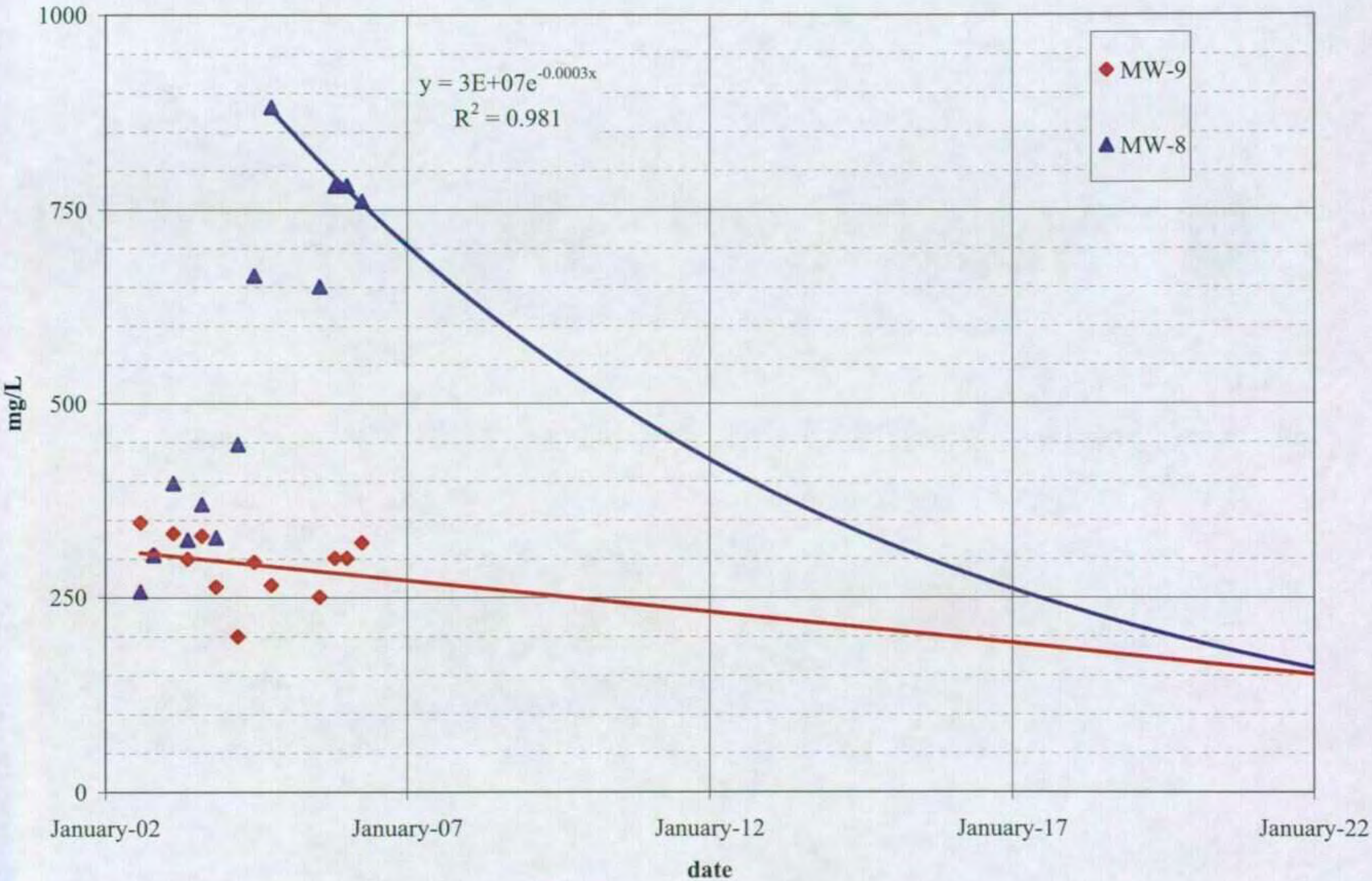
Graph 3

Groundwater Analytical Results (North) - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico



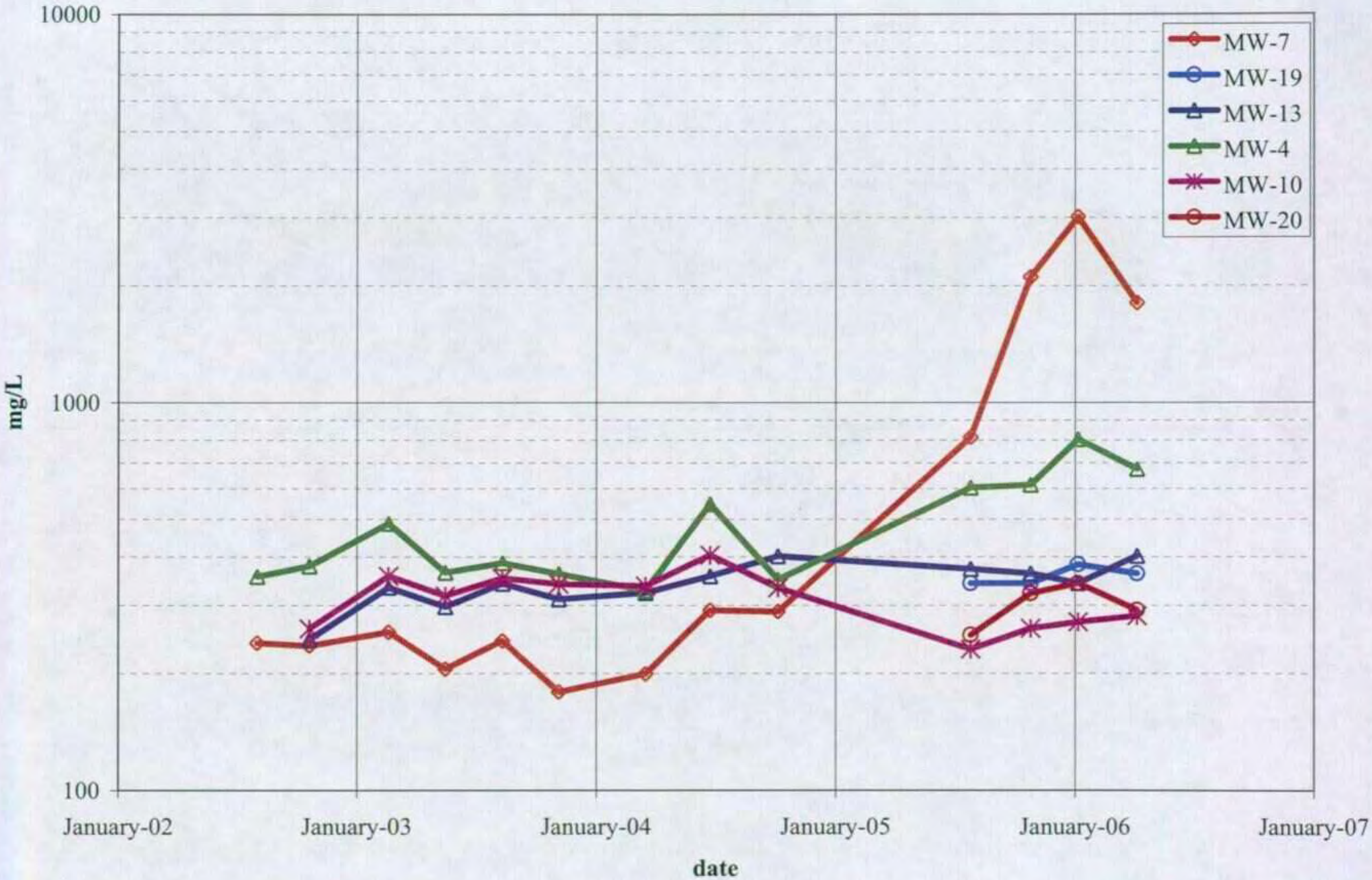
Graph 4

Extrapolated Concentrations (MW-8 and MW-9) - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico



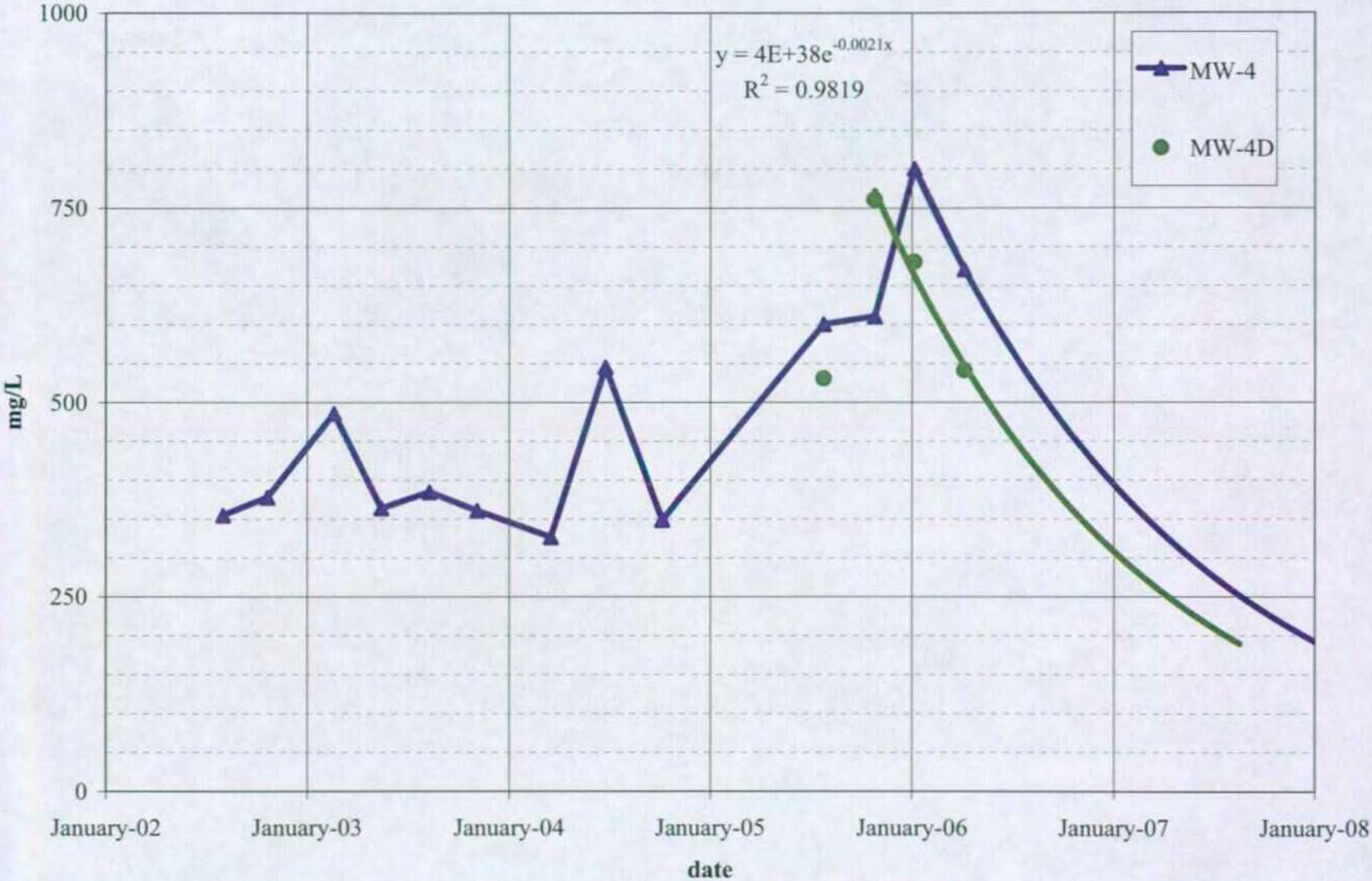
Graph 5

Groundwater Analytical Results (South) - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico



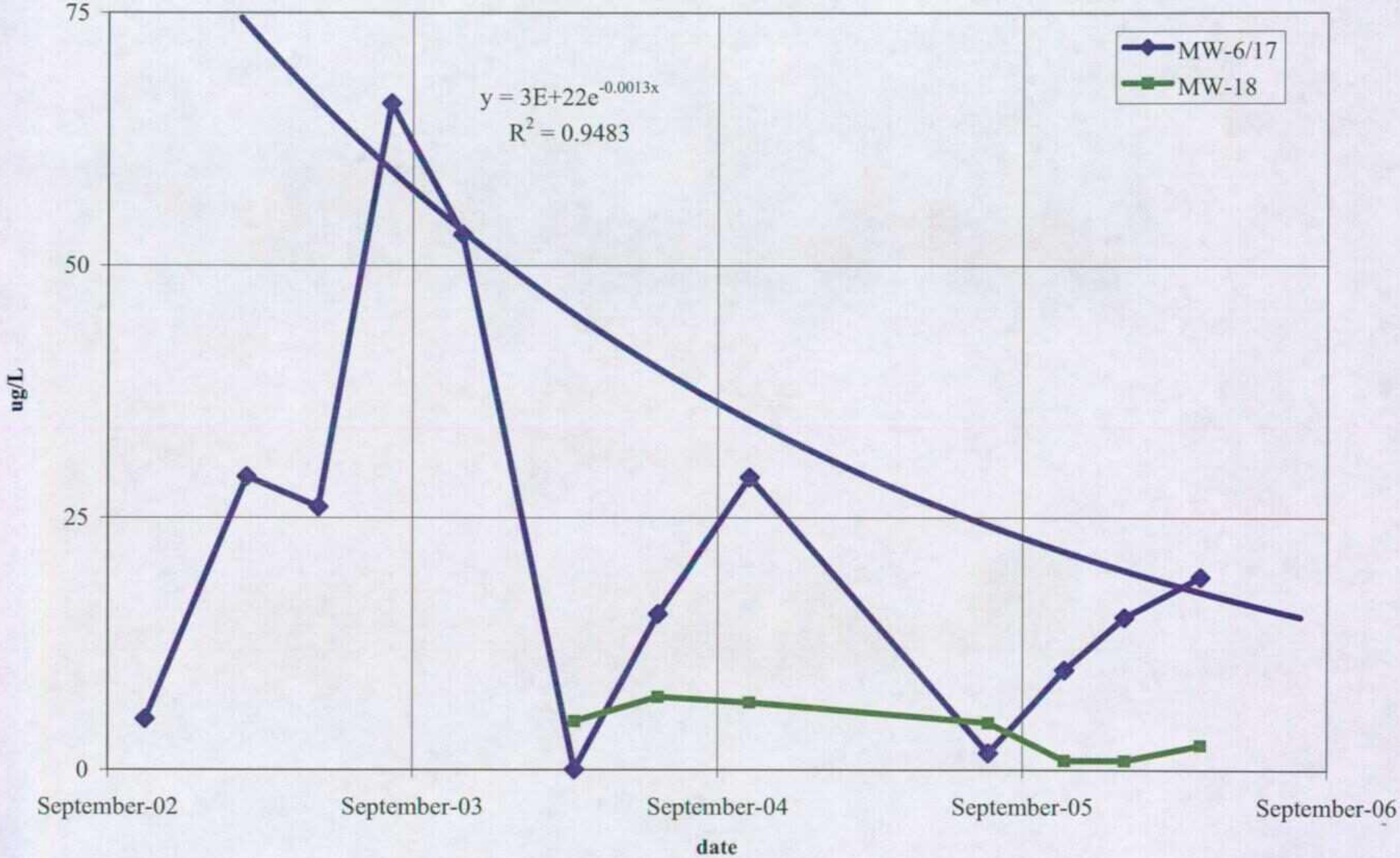
Graph 6

Extrapolated Groundwater Concentrations (MW-4 and MW-4D) - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico



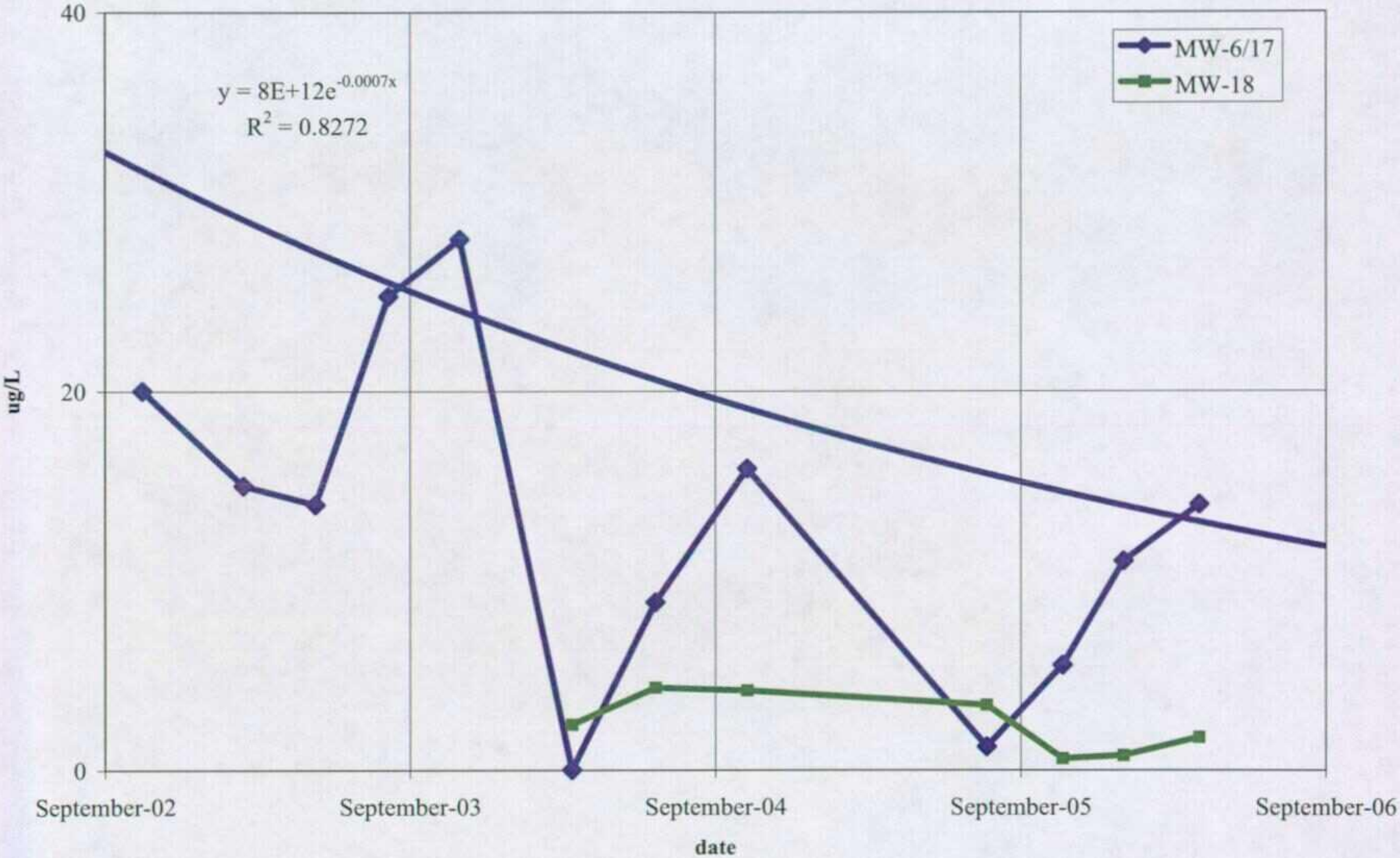
Graph 7

Groundwater Analytical Results - 1,1-DCA
Champion Technologies, Inc. Site
Hobbs, New Mexico



Graph 8

Groundwater Analytical Results - PCE
Champion Technologies, Inc. Site
Hobbs, New Mexico



Tables

Table 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Elevation	Depth to Water	Elevation
MW-1	8/2/02	3594.44	50.74	3543.70
	8/22/02		50.75	3543.69
	9/20/02		50.94	3543.50
	10/21/02		50.96	3543.48
	11/13/02		51.01	3543.43
	2/18/03		51.22	3543.22
	11/4/03		52.25	3542.19
	6/24/04		52.56	3541.88
	10/5/04		51.85	3542.59
	7/26/05	3594.44	51.97	3542.47
	10/26/05		51.85	3542.59
	1/24/06		51.93	3542.51
	4/25/06		52.23	3542.21
MW-2	9/20/02	3602.78	60.00	3542.78
	10/21/02		60.08	3542.70
	2/18/03		60.29	3542.49
	11/4/03		61.31	3541.47
	6/24/04		61.73	3541.05
	10/5/04		61.39	3541.39
	7/26/05	3602.65	NM	
	10/28/05		61.03	3541.62
	1/24/06		61.04	3541.61
	4/25/06		NM	
MW-3	8/2/02	3599.49	56.81	3542.68
	8/22/02		56.84	3542.65
	9/20/02		57.02	3542.47
	10/21/02		57.09	3542.40
	11/13/02		57.06	3542.43
	2/18/03		57.31	3542.18
	11/4/03		58.44	3541.05
	6/24/04		58.82	3540.67
	10/5/04		58.60	3540.89
	7/27/05	3599.42	58.25	3541.17
	10/25/05		58.24	3541.18
	1/24/06		58.16	3541.26
	4/27/06		58.41	3541.01

Note: Source for August 2002 to October 2004 - NOVA, 2005.

