W. A. CRAIG, INC.
Environmental Consulting and Contracting
P. O. Box 448
Napa, California 94559-0448
Contractor and Hazardous Substances License #455752
Cal/OSHA Statewide Annual Excavation Permit #559351
(800) 522-7244
Berkeley (510) 525-2780 **Napa (707) 252-3353**
Fax: (707) 252-3385

February 24, 1998 **Project No. 3628**

STID # 922

Mr. Reed Rinehart
Rino Pacific, Inc.
Ukiah, California 95482

Rino Pacific / Oakland Truck Stop

Subject: REPORT - Groundwater Monitoring
September 1997
1107 Fifth Street
Oakland, California

Dear Mr. Rinehart:

W. A. Craig, Inc. (WAC), is pleased to submit this Groundwater Monitoring Report for sampling conducted on September 9, 1997 at 1107 Fifth Street in Oakland, California. The site location is shown on **Figure 1**. This work was performed in accordance with the scope of work presented in WAC's Work Plan dated September 16, 1996.

This report includes groundwater quality and elevation data for three groundwater monitoring wells and two recovery wells at the site. The installation of the monitoring wells is presented in WAC's "Subsurface Investigation Report," dated January 17, 1997.

Scope of Work

The scope of work performed by WAC during this period included the following tasks:

- Measuring static water levels in the monitoring wells and recovery wells;
- Purging and sampling groundwater from the monitoring wells at the site;
- Analyzing groundwater samples for total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert-butyl ether (MTBE); and
- Preparation of this Report.

Groundwater Elevations

WAC technical staff measured the water levels in the monitoring wells on September 9 and September 19, 1997 using an electronic water level indicator. The surveyed elevations and the field water level measurements were used to calculate the groundwater surface elevations at the site. The calculated groundwater gradient and flow direction for these days was 0.07 ft/ft and 0.096 ft/ft, southeast. Groundwater elevations for this and previous monitoring events are presented in **Table 1**. The locations of the monitoring wells and a depiction of the site groundwater elevation contours are shown in **Figures 2** and **3**.

Groundwater flow directions have ranged from southwest to southeast. The groundwater direction appears to be dependent on the groundwater elevation in monitoring well MW-3. Depth to water measurements for monitoring well MW-3 indicate a wide range, from -0.37 feet to -7.99 feet. Monitoring well MW-3 has also been identified as being very slow to recover. Monitoring wells MW-1 and MW-2 have displayed a much narrower range of fluctuation, -1.24 to 1.56 feet msl and -0.18 feet to 0.80 feet above mean sea level (msl), respectively.

The monitoring wells have also been noted to release pressure when opened. As a result of this condition, WAC personnel exposed the wells to atmospheric conditions and allow water levels to stabilize before measurements were made.

The recovery well water elevations were measured on September 19, 1997. The elevations measured in RW-W were slightly lower than those measured in RW-E. The groundwater elevations in the recovery wells were .01 to 1.44 feet higher than the groundwater in monitoring wells MW-1 and MW-2.

Groundwater Sampling

Three to four well casing volumes were purged from the monitoring wells on September 9, 1997. Field parameters including temperature, pH, conductivity, and turbidity were intermittently monitored during purging of the well. Groundwater samples were collected using disposable polyethylene bailers. Copies of the field monitoring well sampling logs are included in **Attachment A**. The samples were submitted under chain-of-custody control to McCampbell Analytical, Inc. (MAI), of Pacheco, California. The purged well-water is currently stored on-site in a sealed, DOT approved, 55-gallon steel drums.

Analytical Results

The groundwater samples were analyzed by MAI for gasoline and diesel using EPA Method 8015 (modified) and purgeable aromatic hydrocarbons (BTEX) and MTBE using EPA Method 8020. MAI is certified by the State of California to perform these analyses. The analytical laboratory results are summarized in **Table 2**. Copies of the analytical laboratory report and chain-of-custody documents are in **Attachment B**.

