

COPY

**SEMI-ANNUAL GROUNDWATER MONITORING REPORT FOR
ARROW RENTALS
LIVERMORE, CALIFORNIA**

APRIL 2000

Prepared for: Don-Sul Inc.
187 North L Street
Livermore, California 94607

Date Prepared: July 31, 2000

By: Environmental Sampling Services
and Aquifer Sciences, Inc.



"We Rent Most Everything"



Dear Eva,

A copy of the latest report.

Sincerely,

Pete

00 AUG -9 PM 3:47
CONFIDENTIAL
PROTECTION

June 30, 2000
971275

COPY

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

Subject: Semi-Annual Groundwater Monitoring, April 2000
187 North L Street, Livermore, California

Dear Ms. Sullins:

Groundwater monitoring was conducted in April 2000 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 April 5, 2000, 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 of static 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. The potentiometric surface corresponding to groundwater elevations measured on October 5, 1999, is shown on Figure 2.

Three of the wells (W-1s, W-3s, and W-Bs) were purged and sampled after the static water level measurements were recorded. At least three casing volumes of groundwater were removed from each well prior to sampling. Each well was purged using a submersible pump or disposable bailer. Purge water from the monitoring wells was stored in labeled 55-gallon drums, pending the analytical results.

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 well sampling logs are included in Appendix A.

Groundwater samples were collected from each well using new disposable bailers. 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 Columbia Analytical Services, a California-certified laboratory located in Santa Clara, 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; total petroleum hydrocarbons quantified as diesel (TPH-diesel) by EPA Method 8015 Modified with a silica gel cleanup; benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA Method 8020; methyl tertiary butyl ether (MTBE) by EPA Method 8020 Modified; and for polynuclear aromatic hydrocarbons (PNAs) by EPA Method 8270. 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

Groundwater elevations in the four monitoring wells ranged from 448.04 feet in well W-Es to 453.77 feet in well W-Bs. The groundwater levels measured in April 2000 were approximately 7 feet higher than those measured in October 1999. Based upon measurements recorded on April 5, 2000, groundwater generally flows to the west-southwest under a hydraulic gradient of approximately 0.019 ft/ft (Figure 2).

RESULTS OF LABORATORY ANALYSES

Results of laboratory analyses for groundwater samples collected from the wells in April 2000 are summarized in Table 2. The laboratory report and chain-of-custody documentation are included in Appendix B.

Gasoline was detected in the groundwater samples collected from all three wells (W-1s, W-3s, and W-Bs) at concentrations ranging from 810 to 47,000 µg/L. TPH-diesel was detected in the groundwater samples collected from all three wells at 320 to 15,000 µg/L. Benzene was detected in the samples collected from all three wells at concentrations ranging from 150 to 4,300 µg/L. These concentrations exceeded the Maximum Contaminant Level (MCL) of 1 µg/L, established for benzene in drinking water. Toluene (up to 2,300 µg/L), ethylbenzene (up to 1,500 µg/L), and xylenes (up to 6,100 µg/L) were detected in the samples collected from wells W-1s, W-3s, and W-Bs. The concentrations of toluene, ethylbenzene, and xylenes in wells W-1s and W-Bs exceeded their respective MCLs. MTBE was detected in the sample collected from well W-1s at

AQUIFER SCIENCES, INC.

170 µg/L. The MCL for MTBE is 5 µg/L. MTBE was not detected in the sample collected from well W-3s. Although MTBE was not detected in the sample collected from W-Bs, the laboratory detection limit was elevated due to high concentrations of gasoline and BTEX. Benzene was detected at 1.8 µg/L in the travel blank.

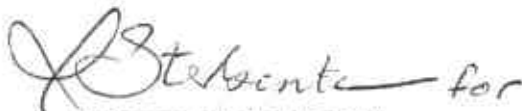
Well W-1s contained naphthalene at 330 µg/L and 2-methylnaphthalene at 110 µg/L. Well W-Bs contained naphthalene at 280 µg/L and 2-methylnaphthalene at 68 µg/L. MCLs have not been established for naphthalene and 2-methylnaphthalene. No other PNAs were detected in the samples collected from wells W-1s and W-Bs. No PNAs were detected in well W-3s.

SUMMARY AND CONCLUSIONS

Table 3 presents a summary of the results of laboratory analyses performed on groundwater samples collected from wells at the site 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. Low levels of gasoline, diesel, BTEX, and MTBE have also been detected in samples collected from wells W-3s and W-Es. Fluctuations in the concentrations of gasoline, diesel, and BTEX in groundwater samples collected from these wells may be related to seasonal variations in groundwater elevations and the groundwater flow direction. The direction of groundwater flow beneath the site has varied over time from southwest to west-northwest.

Please call us if you have any questions concerning this report.

