1-17-02 JAN 2 4 2002 Clear Eva, report. is well with you. Sincerely, Oute

CAN



# SEMI-ANNUAL GROUNDWATER MONITORING EVENT NOVEMBER 2001

ARROW RENTALS
LIVERMORE, CALIFORNIA

Prepared for: Don-Sul, Inc. 187 North L Street Livermore, California 94550

Date Prepared: January 11, 2002

December 27, 2001 971275

Rita Sullins Don-Sul, Inc. 187 North L Street Livermore, CA 94550

Subject: Semi-Annual Groundwater Monitoring, November 2001

187 North L Street, Livermore, California

Dear Ms. Sullins:

Groundwater monitoring was conducted in November 2001 at the Arrow Rentals site, located at 187 North L Street in Livermore, California. This report presents the groundwater measurement and sampling procedures, evaluation of hydrogeologic data, and the results of laboratory analyses.

### MEASUREMENT AND SAMPLING PROCEDURES

On November 13, 2001, groundwater monitoring was performed at the site by Environmental Sampling Services of Martinez, California. The locations of the groundwater monitoring wells are illustrated on Figure 1. Sampling procedures and measurements are described in the field activity report, included in Appendix A.

Prior to sampling, the depth to groundwater was measured in all four wells (W-1s, W-3s, W-Bs, and W-Es) to the nearest 0.01 foot using an electrical water level recorder. The interface probe was washed using a Liqui-Nox® detergent solution, rinsed with potable water, and rinsed with distilled water. Groundwater elevation data for each well are listed in Table 1. Approximately 0.14 foot of floating product was measured in well W-1s.

Two wells (W-1s and W-Bs) were purged and sampled after static water level measurements were recorded. Well W-3s was purged dry, and the water level did not recover adequately to obtain a sample. Well W-Es did not contain sufficient water for purging or sampling. Each well was purged using either a disposable bailer or a submersible pump with new tubing. The purge water from the monitoring wells was stored in 55-gallon drums.

Water quality parameters (pH, specific conductance, temperature, turbidity, color, and odor) were recorded at regular intervals during well purging. Water quality parameters for the three

wells were recorded in the sampling logs. Copies of the sampling logs are included in Appendix A.

Groundwater samples were collected from wells W-1s and W-Bs using a disposable bailer or submersible pump set to the minimum possible pumping rate. Groundwater samples were collected in clean bottles supplied by the analytical laboratory, labeled, stored on ice in a cooler, and transported under chain-of-custody protocol within 24 hours of collection to McCampbell Analytical Laboratories, a California-certified laboratory in Pacheco, California. A travel blank was prepared by the laboratory and accompanied the groundwater samples for quality assurance purposes.

The groundwater samples were analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-gasoline) by EPA Method 8015 Modified; benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA Method 8020; and methyl tertiary butyl ether (MTBE) by EPA Method 8020 Modified. Sample W-Bs was also analyzed for total petroleum hydrocarbons quantified as diesel (TPH-diesel) by EPA Method 8015 Modified. Sample W-1s was not analyzed for TPH-diesel due to a lack of volume. The travel blank was analyzed for gasoline by EPA Method 8015 Modified, BTEX by EPA Method 8020, and MTBE by EPA Method 8020 Modified.

### HYDROGEOLOGIC DATA EVALUATION

On November 13, 2001, groundwater elevations in the four monitoring wells ranged from 431.05 feet in well W-Es to 443.59 feet in well W-Bs. The elevations were used to construct a potentiometric surface map, as shown on Figure 2. Evaluation of the potentiometric surface shows that groundwater generally flows to the south or southwest. The hydraulic gradient is approximately 0.17 ft/ft.

### RESULTS OF LABORATORY ANALYSIS

Results of laboratory analysis for groundwater samples collected in November 2001 are summarized in Tables 2 and 3. The laboratory report and chain-of-custody documentation are included in Appendix B.

Gasoline was detected in the groundwater samples collected from wells W-Bs and W-1s, at concentrations of 17,000  $\mu$ g/L and 750,000  $\mu$ g/L, respectively. The concentration of diesel in the groundwater sample from well W-Bs was 3,600  $\mu$ g/L. However, the laboratory indicated that a significant amount of the reported diesel was due to gasoline in the sample. Benzene was detected at 2,000  $\mu$ g/L in well W-Bs and 9,500  $\mu$ g/L in well W-1s. The Maximum Contaminant Level (MCL) for benzene is 1  $\mu$ g/L. Toluene (up to 7,800  $\mu$ g/L), ethylbenzene (up to 7,200  $\mu$ g/L), and xylenes (up to 33,000  $\mu$ g/L) were also detected in the samples collected from wells W-Bs and W-1s. The concentrations of toluene, ethylbenzene, and xylenes in wells W-Bs and W-

1s exceeded their corresponding MCLs. MTBE was not detected in either groundwater sample. Gasoline, BTEX, and MTBE were not detected in the travel blank.

### SUMMARY AND CONCLUSIONS

Table 3 presents a summary of the analytical data for groundwater at the three wells since March 1996. High levels of gasoline, diesel, BTEX, and MTBE have been consistently detected in groundwater samples collected from wells W-1s and W-Bs. Lower levels of gasoline, diesel, BTEX, and MTBE have also been detected in samples collected from well W-3s and W-Es.

Monitoring wells W-3s and W-Es did not have sufficient volumes of groundwater for purging and sampling in November 2001. Insufficient recharge of groundwater at well W-1s limited the available volume for sampling. As a result, no sample was collected at well W-1s for diesel analysis. In addition, 0.14 foot of floating product was measured on the water column at well W-1s. None of the other wells (W-Bs, W-3s, and W-Es) contained measurable floating product.