Diesel was detected at concentrations of 180 micrograms per liter (ug/l) in MW-1, 970 ug/l in MW-2, and 2300 ug/l in MW-3. The reported diesel concentrations were lower in

monitoring wells MW-1 and MW-2 than concentrations reported for the previous quarterly sampling period.

Gasoline and BTEX were not detected in the samples collected from monitoring wells MW-1 and MW-3 during this round of sampling. These results are consistent with the previous monitoring results. The analytical results of samples collected from monitoring well MW-2 indicate a gasoline concentration of 3,700 ug/l, which slightly exceeds the previously detected concentration of 3,60 ug/l. Benzene was detected in the samples from monitoring well MW-2 at a concentration of 570 ug/l, a decrease since the previous reporting. Toluene, ethylbenzene, and xylene concentrations reported for MW-2 were detected at concentrations slightly lower than previously reported, and remain below California Maximum Contaminant Levels (MCLs) for drinking water.

MTBE has not been detected in the samples from monitoring well MW-1. MTBE concentrations in MW-2 decreased this quarter from 840,000 ug/l to 470,000 ug/l. MTBE was detected in groundwater samples from monitoring well MW-3 at a concentration of 12 ug/l, which is slightly less than was reported for the previous quarter (17 ug/l).

Free Product Recovery

WAC personnel have intermittently monitored free product in the recovery wells. Product has been recovered from a skimmer placed in recovery well RW-W. The results of the monitoring of the recovery wells is presented in **Table 3**. The recovered product is currently stored in a 55-gallon drum in a secure area of the site. Approximately 4.2 gallons of product has been collected since the installation of the skimmer. Previous product thickness measurements in recovery well RW-W have been relatively consistent, approximately 0.02 feet. Measurements taken in August and September 1997 have been relatively consistent, approximately 0.01 feet.

Conclusions and Recommendations

The groundwater flow direction is generally southerly, but ranges from southwest to southeast. The gradient interpretation assumes hydrologic continuity in the subsurface between the three wells at the site. Groundwater gradient and flow direction on this site appear to be significantly influenced by water levels reported for monitoring well MW-3. Monitoring well MW-3 is very slow to recover after purging, indicating the water bearing soil at this location is of low permeability. Water levels have been reported to respond to tidal fluctuations, although this has not been confirmed by WAC's field observations. Groundwater elevation data from the recovery wells suggests groundwater mounding in the UST area. The mounding may be from surface water infiltration in this area.

Diesel concentrations in groundwater have remained relatively consistent, although a significant increase was noted in the samples from MW-3 in September. High concentrations of gasoline, MTBE, and benzene continue in monitoring well MW-2. High concentrations of the petroleum hydrocarbons in the recovery wells were also noted.

Petroleum hydrocarbons and BTEX concentrations are an order-of-magnitude higher in

the recovery wells than has been observed in monitoring well MW-2. Conversely, MTBE concentrations in monitoring well MW-2 are an order of magnitude higher than MTBE concentrations reported in the recovery wells. MTBE has been identified in samples from the recovery wells and monitoring well MW-2 at concentrations higher than have been reported for gasoline.

Observations during drilling indicated generally clayey soil with interbedded sand and silty sand. There may be shallow perched water zones at depths shallower than five feet below the ground surface. The soil boring logs for the site indicate that this interval may be impacted with diesel or gasoline. Static groundwater levels in the recovery wells has generally been shallower than three feet below the ground surface.

Containers located on the south side of the site, east and west of the building at the site, have been removed. The containers were in areas more directly downgradient of the UST area than the existing monitoring wells. Further investigation of the dispenser island area and the former container areas is recommended.

Professional Certification

This report has been prepared by the staff of W.A. Craig, Inc., under the professional supervision of the persons whose seals and signatures appear hereon. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analysis, conclusions and recommendations contained in this report are based upon site conditions as they existed at the time of quarterly monitoring and sampling and they are subject to change.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this report. W.A. Craig, Inc., recognizes that the limited scope of services performed in execution of this scope of work may not be appropriate to satisfy the needs, or requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of the user. There is no other warranty, either expressed or implied.