Respectfully yours,

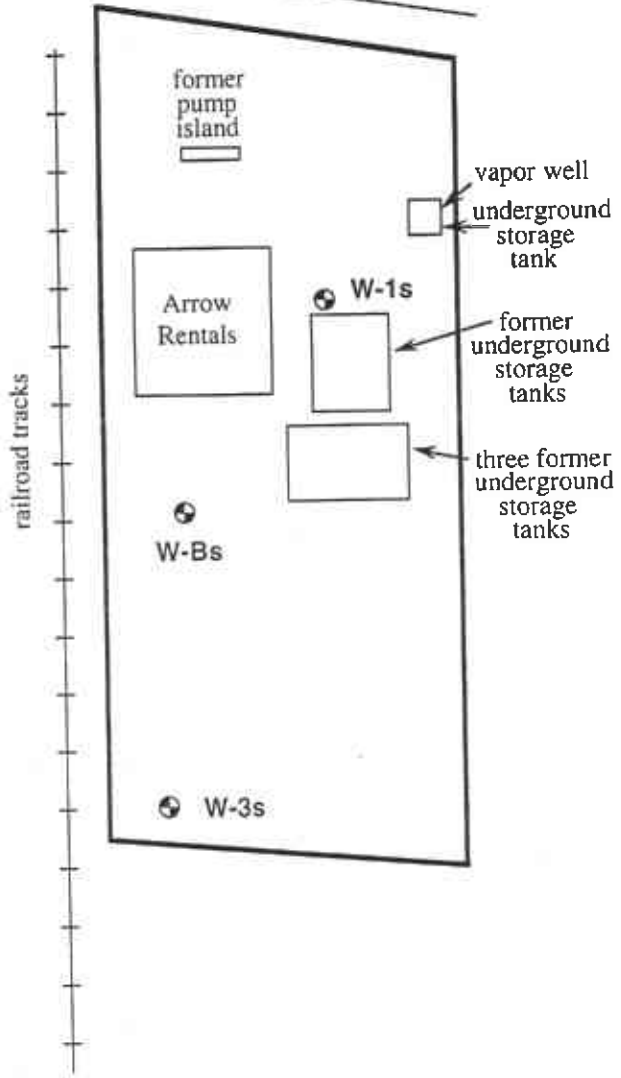

Thomas E. Neely, REA
Hydrogeologist


Rebecca A. Sterbentz, RG, CHG, REA
President

Attachments



North L Street



EXPLANATION

⊕ Approximate well location

W-Es
⊕

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

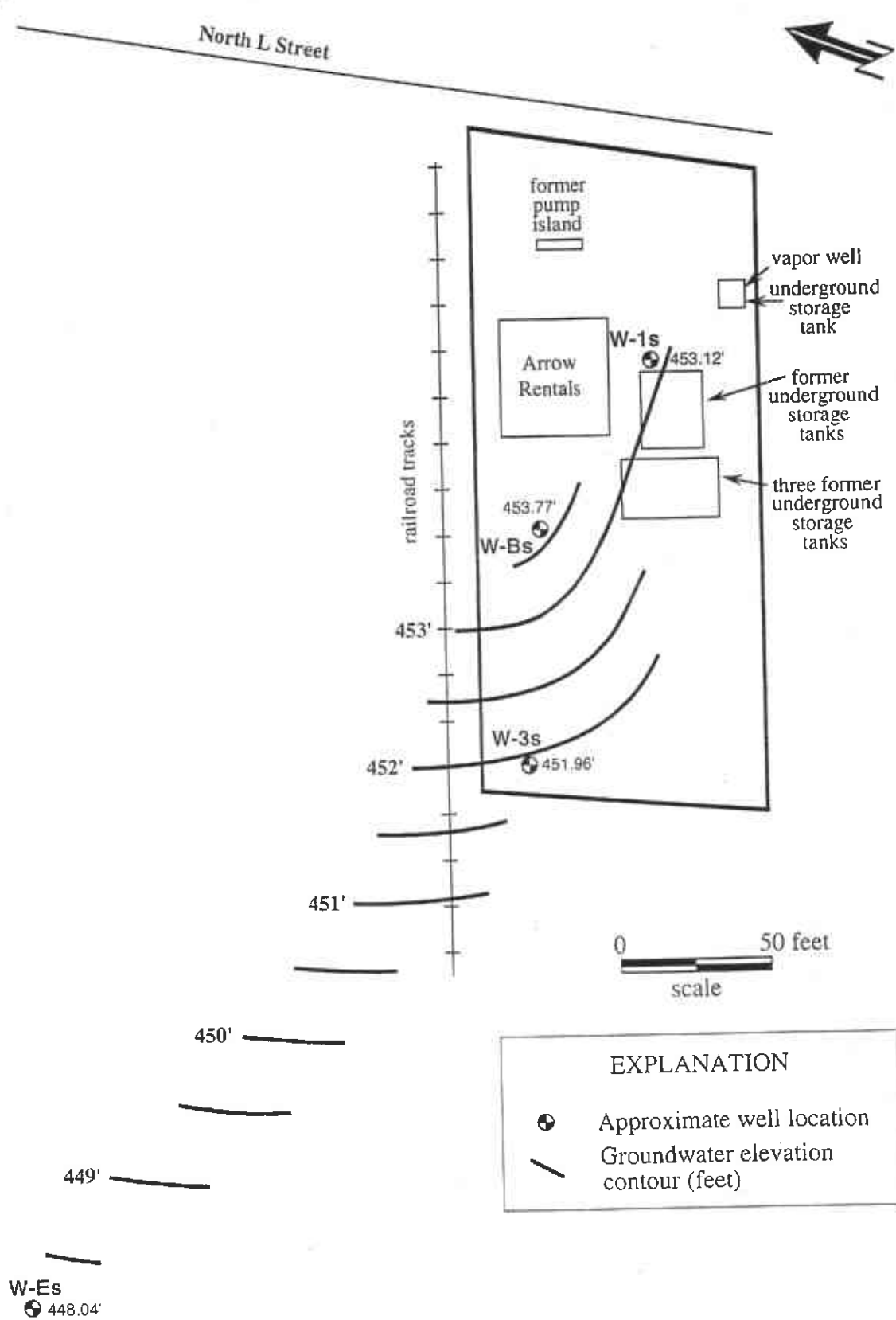


Figure 2. POTENTIOMETRIC SURFACE MAP (4/5/00)
187 North L Street, Livermore, California

Table 1. GROUNDWATER ELEVATION DATA
 187 North L Street, Livermore, California
 April 5, 2000

Well Number	Top of Casing Elevation (feet above MSL)	Depth to Water (feet below TOC)	Water Elevation (feet above MSL)
W-1s	479.09	25.97	453.12
W-3s	476.98	25.02	451.96
W-Bs	478.82	25.05	453.77
W-Es	474.66	26.62	448.04

MSL = mean sea level (elevations based on City of Livermore datum)
 TOC = top of PVC casing

Table 2. GROUNDWATER ANALYTICAL RESULTS
 187 North L Street, Livermore, California
 April 5, 2000

Well Number	TPH-gasoline (µg/L)	TPH-diesel (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)
W-1s	47,000	15,000*	4,300	2,300	1,500	6,100	170	330	110
W-3s	810	320*	150	3.0	9.0	5.7	ND	ND	ND
W-Bs	34,000	9,600*	3,500	1,200	1,400	4,700	<150	280	68
W-Es	NS	NS	NS	NS	NS	NS	NS	NS	NS
Travel Blank	ND	NA	1.8	ND	ND	ND	ND	NA	NA
MDL	50-5,000	50-5,000	0.5-50	0.5-50	0.5-50	1.0-100	3-300	50	50
MCL	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

TPH-gasoline = total petroleum hydrocarbons quantified as gasoline

TPH-diesel = total petroleum hydrocarbons quantified as diesel

MTBE = methyl tertiary butyl ether

MDL = method detection limit

MCL = Maximum Contaminant Level, January 1999

* The sample contained a lower boiling point mixture of hydrocarbons quantitated as diesel.

† The MRL was elevated due to high analyte concentration requiring sample dilution.

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