Table 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Elevation	Depth to Water	Elevation
MW-4	8/2/02	3599.40	57.13	3542.27
	8/22/02		57.17	3542.23
	9/20/02		57.37	3542.03
	10/21/02		57.45	3541.95
	11/13/02		57.47	3541.93
	2/18/03		57.61	3541.79
	11/4/03		58.76	3540.64
	6/24/04		59.21	3540.19
	10/5/04		59.10	3540.30
	7/27/05	3599.35	58.70	3540.65
	10/26/05		58.68	3540.67
	1/25/06		58.53	3540.82
	4/27/06		58.80	3540.55
MW-4D	7/27/05	3599.36	58.86	3540.50
	10/26/05		58.74	3540.62
	1/25/06		58.57	3540.79
	4/27/06		58.77	3540.59
MW-5	8/2/02	3599.28	56.97	3542.31
	8/22/02		57.00	3542.28
	9/20/02		57.19	3542.09
	10/21/02		57.28	3542.00
	2/18/03		57.50	3541.78
	11/4/03		58.63	3540.65
	6/24/04		59.02	3540.26
	10/5/04		58.90	3540.38
	7/27/05	3599.22	58.46	3540.76
	10/25/05		58.49	3540.73
	1/24/06		58.36	3540.86
	4/26/06		58.62	3540.60
MW-6	8/2/02	3599.20	56.38	3542.82
	8/22/02		56.44	3542.76
	9/20/02	3603.56	60.98	3542.58
	10/21/02		61.04	3542.52
	11/13/02		61.08	3542.48
	2/18/03		61.30	3542.26
	11/4/03		62.68	3540.88
	3/17/04		62.68	3540.88
	6/24/04		62.73	3540.83
	10/5/04		62.49	3541.07
	11/16/05	3599.17	NM	

Note: Source for August 2002 to October 2004 - NOVA, 2005.

Table 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Elevation	Depth to Water	Elevation
MW-7	8/2/02	3596.91	53.16	3543.75
	8/22/02		53.28	3543.63
	9/20/02		53.40	3543.51
	10/21/02		53.46	3543.45
	11/13/02		53.51	3543.40
	2/18/03		53.70	3543.21
	11/4/03		54.67	3542.24
	6/24/04		54.97	3541.94
	10/5/04		54.53	3542.38
	7/26/05	3596.90	54.42	3542.48
	10/25/05		54.33	3542.57
	1/24/06		54.44	3542.46
	4/25/06		54.70	3542.20
MW-8	8/2/02	3602.68	59.87	3542.81
	8/22/02		59.98	3542.70
	9/20/02		60.12	3542.56
	10/21/02		60.18	3542.50
	2/18/03		60.38	3542.30
	11/4/03		61.50	3541.18
	6/24/04		61.90	3540.78
	10/5/04		61.63	3541.05
	7/26/05	3602.63	61.27	3541.36
	10/26/05		61.28	3541.35
	1/24/06		61.19	3541.44
	4/26/06		61.46	3541.17
MW-9	8/2/02	3597.00	53.15	3543.85
	8/22/02		53.12	3543.88
	9/20/02		53.34	3543.66
	10/21/02		53.37	3543.63
	2/18/03		53.61	3543.39
	11/4/03		54.63	3542.37
	6/24/04		54.97	3542.03
	10/5/04		54.20	3542.80
	7/26/05	3596.98	54.38	3542.60
	10/25/05		54.22	3542.76
	1/24/06		54.33	3542.65
	4/25/06		54.61	3542.37

Note: Source for August 2002 to October 2004 - NOVA, 2005.

Table 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Elevation	Depth to Water	Elevation
MW-10	10/16/02	3600.84	59.38	3541.46
	10/21/02		59.37	3541.47
	2/18/03		59.61	3541.23
	11/4/03		60.75	3540.09
	6/24/04		61.13	3539.71
	10/5/04		61.12	3539.72
	7/26/05	3600.81	60.62	3540.19
	10/26/05		60.74	3540.07
	1/25/06		60.56	3540.25
	4/27/06		60.73	3540.08
MW-11	10/16/02	3599.63	57.09	3542.54
	10/21/02		57.12	3542.51
	2/18/03		57.35	3542.28
	11/4/03		58.46	3541.17
	6/24/04		58.84	3540.79
	10/5/04		58.59	3541.04
MW-12	10/16/02	3602.80	60.42	3542.38
	10/21/02		60.45	3542.35
	2/18/03		60.66	3542.14
	11/4/03		61.80	3541.00
	6/24/04		62.18	3540.62
	10/5/04		61.96	3540.84
MW-13	10/16/02	3602.68	60.28	3542.40
	10/21/02		60.39	3542.29
	11/13/02		60.35	3542.33
	2/18/03		60.52	3542.16
	11/4/03		61.71	3540.97
	6/24/04		62.08	3540.60
	10/5/04		61.85	3540.83
	7/27/05	3602.61	61.52	3541.09
	10/26/05		61.51	3541.10
	1/25/06		61.45	3541.16
	4/27/06		61.68	3540.93
MW-14	10/16/02	3599.23	57.17	3542.06
	10/21/02		57.24	3541.99
	2/18/03		57.43	3541.80
	11/4/03		58.56	3540.67
	6/24/04		58.98	3540.25
	10/5/04		58.85	3540.38

Note: Source for August 2002 to October 2004 - NOVA, 2005.

Table 1

Groundwater Elevations
Champion Technologies, Inc. Site
Hobbs, New Mexico

Well Location	Date Measured	Casing Elevation	Depth to Water	Elevation
MW-15	10/16/02	3597.06	53.26	3543.80
	10/21/02		53.31	3543.75
	11/13/02		53.35	3543.71
	2/18/03		53.56	3543.50
	11/4/03		54.55	3542.51
	6/24/04		54.87	3542.19
	10/5/04		53.98	3543.08
	7/26/05	3597.02	54.30	3542.72
	10/25/05		54.17	3542.85
	1/24/06		54.24	3542.78
	4/25/06		54.57	3542.45
MW-16	10/16/02	3602.56	60.11	3542.45
	10/21/02		60.17	3542.39
	11/13/02		60.19	3542.37
	2/18/03		60.38	3542.18
	11/4/03		61.50	3541.06
	6/24/04		61.88	3540.68
	10/5/04		61.63	3540.93
MW - 17	6/24/04		62.19	3540.72
	10/5/04		61.82	3541.09
	7/26/05	3602.91	61.52	3541.39
	10/25/05	3599.69	58.37	3541.32
	1/24/06		58.32	3541.37
	4/25/06		58.54	3541.15
MW - 18	6/24/04		61.99	3540.26
	10/5/04		61.82	3540.43
	7/26/05	3602.25	61.35	3540.90
	10/25/05		61.41	3540.84
	1/24/06		61.32	3540.93
	4/25/06		61.51	3540.74
MW - 19	7/27/05	3599.10	57.70	3541.40
	10/25/05		57.64	3541.46
	1/24/06		57.63	3541.47
	4/25/06		57.83	3541.27
MW - 20	7/26/05	3601.16	61.27	3539.89
	10/26/05		61.39	3539.77
	1/25/06		61.17	3539.99
	4/27/06		61.37	3539.79
MW - 21	7/26/05	3599.07	58.12	3540.95
	10/25/05		58.12	3540.95
	1/24/06		58.06	3541.01
	4/25/06		58.24	3540.83

Note: Source for August 2002 to October 2004 - NOVA, 2005.