The next quarterly sampling event is scheduled for February, 1998. We appreciate this opportunity to be of service to you on this project. Should you have any questions regarding this report please call us at (707) 252-3353.

Sincerely,
W.A. Craig, Inc.,

REGISTERED ENVIRONMENTAL ASSESSOR
WILLIAM A. CRAIG, II
No. 01414
Expires 6-98
STATE OF CALIFORNIA

W. A. Craig
Principal

REGISTERED PROFESSIONAL GEOLOGIST
GEOFFERY A. FIEDLER
No. 6340
Exp. 9/30/99
STATE OF CALIFORNIA

Geoffery A. Fiedler, R.G.
Senior Geologist

WAC/ GAF:gaf

Attachments:
Table 1 - Groundwater Elevations
Table 2 - Groundwater Sample Analytical Results
Table 3 - Product Recovery Summary
Figure 1 - Site Location Map
Figure 2 - Groundwater Elevation Contour Map, 9/9/97
Figure 3 - Groundwater Elevation Contour Map, 919/97
A - Groundwater Sampling Logs
B - Laboratory Analytical Reports

cc: Larry Seto, Alameda County Department of Environmental Health

TABLE 1

Groundwater Elevations
1107 5th Street, Oakland, CA

Well Number	Date	Top of Casing* (ft)	Depth to Water (ft)	Static Water Elevation (ft)
MW-1	10-21-96	3.84	5.08	-1.24
	11-04-96		3.02	0.82
	3-04-97		2.28	1.56
	6-12-97		4.80	-0.96
	7-14-97		2.66	1.18
	9-09-97		2.45	1.39
	9-19-97		2.60	1.24
MW-2	10-21-96	4.48	4.66	-0.18
	11-04-96		4.60	-0.12
	3-04-97		3.68	0.80
	6-12-97		3.70	0.78
	7-14-97		4.16	0.32
	9-09-97		3.88	0.60
	9-19-97		4.50	-0.02
MW-3	10-21-96	4.81	7.66	-2.85
	11-04-96		5.70	-0.89
	3-04-97		11.38	-6.57
	6-12-97		5.18	-0.37
	7-14-97		7.96	-3.15
	9-09-97		10.16	-5.35
	9-19-97		12.80	-7.99
RW-E**	6-13-97	5.26	3.11	2.15
	7-14-97		7.96	-2.70
	9-09-97		not measured	
	9-19-97		3.84	1.42
RW-W**	6-13-97	4.65	2.88	1.77
	7-14-97		3.08	1.57
	9-09-97		not measured	
	9-19-97		3.40	1.25

Notes: * Elevations are based upon the City of Oakland Datum #16NW15.