Well Number	Date Sampled	TPH-gasoline (µg/L)	TPH-diesel (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)
W-1s	3/22/96	6,400	NA	580	470	85	1,100	< 500	NA	NA	NA
W-1s	11/22/96	170,000	NA	13,000	18,000	3,500	18,000	< 10,000	NA	NA	NA
W-1s	7/15/97	140,000	38,000*†	12,000	12,000	2,600	16,000	< 800	NA	NA	NA
W-1s	10/29/97	650,000	180,000‡	14,000	19,000	7,800	35,000	< 3,000	NA	NA	NA
W-1s	4/27/98	6,700	2,200§	410	250	77	870	< 30	< 5	NA	NA
W-1s	10/23/98	99,000	18,000§	9,800	9,400	1,800	11,000	< 600	NA	NA	NA
W-1s	4/9/99	70,000	24,000	6,500	7,000	1,800	8,900	360	NA	330	ND
W-1s	10/5/99	82,000	60,000***	5,500	4,500	2,500	14,000	< 300	NA	510	280
W-1s	4/5/00	47,000	15,000***	4,300	2,300	1,500	6,100	170	NA	330	110
W-3s	3/22/96	100	NA	13	6.9	5.3	14	< 5	NA	NA	NA
W-3s	11/22/96	3,200	NA	270	29.0	63.0	100	< 100	NA	NA	NA
W-3s	7/15/97	2,100	340**†	230	7	33	51	< 20	NA	NA	NA
W-3s	10/29/97	2,800	750††	630	31	71	69	< 30	NA	NA	NA
W-3s	4/27/98	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
W-3s	10/23/98	3,800	1,000§	500	28	90	37	35	NA	NA	NA
W-3s	4/9/99	980	430	240	4	37	3	< 12	NA	NA	NA
W-3s	10/5/99	1,500	1,000*** †††	290	9.5	53	9.8	< 6	NA	NA	NA
W-3s	4/5/00	810	320***	150	3.0	9.0	5.7	ND	NA	ND	ND
W-Bs	3/22/96	61,000	NA	9,800	8,000	2,200	11,000	< 5,000	NA	NA	NA
W-Bs	11/22/96	47,000	NA	5,100	3,100	1,400	7,800	< 2,500	NA	NA	NA
W-Bs	7/15/97	66,000	17,000‡‡†	7,800	4,900	1,900	10,000	< 600	NA	NA	NA
W-Bs	10/29/97	44,000	27,000§§	6,000	500	1,500	6,400	380	NA	NA	NA
W-Bs	4/27/98	63,000	17,000§	6,100	5,400	1,900	9,100	< 600	NA	NA	NA
W-Bs	10/23/98	48,000	9,600§	6,700	1,200	1,500	6,200	< 300	NA	NA	NA
W-Bs	4/9/99	39,000	12,000	4,100	1,900	1,400	5,600	< 300	NA	NA	NA
W-Bs	10/5/99	38,000	7,300***	3,800	390	1,600	5,900	< 60	NA	NA	NA
W-Bs	4/5/00	34,000	9,600***	3,500	1,200	1,400	4,700	< 150	NA	280	68

