### Franklin J. Goldman, ChG.

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February 09, 2004

Barney M. Chan Hazardous Materials Specialist

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SUBJECT:

INSTALLATION OF THREE (3) ADDITIONAL GROUNDWATER EXTRACTION WELLS AND ONE EXPLORATORY SOIL BORING ASSOCIATED WITH THE FORMER UNDERGROUND STORAGE TANKS AT THE FORMER BILL CHUN SERVICE STATION @ 2301 SANTA CLARA AVENUE, ALAMEDA, CA 94501

203/62

#### Dear Barney:

Enclosed are the details of a subsurface hydrogeologic investigation for the above designated site as required according to the approved workplan. Three (3) groundwater extraction wells (EW-15, EW-16, & EW-17) were installed on January 15, 2004 and the 40 foot deep soil boring (BZ) was excavated on January 16, 2004.

These three (3) groundwater pumping wells will be utilized in conjunction with the three (3) previously installed groundwater extraction wells to help remediate the shallow groundwater at the site. The six (6) extraction wells have also been designed to be fitted with vapor extraction well heads to address residual hydrocarbons in the smear zone.

The exploratory soil boring confirmed the presence of a fine grained bottom confining layer associated with the shallow confined/semi-confined aquifer defined during recent aquifer testing. The depth of the bottom confining layer confirms the previous estimates for the dimensions of the capture zones associated with the groundwater extraction wells during pumping.

On January 20, 2004 the wells were developed by Blaine Tech Services and the wells were sampled on January 21, 2004.

Gasoline contamination was identified in soil and groundwater at the three extraction well locations. Data evaluation reported herein reveals no significant changes in the distribution of the dissolved contaminants plumes as reported in the past reporting.

Sincerely,

Franklin J. Goldman

Certified Hydrogeologist No. 466

HO 468

#### SUBSURFACE INVESTIGATION

#### SITE LOCATION, DESCRIPTION, AND HISTORY

The site is located in a commercial and residential area on the Island of Alameda. The site is bordered on the southeast by a flower shop which has residents living on the second story. A one story office building is located to the north and Oak and Santa Clara Avenues border the remainder of the site.

Two 550 gallon and one 285 gallon gasoline steel underground storage tanks were removed from the property on July 31, 1992. No holes were observed on the 550 gallon tanks, however, a two inch diameter hole was observed on the 285 gallon tank bottom (Parker Environmental Services, 08-04-92).

#### WORK ACTIVITIES COMPLETED

Potential groundwater extraction well locations were marked at the site in white paint. The soil boring locations were marked for Underground Service Alert which was contacted prior to drilling. Each soil boring location was screened with a magnetometer and was then hand augered to a depth of 5 feet bgs prior to excavation with the hollow-stem auger drill rig to avoid damage to underground piping and utility lines.

Three (3) groundwater extraction wells EW-15, EW-16, and EW-17 were installed to 25 feet bgs on January 15, 2004 and the 40 foot deep soil boring (BZ) was excavated on January 16, 2004 (See Figure 1 for extraction well and borehole locations). All three wells and the one exploratory soil boring were installed in the approximately same locations as indicated in the approved workplan.

## SOIL SAMPLING PROCEDURES FOR EXTRACTION WELL EXCAVATIONS AND LAB RESULTS

Three (3) soil borings were drilled by Clearheart Drilling, a C-57 drilling licensed driller. All borehole logging was performed by a State Certified Hydrogeologist who kept a detailed hydrostratigraphic log of each borehole, noting lithologic changes, hydrogeological characteristics, sample locations, and well construction. Soil sampling was performed on the day of the subsurface investigation. Soil sampling was performed where appropriate in order of identify significant changes in soil hydrostratigraphy. The well excavations were sampled at a minimum of approximately every five (5) vertical feet. Most of the soils encountered to a depth of 25 feet bgs were predominantly comprised of non-cohesive medium sands (See Appendix A for Soil Boring Logs).

Exploratory soil boring BZ was continuously cored between 25 and 40 feet bgs to identify the contact between the bottom of the confined/semi-confined shallow aquifer and its fine grained bottom confining layer. Soil samples were collected with a two (2) inch inner diameter, three (3) foot long, split spoon sampler. The soil samples were obtained by the compressive force of a 140 lb hammer dropped from a height of 18 inches. The soil samples were extruded into six (6)-inch long steel sample liners. Soil samples were chosen for lab analyses based upon obvious olfactory and visual evidence of contamination, by photoionization detector (PID) screening and/or at significant changes in hydrostratigraphic horizons. Non-detect levels of benzene were verified in soil at a depth of 15 to 16 feet bgs in all three soil boring excavations identified in soil (See table I for lab results and Appendix B for Laboratory Data Sheets).

Each soil sample collected was covered at each end of the metal cylinder with Teflon tape, plastic end caps, and sealed with non-VOC "duct tape" to adhere the caps to the liners at each end, to hermetically seal the samples. The soil samples were labeled with a non-toxic ink field marker as to the depth and location the sample was collected, the sample number, and the project name and inserted into a plastic Zip-Lock bag and then placed into an ice chest for transport back to the laboratory. The chain-of-custody was similarly designated and included the date and time the sample was collected as well as the depth interval. All soil samples were analyzed for TPH(g)/BTEX by EPA Method 8015 modified/8020.

The sampler was decontaminated before and after each use by rinsing with an Alconox solution wash and fresh tap water rinse. All rinseate water, purge water, and soil waste were stored in 55 gallon DOT approved drums. The drums have been stored onsite until authorization for transport to legal point of disposal is made.

Gasoline contaminants were identified in soil in all three extractions well excavations (See table I for lab results and Appendix B for Laboratory Data Sheets). The samples collected at 15 to 16 feet bgs revealed no contaminants except for very low concentrations of toluene and xylenes in EW-17. Hydrocarbons in soil appear to be generally restricted to soils shallower than 15 feet bgs.

#### WELL CONSTRUCTION

The three (3) wells were constructed with a 0.02 inch PVC schedule 40 slotted casing from 25 to 7 feet bgs and schedule 40, 4 inch diameter PVC blank casing from 7 to approximately ½ foot bgs. No. 212 silica sand pack was placed in the annular space between the screened casing and the open borehole to one foot above the top of the screen. The bentonite seal was one foot thick and was placed on top of the sand pack in the annular space from 6 to 5 feet bgs. A Type II Cement bentonite grout was then tremmied from the bottom up to within approximately 1 foot from the top of the surface cover. A continuous concrete pour was then be placed on top of the grout to the surface where it will be finished with a flush concrete apron around a Boart Longyear well box (See Figure 2 for extraction well construction detail).

### GROUNDWATER GRADIENT FLOW DIRECTION

On January 21, 2004, a Slope Indicator water level meter was used to measure the depth to groundwater in the groundwater extraction wells prior to well development and sampling. The measurements were read to the nearest 100th of an inch from the top of casing. The survey performed for the three previous extraction wells was revised on February 04, 2004 to reflect a benchmark reference relative to mean sea level. The three new extraction wells were incorporated into the new survey plat (See Appendix C for Well Survey).

The groundwater gradient flow direction is to the east at 0.01 ft/ft (See Figure 1 for gradient flow direction and water table elevations).

## WELL DEVELOPMENT, PURGING, SAMPLING ACTIVITIES AND LAB RESULTS

On January 20, 2004 the wells were swabbed, bailed and pumped by a qualified field technician from Blaine Tech Services until the water was relatively clear. The resulting turbidity was relatively low. On October 20, 2002 the wells were purged and sampled according to the following procedures.