In November 2001, the direction of groundwater flow beneath the site was south or southwest. Fluctuations in the concentrations of gasoline, diesel, and BTEX may be related to seasonal variations in groundwater elevations and the groundwater flow direction. Please call us if you have any questions concerning this report.

Respectfully yours,

Richard P. Salopek

B-2019per

Hydrogeologist

Attachments

Rebecca A. Sterbentz, RG, CHG, REA

President



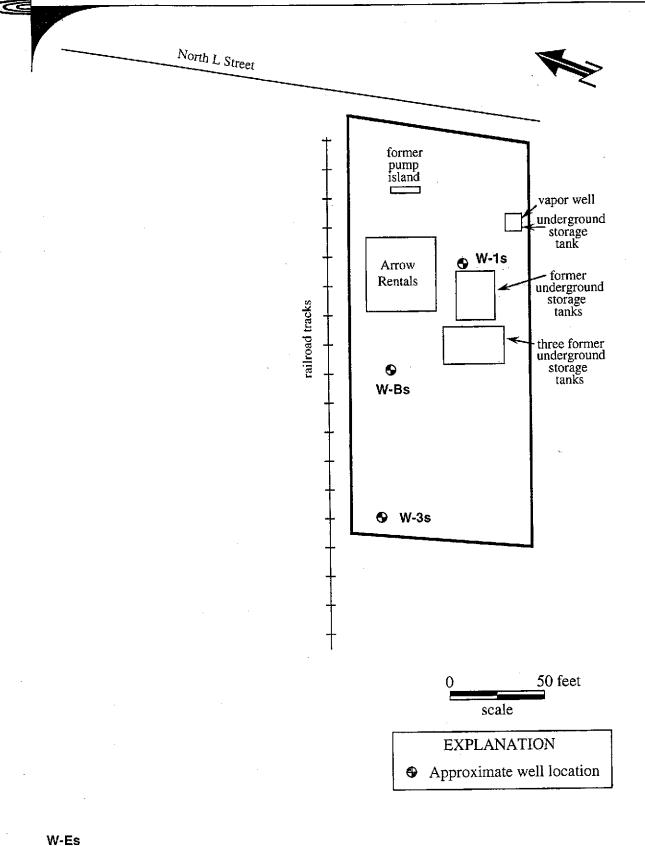
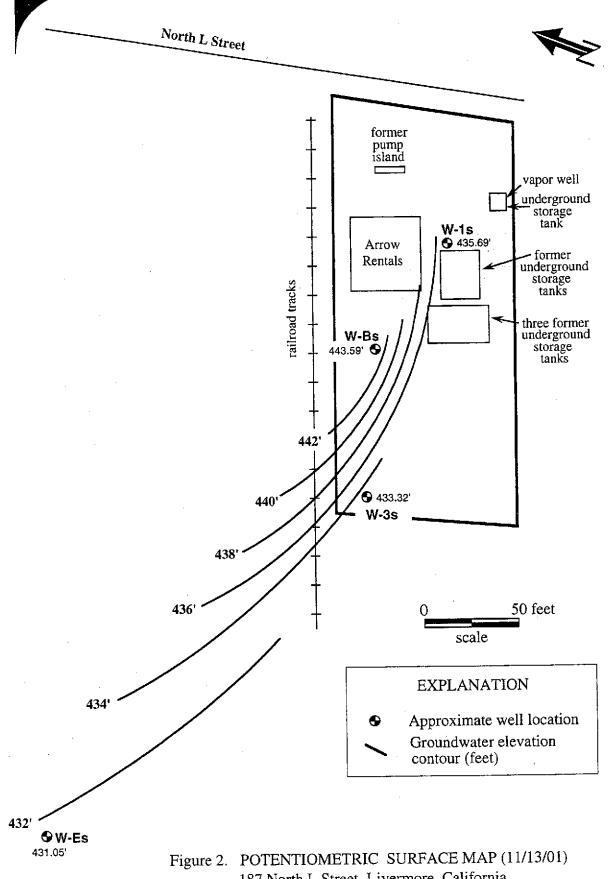


Figure 1. SITE MAP
187 North L Street, Livermore, California



187 North L Street, Livermore, California

Table 1. GROUNDWATER ELEVATION DATA 187 North L Street, Livermore, California November 13, 2001

Well Number	Top of Casing Elevation (feet above MSL)	Depth to Water (feet below TOC)	Water Elevation (feet above MSL)
W-1s	479.09	43.40	435.69
. W-3s	476.98	43.66	433.32
W-Bs	478.82	35.23	443.59
W-Es	474.66	43.61	431.05

MSL = mean sea level (elevations based on City of Livermore datum)

TOC = top of well casing

Table 2. ANALYTICAL DATA FOR GROUNDWATER - PETROLEUM HYDROCARBONS 187 North L Street, Livermore, California November 13, 2001

Well Number	TPH- gasoline (μg/L)	TPH- diesel (µg/L)	TPH- motor oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (μg/L)	Naphthalene (μg/L)	2-Methyl- naphthalene (µg/L)
				0.500	7 000	7 200	22 000	< 2,000	NA	NA
W-1s	750,000*	NA	NA	9,500	7,800	7,200	33,000	•		
W-3s	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
W-Bs	17,000*	3,600†	NA	2,000	130	1,100	1,700	< 150	NA	NA
W-Es	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Travel Blank	< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA
MDL	50	50		0.5	0.5	0.5	0.5	5.0-2,000		
MCL	NE	NE	NE	1	150	700	1,750	5	NE	NE .

μg/L = micrograms per liter [parts per billion (ppb)]

NA = not analyzed

NE = none established

NS = not sampled

TPH-gasoline = total petroleum hydrocarbons quantified as gasoline

TPH-diesel = total petroleum hydrocarbons quantified as diesel

TPH-motor oil = total petroleum hydrocarbons quantified as motor oil

MTBE = methyl tertiary butyl ether

MDL = method detection limit

MCL = Maximum Contaminant Level, February 2000

\* Unmodified or weakly modified gasoline is significant.