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

Well Number	Date Sampled	TPH-gasoline (µg/L)	TPH-diesel (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)
W-Es	3/22/96	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5	NA	NA	NA
W-Es	11/22/96	280	NA	24	0.6	1.8	2.2	< 5	NA	NA	NA
W-Es	10/23/98	82	69§	< 0.5	0.8	< 0.5	0.8	4	NA	NA	NA
W-Es	4/5/00	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
W-Es	10/5/99	68	88***	< 0.5	< 0.5	< 0.5	< 1.0	4	NA	NA	NA
Travel Blank	7/15/97	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank	10/29/97	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank	4/27/98	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank	10/23/98	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank	4/9/99	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA	NA
Travel Blank	10/5/99	< 50	NA	< 0.5	< 0.5	< 0.5	< 1.0	< 3	NA	NA	NA
Travel Blank	4/5/00	ND	NA	1.8	ND	ND	ND	ND	NA	NA	NA
MCL		NE	NE	1	150	700	1,750	5	50	NE	NE
AL		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

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, January 1999

AL = Action Level, January 1999

* Sample contained heavy oil at 3,000 µg/L

† The method blank contained heavy oil at 120 µg/L

‡ Sample contained heavy oil at 1,600 µg/L

§ The chromatogram does not match the typical diesel pattern

** Sample contained heavy oil at 740 µg/L

†† Sample contained heavy oil at 88 µg/L

‡‡ Sample contained heavy oil at 490 µg/L

§§ Sample contained heavy oil at 4,000 µg/L

*** The sample contained a lower boiling point mixture of hydrocarbons quantitated as diesel.

††† The sample contained a higher boiling point hydrocarbon mixture quantitated as diesel.

The chromatogram does not match the typical diesel fingerprint.



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

ESS Personnel: Jacki Lee and Steve Penman
Duration of Activities: April 5, 2000

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.

Water Level Measurements

A total of four (4) monitoring wells were measured for static water level. All readings were performed with Solinst® electrical water level indicator (Table 1). Water level 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' calibration and operating procedures. Field measurements included: pH, specific conductance, turbidity, and temperature.

Field Activities

Friday, April 5, 2000: Well evacuation and monitoring of groundwater quality parameters for three (3) monitoring wells were performed. A minimum removal of three casing volumes and stabilization of water quality parameters were required prior to sampling. All wells were sampled for the following analyses: EPA Method 8015M (TPH (Gasoline)/BTEX, and MTBE), TPH (Diesel), and PNAs.

All wells were sampled with disposable bailers. Columbia Analytical Laboratories supplied all sample containers and packing material 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.



**Environmental
Sampling Services**

All work was performed under satisfactory workmanship and according to the Alameda County Health and Care Services' directive, dated October 8, 1997, March 15, 1999, and January 10, 2000.