January 21, 2004 the three wells were purged and developed to obtain representative groundwater samples. Each well was purged of approximately three (3) borehole volumes allowing the water level to recover to at least 80% of the original, static level. Temperature, electrical conductivity, and pH were monitored during each purging, so that the three parameters were within a 10% error difference from one another, over a minimum of three consecutive readings. The data was used to verify that water had been removed from well casing storage and that the well water was representative

of the aquifer, prior to sampling. Low turbidity was observed in the wells after well development and purging (See Appendix D for Well Development Logs).

Water samples were collected by lowering a plastic disposable check valve bailor down the center of each PVC well casing after the static water level had recovered. The bailer was lowered to the bottom of the well casing and pulled to the surface to be decanted from the bottom of the bailor by temporarily unplugging the check valve until water flowed freely into the glass sample container. Water samples were contained in 40-milliliter VOA vials for TPH-g, MTBE, BTEX, oxygenates, and lead scavenger analyses. The samples were labeled and stored on ice at 4 degrees centigrade until delivered, under chain-of-custody procedures, to State-certified analytical laboratory. All samples were analyzed by appropriate and applicable EPA test methods.

Hydrocarbon contaminants were identified in groundwater in all three extraction wells (See Table 1 and Appendix B for Laboratory Data Sheets). All three wells exhibited significant gasoline contaminants in groundwater. Very low levels of lead scavengers were identified in soil in EW-16 and EW-17.

#### CONCLUSIONS

The exploratory soil boring confirmed the presence of a fine grained bottom confining layer for the shallow confined/semi-confined aquifer which is at least five (5) feet thick at the one point location on site. It is very likely that the bottom confining layer is laterally continuous relative to the extent of the investigation area, however, hydrogeological anomalies such as buried channels which are common in the area may provide significant migration of groundwater between adjacent aquifer zones. The depth of the bottom confining layer, however, reasonably confirms the previous estimates for the dimensions of the capture zones associated with the groundwater extraction wells induced during pumping.

The contaminants identified were predominantly the same gasoline related constituents identified in the past at similar concentrations.

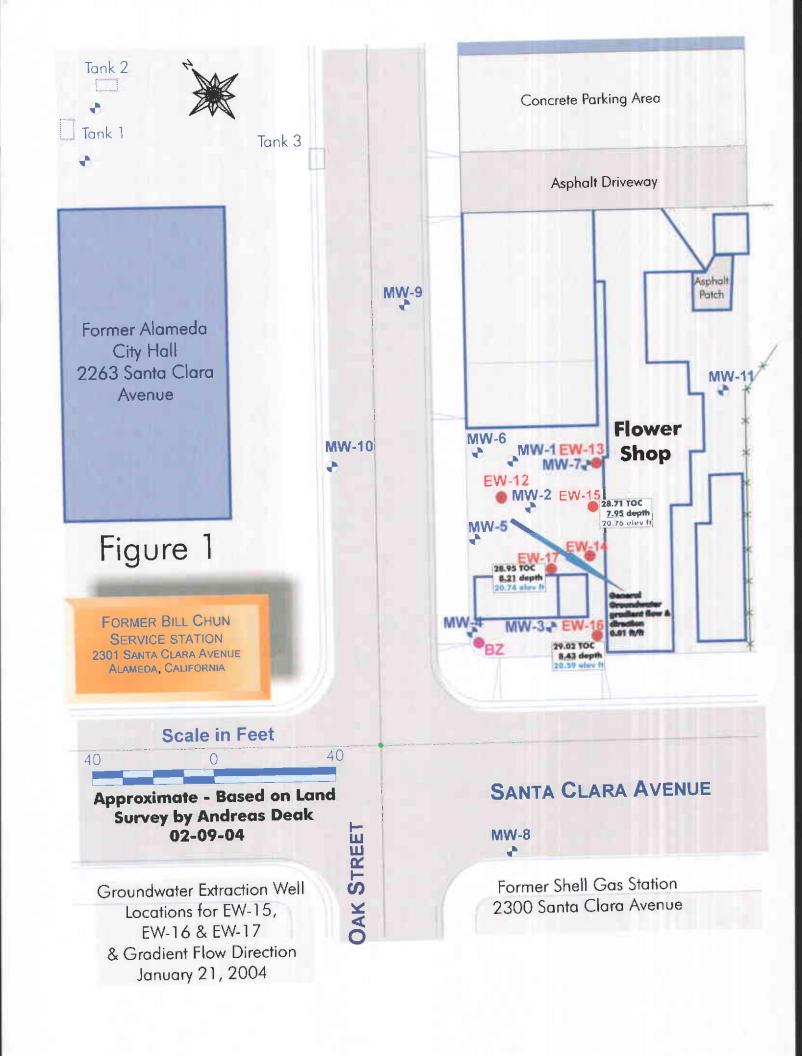
The three extraction wells appear to be well placed and produce as much or a greater volume of water per minute in comparison to the three previously installed extraction well installations.

#### RECOMMENDATIONS

Groundwater extraction and treatment should commence immediately. Varying combinations of the number of extraction wells should be with all six (6) extractions wells operating. Monitoring and evaluation of the groundwater extraction system should be performed immediately after pumping begins. Initially, a baker tank should be placed onsite to contain the extracted groundwater. The extracted and treated water should initially be hauled offsite for disposal. After the treated water demonstrates a consistent and well treated effluent, a new permit for disposal to the EBMUD system should be obtained to reduce the cost of treated groundwater disposal.

#### LIMITATIONS

This report has been prepared in accordance with generally accepted environmental, geological and engineering practices. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analyses, conclusions and recommendations contained in this report are based upon site conditions as they existed at the time of the investigation and they are subject to change. The conclusions presented in this report are professional opinions based solely upon visual observations made within individual soil excavations and of the site and vicinity as well as on interpretations of available information as designated in this report. Franklin J. Goldman, maintains that the limited scope of services performed in the execution of this investigation may not be sufficient to satisfy the needs, and/or requirements of all regulatory agencies or other users. Any use or reuse of this document, its findings, its conclusions and/or recommendations presented herein, is done so at the sole risk of the said user.



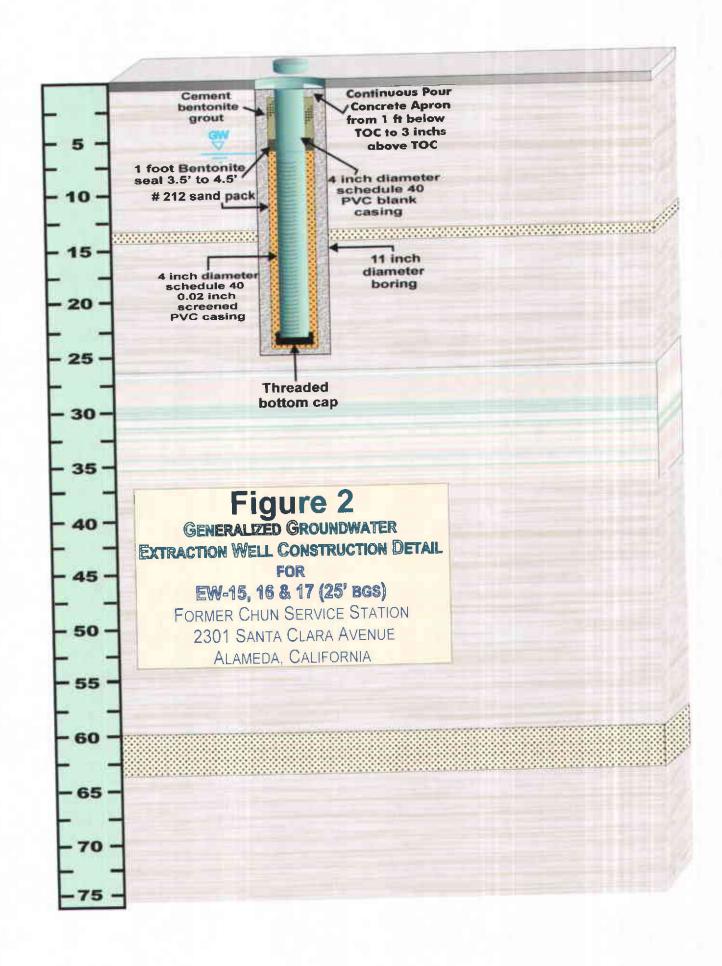


Table 1

Hydrocarbons in Groundwater in EW-15, 16, & 17 in ppb for Samples collected for Chun