† Gasoline range compounds are significant.

Table 3. SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER 187 North L Street, Livermore, California

Well Number	Date Sampled	TPH- gasoline (µg/L)	TPH- diesel (µg/L.)	TPH- motor oil (ng/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Lead (µg/L)	Naphthalene (µg/L)	2-Methyl- naphthalene (µg/L)
	3/22/96	6,400	NA	ΝA	580	470	85	1,100	< 500	NA	NA	NA
W-1s		170,000	NA NA	NA	13,000	18,000	3,500	18,000	< 10,000	NA	NA	NA
W-1s	11/22/96 7/15/97	140,000	38,000*	3,000	12,000	12,000	2,600	16,000	< 800	NA	NA	NA
W-1s	10/29/97	650,000	180,000	1,600	14,000	19,000	7,800	35,000	< 3,000	NA	NA	NA
W-1s	4/27/98	6,700	2,200†	NA	410	250	77	870	< 30	`<5	NA	NA
W-1s	10/23/98	99,000	18,000†	NA	9,800	9,400	1,800	11,000	< 600	NA	NA	NA
W-1s	10/23/98 4/9/99	70,000	24,000	NA	6,500	7,000	1,800	8,900	360	NA	330	ND
W-1s	4/9/99 10/5/99	82,000	60,000‡	NA	5,500	4,500	2,500	14,000	< 300	NA	510	280
W-1s	4/5/00	47,000	15,000‡	NA	4,300	2,300	1,500	6,100	170	NA	330	110
W-1s	10/26/00	50,000	1,200	< 500	3,800	1,800	1,700	7,600	< 50	NA	350	180
W-1s W-1s	4/18/01	54,000§,**	6,800**,††	NA	5,200	1,800	1,500	7,000	< 330	NA	NA	NA
W-1s W-1s	11/13/01	750,000§	NA	NA	9,500	7,800	7,200	33,000	< 2,000	NA	NA	NA
W-18	11/13/01	150,0008	1423		,,- , -	•	•					
W-3s	3/22/96	100	NA	NA	13	6.9	5.3	14	< 5	NA	NA.	NA
W-3s	11/22/96	3,200	NA	NA	270	29.0	63.0	100	< 100	NA	NA	NA
W-3s	7/15/97	2,100	340*	740	230	7	33	51	< 20	NA	NA	NA
W-3s	10/29/97	2,800	750	88	630	31	71	69	< 30	NA	NA	NA
W-3s	4/27/98	< 50	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
W-3s	10/23/98	3,800	1,000†	NA	500	28	90	37	35	NA	NA	NA
W-3s	4/9/99	980	430	. NA	240	4	37	3	< 12	NA	NA	NA
W-3s	10/5/99	1,500	1,000‡,‡‡	NA	290	9.5	53	9.8	< 6	NA	NA	NA
W-3s	4/5/00	810	320‡	NA	150	3.0	9.0	5.7	< 5	NA	ND	ND
W-3s	10/26/00	310	120	140	83	3.5	6.4	1.2	< 5	NA	NA	NA
W-3s	4/18/01	2,300§	1,600††,§§	NA	320	8.0	16	7.0	< 20	NA	NA	NA
W-3s	11/13/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-33	11,15,01											
W-Bs	3/22/96	61,000	NA	NA	9,800	8,000	2,200	11,000	< 5,000	NA	NA	NA
W-Bs	11/22/96	47,000	NA	NA	5,100	3,100		7,800	< 2,500	NA	NA	NA
W-Bs	7/15/97	66,000	17,000*	490	7,800	4,900		10,000	< 600	NA	NA	NA
W-Bs	10/29/97	44,000	27,000	4,000	6,000	500		6,400	380	NA	NA	NA
W-Bs	4/27/98	63,000		NA	6,100	5,400	•	9,100	< 600	NA	NA	NA
W-Bs	10/23/98	48,000		NA	6,700	1,200		6,200	< 300	NA	NA	NA
W-Bs	4/9/99	39,000		NA	4,100	1,900		5,600	< 300	NA	NA	NA
W-Bs	10/5/99	38,000		NA	3,800	390	1,600	5,900	< 60	NA	NA	NA

Table 3 (continued). SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER 187 North L Street, Livermore, California

Well Number	Date Sampled	TPH- gasoline (μg/L)	TPH- diesel (µg/L)	TPH- motor oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Lead (µg/L)	Naphthalene (µg/L)	2-Methyl- naphthalene (µg/L)
			9,600‡	NA.	3,500	1,200	1,400	4,700	< 150	NA	280	68
W-Bs	4/5/00	34,000 23,000	9,000‡ 650	< 50	2,500	210	1,100	2,600	150	NA	260	88
W-Bs	10/26/00	20,000§	2,500††	NA NA	2,400	180	880	1,800	< 20	NA	NA	NA
W-Bs W-Bs	4/18/01 11/13/01	20,000§ 17,000§	3,600††	NA	2,000	130	1,100	1,700	< 150	NA	NA	NA
		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5	NA	NA	NA
W-Es	3/22/96	280	NA NA	NA	24	0.6	1.8	2.2	< 5	NA	NA	NA
W-Es	11/22/96 10/23/98	82	69†	NA.	< 0.5	0.8	< 0.5	0.8	4	. NA	NA	NA
W-Es W-Es	10/23/98	68	88‡	NA	< 0.5	< 0.5	< 0.5	< 1.0	4	NA	NA	NA
W-Es W-Es	10/26/00	110	< 50	< 50	0.7	< 0.5	< 0.5	< 1.0	< 5	NA	NA	NA
W-Es	11/13/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
m I Diami	7115/07	< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank Travel Blank		< 50	NA.	NA	< 0.5	< 0.5	< 0.5	< 1.0	< 3	NA	NA	NA
Travel Blank		< 50	NA	NA	1.8	< 0.5	< 0.5	< 1.0	< 5	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 1.0	< 5	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	NA
Travel Blank		< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA	· NA
MCI		NE	NE	NE	1	150	700	1,750	<b>5</b> .	50	NE	NE
MCL AL		NE NE	NE	NE	NE	NE	NE	NE	35	15	NE	NE