Jacqueline Lee
President

Attachment
Table 1
Water Sample Log Sheets
Chain of Custody



**TABLE 1: SUMMARY OF
WATER LEVEL MEASUREMENTS
ARROW RENTAL
LIVERMORE, CALIFORNIA**

WELL IDENTIFICATION	DEPTH TO GROUNDWATER (ft., TOC) (Measured April 5, 2000)	WELL DEPTH (ft., TOC)
W-1s	25.97	44.64
W-Bs	25.05	44.47
W-3s	25.02	44.76
W-Es	26.62	44.32

TOC = Top of well casing



**Environmental
Sampling Services**

WATER QUALITY SAMPLE LOG SHEET WELL IDENTIFICATION: W-1s DATE: 4/5/2000

Project Name: Arrow Rentals - Livermore, CA Project Task: Semi-Annual Groundwater Monitoring

Weather Conditions: Sunny ~65°F; Hc. cirrus

Well Description: .75" 2" 3" 4" 5" 6" Well Type: PVC Stainless Steel Other: _____

Is Well Secured? Yes No Bolt Size 15/16" Type of lock / Lock number: Master

Observations / Comments: _____

Purge Method: Teflon / PVC Disposable Bailer Peristaltic Pump GrundFos Redi-flow Other: _____

Pump 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 Cleaning Bailer: NA Alconox Liqui-Nox Tap Water DI Rinse Other: Well Water Rinse

Sampling Method: Disp. Teflon Bailer Disp. PVC Bailer GrundFos Redi-flow Pump Other: _____

pH Meter Serial No.: 217254 / 330089 Spec. Cond. Meter Serial No.: 96H0203AB / AE

Date/Time Calibrated: 4/5/00 9:35 4 7 10 @ 25°C Spec. Cond. Meter Calibration: Self Test Other: _____

Method to Measure Water Level: Solinst Serial No.: Geo Interface P.I.D. Reading: NA ppm @ Well Head

Water Level at Start (DTW): 25.97 @ 10:09 Water Level Prior To Sampling: _____

TD = 44.64 - 25.97 (DTW) = 18.67 (ft. of water) x "K" = 27.2 (Gals./CV) x 3 (No. of CV) = 81.7 (Gals.)

"k" = .023(.75" well) "K" = 0.163(2" well) "K" = 0.653(4" well) "K" = 1.02(5" well) "K" = 1.46(6" well)

FIELD WATER QUALITY PARAMETERS

Date	Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance mS (uS)	Turbidity	Color	Comments
4/5/00	12:38	10	6.95	20.5	658	5.0	clear	
	12:40	20	6.91	20.4	682	4.17	Hint of gray	
	12:44	30	6.89	20.6	687	4.17	"	
	12:47	40	6.89	20.5	679	4.28	"	
	12:50	50	6.88	20.6	686	13.7	"	Getting recovers
	12:57	60	6.89	20.9	660	27.1	lt tan cloudy	
	13:05	70	6.94	21.2	670	10.0	clear but slig. cldy.	
	13:13	80	6.92	20.9	645	6.5	"	
	13:25	After Sampling	6.90	21.0	691	12.5	"	

Total Discharge: 82.5 gallons Casing Volumes Removed: 3.03

Method of disposal of discharged water: 55 Gallon Drum(s) Poly Tank Treatment System Other: _____

Date/Time Sampled: 4/5/00 @ 13:20 Analysis/No. of Bottles: EPA 8015M-TPHg/BTEX, MTBE (3-40ml-

VOCs w/HCl), TPHd (2, 1 Liter Glass Ambers, Non-Preserved); PNAs (2-1L Glass Ambers N/P)

QA/QC: None @ _____ as an Equipment Blank Blind Duplicate MS/MSD Field Blank

Comments: _____

Sampled By: Jacki Lee / Stephen Penman Signature(s) Jacki Lee / Stephen Penman



**Environmental
Sampling Services**

WATER QUALITY SAMPLE LOG SHEET WELL IDENTIFICATION: W-3s DATE: 4/5/2000

Project Name: Arrow Rentals - Livermore, CA Project Task: Semi-Annual Groundwater Monitoring

Weather Conditions: _____

Well Description: .75" 2" 3" 4" 5" 6" Well Type: PVC Stainless Steel Other: _____

Is Well Secured? Yes / No Bolt Size _____ Type of lock / Lock number: No Lock

Observations / Comments: Well Cap is broken

Purge Method: Teflon / PVC Disposable Bailer Peristaltic Pump GrundFos Redi-flow Other: _____

Pump 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 Cleaning Bailer: NA Alconox Liqui-Nox Tap Water DI Rinse Other: _____

Sampling Method: Disp. Teflon Bailer Disp. PVC Bailer GrundFos Redi-flow Pump Other: _____

pH Meter Serial No.: 217254 / 330089 Spec. Cond. Meter Serial No.: 06H0203AB / AE

Date/Time Calibrated: 4/5/00 @ 9:35 4 7 10 @ 25°C Spec. Cond. Meter Calibration: Self Test Other: _____

Method to Measure Water Level: Solinst Serial No.: 9/w Interface P.I.D. Reading: NA ppm @ Well Head

Water Level at Start (DTW): 26.02 Water Level Prior To Sampling: 25.20

TD = 44.76 - 25.02 (DTW) = 19.74 (ft. of water) x "K" = 12.9 (Gals./CV) x 30 (No. of CV) = 38.7 (Gals.)