** Elevations surveyed by W.A.Craig, 6-12-97. Referenced to monitoring wells MW-1 and MW-2.

TABLE 2

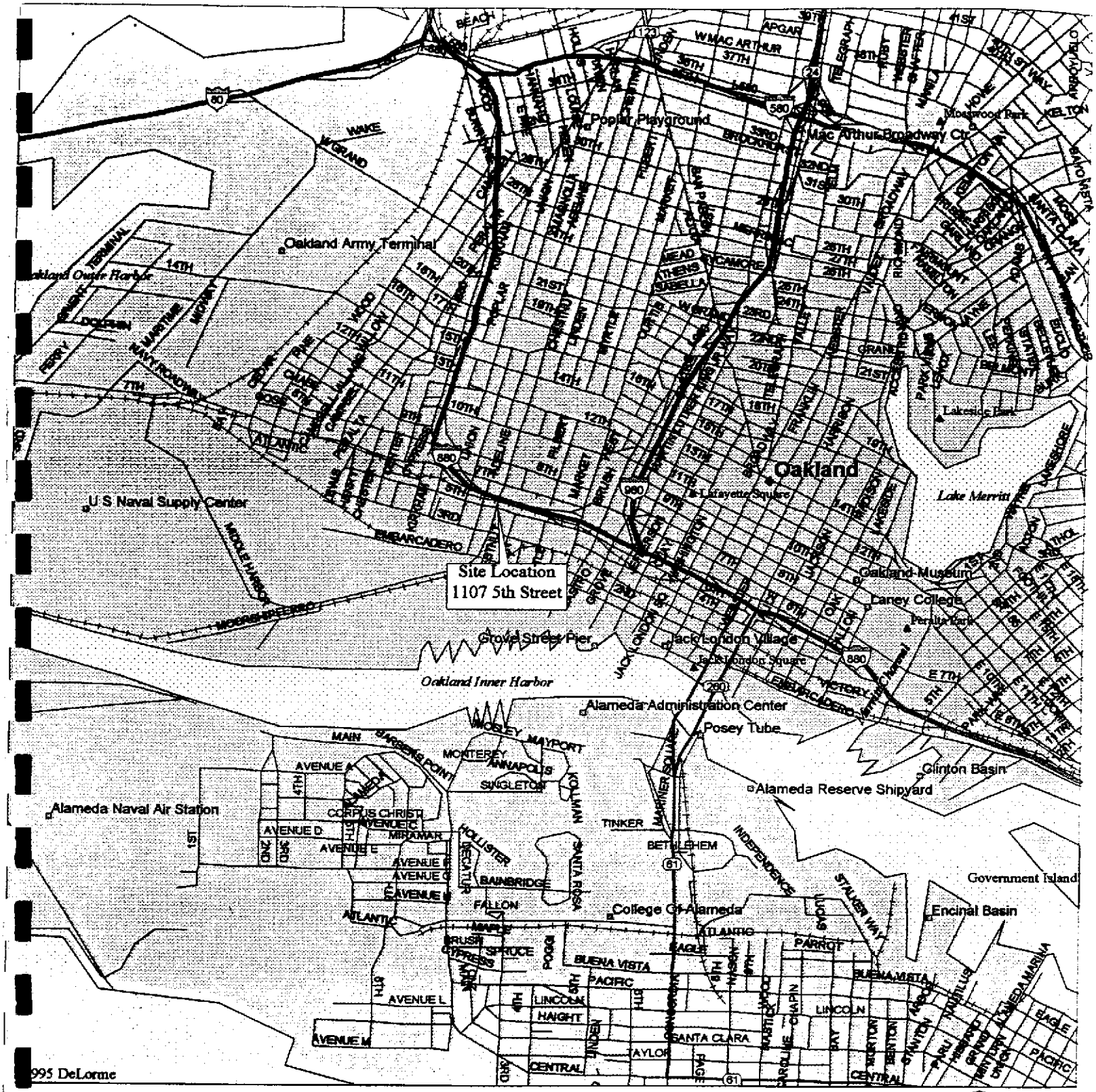
Groundwater Sample Analytical Results
1107 5th Street, Oakland, California
Analytical Results in micrograms per liter

Sample	Date	ANALYTES (ug/l)						
		Diesel	TPH-g	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	11-04-96	**220**	ND	ND	ND	ND	ND	ND
	3-05-97	**230**	ND	ND	ND	ND	ND	ND
	6-12-97	**290**	ND	ND	ND	ND	ND	ND
	9-09-97	**180**	ND	ND	ND	ND	ND	ND
MW-2	11-04-96	**2,700**	**910**	**470,000**	**120**	**23**	**3.5**	**51**
	3-05-97	**2,300**	**4,400**	**760,000**	**1,500**	**51**	**24**	**100**
	6-12-97	**2,400**	**3,600**	**840,000**	**1,200**	**14**	**12**	**40**
	9-09-97	**970**	**3,700**	**470,000**	**570**	**31**	**19**	**60**
MW-3	11-04-96	**310**	ND	**1,000**	ND	ND	ND	ND
	3-05-97	**210**	ND	**13**	ND	ND	ND	ND
	6-12-97	**94**	ND	**17**	ND	ND	ND	ND
	9-09-97	**2,300**	ND	**12**	ND	ND	ND	ND
RW-W	6-12-97	**51,000**	**27,000**	**58,000**	**4,000**	**360**	**860**	**7,200**
	9-09-97	NS	NS	NS	NS	NS	NS	NS
RW-E	6-12-97	**31,000**	**31,000**	**32,000**	**1,900**	**3,100**	**250**	**12,000**
	9-09-97	NS	NS	NS	NS	NS	NS	NS
California MCL		None Listed	None Listed	40*	1	150	680	1,750

Notes:
ND = Not detected at the laboratory reported limit of detection.
NS = Not Sampled.
MCL = Maximum Contaminant Level, Drinking Water Standards and Health Advisories Table, EPA document dated August, 1995.
*California Water Quality Goals-Organic Constituents, Human Health and Welfare, Marshak, September 1991.