µg/L = micrograms per liter [parts per billion (ppb)]

NA = not analyzed

NE = none established

NS = not sampled

TPH-gasoline = total petroleum hydrocarbons quantified as gasoline

TPH-diesel = total petroleum hydrocarbons quantified as diesel

MTBE = methyl tertiary butyl ether

MCL = Maximum Contaminant Level, February 2000

AL = Action Level, February 2000

- \* The method blank contained heavy oil at 120 µg/L
- † The chromatogram does not match the typical diesel pattern
- ‡ The sample contained a lower boiling point mixture of hydrocarbons quantitated as diesel.
- § Unmodified or weakly modified gasoline is significant.
- \*\* Lighter than water immiscible sheen is present.
- †† Gasoline range compounds are significant.
- ‡‡ The sample contained a higher boiling point hydrocarbon mixture quantitated as diesel.
- §§ Oil range compounds are significant.

# FIELD ACTIVITY REPORT FOR **ARROW RENTALS** LIVERMORE, CALIFORNIA SEMI-ANNUAL GROUNDWATER SAMPLING MONITORING **NOVEMBER 2001** Prepared for: Don Sul, Inc. 180 North L Street Livermore, California 94550 Date Prepared: November 18, 2001



# FIELD ACTIVITY REPORT FOR SEMI-ANNUAL GROUNDWATER MONITORING EVENT ARROW RENTALS, LIVERMORE, CALIFORNIA

ESS Personnel: Jacqueline Lee and Stephen Penman Activity Date: November 13, 2001

### **Decontamination Procedures**

All downhole equipment was cleaned with a solution of Liqui-Nox® laboratory-grade detergent and potable water, rinsed with potable water, followed by a final rinse with distilled water.

#### Groundwater Level Measurements

Prior to well purging, static groundwater was measured in all four monitoring wells. Each well was allowed to equilibrate to atmospheric pressure prior to measurement. All readings were performed with Oil/Water Interface meter (Table 1). The measurements were referenced to the surveyor's mark (a black mark on the top of well casing).

### Field Equipment Calibration

All field measurements were performed in accordance with the instruments' operating and calibration procedures. Field measurements included: pH, Specific Conductance, Turbidity, and Temperature. Physical parameters such as color and odor were also noted.

### Monitoring Well Summary:

Monitoring well W-1s:

Initial product thickness was 0.14 feet. The well was purged dry with a disposable bailer prior to sampling. After allotting approximately 2.5 hours for recovery, the well was sampled for EPA Method 8015M (TPH as Gasoline/BTEX, and MTBE). TPH (Diesel) samples were not obtained due to insufficient volume of groundwater.

Monitoring well W-Bs:

This well was purged dry twice with a Grundfos® Redi-Flow Submersible pump and dedicated tubing. 2.2 casing volumes were removed prior to sampling. The well was sampled for the: EPA Method 8015M (TPH (Gasoline)/BTEX, and MTBE) and TPH (Diesel).

Monitoring well W-3s:

The well was purged dry once with a disposable bailer. After approximately 3 hours of recovery, the well did not have sufficient volume of water to collect samples.



Monitoring well W-Bs:

This well did not have enough water during initial inspection and therefore was not purged or sampled.

Disposable bailers were used for sampling purposes. McCampbell Analytical Inc., of Pacheco supplied all sample containers and performed all required analyses. All samples were properly preserved according to analysis.

#### QA/QC

Trip blanks for EPA Method 8015M were supplied and remained in the cooler containing all sample containers. No other QA/QC samples were required nor requested.

All work was performed under satisfactory workmanship and according to the Alameda County Health and Care Services' directive, dated October 8, 1997 and March 15, 1999.

Jacqueline Lee President

Attachment

Table 1: Summary of Groundwater Monitoring and Sampling

Water Sample Log Sheets

Chain of Custody



TABLE 1: SUMMARY OF GROUNDWATER MONITORING AND SAMPLING

SITE NAME: ARROW RENTALS

SITE LOCATION: 187 NORTH L STREET, LIVERMORE, CALIFORNIA

DATE: NOVEMBER 13, 2001

WELL IDENTIFICATION	DEPTH TO GROUNDWATER (Ft., TOC)	WELL DEPTH (Ft., TOC)	SAMPLE TIME
W-1s**	43.40	44.64	14:53
	35.23	44.47	15:05
W-Bs	43.66	44.76	NS
W-3s W-Es	43.61	44.32	NS

TOC = Top of Casing

<sup>\*\*</sup> Product was detected from 43.26'-43.40' during initial reading.