Sample	Date		TPH(g) <sup>†</sup>		Benzene 8,400		luene	Ethyl- benzene	Xylenes
EW-15	01-21-04		72,000				1,000	1,900	9,700
EW-17	01-21-04		18,000		2,60	00	3,600	500	2,460
EW-16	01-21-04		1,500		290 NI		ND	0.52	1.9
Sample	Date	TBA	мтве	Di-isop ethe		tert Butyl ethyl ethe	1 1 1 1 1 1 1 1 1	EDB	1,2 DCA
EW-15	01-21-04	ND	ND	NE		ND	ND	ND	ND
EW-17	01-21-04	ND	ND	NE		ND	ND	ND	20
EW-16	01-21-04	ND	ND	N	)	ND	ND	ND	14

Hydrocarbons in Soil in ppm for Samples collected for Chun

Sample	Date	TPH(g) <sup>+</sup>	Benzene	Toluene	Ethyl- benzene	Xylenes
	01-15-04	26	0.34	0.82	0.50	2.2
EW-15 15 ½ - 16	01-15-04	ND	ND	ND	ND	ND
Sample	- Parvora		Toluene	Ethyl- benzene	Xylenes	
EW-17 10 - 10 ½	01-15-04	2,200	ND	65	55	320
EW-17 15 ½ -16	01-15-04	ND	ND	0.0033	ND	0.052
Sample	Date	TPH(g) <sup>+</sup>	Benzene	Toluene	Ethyl- benzene	Xylenes
EW-16 10 - 10 ½	01-15-04	3,400	ND	ND	8.9	38
EW-16 15 - 15 ½	01-15-04	ND	ND	ND	ND	ND

## Appendix A Soil Boring Logs

DRILL COMPANY: Clearheart	SURFACE ELEVATION:				LOGGED BY: Frank Goldman					
DEPTH TO GROUNDWATER:	BORING DIAN	/ETER:		DRILLI	NG METHO	D:				
LITHOLOGIC DESCRIPTION		SAMPLE	"ILMOTOGIC	ОЕРТН	WEVEL	WEITHER TOWN	USCS			
Backfill: SiHy Sand, mediu loose, sl moist	m, 1+ bry			- 1 - - 2 - - 3 - - 4 -						
No odor to 6'  Moderate Strong odor at 8  green@82'  Water encountered@9'62	, ;	X	745 AM	- 5 - - 6 - - 7 - - 8 -			-			
		X	815 An	-11-						
Dense@13½, siltier.  desth  Silty, sand, bringen, dense, i  medium, moist to very moist  very mild odor @ 15	fineto	X	8 <sup>45</sup> A~	-13- -14- -15- -16- -17- -18-						
Flowing sands@20'bgs BORING NO. EW/5 DATE: 01-15-04	e 92		Al	<sub>20</sub> hur am	eda	lava Av				

DRILL COMPANY: Clearheart	SURFACE ELE	SURFACE ELEVATION:			LOGGED BY: Frank Goldman				
DEPTH TO GROUNDWATER:	BORING DIAN			DRILLII	NG METHOD	):			
LITHOLOGIC DESCRIPT	FION	SAMPLE INTERVALS	TLHOTOGIC	ОЕРТН	WEVEL	WE FRETTON CONSTRETAL	USCS		
No sample @ 20' due to f	lowingsands			-21- -22-			Total Control of the		
	· · · · · · · · · · · · · · · · · · ·	X	9-30 Andor	-23- -24- -25- -26-					
End@ 262' Water 1st encountered	109'55		Nobelov	-27- -28- -29-					
				-31- -32- -33- -34-					
				-35- -36- -37- -38- -39-	- - - - -				
DATE: 01=15-04	0-7 blank 7-25 sween 5and @ 6, Seal @ 5, grout to spron		A	hu lar	nedo	Clava Ava	e		

DRILL COMPANY: Clearheart	SURFACE EL	EVATION	:	LOGGED BY: Frank Goldman					
DEPTH TO GROUNDWATER:	BORING DIA	METER:		DRILLING N	METHOD:				
LITHOLOGIC DESCRIPTION		SAMPLE	TLHOPOGIC	DEPTH	iki.	MELLICTION STRUCTION	USCS		
Silty Sand, born todark be to med derse, fine, mois  No odor; Some sticky cla  Mod strong ador, dk grute  No odor; brin	ay birder		350	-1 - -2 - -3 - -4 - -5 - -6 - -7 - -8 - -9 - -10 - -11 - -12 - -13 - -14 - -15 - -16 - -17 - -18 - -19 -					
BORING NO. EW-16  DATE: 01/15/04				hun ame	da				

Page 2 of 2

DRILL COMPANY: Clearheart	SURFACE ELEVATION:		LOGGED BY: Frank Goldman					
DEPTH TO GROUNDWATER:	BORING DIAMETER:		DRILLING ME	THOD:				
LITHOLOGIC DESCRIPTION	SAMPLE	rundroeic	DEPTH DEPTH	A CONSTRUCTION CONSTRUCTION	USCS			
No Odor		4 <u>5</u> PM	-21- -22-					
No Odor	$\sim$	445	-23- -24- -25-					
No Odor End 25'			-26- -27-					
· · · · · · · · · · · · · · · · · · ·			-28- -29- -30-					
			-31- -32-					
			-33- -34-					
			-35- -36- -37-					
			-38- -39-					
BORING NO. EW-16 7/61 DATE: 01/15/04 18:45 Sand Seal	auk crcen 1@6 @5	1	hun lame	da				

DRILL COMPANY: Clearheart	SURFACE EL		,	LOGGE	DBY: Fi	Page 1 of 2 LOGGED BY: Frank Goldman					
DEPTH TO GROUNDWATER:	BORING DIA	METER:		DRILLIN	g <b>M</b> ETHO	D:					
LITHOLOGIC DESCRIPTION		SAMPLE	LITHOLOGIC	DEPTH	WATER	WE RUCTION CONSTRETALL	USCS				
Silty Sand, brn, lose, fin SI maist, possible tanklar No ador Siltier w/depth green @213'	ckfill?	X	1145 limited recovery	- 1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7 - - 8 -							
We odor bry @ 217			1200 pm	-16- -17- -18- -19-							
No odov  BORING NO. EWI7  DATE: 01-15-04				hun am	eda						

DRILL COMPANY: Clearheart	SURFACE ELE		<del></del>	LOGGED BY: Frank Goldman				
DEPTH TO GROUNDWATER:	BORING DIAM				NG METHO	D:		
LITHOLOGIC DESCRI	PTION	SAMPLE INTERVALS	rungrocic	DEPTH	WILVEL	WE RUCTON CONSTRETAIL	USCS	
Yellowbun  No odov  Enda 25'		<b>X</b>	1230 12Pm	-21- -22- -23- -24- -25- -26-				
				-27- -28- -29- -30- -31-				
		A B A A A A A A A A A A A A A A A A A A		-32- -33- -34- -35- -36-				
				-37- -38- -39- -40-				
BORING NO. Ew-17 DATE: 01-15-04	7 blank 18' of sween Sardto 6', Seal 5-6 Grout to apron		1	hu Iar	n nede	a		