Table 2

Soil Analytical Results
Champion Technologies, Inc. Site
Hobbs, New Mexico

Sample ID	Sample Date	Chromium (mg/kg)	pH	Chloride (mg/kg)
ESCSB-01-0'-2'	7/21/2005	1.2	8.8	12
ESCSB-01-5'-7'	7/21/2005	10	9.6	10
ESCSB-01-10'-12'	7/21/2005	6.0	9.6	49
ESCSB-01-15'-17'	7/21/2005	2.7	8.8	140
ESCSB-01-25'-27'	7/21/2005	2.7	8.8	120
ESCSB-01-35'-37'	7/21/2005	2.6	8.9	110
ESCSB-01-54'-56'	7/21/2005	5.4	8.7	59
ESCSB-02-0'-2'	7/20/2005	2.0	8.1	2600
ESCSB-02-5'-7'	7/20/2005	9.7	8.3	550
ESCSB-02-10'-12'	7/20/2005	1.9	7.9	1700
ESCSB-02-15'-17'	7/20/2005	3.7	8.3	500
ESCSB-02-25'-27'	7/20/2005	1.9	8.3	470
ESCSB-02-35'-37'	7/20/2005	3.3	8.4	350
ESCSB-02-53'-55'	7/20/2005	4.9	8.3	190
ESCSB-03-0'-2'	7/20/2005	1.5	8.4	1200
ESCSB-03-5'-7'	7/20/2005	1.2	8.6	490
ESCSB-03-10'-12'	7/20/2005	2.6	8.0	1400
ESCSB-03-15'-17'	7/20/2005	4.0	8.1	1000
ESCSB-03-25'-27'	7/20/2005	3.0	8.3	300
ESCSB-03-35'-37'	7/20/2005	2.5	8.5	88
ESCSB-03-55'-57'	7/20/2005	4.4	9.0	25
ESCSB-04-0'-2'	7/19/2005	NA	NA	58
ESCSB-04-5'-7'	7/19/2005	NA	NA	160
ESCSB-04-10'-12'	7/19/2005	NA	NA	790
ESCSB-04-15'-17'	7/19/2005	NA	NA	380
ESCSB-04-20'-22'	7/19/2005	NA	NA	230
ESCSB-05-0'-2'	7/21/2005	2.4	8.5	130
ESCSB-05-5'-7'	7/21/2005	< 1.0	8.0	180
ESCSB-05-10'-12'	7/21/2005	5.5	8.7	300
ESCSB-05-15'-17'	7/21/2005	1.6	8.5	130
ESCSB-05-25'-27'	7/21/2005	3.5	8.6	190
ESCSB-05-35'-37'	7/21/2005	3.9	8.5	190
ESCSB-05-55'-57'	7/21/2005	2.6	8.7	47

Samples prepared and analyzed by EPA Methods 6010B, 9045C, and 9056.

NA = not analyzed

Table 3

Groundwater Analytical Results - Metals
Champion Technologies, Inc. Site
Hobbs, New Mexico

ANALYTE	WQCC Standard	DATE	MW-1	MW-3	MW-4	MW-4D	MW-5	MW-7	MW-8	MW-9	MW-10
Barium	**1000**	July-05	85	54	55	110	46	97	55	62	40
		October-05	93	47	50	75	53	130	59	75	43
		January-06	96	44	53	61	55	130	48	72	42
		April-06	77	41	42	50	57	59	47	72	45
Chromium	**50**	February-03	ND	12	**271**	-	ND	ND	ND	ND	16
		May-03	ND	11	**201**	-	ND	ND	24	ND	22
		August-03	ND	ND	**187**	-	ND	ND	25	ND	22
		November-03	ND	ND	**161**	-	ND	ND	19	ND	21
		March-04	ND	ND	**163**	-	ND	ND	12	ND	48
		June-04	ND	ND	**117**	-	ND	ND	8	ND	**55**
		October-04	ND	8	**161**	-	ND	ND	12	ND	**55**
		July-05	5.0 B	NA	**58**	**110**	NA	NA	NA	NA	42
		October-05	5.0 B	NA	**63**	**89**	3.2	NA	18	NA	33
		January-06	3.8 B,J	NA	47 J	**60** J	3.8 B,J	NA	19 J	NA	40 J
		April-06	4.5 B	ND	35	43	10	**58**	19	NA	**50**
Manganese	**200**	July-05	ND	2.2 B	0.96 B	ND	ND	ND	ND	ND	5.4 B
		October-05	ND	ND	ND	ND	ND	ND	ND	ND	30
		January-06	ND	ND	ND	ND	ND	ND	ND	ND	14
		April-06	1.6 B	ND	ND	ND	ND	ND	ND	ND	13

Notes:

Source of data February 2003 to October 2004 - NOVA, 2005. Metals samples in 2002 were not filtered - ETGI, 2003a.

All samples were prepared according to EPA analytical method SW846 6010B.

B: Estimated result. Result is less than the reporting limit.

J: Method blank contamination. The associated method blank contains the target analyte at a reportable level.

NA: Not analyzed.

ND: Not detected.

NS: Not sampled. Property owner shut off power to well.

All values reported in µg/L.

- : Well not installed as of this date.

Table 3

Groundwater Analytical Results - Metals
Champion Technologies, Inc. Site
Hobbs, New Mexico

ANALYTE	WQCC Standard	DATE	MW-13	MW-15	MW-17	MW-18	MW-19	MW-20	MW-21	Offsite Supply Well	Onsite Supply Well
Barium	**1000**	July-05	66	52	45	51	55	45	47	70	69
		October-05	74	75	52	50	62	49	47	69	58
		January-06	71	71	55	44	64	49	49	NS	61
		April-06	65	63	52	50	60	44	55	NS	65
Chromium	**50**	February-03	**151**	ND	-	-	-	-	-	ND	ND
		May-03	**158**	ND	-	-	-	-	-	ND	ND
		August-03	**191**	ND	-	-	-	-	-	ND	ND
		November-03	**180**	ND	-	-	-	-	-	ND	ND
		March-04	**179**	ND	ND	22	-	-	-	ND	ND
		June-04	**166**	ND	ND	17	-	-	-	ND	ND
		October-04	**199**	ND	ND	25	-	-	-	ND	ND
		July-05	**92**	NA	3.0 B	9.2 B	1.0 B	**54**	NA	1.0 B	3.1 B
		October-05	**100**	NA	ND	5.5 B	3.1 B	**57**	NA	ND	ND
		January-06	**110** J	NA	ND	3.5 B,J	ND	47 J	NA	NS	ND
		April-06	44	NA	NA	2.9 B	ND	**72**	NA	NS	5.9 B
Manganese	**200**	July-05	ND	ND	8.1 B	ND	11	5.5 B	6.8 B	18	ND
		October-05	ND	ND	56	ND	4.7 B	3.6 B	4.1 B	5.7 B	ND
		January-06	ND	1.0 B	39	ND	1.1 B	1.5 B	2.4 B	NS	ND
		April-06	ND	ND	6.5 B	ND	ND	1.6 B	1 B	NS	ND

Notes:

Source of data February 2003 to October 2004 - NOVA, 2005. Metals samples in 2002 were not filtered - ETGI, 2003a.

All samples were prepared according to EPA analytical method SW846 6010B.

B: Estimated result. Result is less than the reporting limit.

J: Method blank contamination. The associated method blank contains the target analyte at a reportable level.

NA: Not analyzed.

ND: Not detected.

NS: Not sampled. Property owner shut off power to well.

All values reported in μg/L.

- : Well not installed as of this date.