ATER QUALITY SAMPLE LOG SHEET WELL IDENTIFICATION: W-1s DATE: 11/13/01  roject Name: Arrow Rentals - Livermore, CA Project Task: Semi-Annual Groundwater Monitoring														
VAILN GOALIST OF MICE ELECTION														
roject Na	ame: <u>Am</u>	<u>ow Rentals - Li</u>	vermore		•		uai Grounu	Matel Mointoitig						
aborator	y: <u>McCa</u> ı	mpbell Analytic	al, Inc.	Weather	Conditions:	VO) Crain	ologo Stoel	Other:						
/ell Desc	cription: 2	2" 3" 4" 5"	(6") Othe	∍r: <del></del>	Well Types P	VC Stan	illess Steel	Other.						
			Size		Type of lock /	LOCK num	iper.							
bservati	ions / Cor	nments:			to and Dames I	Deviatatio	Burns Oth	or Colmonellia Gard						
Purge Method: Teffon <u>EVC Disposable Bailer</u> Centrifugal Pump Peristattic Pump Other: <u>Submers like Grand</u> Pump Lines: NA New / Cleaned / <u>Oedicated</u> Bailer Line: NA New / Cleaned / Dedicated														
Method of Cleaning Pump: NA Alconox Ciqui-nox Tap Water DI Rinso Other:														
Method of Cleaning Pump: NA Alconox Ciqui-nox Tap Water DI Rinse Other:														
ethod o	f Cleanin	g Bailer: (NA)	Alconox	Liqui-nox	Tap vvater Di	i Rillse U ion Podi-fl	ow Dumo	Peristellic Pump						
					Spec. Cond. N	lator Sedi	No CORH	Peristaltic Pump						
-I Meter	Serial No	o.: 217254 K	330089	y Dominion	Spec. Cond. N	inter Celib	ration: SSI	Task Other						
ate/Tim	e Calibra	ted: 'Yishie to	300 / 1	0 25°C	opec.∪ond. M		eading: N	A nom @ Well Head						
lethod to	o Measun	e Water Level:	Solinst	ъепа! №. 🗱	Aleten Level De	_ F.I.D. K	oaung. <u>i)</u>	IA ppm @ Well Head						
vater Le	vel at Sta	art (DTW): <u>45</u>	<u>.10</u>		ivaler Level Pr	IV O S W	וע ענ כי <i>ו</i> ע ≔ ייאוויוא <i>י</i>	5 43 (Gals )						
D = <u>44.6</u>	4 - <b>43.4</b> 0	(DTW) = 1.24	_{ ft.of wa	ter	1.01 (Gais./C	v) x <u>3 (</u> 1)	well) "k":	= 2.61(8" well)						
"K"= (	U.163(2" W	ell) "K" = 0.55	54" Well	ATATER O	UZ(U WOH) (N	METEDO	77 97 1							
			FIELD	VATER Q		MIE I EIVO								
"K"= 0.163(2" well) "K" = 0.653(4" well) "K" = 1.02(5" well) (K" = 1.46(6" well) "K" = 2.61(8" well)  FIELD WATER QUALITY PARAMETERS  Specific														
Specific Conductored Turbidity Color Comments														
Date	Time	Discharge	рН	Temp. (°C)	Conductance mS uS	Turbidity (NTU's)	Color	Comments						
	Time	Discharge (gallons)	рН <b>6.9</b> 0	Temp. (°C)			Golor Gray Green	STRANS PET. COCK; SEE PRODUCT IAI GAMPAE.						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
		(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET, ODOR; SE						
Date	12:01	(galions)		(°C)	mS uS	(NTU's)		STROMS PET. ODOR; SE						
11/12 kg	[2:01 /4:12	(gallons)	6.50	(°C)	mS uS 525.3	(NTU's) 7(000	gray	STROMS PET, ODOR; SE						
Total Dis	/4:12 /4:12	(gallons)	6.30	(°C)	mS uS  \$25.3  Casing Volum	(NTU's) 7 (CCC) nes Remo	gray,	SIRANS PET. ODER; SEE PRODUCT IAI SAMPLE.						
Total Dis	/4:12 scharge:_of dispose	(gallons)  1.0  gallons gallon	6.30	(°C) 14.7  55 Gallor	Casing Volum	(NTU's) 7(CCC)  nes Remo	yed:	STRANS PET. ODOR; THE PRODUCT IAI GAMPIE.						
Total Dis	/4:12 scharge: of dispose ne Sample	(gallons)  I.O  gallons  gallons  gallons	allons d water:	(°C)  I4.7  S5 Gallon Analys	Casing Volum Drum(S) Pois/No. of Bottle	nes Remo	ved: reatment \$15M/8020	System Other: TPHqas/BTEX, MTBE.						
Total Dis	/4:12 scharge: of dispose ne Sample	(gallons)  I.O  gallons  gallons  gallons	6.30 allons d water: 0 14:53	(°C)  Iq.7  S5 Gallon Analys liter glass	Casing Volume Drum(5) Pois/No. of Bottle	nes Remo	ved:	System Other: TPHgas/BTEX, MTBE.						
Total Dis Method Date/Tin (3-40ml	scharge: of disposine Sampl	(gallons)  I.O  gallons  gallons  gallons	6.30 allons d water: 0 14:53	(°C)  Iq.7  S5 Gallon Analys liter glass	Casing Volume Drum(5) Pois/No. of Bottle	nes Remo	ved:	System Other: TPHqas/BTEX, MTBE.						
Total Dis Method Date/Tin (3-40ml	scharge: of dispose ne Sampl VOC's w/	gallons)  1.0  gal of discharge led: 11/15/01 @	allons d water: 0 14:58	(°C)  [4.7  S Gallon Analys liter glass as an Equ	Casing Volume Drum(5) Pois/No. of Bottle	nes Remo	ved:	System Other: TPHgas/BTEX, MTBE.						
Total Dis Method Date/Tin (3-40ml QA/QC:	scharge: of disposine Sampl VOC's w/	(gallons)  I.O  gallons  gallo	allons d water: 0 14:58	(°C)  [4.7  S Gallon Analys liter glass as an Equ	Casing Volume Drum(5) Pois/No. of Bottle	nes Remo	ved:	System Other: TPHgas/BTEX, MTBE.						
otal Dis Method Date/Tin 3-40ml DA/QC:	scharge: of disposine Sampl VOC's with None nts: **Pr	gallons)  I.O  gallons  gallon	allons d water: 0 14:58	(°C)  [4.7  S Gallon Analys liter glass as an Equ	Casing Volume Drum(5) Pois/No. of Bottle	nes Remo	ved:	System Other: TPHgas/BTEX, MTBE.						