DRILL COMPANY: Clearheart	SURFACE ELE	VATION	:	LOGGED BY: Frank Goldman				
DEPTH TO GROUNDWATER:	BORING DIAM			DRILLI	ng methol	<b>)</b> ;		
LITHOLOGIC DESCRIPTION	J	SAMPLE INTERVALS	TLHOPOGIC	DEPTH	WEVEL	CONSTRUCTION CONSTRUCTION	USCS	
Silty Sand, brn, med fine to med, SI mois	dense, to moist			- 1 -				
				- 3 - - 4 - - 5 -				
				- 6 -				
				- 8 - - 9 - 10-				
green with mad stro	ng alovall			-11-				
				-13- -14- -15-				
It grn@15'-19'				-16- -17-				
				-18- -19- -20-				
BORING NO. BZ  DATE: 01/16/04				hur am	n eda			

DRILL COMPANY: Clearheart	SURFACE ELE			LOGGED BY: Frank Goldman					
DEPTH TO GROUNDWATER:	BORING DIA	METER:		DRILLI	NG METHO	D:			
LITHOLOGIC DESCRIPTION		SAMPLE	TLHOPOGIC	рертн	WEVEL	WE RICTOR	USCS		
Silty sand, bun, dense, fine SI moist to moist; no on Continuous core begins @				-21- -22- -23- -24- -25- -26- -27- -28-					
grey@ 31, no odor  Silty sand, brn, ned dense to loged to coarse, moist	odense,			-29 -30- -31- -32- -33- -34-					
Sandy clay, be Ithorn, Stist, dr.  Sandy clay, be Ithorn, Stist  Becomes blue "@ 38 to 40'  End@ 40', continuous con	Sf, sl mois	X	103°AM	-35 -36 -37 -38 -39 -40					
BORING NO. BZ DATE: OI/(6/04				hu	n ned	a			

## Appendix B Laboratory Data Sheets



#### LABORATORY ANALYSIS RESULTS

Page 1 of 1

Client:

Chun

Project No.: Project Name: Chun

N/A

Sample Matrix: Water Method:

EPA 8015M (GRO)

AA Project No.: A57203

Date Received: 01/23/04 Date Reported: 02/05/04

Units:

mg/L

AA I.D. No. Client I.D. No.	Date Sampled	Date Analyzed	DF	Results	MRL
166687 EW-15	01/21/04	01/30/04	100.0	72 18	0.1 0.1
166688 EW-17 166689 EW-16	01/21/04 01/21/04	01/30/04 01/30/04	50.0 2.0	1.5	0.1

MRL: Method Reporting Limit

J: Estimated Value

**DF: Dilution Factor** 

NOTES:

**GRO:** Gasoline Range Organics





Page 1 of 1

Client:

Chun

AA Project No.: A57203

Project No.:

N/A Chun

Date Received: 01/23/04 Date Reported: 02/05/04

**Project Name:** Sample Matrix:

Water

ug/L Units:

lethod: EF	A 8260B	<del></del>	04/04/04		
ate Sampled:	01/21/04	01/21/04	01/21/04		
ate Analyzed:	01/31/04	01/31/04	01/31/04		
A ID No.:	166687	166688	166689		
Client ID No.:	EW-15	<del></del>	<del>-</del>		MRL
ilution Factor:	100.0	10.0	1.0		1411 (2
Compounds:			202		0.5
Benzene					2
Di-isopropyl Ether	<200				0.5
	EDB) <50	<b>&lt;</b> 5			0.5
		20		. 6	2
		0 0		< 2	0.5
		500			2
		<20	<2		2
Cort_Amvi Methvi Ett		<20	<2		
=		3600	<0.5		0.5
			1.9		1
					0.5
		<100	<10		10
Client ID No.: Oilution Factor: Compounds:	8400 <200 EDB) <50 EDC) <50 h e r < 2 0 1900 er <200	500 500 <20 <20 3600 1700 760	<2 <0.5 <b>1.9</b> <0.5	< 2	(

MRL: Method Reporting Limit

J: Estimated Value



#### LABORATORY ANALYSIS RESULTS

Page 1 of 2

Client: Project No.:

**Xylenes** 

Chun

N/A

**Project Name:** Chun

AA Project No.: A57203

Date Received: 01/23/04 Date Reported: 02/05/04

Units:

mg/Kg

Sample Matrix: Soil				J.1.1.5.	
Method: EPA 80	015M/8021B			0.4 (4.5)0.4	
Date Sampled:	01/15/04	01/15/04	01/15/04	01/15/04	
Date Analyzed:	01/28/04	01/28/04	01/28/04	01/28/04	
AA ID No.:	166672	166673	166676	166677	
Client ID No.:	EW-15 10.5-11	EW-15 15.5-16	EW-17 10-10.5	EW-17 15.5-16	MDI
Dilution Factor:	10.0	1.0	500.0	1.0	MRL
Compounds:				<b>-0.00</b> 2	0.002
Benzene	0.34	<0.002	<1 	<0.002	0.002
Ethylbenzene	0.50	<0.002	55	<0.002	0.502
Gasoline Range Organica	s <b>26</b>	<0.5	2200	<0.5	0.02
Methyl tert-Butyl Ether	<0.2	<0.02	<10	<0.02	
Toluene	0.82	<0.002	65	0.0033	0.002
Xvlenes	2.2	<0.002	320	0.0052	0.002



#### LABORATORY ANALYSIS RESULTS

Page 2 of 2

0.002

Client:

Chun

AA Project No.: A57203

**Project No.:** 

N/A

Date Received: 01/23/04 Date Reported: 02/05/04

Project Name: Sample Matrix: Chun Soil

Units:

mg/Kg

Method: **Date Sampled:**  EPA 8015M/8021B

01/15/04

500.0

<1

38

01/15/04

Date Analyzed:

01/28/04

01/28/04

AA ID No.:

Dilution Factor:

Client ID No.:

166681 EW-16 10-10.5

166682 EW-16 15-15.5

1.0

MRL 0.002

Compounds: Benzene Ethylbenzene Methyl tert-Butyl Ether

Toluene

**Xylenes** 

Gasoline Range Organics

< 0.002 <1 < 0.002 8.9 3400 <10

< 0.5 < 0.02 < 0.002

< 0.002

0.002 0.5 0.02 0.002

MRL: Method Reporting Limit

J: Estimated Value



Page 1 of 1

Chun Client: Project Name: Chun

Method: Sample ID: EPA 8260B

Reagent Blank

N/A **Project No.:** AA Project No.: A57203 Date Analyzed: 01/31/04

Date Reported: 02/05/04

Compounds	Results ug/L	MRL	
Benzene	<0.5	0.5	
Di-isopropyl Ether	<2	2	
1,2-Dibromoethane (EDB)	<0.5	0.5	
1,2-Dichloroethane (EDC)	<0.5	0.5	
Ethyl tert-Butyl Ether	<2	2	
Ethylbenzene	<0.5	0.5	
Methyl tert-Butyl Ether	<2	2	
Tert-Amyl Methyl Ether	<2	2	
Toluene	<0.5	0.5	
m,p-Xylenes	<1	1	
o-Xylene	<0.5	0.5	
tert-Butanol	<10	10	

MRL: Method Reporting Limit



Page 1 of 1

Client: Chun Project Name: Chun

Method: EPA 8015M/8021B Sample ID: Reagent Blank Project No.: N/A
AA Project No.: A57203
Date Analyzed: 01/28/04
Date Reported: 02/05/04

Compounds	Results mg/Kg	MRL
Benzene	<0.002	0.002
Ethylbenzene	<0.002	0.002
Gasoline Range Organics	<0.5	0.5
Methyl tert-Butyl Ether	<0.02	0.02
Toluene	<0.002	0.002
Xylenes	<0.002	0.002

MRL: Method Reporting Limit

Viorel Vasile Project Manager

> American Analytics • 9765 Eton Avenue, Chatsworth, California 91311 Tel: (818) 998 - 5547 • Fax: (818) 998 - 7258