Table 4

Groundwater Analytical Results - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico

ANALYTE	WQCC Standard	DATE	MW-1	MW-3	MW-4	MW-4D	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13
Chloride	250	August-02	**408**	**381**	**354**	-	**346**	239	**257**	**346**	-	-
		October-02	**356**	**464**	**377**	-	**508**	235	**304**	**305**	**260**	244
		February-03	**435**	**658**	**485**	-	**476**	**255**	**397**	**332**	**355**	**332**
		May-03	**365**	**510**	**363**	-	**329**	205	**324**	**299**	**316**	**296**
		August-03	**381**	**359**	**384**	-	**430**	242	**370**	**329**	**351**	**340**
		November-03	**369**	**432**	**360**	-	**432**	179	**327**	**263**	**339**	**310**
		March-04	**419**	223	**326**	-	**377**	199	**447**	199	**335**	**322**
		June-04	**475**	**313**	**545**	-	**389**	**290**	**664**	**295**	**402**	**355**
		October-04	**447**	**302**	**348**	-	**348**	**288**	**881**	**265**	**331**	**400**
		July-05	240 J,Q	250 J,Q	**600** J,Q	**530** J,Q	250 J,Q	**810** J,Q	**650** J,Q	250 J,Q	230 J,Q	**370** J,Q
		October-05	240 Q	220 Q	**610** Q	**760** Q	**310** Q	**2,100** Q	**780** Q	**300** Q	**260** Q	**360** Q
		January-06	250 Q	**350** Q	**800** Q	**680** Q	**360** Q	**3,000** Q	**780** Q	**300** Q	**270** Q	**340** Q
		April-06	**320** Q	240 Q	**670** Q	**540**	**350** Q	**1,800** Q	**760** Q	**320** Q	**280**	**400** Q

Notes:

Sources of data: August and October 2002 - ETGI, 2003a; February 2003 to October 2004 - NOVA, 2005.

All values reported in mg/L.

All samples prepared according to EPA analytical method MCAWW 300.0A.

J: Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Q: Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

NS: Not Sampled. Property owner shut power off to well.

- : Well not installed as of this date.

Table 4

Groundwater Analytical Results - Chloride
Champion Technologies, Inc. Site
Hobbs, New Mexico

ANALYTE	WQCC Standard	DATE	MW-15	MW-17	MW-18	MW-19	MW-20	MW-21	Offsite Supply Well	Onsite Supply Well
Chloride	**250**	August-02	-	-	-	-	-	-	**372**	**319**
		October-02	156	-	-	-	-	-	**386**	**290**
		February-03	221	-	-	-	-	-	**479**	**347**
		May-03	205	-	-	-	-	-	**383**	**258**
		August-03	165	-	-	-	-	-	**397**	**295**
		November-03	174	-	-	-	-	-	**299**	**377**
		March-04	185	**301**	**333**	-	-	-	**382**	240
		June-04	127	224	**291**	-	-	-	**397**	236
		October-04	**433**	**328**	**254**	-	-	-	**383**	**254**
		July-05	110 J	180 J,Q	240 J,Q	**340** J,Q	250 J,Q	230 J,Q	**340** J,Q	220 J,Q
		October-05	71 Q	230 Q	200 Q	**340** Q	**320** Q	220 Q	**340** Q	210 Q
		January-06	53 Q	250 Q	200 Q	**380** Q	**340** Q	**270** Q	NS	220 Q
		April-06	120 Q	**260** Q	100 Q	**360** Q	**290** Q	**270** Q	NS	210 Q

Notes:
Sources of data: August and October 2002 - ETGI, 2003a; February 2003 to October 2004 - NOVA, 2005.
All values reported in mg/L.
All samples prepared according to EPA analytical method MCAWW 300.0A.
J: Method blank contamination. The associated method blank contains the target analyte at a reportable level.
Q: Elevated reporting limit. The reporting limit is elevated due to high analyte levels.
NS: Not Sampled. Property owner shut power off to well.
- : Well not installed as of this date.

Table 5

Groundwater Analytical Results - VOCs
Champion Technologies, Inc Site
Hobbs, New Mexico

ANALYTE	WQCC Standard	DATE	MW-6/17	MW-18
1,1-Dichloroethane	**25**	October-02	5	-
		February-03	**29**	-
		May-03	**26**	-
		August-03	**66**	-
		November-03	**53**	-
		March-04	ND	4.78
		June-04	15.4	7.19
		October-04	**28.9**	6.64
		July-05	1.6	4.6
		October-05	9.8	0.87 J
		January-06	15	0.86 J
		April-06	19	2.4
Tetrachloroethene	**20**	October-02	**20**	-
		February-03	15	-
		May-03	14	-
		August-03	**25**	-
		November-03	**28**	-
		March-04	ND	2.38
		June-04	8.84	4.33
		October-04	15.9	4.18
		July-05	1.2	3.4
		October-05	5.5	0.58 J
		January-06	11	0.74 J
		April-06	14	1.7
Vinyl Chloride	**1**	October-02	< 1.0	
		February-03	< 1.0	
		May-03	< 1.0	-
		August-03	< 1.0	-
		November-03	< 1.0	-
		April-04	< 10.0	< 1.0
		August-04	< 1.0	< 1.0
		November-04	< 1.0	< 1.0
		July-05	< 0.38	< 0.38
		October-05	< 0.38	< 0.38
		January-06	< 0.38	< 0.38
		April-06	<0.17	<0.17

Notes:
Sources of data: October 2002 - ETGI, 2003a; February 2003 to October 2004 - NOVA, 2005.
All values reported in μg/L.
All samples prepared according to EPA analytical method SW846 8260 B.
NA: Not analyzed.
J: Estimated result. Result is less than the reporting limit.
- : Well not installed as of this date.

Table 6

Geochemical Indicators
Champion Technologies, Inc. Site
Hobbs, New Mexico

PARAMETER	DATE	MW-1	MW-3	MW-4	MW-4D	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13	MW-15	MW-17	MW-18	MW-19	MW-20	MW-21	Offsite Supply Well	Onsite Supply Well
T (°C)	July-05	19.7	18.4	19.4	18.9	18.2	19.7	19.5	19.0	21.8	18.7	19.6	21.1	20.2	18.7	20.9	20.9	20.5	21.4
	October-05	18.2	19.1	20.3	20.4	19.5	13.0	18.6	18.0	18.3	19.6	16.7	20.7	21.2	20	19.7	18.6	19.1	18.4
	January-06	18.48	19.11	19.21	19.24	18.93	18.98	19.05	18.54	20.18	19.06	18.9	19.05	19.03	19.01	19.4	18.85	NS	12.75
	April-06	17.82	18.33	19.28	19.36	17.92	18.35	19.04	18.42	19.74	19.15	18.08	19.37	19.15	18.63	19.54	19.01	NS	20.61
pH	July-05	7.45	7.48	7.81	7.88	7.69	7.59	7.25	7.29	8.16	7.66	7.63	8.04	7.82	8.29	7.86	8.39	7.40	8.01
	October-05	7.19	7.69	7.40	7.05	7.46	7.39	7.10	7.25	7.40	7.30	7.10	7.37	7.65	7.70	6.61	7.69	7.46	7.20
	January-06	6.53	7.59	6.65	6.52	6.88	6.65	6.56	6.71	6.60	6.56	6.85	6.93	6.93	6.84	6.92	6.84	NS	7.20
	April-06	6.99	7.59	7.17	7.18	7.33	7.68	6.91	7.12	7.27	7.24	7.29	7.23	7.48	7.26	7.28	7.18	NS	7.28
ORP (mV)	July-05	20	7	-12	-51	-5	6	16	56	-21	12	29	-22	-34	-20	-19	-56	23	34
	October-05	38	26	88	100	24	37	52	51	-100	72	55	11	19	18	47	26	17	-24
	January-06	145.5	148.5	117.6	49.6	93.3	144.6	152.8	141.9	70.1	110.8	138.5	9.7	121.7	102.3	104.5	154.9	NS	178.8
	April-06	93.8	55.7	74.4	61.1	68	103.3	85.1	70.6	67.5	50.4	70	51.6	84.3	83	74.7	82.4	NS	107.9
DO (mg/L)	July-05	4.00	4.20	4.70	4.00	4.50	3.80	2.70	4.40	4.00	4.20	4.40	2.50	3.70	4.60	4.20	4.70	4.00	5.50
	October-05	2.10	1.60	3.00	5.65	5.54	2.90	1.30	5.82	3.70	3.60	4.50	0.20	3.30	3.25	3.30	1.60	NM	NM
	January-06	6.53	6.26	7.51	7.21	6.27	6.50	4.05	6.20	6.66	7.49	6.59	3.14	5.49	7.14	7.77	8.05	NS	3.91
	April-06	NM	NM	6.17	5.98	NM	NM	3.87	NM	6.03	6.11	5.62	NM	NM	NM	6.29	NM	NS	NM
Fe^{2+} (mg/L)	July-05	0.00	0.01	0.32	0.60	0.52	0.00	0.05	0.65	0.00	0.16	0.00	0.00	0.10	0.23	0.00	0.04	0.00	0.06
	October-05	0.00	0.00	0.24	0.38	0.09	0.06	0.00	0.20	0.03	0.00	0.33	0.00	0.29	0.00	0.25	0.00	0.00	0.00