		<del>, ,, · · · · · · · · · · · · · · · · · </del>						DATE / 1 .
WATER	QUALIT	Y SAMPLE L	OG SH					DATE: 11/13/01
Project Na	ame: <u>Arro</u>	w Rentals - Li	ivermore					water Monitoring
Laborator	y: <u>McCar</u>	npbell Analytic	<u>cal, Inc.</u>	Weather	Conditions:	mi bres	465 +cs	<u> </u>
		" 3" 4" 5"			Well Type: P			
is Well Se	cured?(Y	es No Bolt	Size <u>15</u>	164	Type of lock /	Lock num	ber: Mash	
Observati	ons / Con	nments:						- 10
Purge Me	thod: Tef	ion/PVC Dispo	osable B	ailer Cen	irifugal Pump	Peristaltic	Pump Oth	er: Oranifes pump
Pump Lin	es: NA N	lew / Cleaned	<b>Dedica</b>	ted	Bailer Line: N	A New/C	Cleaned / D	edicated
Method o	f Cleaning	Pump: NA /	Alconox(	Liqui-nox	Tap Water D	Rinse	ther:	
Method o	f Cleaning	Bailer: NA	Alconox	Liqui-nox	Tap Water D	Rinse O	ther:	Bartarilla Danna
					Bailer GrundF	os Redi-fl	ow Pump	Peristaltic Pump
pH Meter	Serial No	.: 217254 /	330089		Spec. Cond. N			
Date/Tim	e Calibrat	ed:" <u>/190 (o:3</u>	0 4 7 1	0 25°C	Spec.Cond. M	eter Calib	ration: Sel	Test Other:
Method to	Measure	Water Level:	Solinst	Serial No.	. 900 Ind	_ P.I.D. R	eading: <u>N</u>	A ppm @ Well Head
Water Le	vel at Sta	rt (DTW): <u><b>35</b>7</u>	230 ID	:40	Water Level Pr	ior To Sar	npling:	
TD = 44.4	7 - 25.23	(DTW) = 9.24	(ft.of wa	ater) x "K" =	: <u>I3.4</u> (Gals./C	<u>V) x 3_(N</u>	io. of CV) ≃ :	40.4 (Gals.)
"K"= {	).163(2" w	ell) "K" = 0.65	3(4" well	) "K" = 1.	.02(5" well) <b>\</b>	" = 1.46(6"	well)) "k" -	= 2.61(8" well)
			FIELD \	NATER Q	UALITY PARA	METERS	. ·	
				·	Specific		_ ,	
Date	Time	Discharge	рH	Temp.	Conductance		Color	Comments
		(gailons)		(°C)	ms (is)	(NTU's)	Lt. Yellow	
11/13/01	11:24	N7 B	6.64	20.0	353.8	62	tan	Pet. Odor. Lieut sheen
	11:36	30 16	6.55	20.5	342.1	19.2		4
	11:46	· 2A	6.54	21.2	342.3	28.5	ė¢.	Dry e 25 gars.
	14:48	24.5 <del>52</del>	6.51	20.2	3428	78.1	it tan	Dry & 29.5 gas.
	14.50							
		44	<del> </del>					
·			<del> </del>					
				·		· · · · · · · · · · · · · · · · · · ·		
			1					
7-1-1-51-	<u> </u>	<b>29.5</b> ga	llone	<u>L</u>	Casing Volum	nes Remo	ved: 2.	20
I otal Dis	konarge: _	of discharge	anuis dweter	AS Callor	Drum(st) Pol	iv Tank	restment S	system Other:
Method (	u Camal	n or discharge od: 11 jelar #	u walcı. N . <b>€∙</b> ∽€	Analve	is/No of Bottle	s FPA 80	15M/8020	TPHgas/BTEX, MTBE.
Date/III	ue oampii	cu. <u>다시 1940년</u> (	5 (1 4	Analys liter aloce	amber, non-pre	eserved)	· ************************************	
			<u> </u>	nici yidəs se on Enii	inment Blank	Dunlicate	MS/MSD	Lab Split Field Blank
1		@		as an Eyu	pilloin Main	- Manage		
omme	nts: <u>80%</u> 2	<u> </u>	<del></del>					
<del></del>			:				·	
Comple	1 By: tool	i Lee and Ste	nhen Per	oman Sic	nature(s):	工		
n. Danii II II II II II	. LIV. JOUR	1 LCC 0114 VIC	PITTIL I VI	· · · · · · · · · · · · · · · · · · ·				