"K" = .023(.75" well) "K" = 0.163(2" well) "K" = 0.653(4" well) "K" = 1.02(5" well) "K" = 1.46(6" well)

FIELD WATER QUALITY PARAMETERS

Date	Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance mS <u>(uS)</u>	Turbidity	Color	Comments
4/5/00	10:22	4.0	7.31	19.3	477	2350	BRN	
	10:26	8.0	7.24	19.4	605	613	"	
	10:33	12.0	7.22	19.1	637	432	"	
	10:43	20.0	7.20	19.4	599	370	"	
	10:51	28.0	7.24	19.6	572	249	Lt brn	
	11:00	32.0	7.21	19.6	584	101	Lt tan	
	11:07	30.0	7.31	19.3	549	160	"	
↓	11:15	After Sampling	7.26	19.3	597	140	Lt tan	

Total Discharge: 40 gallons Casing Volumes Removed: 3.10

Method of disposal of discharged water: 55 Gallon Drum(s) Poly Tank Treatment System Other: _____

Date/Time Sampled: 4/5/00 @ 11:10 Analysis/No. of Bottles: EPA 8015M-TPHg/BTEX, MTBE (3-40ml-VOCs w/HCl), TPHd (2, 1 Liter Glass Ambers, Non-Preserved); PNA's (2 - 1L glass Ambers N/P)

QA/QC: None @ _____ as an Equipment Blank Blind Duplicate MS/MSD Field Blank

Comments: _____

Sampled By: Jacki Lee / Stephen Penman Signature(s):



3334 Victor Court • Santa Clara, CA 95054 • (408) 437-2400 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. _____

P.O.# _____

PAGE | OF |

PROJECT NAME Arrow Rentals # _____
 PROJECT MGR. Stephen Penman/Jacki Lee
 COMPANY Environmental Sampling Svcs (ESS)
 ADDRESS PMB 102, 6680 Alhambra Avenue
Martinez, CA 94553-6105 PHONE 925 372 9108
 SAMPLER'S SIGNATURE [Signature] FAX 925 372 6705

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX
TRIP BLANK	4/5/00	09:30		WTR
W-35	4/5/00	11:10		WTR
W-85	4/5/00	12:00		WTR
W-15	4/5/00	13:20		WTR

NUMBER OF CONTAINERS	ANALYSIS REQUESTED														REMARKS		
	PRESERVATIVE	HCl	HCl	HCl	NP	NP	NP	HCl	HCl	HNO ₃	NP	H ₂ SO ₄	H ₂ SO ₄	H ₂ SO ₄		NaOH	UP
Volatiles Organics GC/MS, 624/824/0/8260																	
Halogenated or Aromatic Volatiles 607/8070/23-602/8020/21																	
TPH as Gas/BTEX DHS/LUFT/3020																	
TPH as Diesel/HBHC DHS/LUFT/3020 MTBE/T																	
Base/New/Acid Organics GC/MS, 625/8270																	
Pesticides/PCBs 608/8080																	
TPPH - 418/T																	
Oil and Grease Method List Below																	
PH, Cond, Cl, SO ₄ , F, TDS, TSS																	
NH ₃ -N, COD, Total-P, TKN																	
Total Organic Carbon																	
Total Phenols																	
Cyanide																	
FMAS																	

RELINQUISHED BY:
 Signature [Signature]
 Printed Name Jacki Lee
 Firm Env. Sampl Svcs
 Date/Time 4/5/00; 14:45

RECEIVED BY:
 Signature [Signature]
 Printed Name Brian...
 Firm ...
 Date/Time 4/5/00

RELINQUISHED BY:
 Signature _____
 Printed Name _____
 Firm _____
 Date/Time _____

RECEIVED BY:
 Signature _____
 Printed Name _____
 Firm _____
 Date/Time _____

TURNAROUND REQUIREMENTS
 1 day _____ 2 day _____ 3 day _____
 5 day _____ Other _____
 Standard (10 working days)
 Results Due _____

REPORT REQUIREMENTS
 I. Routine Report
 II. Report (includes MSD, as required, may be charged as samples)
 III. Data Validation Report (includes All Raw Data)
 MDLS/POLs/Trace # _____
 Electronic Data Deliverables _____

RELINQUISHED BY:
 Signature _____
 Printed Name _____
 Firm _____
 Date/Time _____

RECEIVED BY:
 Signature _____
 Printed Name _____
 Firm _____
 Date/Time _____

SAMPLE RECEIPT: Condition _____ Custody Seals _____
 SPECIAL INSTRUCTIONS/COMMENTS Perform silica gel clean up prior to analysis of TPHd samples
 Circle which metals are to be analyzed.
 Metals: Al Sb Ba Be B Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn
 As Pb Se Ti Hg
 Storage: _____



April 18, 2000

Service Request No.: S2001140

Ms. Jacki Lee
Environmental Sampling Services
6680 Alhambra Avenue, #102
Martinez, CA 94553

RE: Arrow Rentals

Dear Ms. Lee:

Enclosed are the results of the sample(s) submitted to our laboratory on April 5, 2000. All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply to the sample(s) analyzed. Columbia Analytical Services is not responsible for use of less than the complete report. Signature of this CAS Analytical Report confirms that pages 2 through 19, following, have been thoroughly reviewed and approved for release.