Notes:

T - temperature; ORP - oxidation-reduction potential; DO - dissolved oxygen; Fe^{2+} - ferrous iron (HACH Colorimeter)

T, pH, ORP measured with Myron L Ultrameter 07/05 and 10/05 and YSI 556 01/06 and 04/06.

NM: Not Measured

NS: Not Sampled. Property owner shut power off to well.

Table 6

Geochemical Indicators
Champion Technologies, Inc. Site
Hobbs, New Mexico

PARAMETER	DATE	MW-1	MW-3	MW-4	MW-4D	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13	MW-15	MW-17	MW-18	MW-19	MW-20	MW-21	Offsite Supply Well	Onsite Supply Well
Iron (mg/L)	July-05	< 0.021	NM	< 0.021	< 0.021	NM	NM	NM	NM	< 0.021	< 0.021	NM	0.026	< 0.021	< 0.021	< 0.021	NM	< 0.021	< 0.021
	October-05	< 0.021	NM	< 0.021	< 0.021	NM	NM	NM	NM	< 0.021	< 0.021	NM	< 0.021	< 0.021	< 0.021	< 0.021	NM	< 0.021	< 0.021
TOC (mg/L)	July-05	3.8	NM	2.1	3.9	NM	NM	2.0	NM	2.1	1.2	NM	1.9	1.6	2.4	2.6	NM	1.2	0.42
	October-05	1.4	NM	ND	0.55	NM	NM	1.2	NM	ND	1.9	NM	1.5	1.8	2.7	2.2	NM	1.2	0.83
TDS (mg/L)	July-05	NM	NM	1,900	1,900	NM	NM	1,900	1,200	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	October-05	NM	NM	1,800	1,900	NM	NM	2,100	1,300	NM	NM	NM	NM	NM	NM	NM	NM	720	NM
Sulfate (mg/L)	July-05	110	NM	290	260	NM	NM	200	NM	200	230	NM	250	160	230	190	NM	230	92
	October-05	110	NM	240	280	NM	NM	230	NM	200	210	NM	160	160	230	170	NM	220	100
Sulfide (mg/L)	July-05	0.80	NM	0.64	0.64	NM	NM	0.64	NM	ND	ND	NM	ND	0.64	0.64	0.64	NM	0.64	ND
	October-05	0.80	NM	0.64	0.64	NM	NM	0.64	NM	0.96	0.64	NM	0.64	ND	ND	0.64	NM	0.80	0.64

Notes:
ND - not detected; NM -not measured; TOC - total organic carbon; TDS - total dissolved solids
Dissolved iron analyzed by EPA Method 6010B, TOC by MCAWW 415.1; TDS by MCAWW 160.1; sulfate by MCAWW 300.0A; sulfide by EPA Method 9030B/9034.

Appendix A – Soil Boring Logs and Well Construction Diagrams

Boring Log: ESCSB-01

Project: Champion Technologies

Project No.: 131042/1 **Surface Elevation (feet AMSL*):**

Location: Hobbs, NM **Total Depth (feet):** 56

Completion Date: July 21, 2005 **Borehole Diameter (inches):** 8

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	1			75		Asphalt / topsoil.
						Caliche, white to light orangish-brown, dry, weakly cemented.
	2			100		Caliche, white to light orangish-brown, dry, weakly cemented.
	3			100		Caliche, white to light orangish-brown, dry, weakly cemented.
	4			25		Caliche, white to light gray, dry, moderately cemented.
20						Caliche, white to light gray, moderately cemented.
	5			100		Caliche with silt, white to tan.
	6			100		
40						Caliche with silt, white to tan.
						Silty sand, orange-brown, dry, weakly cemented, contains calcareous concretions.
						Calcrete, hard, well cemented.
	7			100		Silty sand, tan-brown, calcareous concretions
60						Bottom of Boring at 56 feet Soil boring, no well installed. Samples collected with 24" split spoon samplers. Boring was filled with hydrated bentonite to surface upon completion.

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: ESCSB-02

Project: Champion Technologies

Project No.: 131042/1 **Surface Elevation (feet AMSL*):**

Location: Hobbs, NM **Total Depth (feet):** 55

Completion Date: July 20, 2005 **Borehole Diameter (inches):** 8

Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Description
					Ground Surface
	1			100	Asphalt / topsoil.
					Caliche with silt, white to brown, weakly cemented, dry.
	2			100	Silt, orange-brown, well sorted.
	3			75	Silt, white to orange-brown, calcareous concretions, dry.
	4			75	
20					Silt, white to orange-brown, calcareous concretions, dry.
	5			100	Caliche with sandy silt, white to gray tan, very well sorted, dry, weakly cemented.
	6			100	
40					Caliche with sandy silt, white to gray tan, very well sorted, dry, weakly cemented.
					Calcrete, very well cemented.
	7			100	Silty sand, brown. - Saturated at 55' bgs.
60					Bottom of Boring at 55 feet Soil boring, no well installed. Samples collected with 24" split spoon samplers. Boring was filled with hydrated bentonite to surface upon completion.

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: ESCSB-03

Project: Champion Technologies

Project No.: 131042/1 **Surface Elevation (feet AMSL*):**

Location: Hobbs, NM **Total Depth (feet):** 57

Completion Date: July 20, 2005 **Borehole Diameter (inches):** 8

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
	1			75		Asphalt / topsoil.
						Caliche with pebbley sandy silt, white to light grayish-tan, moderately hard, weakly cemented.
	2			15		Caliche with pebbley sandy silt, white to light grayish-tan, moderately hard, weakly cemented.
	3			90		Caliche with silt, orange-brown, calcareous crust between grains.
	4			100		Caliche with silty sand, tannish-white, very well sorted, dry, weakly cemented.
20						Caliche with sandy silt, very well cemented, dry.
	5			5		
	6			5		Caliche with sandy silt, very well cemented, dry.
	7			100		Caliche with silt, white to tan,very well sorted, dry.
	8			100		Caliche with silt, gray to tan, very well sorted, dry.
40	9			100		Caliche with silt, gray to tan, very well sorted, dry.
	10			100		Caliche with silt, gray to tan, very well sorted, dry.
						Calcrete, gray to tan, very hard, dry.
	11			100		Silty sand, white to light tan, less than 5% calcareous concretions. - Saturated at 55.5' bgs.
60						Bottom of Boring at 57 feet Soil boring, no well installed. Samples collected with 24" split spoon samplers. Boring was filled with hydrated bentonite to surface upon completion.