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WATER	QUALIT	Y SAMPLE L	OG SH					DATE: 11/13/01
		ow Rentals - Li			-			water Monitoring
Laborator	y: <u>McCa</u>	mpbell Analytic	cal. Inc.	Weather	Conditions: 🙋	verces	<u> </u>	
Well Des	cription:	2" 3" (4") 5"	6" Oth	er:	Well Type: 🙋	VC) Stai	nless Steel	Other:
is Well S	ecured? Y	es No Bolt	Size <b>_15</b>	16"	Type of lock /	Lock nun	nber: <u>Non</u>	e well cap a busken
		nments: 4" y						
Purge Me	ethod: Te	flon/EVC Dispo	osable B	alle Cent	rifugat Pump	Peristaltic	Pump Oth	er:
Pump Lin	es: NA I	New / Cleaned	/ Dedica		Bailer Line: N			edicated
Method o	f Cleaning	g Pump: 🐼 /	Alconox	Liqui-nox	Tap Water D	Rinse O	ther:	
Method o	f Cleanin	g Bailer: NA	Alconox	Liqui-nox	Tap Water D	Rinse O	ther: Well	Water
					Baile GrundF	os Redi-f	low Pump	Peristaltic Pump
pH Meter	Serial No	o.: 217254 /	(330089		Spec. Cond. M			
Date/Tim	e Calibra	ted: <u>1/13@10:1</u>	bo 4 7	<u>10)</u> @ 25°C	Spec.Cond. M	eter Calib	ration: <b>Get</b>	f Test Other:
Method to	o Measur	e Water Level:	Solinst	Serial No.	: % Ind	_ P.I.D. R	eading: <u>N</u>	IA ppm @ Well Head
Water Le	vel at Sta	nt (DTW): <u>43</u>	.660	0:35_\	Vater Level Pr	ior To Sai	npling:	
TD = <u>44.7</u>	6 - <b>43.6</b>	(WTO) = (WTO)	(ft.of wa	ater) x "K" =	0.7 (Gals./C	V) x <u>3</u> (1	to, of $CV) = $	2.15 (Gals.)
"K"= (	0.163(2" w	ell) (K" = 0.65						= 2.61(8* well)
			FIELD !	WATER Q	UALITY PARA	METERS	i 	
					Specific			
Date	Time	Discharge	pΗ	Temp.	Conductance		Color	Comments
		(gallons)		(°C)	mS ((S)	(NTU's)	grey/	Venu viscous
1413/01	11:03	0.5	6.88	19.6	<b>448.</b> 0	71000	BIK.	organic material in the state of the petroleum of the Pungel DRY
	1							
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<u> </u>					<u> </u>	<u> </u>	<u></u>	
Total Dis	scharge: _	<b>0.5</b> ga	llons		Casing Volun			
Method	of dispose	al of discharge	d water:	55 Gallon	Drum() Pol	y Tank	Freatment S	System Other:
Date/Tin	ne Sampi	ed: 11 13/01 @		Analysi	s/No. of Bottle	s: <u>EPA 80</u>	15M/8020	TPHgas/BTEX, MTBE.
		HCI); TPH dies					<u></u>	
QA/QC:	Nove			as an Equi	pment Blank	Duplicate	MS/MSD	Lab Split Field Blank
Comme	nts: <b>80%</b>	45.87			·			
NO	SAM	PLES CO	WEC	ED; W	ELL DID	NOT	RECOVE	R! water did not
reals	er on	W.L. Indica	ctor!				· · · · · · · · · · · · · · · · · · ·	
Sample	d By: Jack	ki Lee and Ster	hen Pe	<u>nman</u> Sig	nature(s)	الا		



WATER	VATER QUALITY SAMPLE LOG SHEET WELL IDENTIFICATION: W-Es DATE: 11/13/01  roject Name: Arrow Rentals - Livermore, CA Project Task: Semi-Annual Groundwater Monitoring aboratory: McCampbell Analytical, Inc. Weather Conditions: Light Sprinkle; overcast														
Project Na	me: <u>Am</u>	ow Rentals - Li	vermore	<u>, CA</u>	Project Task: _	<u>Semi-Ann</u>	ual Groundy	vater Monitoring							
Laborator	y: McCar	npbell Analytic	al, Inc.	Weather	Conditions:	ght Spri	nkie; ovei	reast							
Well Desc	ription:	2") 3" 4", 5".	6" Oth	er:	Well Type: P	<b>V</b> O Stair	nless Steel	Other:							
ls Well Se	cured?	es/ No Bolt S	Size <u>*<b>6</b>/</u>	16"	Type of lock /	Lock num	ber:								
Observati	ons / Con	nments:													
Purge Me	thod: Te	flon/PVC Dispo	sable B	ailer) Cent	rifugal Pump	Peristaltic	Pump Othe	)r:							
Pump Lin	rump Lines: NA New / Cleaned / Dedicated Bailer Line: NA New / Cleaned / Dedicated  Method of Cleaning Pump: NA Alconox Liqui-nox Tap Water DI Rinse Other:														
Method of	Aethod of Cleaning Bailer: (NA) Alconox Liqui-nox Tap Water DI Rinse Other.														
Method of	Method of Cleaning Bailer: (NA) Alconox Liqui-nox Tap Water DI Rinse Other:														
Sampling	Sampling Method: Disp. Teflon Bailer (Disp. PVC Baile) GrundFos Redi-flow Pump Peristaltic Pump														
pH Meter	H Meter Serial No.: 217254 / 330089 Spec. Cond. Meter Serial No.: 96H0203AB7 AE														
Date/Time	Date/Time Calibrated: 4/120 10:30 (4 7 10 0) 25°C Spec.Cond. Meter Calibration: Self Test Other:  Method to Measure Water Level: Solinst Serial No.: 1 Ind. P.I.D. Reading: NA ppm @ Well Head														
Method to	Measure	e Water Level:	Solinst	Serial No.	7W ING.	_ P.I.D. RI	saurig. <u>iv</u> line:	ppin @ won road							
Water Le	vei at Sta	nt (DTW): 434	15 1 A	<u>"" '</u>	Nater Level Pfi	OF TO SAU	nping	(Cale )							
TD = 44.3	2 - <b>43.61</b>	(DTW) = 0.41	{ ft.of wa	iter) x "K" =	0.11 (Gals./C	V) X <u>3 (N</u> " = 1 46/6"	uvali) "k" =	2 61(8" well)							
<b>e</b> K"= (	) 163(2" W	ell) "K" = 0.65	3(4" Well	) "K" = 1.	UALITY PARA	METEDS	wen) K	2.0170							
			PIELD I	MATER W		METERO	<del></del>								
	<b>-</b> :	Discharge	рH	Temp.	Specific Conductance	Turbidity	Color	Comments							
Date	Time	Discharge (gallons)	рп	(°C)	m\$ u\$	(NTU's)									
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Total Dis	charge:		llons		Casing Volun										
Method	of disposa	al of discharged	d water:	55 Gallon	Drumps) Pol	y Tank T	reatment S	ystem Other:							
Date/Tin	ne Sampl	ed. 11/13 let @		Analysi	is/No. of Bottle	s: <u>EPA 80</u>	15M/8020 T	PHgas/BTEX, MTBE,							
		HCI); TPH dies	set (1, 1	liter glass	amber, non-pro	eserved)	···								
OA/OC:	N out	• @		as an Equi	ipment Blank	Duplicate	MS/MSD	Lab Split Field Blank							
Comme	nts: 🗶 🚾	el is not use	npleab	e due t	lack of wi	eta. Lou	versed locally	or victo well to removed							
mud V	ery Visc	<u>cus.</u>	•		<u> </u>			<u> </u>							
		·			<del> </del>	4									
Sample	i Bv: Jaci	ki Lee and Ster	hen Pe	<u>nman</u> Sig	nature(s)	<del>//</del>									