Page 1 of 1

Client: Chun Project Name: Chun

Method: EPA 8015M (GRO)
Sample ID: Reagent Blank

Project No.: N/A

AA Project No.: A57203

Date Analyzed: 01/30/04

Date Reported: 02/05/04

	Results	MRL
Compounds	mg/L	WINE
Gasoline Range Organics	<0.1	0.1

MRL: Method Reporting Limit

Viorel Vasile Project Manager

> American Analytics • 9765 Eton Avenue, Chatsworth, California 91311 Tel: (818) 998 - 5547 • Fax: (818) 998 - 7258



Page 1 of 1

Client:

Chun

Project Name: Chun

Method:

**EPA 8260B** 

Sample ID:

Concentration: 20 ug/L

**Laboratory Control Standard** 

AA Project No. A57203 Date Analyzed: 01/31/04 Date Reported: 02/05/04

N/A

Project No.:

Compounds	Recovered Amount (ug/L)	Recovery (%)	Acceptable Range (%)
Benzene	19.6	98	50 - 150
Ethylbenzene	21.1	106	50 - 150
Methyl tert-Butyl Ether	19.7	99	50 - 150
Toluene	19.0	95	50 - 150
o-Xylene	21.3	107	50 - 150



Page 1 of 1

Client:

Chun

Project Name: Chun

Method:

EPA 8015M/8021B

Sample ID:

Laboratory Control Standard

Concentration: 0.02 mg/Kg

N/A Project No.: AA Project No. A57203 Date Analyzed: 01/28/04

Date Reported: 02/05/04

Compounds	Recovered Amount (mg/Kg)	Recovery (%)	Acceptable Range (%)	
Benzene	0.0166	83.00	69.00 -131	
Ethylbenzene	0.0233	117.00	63.00 -137 48.00 -152	
Gasoline Range Organics	0.0180	90.00		
Toluene	0.0232	116.00	67.00 -133	



Page 1 of 1

Client:

Chun

Project Name: Chun

Method:

EPA 8015M (GRO)

Sample ID:

Laboratory Control Standard

Concentration: 0.5 mg/L

N/A Project No.: AA Project No. A57203 Date Analyzed: 01/30/04 Date Reported: 02/05/04

Compounds	Recovered	Recovery	Acceptable
	Amount (mg/L)	(%)	Range (%)
Gasoline Range Organics	0.493	99.0	48.0 - 152

Viorel Vasile **Project Manager** 

> American Analytics • 9765 Eton Avenue, Chatsworth, California 91311 • Fax: (818) 998 - 7258 Tel: (818) 998 - 5547 •





AMERICAN

Client:

Chun

Project Name: Chun Method:

EPA 8015M/8021B

Sample ID:

Matrix Spike

Concentration: 0.02 mg/Kg

AA ID No:

166673

N/A Project No.:

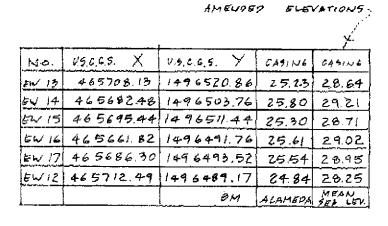
AA Project No. A57203 Date Analyzed: 01/28/04 Date Reported: 02/05/04

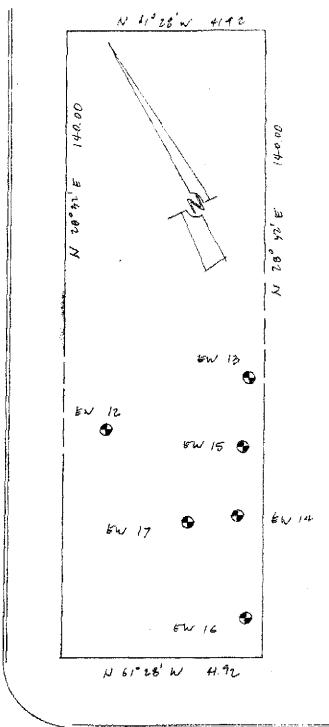
Compounds	Result (mg/Kg)	Spike Recovery (%)	Dup. Result (mg/Kg)	Spike/Dup. Recovery (%)	RPD (%)	Accept. Rec. Range (%)
	0.0190	95.00	0.0222	111.0	15.	65.00 -135
Benzene		89.00	0.0209	105.0	16.	77.00 -123
Ethylbenzene	0.0177	<u> </u>	0.0182	91.00	5.3	50.00 -150
Gasoline Range Organics	0.0192	96.00	• • • • • • • • • • • • • • • • • • • •	<del>-</del>	11.	66.00 -134
Toluene	0.0229	115.00	0.0257	129.0	11.	00.00

Chun 2301 Santa Clara Avenue Alameda, CA	AA Project#: (A57203)	Laboratory Please	OF CUST( nalysis P.O. No Call Accounts Payable for Date:	or RO. No. Sheet Of Z  American Analytics
Sampler's Name: Frank Goldman Sampler's Signature: Jundan Hoding Location Date Time	TPHg/BTEX 8015/8020 & 5 Oxygendres 2 Lead Scavengers EPA 8015/8020 for TPHg /BTEX & presence of MTBE	Volitile Organics (8010)  Pr. Pollutant Metals (13)	BTEX & EPA 8020  BUIK densify, moisture, porosify fraction of organic carbon  SOIL SAMPLE  WATER SAMPLE	9765 Eton Avenue Chetsworth, CA 91311 Tel: (818) 998-5547 ext 320 or 318 Fax: (818) 998-7258 Turndround Time Rush 24 Hour 48 Hour 10-Day Repeat to: Frank Comments
EW-15 5t-6 01/15/04 727 EW-15 102-11 824 EW-15 15t-16 842 EW-15 25t-26 924	1666 1666 1666 1666	12.		pryment by chun
EW-17 52-6 103 EW-17 10-102 115 EW-17 152-16 125 EW-17 20-202 125	A 1666.	76 77.		
EW-17 242-25 123 EW-16 52-6 W 34 Relinguished by Date Tim	pu (ULU	1 1 1 1	Total Number of Containers this Shee Method of Shipment/F	nt: Handlling
Dispatched By Date Tim		Date Time	or Storage Require	Menis: Keep on Ice

Chun 301 Santa Cla Jameda, CA	ra Avenu	je '	4A P (	nosect A572	± .03	; 5		Labor Labor	orate otory	ory /	٩na	ilysis	P.O.	. No	) ble fo	PO. No. Sheet	101 2
							Par	ame	<u>ters</u>	<del>-  </del>		- 1	<u> </u>	7		9765 Eton	Avenue
campler's Name: Frank Goldme campler's Signature: cample cample cample cample cample cample cample cample cample			TPHg/BTEX 8015/8050, & 5 Oxygenates 2 Lead Scavengers	EPA 8015/8020 for IPHg /BTEX & presence of MTBE		ا جامع	<b>-</b>	Volitile Organics (8010)		Pr. Pollutant Metals (13)	Pesticides 8140/8141	BTEX & EPA 8020	Bulk density, moisture, parasity fraction of organic carbon	SOIL SAMPLE	WATER SAMPLE	Tel: (818) ( ext 320 or Fax: (818) Turndroun	998-7258 nd Time B Hour 10-Day
	<del></del>	330	Pased		1	666	81.				·			$\times$		payment	by Chun
W-16 10 610	= 01/12704				}									1			
EW-16 15-15		38		<u> </u>	+-	1666						-					
-W-16 202-2		45			—	عامادا						$\vdash$					
EW-16 242-2	5	445			-	1665	84			-		┼	-				
BZ 35-35	2 01/1604	1030				166	85		<u>.</u>			-	1	+	-		
BZ 372-36	01/16/04	1199				1066	86	<u> </u>		<u> </u>		-	-	V	<del> </del>		'04 JAN 23 PM
	ollib	8 AL	×			1664	· <b>ξ</b> η·				<u> </u>	igspace	ļ		K	<b>}</b>	A. AIRI CO LO
<u> </u>	· · · · · · · · · · · · · · · · · · ·	10 An	×				. 88.							_	$\bigvee$		
<u> </u>		1280	×		1	_	689.								$\geq$	1	
EW-16		11/27/	+ <u>´</u> `	+	+				†	1						· ·	
Relinguished BV	Date	Time	1	eceved			11	ate		me	Ţc	otal N	lumb iners	er o	f Shee	ıt:	
Relinguished By	- 9/21/04	130		_X1	u	$\Lambda \gamma$	4	2407	4	PM.			od of				
Dispatched By	Date	Time	<u> </u>	Received	i in L	ab By		/ Date	Ī	lme	15	peci	al Shi	ome	ent/H	andiling	on Ice
Fed Ex	9127	1635		ema				23	116	35	-					Jac 01/26/04	