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log:* *ESCSB-04

Project: Champion Technologies

Project No.: 131042/1 **Surface Elevation (feet AMSL*):**

Location: Hobbs, NM **Total Depth (feet):** 22

Completion Date: July 19, 2005 **Borehole Diameter (inches):** 8

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
	1			100		Caliche with silty sand, white to orange-brown, dry, weakly cemented, concretions in lower 2".
	2			100		
	4			33		Caliche, silt sized material encrusted with calcareous material, dry, indurated.
	3					
	6			40		Caliche with silty sand, brown-orange to white, dry, indurated.
	5			40		
	7			50		Caliche, silt sized material, white-tan, dry, weakly cemented.
	8			50		
20	10			38		Caliche, silt sized material, white-tan, dry, weakly cemented.
	9			38		
						Bottom of Boring at 22 feet Soil boring, no well installed. Samples collected with 24" split spoon samplers. Boring was filled with hydrated bentonite to surface upon completion.
40						
60						

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: ESCSB-05/MW-19

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 21, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 77
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
						Ground Surface	
	1			100		Asphalt / topsoil.	
						Caliche, white to tan, dry, weakly cemented.	
	2			100		Caliche, white to tan, dry, weakly cemented.	
	3			100		Caliche with silt, orange-brown to white, weakly cemented.	
	4			10		Caliche, white, well cemented. Very hard at 20' bgs.	
20							
	5			75		Caliche with silt, white to light brown, dry, weakly cemented.	
	6			100		Caliche with silt, white to light brown, dry, weakly cemented.	
						Caliche, white to orange brown, dry, weakly cemented.	
40							
						Calcrete, very well cemented siliceous material, very hard.	
	7			100		Silty sand, tan brown, contains calcareous concretions. - Saturated at 58' bgs.	
60							

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log:* *ESCSB-05/MW-19

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 21, 2005
Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 77
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Silty sand, tan brown, contains calcareous concretions. - Saturated at 58' bgs. *(continued)*	
80						Bottom of Boring at 77 feet 2" SCH 40 PVC riser, 0.010 slot PVC screen, flush mount construction.	
100							
120							

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-20

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 21, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 77
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
						Ground Surface	
						Caliche with silt, white, well cemented.	
						Caliche with silty sand, white to orange.	
						Caliche with silty sand, white to orange, well cemented nodules ~ 40%. Well consolidated layer from 9' to 9.5' bgs.	
20						Caliche with silty sand, white to orange, well cemented nodules ~ 40%.	
						Caliche with silty sand, white to orange, well cemented nodules ~ 20%.	
40						Caliche with silty sand, white to orange, well cemented nodules ~ 5%.	
						Caliche with clayey silt, tannish-white, low to medium plasticity.	
						Calcrete, very hard.	
						Sandy silt, tan-brown, weakly cemented.	
60						Silty sand, tan-brown, weakly cemented. - Saturated at 58' bgs.	

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-20

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 21, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 77
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
						Silty sand, tan-brown, weakly cemented. - Saturated at 58' bgs. *(continued)*	
80						Bottom of Boring at 77 feet 2" SCH 40 PVC riser, 0.010 slot PVC screen, flush mount construction.	
100							
120							

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-21

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 19, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 70.45
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Ground Surface	
						Asphalt / topsoil.	
						Caliche with pebbley sand, tan to white, weakly cemented, dry. Sand - fine grained. Pebbles - angular.	
						Silty pebbley sand, tannish-orange, soft, dry, loose. Sand - very fine grained.	
						Caliche, white, pebble sized nodules with little cementation.	
						Caliche, sand and pebble sized grains surrounded by white calcareous crust. Increased cohesion from 16' to 17' bgs.	
20						Caliche with pebbley sand, buff to tan, dry, moderately hard to hard. Sand - very fine grained, well sorted.	
						Caliche with pebbley silt, very light whitish-tan, dry, loose. Pebbles - ~ 15%, angular to sub-rounded. Pebble concentration increases from 28' to 34' bgs to ~ 45%.	
40						Caliche, tannish white, silt sized material, very well sorted, dry. Moderately hard from 34' to 39' bgs. Becomes hard from 39' to 45' bgs.	
						Calcrete, white to dark tan siliceous layer with calcareous crust. Very hard. Softens from 48' to 50' bgs as silica content decreases from ~ 70% to ~ 20%. Dry.	
						Caliche, whitish-tan, dry, very well sorted. - Saturated at 57' bgs.	
60							

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-21

Project: Champion Technologies

Project No.: 131042/1

Location: Hobbs, NM

Completion Date: July 19, 2005

Surface Elevation (feet AMSL*):

TOC Elevation (feet AMSL*):

Total Depth (feet): 70.45

Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Sand, tan, very fine to fine-grained, saturated.	
						Bottom of Boring at 70.45 feet 2" SCH 40 PVC riser, 0.010 slot PVC screen, flush mount construction.	
80							
100							
120							

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-4D

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 25, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 119.5
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
						Ground Surface	
						Asphalt / brown sandy topsoil.	
						Caliche with pebbley silt, whitish-brown, dry, weakly cemented.	
						Caliche with pebbley silt, orange-brown, dry, friable, contains ~ 10% white pebble sized concretions from 5' to 7.5' bgs, ~ 50% white pebble sized concretions from 7.5' to 12' bgs.	
						Pebbley silt, white, ~ 40% angular pebbles. Hardens at 14' bgs. Very hard at 17' bgs.	
20						Caliche with gravelly sand, white, weakly cemented, dry. Sand - fine to medium grained.	
						Caliche with silt, orange brown to whitish-tan. Hard layer from 28' to 30' bgs.	
40						Caliche with pebbley silt, tan-white, contains less than 20% pebble to gravel sized concretions.	
						Calcrete, white to gray brown, very hard.	
						Silt, brown, dry, very well sorted.	
						Calcrete, white to gray brown, very hard.	
						Silt, brown, dry, very well sorted.	
60						Brown silty sand, very well sorted, dry, weakly cemented. - Saturated at 58' bgs.	

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Boring Log: MW-4D

Project: Champion Technologies
Project No.: 131042/1
Location: Hobbs, NM
Completion Date: July 25, 2005

Surface Elevation (feet AMSL*):
TOC Elevation (feet AMSL*):
Total Depth (feet): 119.5
Borehole Diameter (inches): 8

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
80						Brown silty sand, very well sorted, dry, weakly cemented. - Saturated at 58' bgs. *(continued)*	
100						Hard drilling at 98' to 105' bgs, contains ~20% caliche material.	
						Silty clay, dark reddish-brown, contains ~ 10% caliche fragments.	
						Brown sand, fine-grained, hard drilling from 110' to 120' bgs, contains ~10% caliche material.	
120							

Bottom of Boring at 119.5 feet
2" SCH 40 PVC riser, 0.010 slot PVC screen, flush mount construction.

Geologist(s): David Carstens
Subcontractor: Eades Drilling
Driller/Operator: Adam
Method: Air Rotary

**AMSL = Above mean sea level*

Appendix B - Waste Disposal Documentation

Appendix C – Laboratory Reports

Environmental Strategies Consulting LLC

Supplemental Investigation Report
Champion Technologies, Inc. Site Abatement (AP-14)
4001 South Highway 18
Hobbs, New Mexico
July 12, 2006

Appendix B - Waste Disposal Documentation

Environmental Strategies Consulting LLC

Supplemental Investigation Report
Champion Technologies, Inc. Site Abatement (AP-14)
4001 South Highway 18
Hobbs, New Mexico
July 12, 2006

Appendix C - Laboratory Reports