Talask		110 2 <sup>m</sup> PACIII	L ANA avende : eco, ca 9	rritoz	l, #Đ7 \$60								· ,- <u>-</u> -	T .	TU	 RN	Λŀ	 (()	C	HZ D T	AII MII	N C	)F	Ci	JS'		D)	Y I	RE	CC		D	<u> </u>	X	
Percent Tou Tou	one: (925) 79	8-1620	~			Fax:	(92	<u>5) 7</u>	98-1	622	2			1										R	US	H	24	HR	Ċ	48	HR	. 7	2 HR		
Report To: Jac	KI LEE	( ,4:		Bill 7	o:										ş				Ail	aly:	sis l	Regi	uest			**********			T	Qı	her		Cor	nments	
Company: Envi	TO NMENT	al Sai	Weired	<u>) 5</u>	rvi	<u> 25</u>				·		···.	·····		į	٦			Π		Π	Т		Ī	Τ		Г	Т	T	T	T	1			
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Martinez Tele: (2) 372-	CA 75	553-6								<del></del>			<b></b>	ĮĒ	-	4			1				!	12			Ì		1	1	1	1	1		
Project #:	AIDA		<del></del>	Fax:	(12) 3	72	-63	105				·		15	3	1 8	8		1.				l	%					1						
Project Location:	1 11 15 17 4 4 4 4			Proje	ct Na	me:	Δc	ro M	<u>,                                    </u>	<u>Ze n</u>	<u>:ta</u>	15		8		36	<u>₹</u>		8					2				İ					l		
Sampler Signature	TIVEXME	VE G	A L		<del>/                                    </del>									Ę	Silica Sel Claur	Š	Ş		302		즟			EPA 625 / 8270 / 8310			ē		ł				l		
Sampler Olgitature	Note - L	T	722	4	4						-			18	3	5			20		Ş		]	8		1	18	}	-		l		1		
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SAMPLE ID	LOCATION	Date	Time	# Containers	Type Containers	Water	Soil	Air	Sludge	T		5		BTEX & TPH as Gas (602/8020 - 30) 5y MTBE	TPH as Dieset (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 3020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239,2/6010)	RCI	돐	TSS	T0C	Specific Conductivity			
Trip Blank		13/01	10:30	2	910	5 X		T		Т	<b>۷</b> ×	₹T	T	$\overline{x}$											-	┢		一	┢		_			·	
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### APPENDIX B

LABORATORY REPORT

AND

CHAIN-OF-CUSTODY DOCUMENTATION



110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 http://www.mccampbell.com E-mail: main@mccampbell.com

Environmental Sampling Services	Client Project ID: Arrow Rentals	Date Sampled: 11/13/01
6680 Alhambra Ave, #102		Date Received: 11/13/01
Martinez, CA 94553	Client Contact: Jacki Lee	Date Extracted: 11/13-11/19/01
	Client P.O:	Date Analyzed: 11/13-11/19/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\*

Lab ID	ods 5030, modifi Client 1D	Matrix	TPH(g)⁺	MTBE	Benzene	Toluene	Ethyl- benzene	Xylenes	% Recovery Surrogate
83522	Trip Blank	w	ND	ND	ND	ND	ND	ND	103
83523	W-1s	w	750,000,a	ND<2000	9500	7800	7200	33,000	#
83524	W-Bs	w	17,000,a	ND<150	2000	130	1100	1700	105
							-		
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otherwi	g Limit unless se stated; ND	w	50 ug/L	5.0	0.5	0.5	0.5	0.5	
	detected above porting limit	S	1,0 mg/kg	0.05	0.005	0.005	0.005	0.005	

<sup>\*</sup> water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coclutes with surrogate peak

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; c) TPH pattern that does not appear to be derived from gasoline (?), f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than -5 vol. % sediment; j) no recognizable pattern.



### McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 http://www.mccampbell.com E-mail: main@mccampbell.com

Nov-19-01 5:15PM;

	I.G. II. Espison	Client P	roject ID: Arrow Rentals	Date Sampled: 11/13/01									
Environmenta 6680 Alhambi	l Sampling Services	Chemer	roject ib, into victoria	Date Received: 11/13/01									
Martinez, CA		Client C	Contact: Jacki Lee	Date Extracted: 11/13/01  Date Analyzed: 11/14/01									
With thirty and		Client P	:.O:										
Die	sel Range (C10-C23	) Extracts	able Hydrocarbons as Diesel v	with Silica Gel Clea	n Up*								
EPA methods mo	Odified 8015, and 3550 or Client ID	3510; Califor Matrix	mia RWQCB (SF Bay Region) method  TPH(d)*	GCF1D(3330) & GCF1D	% Recovery Surrogate								
	W-Bs	W	3600,d		98								
83524	M-D2												
		_											
Reporting L	imit unless otherwise eans not detected above	w	50 ug/L		]								
stated; ND in	reporting limit	s	1.0 mg/kg										

<sup>\*</sup> water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and studge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

chaltered chromatogram resulting in cocluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

<sup>&#</sup>x27;The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than -5 vol. % sediment.

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McCAMPBELL ANALYTICAL INC.										1	CHAIN OF CUSTODY RECORD										M I												
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