Columbia Analytical Services is certified for environmental analyses by the California Department of Health Services (certificate number: 2352, expiration: January 31, 2001).

If you have any questions, please call me at (408) 748-9700.

Respectfully submitted,

Columbia Analytical Services, Inc.

Bernadette Troncales
Project Chemist

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: 04/05/00
 Date Received: 04/05/00

Polynuclear Aromatic Hydrocarbons

Sample Name: W-3S
 Lab Code: S2001140-002
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Acenaphthylene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Acenaphthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Fluorene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Phenanthrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benz(a)anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Chrysene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(b)fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(k)fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(a)pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Dibenz(a,h)anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(g,h,i)perylene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
2-Methylnaphthalene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	

Approved By: _____

Handwritten signature

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
Project: Arrow Rentals
Sample Matrix: Water

Service Request: S2001140
Date Collected: 04/05/00
Date Received: 04/05/00

Polynuclear Aromatic Hydrocarbons

Sample Name: W-1S
Lab Code: S2001140-004
Test Notes: C1

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	330	
Acenaphthylene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Acenaphthene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Fluorene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Phenanthrene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Anthracene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Fluoranthene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Pyrene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Benz(a)anthracene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Chrysene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Benzo(b)fluoranthene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Benzo(k)fluoranthene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Benzo(a)pyrene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Indeno(1,2,3-cd)pyrene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Dibenz(a,h)anthracene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
Benzo(g,h,i)perylene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	<50	
2-Methylnaphthalene	EPA 3510C	8270C	5	10	04/11/00	04/13/00	110	

C1

The MRL was elevated due to high analyte concentration requiring sample dilution.

Approved By: _____

Handwritten signature

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: NA
 Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
 Lab Code: S200411-WB1
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Acenaphthylene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Acenaphthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Fluorene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Phenanthrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benz(a)anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Chrysene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(b)fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(k)fluoranthene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(a)pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Dibenz(a,h)anthracene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
Benzo(g,h,i)perylene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	
2-Methylnaphthalene	EPA 3510C	8270C	5	1	04/11/00	04/13/00	ND	

Approved By: _____

MS

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: NA
 Date Received: NA
 Date Extracted: NA
 Date Analyzed: NA

Surrogate Recovery Summary
 Polynuclear Aromatic Hydrocarbons

Prep Method: EPA 3510C
 Analysis Method: 8270C

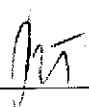
Units: PERCENT
 Basis: NA

Sample Name	Lab Code	Test Notes	P e r c e n t R e c o v e r y					TPH
			2FPHL	PHL	NBZ	2FBPH	246TBPHL	
W-3S	S2001140-002	NA	NA	NA	68	62	NA	58
W-BS	S2001140-003	NA	NA	NA	67	66	NA	60
W-1S	S2001140-004	NA	NA	NA	71	69	NA	56
Lab Control Sample	S200411-LCS	NA	NA	NA	82	70	NA	73
Lab Control Sample	S200411-DLCS	NA	NA	NA	57	50	NA	63
Method Blank	S200411-WB1	NA	NA	NA	75	62	NA	81

CAS Acceptance Limits: 21-100 10-94 35-114 43-116 10-123 33-141

2FPHL 2-Fluorophenol
 PHL Phenol-D6
 NBZ Nitrobenzene-D5
 2FBPH 2-Fluorobiphenyl
 246TBPHL 2,4,6-Tribromophenol
 TPH Terphenyl-D14

Approved By: _____



Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 LCS Matrix: Water

Service Request: S2001140
 Date Collected: NA
 Date Received: NA
 Date Extracted: 04/11/00
 Date Analyzed: 04/13/00

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary
 Polynuclear Aromatic Hydrocarbons

Sample Name: Lab Control Sample
 Lab Code: S200411-DLCS, S200411-LCS
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value		Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
			LCS	DLCS	LCS	DLCS	LCS	DLCS			
			Acenaphthene	EPA 3510C	8270C	50	50	41			
Pyrene	EPA 3510C	8270C	50	50	43	34	86	68	52-115	23	

Approved By: _____

PT

Date: _____

04/13/00

DLCS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
Project: Arrow Rentals
Sample Matrix: Water

Service Request: S2001140
Date Collected: 4/5/00
Date Received: 4/5/00

TPH as Diesel

Prep Method: EPA 3510
Analysis Method: CA/LUFT
Test Notes:

Units: ug/L (ppb)
Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
W-3S	S2001140-002	50	1	04/06/00	04/07/00	320	D4
W-BS	S2001140-003	50	1	04/06/00	04/07/00	9600	D4
W-1S	S2001140-004	50	10	04/06/00	04/11/00	15000	D4
Method Blank	S200406-WB1	50	1	04/06/00	04/06/00	ND	

D4

The sample contains a lower boiling point mixture of hydrocarbons and quantitated as diesel.