## Appendix C Land Survey





SANTA CLANA AV

	2116	LICENS: BUENA VISTA	REAS DE ED LAND SURVEYO AUSTUR ALAN ONE: 865-4289	OR.	1501	JOB NO.
CLIENT:	Mn	WAYNE	CHUN			PLAT DEAK
AVER	J () 8"	ALAMER	P,A			SCALE / = CO
	TORIN	16 WELL.	5, 2301	54NTA	CLARA	DATE 2-9-200

STREET

4

TABLE 1
Depth to Groundwater Measurements
September 20, 2003

Well No	Depth to Groundwater from TOC (feet bgs)	TOC Elevation (feet) MEAN SEA LEVEL	Water Table Elevation (feet)
MW-1	9.38	28.49	19.11
MW-2	9.33	28.47	19.14
MW-3	9.56	28.78	19.22
MW-4	9.24	28.53	19.29
MW-5	9.13	28.33	19.20
MW-6	9,22	28.36	19.14
MW-7	9.38	28.44	19.06
8-WM	8.76	28.17	19.41
MW-9	8.25	27.45	19.20
MW-10	8.04	27.32	19.28
MW-11	9.61	28.56	18.95
SV-1	9.27	28.42	19.15
		ALAMEDA CITY DATUM	
EW-12	9.12	24.84	15.72
EW-13	9.59	25.22	16.63
EW-14	10.09	25.80	15.71

ACA45DA CITY DATIM 25.08 25.06 25.06 25.37 25.12 24.95 25.03 24.95 24.04 23.91 25.01

# Appendix D Well Development Logs

OJECT: Ch	n eve	VI:	SAMPL	ER:E	G	DATE: Se	of 21, 2003
	DROLOGIC STATISTIC	<sup>3</sup> Ε\λ/ <sub>-</sub> 1.5	Acti	on	Time	Pump Rate	I/Ow yteld)
		<u> </u>					<b>_</b>
							<b></b>
L							
	1 1					<b>└</b>	<del></del> -
7.95_	i 1				<u> </u>	<u> </u>	╄
DIW	- [ ]					<del> </del>	<del></del> -
packer			Stop.		-	<b>├</b> ──	
inkine	-		Samp		├	<del> </del>	
depth			(Pinal	WL)	D ma	Color Molor	
	- <b>!</b> }			gal/ft	n.		gos.
	1 1			SWL to 1	OP or	one	purge volume-
	<u> </u>			packer	to BOP	volume	3 costngs
	1 1			Heart P	Urca.Co	culcilion (Alditts	30% )
			-	- Graph.	pacter K		
	ampling method/Dr	ecatolion of Event		Actua		Purgeo:	
Edinibuseus risecto	CLUDKIĆ W SIROCIN	SQCIPIENT OF ETG.	'			6 Purged:	
				I.		rugau. —	
Electronic wat	er level indicator,	weighted plastk	: disposable	Well Y		•	
ballor, Hydiac	kit			<u> </u>			
				coc			
				Som	xhiD.	Acctosis	Lab
				{			
Additional Comm	IELM2:			-	_		
Clear, stron	g hydrocarbon od	ior					
ı	-			_			
Gallory purged	TEMP C/F	EC	PH	TURBIDI NATA	ĮY .	HEAD (FT)	TIME
	(Circle One)	(us/cm) 1227	7.0	n wat 31	一		6:20am
1. 3,5	64,3	1188	17.1				7:15
2. 2.5	65.2				-+		7:50
з. 3.0	65.6	1212	7.1	├			7.00
4			1	<u> </u>			<b>├</b>
				<u> </u>	1		Minimal recharg
5							
5. *Take measurem approximately e			able to purge tits eno gnitut for amua gnit	ng vo≀	e to book anues by	returning	unable to purge 3 volumes.

OJECT:	Chun	EVE	vir:	SAMPLE	R:F	G	DATE:_Se	pt 21, 2003
_			*EW-16	Actio		Time	Pump Rate	MI. (Bow yteld)
			L44-10					<del>                                      </del>
	7	[		<b>}</b> —			<del>                                     </del>	┼
	-			-				
<u>.8.</u>	43	1 1						<u> </u>
D144				<u> </u>		-	<del>                                     </del>	+
pacter nicte		1 1		Stop Samole	d	┢	<del>                                     </del>	+
bodiet depēh		l		(Final M	A)			
					ol/fi	Purce (	odculatos gals X3	s =9×
		1 1		<u> </u>	SWL to E	or or	one	purge volum
		1-1-		<u> </u>	packer Head P	to BOP	volume culation:/AMID	3 costr <u>os</u> Ontri
					gaVit.	= 1	# -	gats
						padert	_	
	l Immelières	who matherife	escription of Event:		I Actual	Gallons	Purged:	
quipment	ubbul) on	ipe ig i loncoro.	SQUIPESITO ET C.		1		•	
					1		s Purged:	
Electron	ic water		weighted plastic	disposaible	Actual Well Y	Volume eld:	-	
	ic water			disposable	Actual Well V (See E	Volume eld: ielow)	-	
Electron	ic water			disposable	Actual Well M (See B	Volume eld: elow) #:	s Purged:	
Electron	ic water			disposable	Actual Well M (See B	Volume eld: ielow)	-	
Electron	ic water tydac tit	leval Indicator		disposable	Actual Well M (See B	Volume eld: elow) #:	s Purged:	lob
Etectron balkor, H Adalitional	ic water tydaic tit Commen	leval Indicator		disposable	Actual Well M (See B	Volume eld: elow) #:	s Purged:	_ lab
Etectron balkor, H Adalitional	ic water tydaic tit Commen	level indicator.		disposable	Actual Well M (See B	Volume eld: elow) #:	s Purged:	lab
Electron bailor, H Adallonal Clear n	ilo water tydaio litt Commen noderate	level indicator.	wekginted plastic		Actual Well M (See E COC Same	Volume eld: elow) #:	Anaksk	
Etectron balkor, H Adalitional	ilo water tydaio litt Commen noderate	level indicator.		PH	Actual Well M (See B	Volume eld: elow) #:	s Purged:	TIME
Electron bailor, H Adallonal Clear n	ic water lydac lift Commen moderate	level indicator. its: e strong odor	weighted plastic  EC  REGION  1112	рн 6.9	Actual Well M (See B COC Sonna	Volume eld: elow) #:	Anaksk	10:10a
Electron ballor, H Adallonal Clear n	ic water tydaic lift Commen noderate	level indicator. its: e strong odor TEMP C/F (Circle One)	weighted plastic  EC Asign  1112  1101	ян 6.9 7.0	Actual Well M (See B COC Sonna	Volume eld: elow) #:	Anaksk	пмє 10:10о 10;45
Electron bailor, H  Additional Clear in  Gattons pu	comment comment comment comment comment comment comment comment	level indicator.  ts: e strong odor  TEMP CIF (Circle One)  70.2	weighted plastic  EC  REGION  1112	рн 6.9	Actual Well M (See B COC Sonna	Volume eld: elow) #:	Anaksk	10:10a
Electron ballor, H	comment comment comment comment comment comment comment comment	texes indicator.  texes of the control of the contr	weighted plastic  EC Asign  1112  1101	ян 6.9 7.0	Actual Well M (See B COC Sonna	Volume eld: elow) #:	Anaksk	пмє 10:10о 10;45
Electron bolkor, H Additional of Clear in Clear in 2, 3,5 2, 3,6 3, 3,5	Comment	texes indicator.  texes strong odor  texes CF (Cicle One)  70.2  70.4  70.1	weighted plastic  EC Asign  1112  1101	7.0 7.1	Actual Well M (See E COC Some TURBIDI (NIII)	Volume eldiw) #:	Anotest HEAD (F1)	пмє 10:10о 10;45