TABLE 3
Product Recovery Summary
1107 5th Street
Oakland, California

Recovery Well	Date	Personnel	PRODUCT THICKNESS/VOLUME				Observations & Comments
			Product Thickness	Amount Recovered	Cumulative Recovered Product (ounces)	(gallons)	
RW-W	07-Mar-97	R. Gentry	Not Measured	None	0	0	Installed skimmer
	20-Mar-97	R. Gentry	Not Measured	None	0	0	Remove Skimmer for repairs (water in collection vessel)
	01-Apr-97	R. Gentry	0.2 inches	full	47	0.37	
	25-Apr-97	G. Ratliff	0.2 inches	full	94	0.73	
	29-Apr-97	G. Fiedler	0.2 inches	full	141	1.10	
	30-Apr-97	G. Fiedler	0.2 inches	half full	164	1.28	
	14-May-97	G. Fiedler	0.2 inches	full	211	1.65	
	28-May-97	G. Fiedler	0.2 inches	full	258	2.02	
	11-Jun-97	G. Fiedler	0.2 inches	full	305	2.38	
	01-Jul-97	G. Fiedler	0.2 inches	full	352	2.75	
	08-Jul-97	G. Fiedler	0.2 inches	none	352	2.75	Water level below floating separator, adjusted skimmer
	14-Jul-97	K. Couch	0.1 inches	full	399	3.12	Normal skimmer operation
	23-Jul-97	G. Fiedler	0.1 inches	full	446	3.48	
	09-Sep-97	J. Smith	0.1 inches	full	493	3.85	
	19-Sep-97	J. Smith	0.1 inches	full	540	4.22	
RW-E	07-Mar-97	R. Gentry	No product	None	0	0	No sheen - slight hydrocarbon odor
	20-Mar-97	R. Gentry	Not Measured	None	0	0	as above
	01-Apr-97	R. Gentry	None	None	0	0	as above
	25-Apr-97	G. Ratliff	None	None	0	0	as above
	29-Apr-97	G. Fiedler	None	None	0	0	as above
	30-Apr-97	G. Fiedler	None	None	0	0	as above
	14-May-97	G. Fiedler	None	None	0	0	Some 'blebs' of product observed
	28-May-97	G. Fiedler	None	None	0	0	As above
	11-Jun-97	G. Fiedler	None	None	0	0	As above
	14-Jul-97	K. Couch	None	None	0	0	No sheen, h/c odor present,
	09-Sep-97	J. Smith	None	None	0	0	No sheen, h/c odor present,
	19-Sep-97	J. Smith	None	None	0	0	No sheen, h/c odor present,