Approved By: _____



Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Environmental Sampling Services
Project: Arrow Rentals
Sample Matrix: Water

Service Request: S2001140
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
TPH as Diesel

Prep Method: EPA 3510
Analysis Method: CA/LUFT

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery p-Terphenyl
W-3S	S2001140-002		57
W-BS	S2001140-003		72
W-1S	S2001140-004		77
Method Blank	S200406-WB1		66
Lab Control Sample	S200406-LCS		74
Lab Control Sample	S200406-DLCS		72

CAS Acceptance Limits: 41-140

Approved By: _____

MA

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: 04/05/00
 Date Received: 04/05/00

BTEX, MTBE and TPH as Gasoline

Sample Name: Trip Blank
 Lab Code: S2001140-001
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	04/15/00	ND	
Benzene	EPA 5030	8021B	0.5	1	NA	04/15/00	1.8	
Toluene	EPA 5030	8021B	0.5	1	NA	04/15/00	ND	
Ethylbenzene	EPA 5030	8021B	0.5	1	NA	04/15/00	ND	
Xylenes, Total	EPA 5030	8021B	1	1	NA	04/15/00	ND	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8021B	3	1	NA	04/15/00	ND	

Approved By: _____

Per

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: 04/05/00
 Date Received: 04/05/00

BTEX, MTBE and TPH as Gasoline

Sample Name: W-3S
 Lab Code: S2001140-002
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	04/15/00	810	
Benzene	EPA 5030	8021B	0.5	1	NA	04/15/00	150	
Toluene	EPA 5030	8021B	0.5	1	NA	04/15/00	3.0	
Ethylbenzene	EPA 5030	8021B	0.5	1	NA	04/15/00	9.0	
Xylenes, Total	EPA 5030	8021B	1	1	NA	04/15/00	5.7	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8021B	3	1	NA	04/15/00	ND	

Approved By: _____

RET

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
Project: Arrow Rentals
Sample Matrix: Water

Service Request: S2001140
Date Collected: 04/05/00
Date Received: 04/05/00

BTEX, MTBE and TPH as Gasoline

Sample Name: W-BS
Lab Code: S2001140-003
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	50	NA	04/15/00	34000	
Benzene	EPA 5030	8021B	0.5	50	NA	04/15/00	3500	
Toluene	EPA 5030	8021B	0.5	50	NA	04/15/00	1200	
Ethylbenzene	EPA 5030	8021B	0.5	50	NA	04/15/00	1400	
Xylenes, Total	EPA 5030	8021B	1	50	NA	04/15/00	4700	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8021B	3	50	NA	04/15/00	<150	C1

C1

The MRL was elevated due to high analyte concentration requiring sample dilution.

Approved By: _____



Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 Sample Matrix: Water

Service Request: S2001140
 Date Collected: 04/05/00
 Date Received: 04/05/00

BTEX, MTBE and TPH as Gasoline

Sample Name: W-1S
 Lab Code: S2001140-004
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	50	NA	04/15/00	47000	
Benzene	EPA 5030	8021B	0.5	50	NA	04/15/00	4300	
Toluene	EPA 5030	8021B	0.5	50	NA	04/15/00	2300	
Ethylbenzene	EPA 5030	8021B	0.5	50	NA	04/15/00	1500	
Xylenes, Total	EPA 5030	8021B	1	50	NA	04/15/00	6100	
Methyl <i>tert</i> -Butyl Ether	EPA 5030	8021B	3	50	NA	04/15/00	170	

Approved By: _____

MT

Date: _____

04/18/00

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Environmental Sampling Services
 Project: Arrow Rentals
 LCS Matrix: Water

Service Request: S2001140
 Date Collected: NA
 Date Received: NA
 Date Extracted: NA
 Date Analyzed: 04/14/00

Laboratory Control Sample Summary
 BTEX and TPH as Gasoline

Sample Name: Lab Control Sample
 Lab Code: S200414-LCS2
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Benzene	EPA 5030	8021B	25	26	104	75-135	
Toluene	EPA 5030	8021B	25	22	88	73-136	
Ethylbenzene	EPA 5030	8021B	25	22	88	69-142	
Gasoline	EPA 5030	CA/LUFT	500	440	88	75-135	

Approved By: _____



Date: _____

04/14/00