OJECT:	Chun		EVENT:		SAMPL	₹:	G	DATE: JA	pt 22, 2003
	WELL/MOR	DLOGIC STAT	ISTICS 🔼	N <sub>-</sub> 17	Activ	n	₩тю	Pump Rate	(Disty won
				A- 1 /	-				<u> </u>
									<u> </u>
	L	$\Box$							<del> </del>
		1					Ļ		—
<sub>DTW</sub> 8	3,21	1	-				<b>⊢</b> –	<del> </del>	╫
υI <b>W</b> =					<u> </u>		<b>├</b>		┼
packer		1 1			Stop	0.01	╄	<del>                                     </del>	_
intole baller					Sample (Final F		╄━		+
depth		1 [			frarxi.	rL)	Puma (	Soleulator	
					<u> </u>	gal/fi	ft.	gats. X 3	**************************************
		j Ì			1	SWL to I		one	purge volum 3 casings
		$\vdash$			<u> </u>	packer	to BOP	volume culation (Airlift)	
		1 1			<u> </u>	gal/fi.			gals
							porter k	- Ma	
fouioment	ilsed/Som	pling metho	d/Descript	on of Event:		Actua	Gallions	Purged:	
						Actua	l Volume	s Purged:	
								Purged:	
Electron	nic water l Hvdac kit				; disposable	Well Y		s Purged:	
Electron bottor, t	nic water i Hydiaic kit					Well Y (See I	lekd: Bekow)	s Purged:	
Electron ballor, h	nic water i Hydiaic kit					Well Y (See I	leki: 3ekow) #:	a Purged:	
Electron ballor, t	niic water i Hydiaic kili					Well Y (See I	lekd: Bekow)	<u> </u>	
ballor, f	nic water i Hydiac kit	evel indico				Well Y (See I	leki: 3ekow) #:	<u> </u>	
batlor, i	tydac kit	evel indico	itor, weigh			Well Y (See I	leki: 3ekow) #:	<u> </u>	lob
batlor, i	tydac kit	evel indico	itor, weigh			Well Y (See I	leki: 3ekow) #:	<u> </u>	
batlor, i	tydac kit	evel indico	itor, weigh			Well Y (See I	leki: 3ekow) #:	<u> </u>	
batior, f Additional Clear	Lydac kit	evel indico	n odor			Well Y (See 1 COC Som	Hekd: 3ekow) #: Die J.D.	<u> </u>	LOS
Additional Clear Gallons p	Comment r, strong hy	evel indico	n oder	nted plastic	e disposable	Well Y (See I	Hekd: 3ekow) #: Die J.D.	Ancivists	TIME
Additional Clear Galons p  1. 2.	Comment r, strong hy	evel indico	n oder	nted plastic	PH 6.9	Well Y (See 1 COC Som	Hekd: 3ekow) #: Die J.D.	Ancivists	тім <u>е</u> 8:35аг
Additional Clear Gallons p	Comment r, strong hy	evel indico	n oder	c stem) 1201 1223	PH 6.9	Well Y (See 1 COC Som	Hekd: 3ekow) #: Die J.D.	Ancivists	тме 8:35ar 9:10
Additional Clear Gallons p	Comment  Comment  I Comment  I Strong th	evel indico	n oder	nted plastic	PH 6.9	Well Y (See 1	Hekd: 3ekow) #: Die J.D.	Ancivists	тім <u>е</u> 8:35аг
Additional Clear Gatons p  1. 2. 3. 3. 3.	Comment  Comment  I Comment  I Strong th	evel indecess structure of the control of the contr	n oder	c stem) 1201 1223	PH 6.9	Well Y (See 1	Hekd: 3ekow) #: Die J.D.	Ancivists	тме 8:35ar 9:10
Additional Clear Gatons p  1. 2. 3. 3. 3. 4.	Comment  Comment  I Comment  I Strong th	evel indicates a series of the control of the contr	n oder	c stant 1201 1223 1199	PH 6.9 7.1	Well Y (See to COC Segment VURBID)	Held: Selow) #: Die ).D.	Anchels HEAD (FT)	8:35ar 9:10 9:45
Additional Clear Gallons p  1. 2. 3. 3. 3. 4. 5.	Comment  Comment  I Comment  I Strong th	temp of fronts One 68.1 67.4 67.7	n oder	c s/cm) 1201 1223 1199	PH 6.9	Well Y (See to COCC Som)  VURBIDITION  3 LY-orb	Held: Selow) #:	Anchels HEAD (FT)	тме 8:35ar 9:10

WELL DEV	ÆI	OPMENT DATA SHEET
oject#: 040(20-1/T1		Client: Ctenturity Drilling
eveloper: U.Toll		Date Developed: 1-20-04-
ell I.D. EW-17		Well Diameter: (circle one) 2 3 4 6
tal Well Depth:  fore 23.50 After 24.20		Depth to Water:  Before 8.21 After 19.76
eason not developed:		If Free Product, thickness:
Iditional Notations:		
Volume Conversion Fector (VCF):       Weil dia. $\{12 \times (d^2/4) \times \pi\} / 23\}$ 2"         where       3" $12 = \ln f$ foot       4" $d = \text{diameter (in.)}$ 6" $\pi = 3.1416$ 10" $231 = \text{in 3/gal}$ 12"		VCF 0.16 0.37 0.65 1.47 4.08 6.87
		00

231 = m 3/gai		,-		(NO	
99	X	10		99	
1 Case Volume		Specified Volumes	=	gallons	
1 Guse v stattie					

rging Device:

☐ Bailer

☐ Suction Pump

Electric Submersible
Positive Air Displacement

Type of Installed Pump
Other equipment used 415urge Block

TEMP (F)	На	i	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
12.02 (1)		<del> </del>	1 15mi	n	
104.1			>1000	10	Panning Sand Soilt
1149		1850	7000	20	Hard Bottom
					switched to Es.
1039	7.5	1493	>1000	30	2 GPM , Oder
	7.2	1360	>1000	40	2GPM, DAN
,	7.2	1269	7 1000	50	26PM, "
	vaturd				
43.1	7.1	1135	71000	60	26PM, Slight odur
030	7.0	1050	>1000	70	26AM, " "
	6.9	1158	292	80	2 4PM 11 11
<del>                                     </del>		1150	111		1 2 CANNI
	1.0	1102	910	99	2 CAMINI
		ove.	Gallons Actua	lly Evacuated:	99 TOS = 600 DRP=52
	1039 106:1 100.2 103.1 103.0 104.5 104.0	Surged   12.49   7.49   7.3   1039   7.5   106.1   7.2   106.2   7.2   105.0   7.0   104.5   10.9   103.7   10.9   103.7   10.9   103.7   10.9   103.7   10.9   1	Surged   Well for   1776   14.9   7.3   1850   18	TEMP (F) pH (mS or μS) (NTUs)    Surged   Well for 15μ1,   124.1   7.6   1776   >1000   14.9   7.3   1850   ×1000   162.1   7.2   1360   >1000   162.2   7.2   1269   >1000   162.2   7.2   1269   >1000   163.1   7.1   1135   >1000   163.1   7.1   1135   >1000   164.5   0.9   1158   292   164.0   0.9   1150   111   163.7   0.9   1150   111	TEMP (F) pH (mS or μS) (NTUs) REMOVED:    5μγευ   μυ  Γμγ   5μη μ     14.1 7.6   1776   >1000   10     14.9 7.3   1850   >1000   20     1039 7.5   1093   >1000   30     1001 7.2   1360   >1000   40     1002 7.2   1269   >1000   50     103.1 7.1   1135   >1000   50     103.0 7.0   1050   >1000   70     104.0   109   1158   292   30     103.7   109   1150   111   90     103.7   10.9   1150   111   90     103.7   10.9   1102   910   99

WELL DEVELOPMENT DATA SHEET

TUS=600 ORP=52

		WELL	DE VELU	PIMENT D	LA WAR	<del></del>			
oject#: ¿	40120-	MI	C	Client: 💪	24/4/70	Drilling			
	U.Toil			Date Developed: 1-20-04					
ell I.D.			7	Well Diameter: (circle one) 2 3 40 6					
tal Well			I	Depth to Water:					
fore 23.	SD A	fter 24.20		Before 8.21 After 19.76					
ason not	developed	d:	I	f Free Prod	uct, thickne	SS:			
lditional	Notations	•			<u> </u>				
	ster (in.) 6	<u>w</u>	Cell dia.   VCF   2"						
90	9	Х	1	0		99			
1 Case V	olume		Specified	Volumes	=	gallons			
rging Dev			Bailer Suction Pump	)		Electric Submersible Positive Air Displacement			
		Type of Instal Other equipm	ent used	Pisurge B	lock_				
TIME	TEMP (F)	рН	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:			
		Surged	Well for	r 15mil	4				
200	104.1	7.6	1776	>1000	10	Pamouing Sand Worlf			
1210	049	7.3	1850	7000	20	Hard Bottom			
<u> </u>					<u> </u>	switched to Es			
1714	1039	7.5	1693	>1000	<b>3</b> 0	2 GPM , Odor			
1218	loloil	7.2	1360	>1000	40	26PM, Day			
1228	60.2	7.2	1269	> 1000	50	26PM, "			
		vatered							
10.3:-		7.1	1135	71000	60	26PM. Slight odar			
1240	103.1		1050	>1000	70	2GPM, " "			
1245	1030	7.0			20	24PM 11 11			
1250	64.5	1 1	1150		90	2 GPM " "			
1255	04.0		1150	111	99	26pm " "			
1200	1022	6.9	1102	90		- Cilviii			

Gallons Actually Evacuated:

d Well Dewater? You If yes, note above.

WELL DEVELOPMENT DATA SHEET

				<i>-</i>	I car HAP	F - 0
oject#: <i>L</i>	140120-	MI		Client: G	columb	-Prilling
veloper:	U.Toll			Date Develo		0-04
ell I.D. E	EW-17		7	Well Diame	ter: (circle c	one) 2 3 <b>4</b> 6
tal Well	Depth:		ĮI	Depth to Wa		aa.
fore 23.	SD A	After 24.20		Before 8.2	•	19.76
ason not	develope	d:	[]	f Free Prod	uct, thickne	SS:
lditional	Notations				<u> </u>	
	sion Factor (VCF): 4) x π} /23 l	'A	/eil dia. VCF 2" = 0,16			
where 12 = in / fo	oct		3" = 0.37 4" = 0.65			
d = disme π = 3.141	, ,		$6^n = 1.47$ $10^n = 4.08$			
231 = in 3/g	al		12" = 6.87			99
9.0	1	X		<u> </u>	_	gallons
1 Case V	olume		Specified	Volumes		
rging Dev	ice:		Bailer			Electric Submersible Positive Air Displacement
			Suction Pump	)	ے	LOSITIAC WIL DISPIRCOMONE
		Type of Instal	led Pump			
	(	Other equipm		Pisurge B		
		7.7	Cond.	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
TIME	TEMP (F)	pH 1	(mS or µS)			
	i a	Surged	<u> </u>	1 15Mil	10	Domoving Sand Wilt
200	04.1	7.6	1776	7/000		1) Postore
1210	114.9	7.3	1850	7000	20	Hard Dollan
				4 1- 40		Switched to ES
1218	1039	7.5	1693	>1000	30	2 GPM , Odor
1223	boil	7.2	1360	71000	40_	26PM, Odor
1228	60.2	7.2	1269	7 1000	50	26PM, "
		vatered				
1240	103.1	7.1	1135	71000	60	26PM, Slight odar
1245	030	7.0	1050	>1000	70	26pm, ""
1250	64.5		1158	292	20	24PM 11 11
1265	104.0	<del></del>	1150	111	90	2 GPM " "
1300	103.7	6.9	1102	910	99	26AM " "
		If yes, note abo		•	lly Evacuated:	99 TOS=600 DRP=5

Gallons Actually Evacuated:

d Well Dewater? 145 If yes, note above.

## WELLHEAD INSPECTION CHECKLIST

Page \_ L of \_ T

	100 Prilli 301 Savita 1740170-1			Techi	nician	U.T.	<u> </u>	
ell ID	Well Inspected - No Corrective Action Required	Water Balled From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
								1
EW-15 EW-16 EW-17								*
							·	
OTES:	5. W-16: No	Lock						
			·				,	

## WELLHEAD INSPECTION CHECKLIST

Page L of ]

l v			Water Balled	Weilbox	Techr Cap	i.ock	Other Action Taken	Well Not Inspected	Repair Order
			Wellbox	Cleaned	Replaced	Replaced	(explain	below)	12
									-
2									
7									
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						1			
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		7							<u> </u>
									_
		1							] [
P'15	1 110 - 1 h	 ,	ac.b						
لاستار	<u> </u>	<u>,                                    </u>	NOC_						
	7	Weil Inspected - No Corrective Action Required	Weil inspected - No Corrective Action Required	Weil Inspected - Water Balled No Corrective From Action Required Wellbox	Weil Inspected - No Corrective Action Required Wellbox Components Cteaned	Weil Inspected No Corrective Action Required  Wellbox  Wellbox  Cap Replaced  Cleaned  Claned  Claned  Cap Replaced  Components  Claned  Claned  Components  Components  Claned  Components  Compo	Weil Inspected - No Corrective Action Required Prom Wellbox Cleaned Cleaned Replaced	Weil inspected - No Corrective Action Required Action Required Prom Wellbox Cleaned Replaced Replaced Claned Replaced Claned Replaced Claned Replaced Claned Claned Replaced Claned Clan	Well inspected No Corrective Action Required  Water Bailed From Wellibox Cleaned  Replaced  Lock Replaced (explain below)  Replaced Replaced (explain below)  Water Bailed From Wellibox Cleaned  Cleaned  Other Action Taken (explain below)  Lock Replaced (explain below)  Replaced Inspected (explain below)  Inspected (e

## WELLHEAD INSPECTION CHECKLIST

Page \_\_\_\_ of \_\_\_\_

	ter Prillin 301 Savital 240120-N			Techr	nician	U.T.		
ell ID	Well Inspected - No Corrective Action Required	Waler Balled From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
								1
W-15 -W-16 -W-17								1
FIAL-17								
			<del> </del>	<del> </del>				
		<del> </del>		<del> </del>				
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		]	<u> </u>				<u> </u>	
TES:	15. EW-16: No	LOCK_		·····		<u>.                                    </u>		
•								<del></del>