Project No: 3628

Date: June 1997

Checked by: GAC 2/24/98

Site Location Map

Rino Pacific
1107 5th Street
Oakland, California

Figure 1

W. A. CRAIG, INC.
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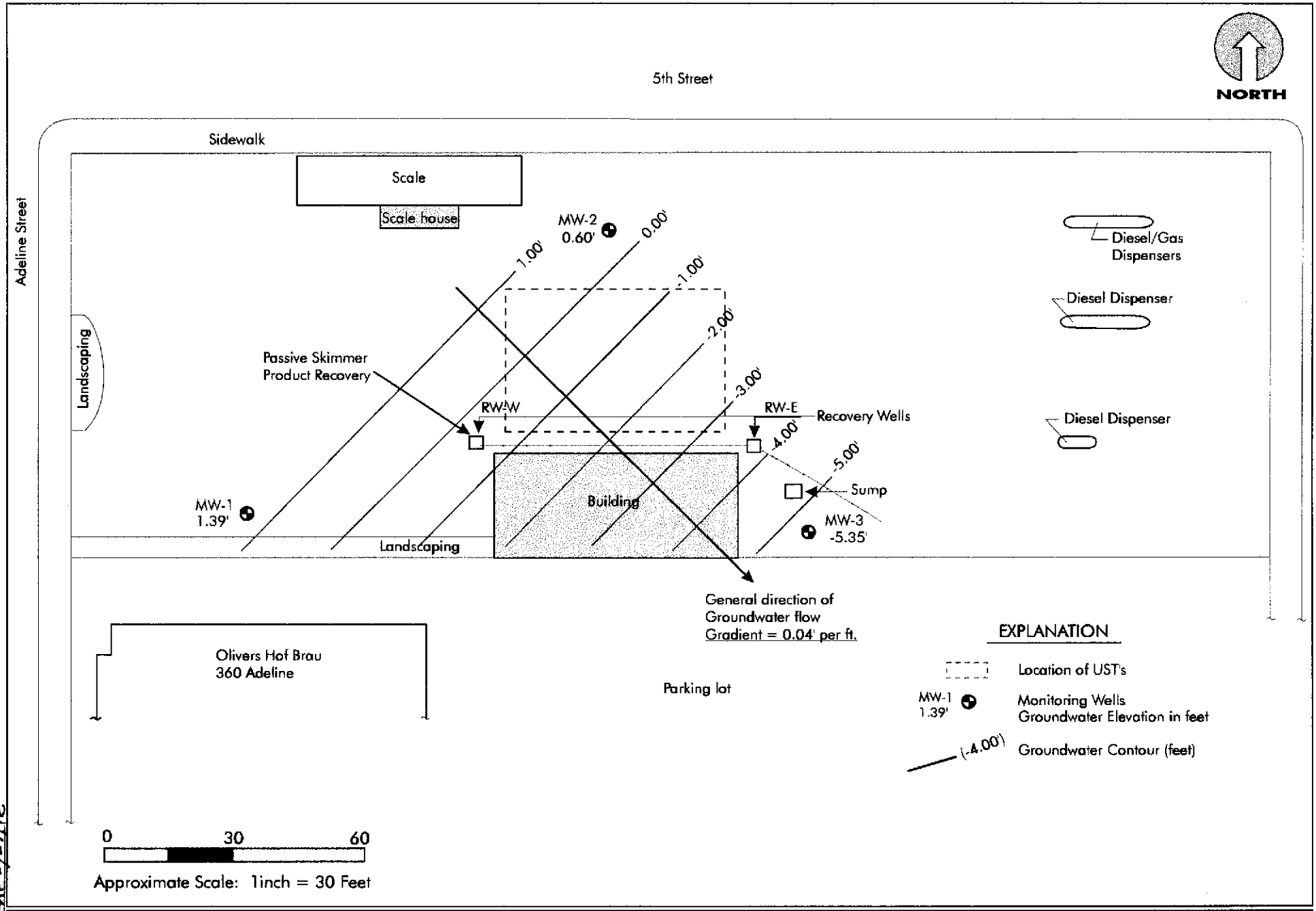

Checked by: SAC 2/24/98

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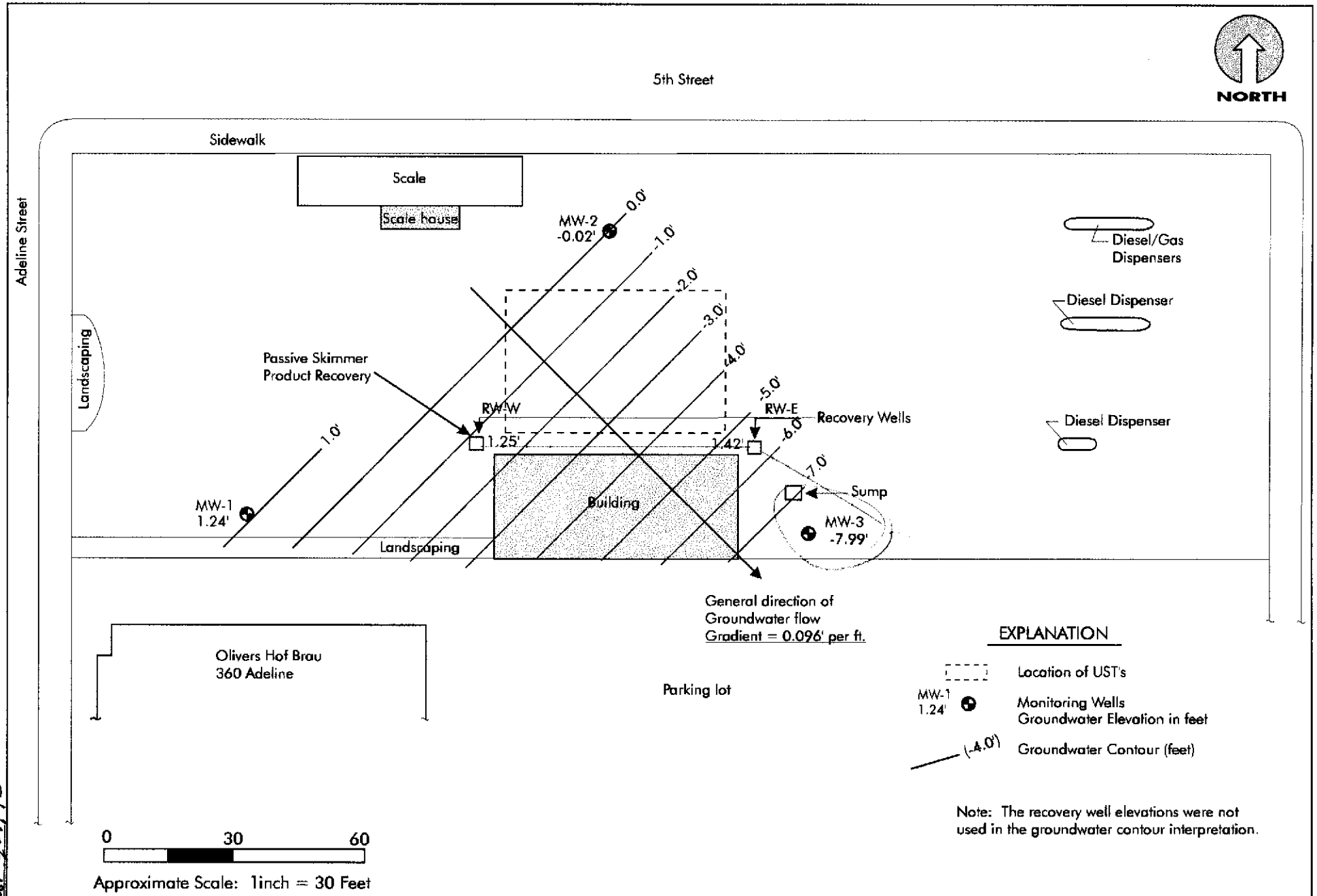
Project # 3628
January 1998

Groundwater Contour 9/9/97
Rino Pacific
1107 5th Street
Oakland, CA

Figure 2



Checked by: GAE 2/24/98

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Project # 3628
January 1998

Groundwater Contour 9/19/97
Rino Pacific
1107 5th Street
Oakland, CA

Figure 3

ATTACHMENT A
MONITORING WELL SAMPLING LOGS

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW3. FIELD PERSON(S): [signature]

DATE STARTED: 9/9/97

TIME STARTED: 11:47AM JOB NUMBER: 3628

DATE COMPLETED: 9/9/97. JOB NAME: [illegible]

TIME COMPLETED: 11:59AM.

DEPTH TO BOTTOM OR CASING LENGTH	WELL INSIDE DIAMETER
TOTAL DEPTH TO BOTTOM 14.72 - DEPTH TO WATER = 10.16 = Δ(FT) 4.56	VOLUME FACTOR V.F.= GAL/FT: 1"=0.041, 1-1/2"=0.092, 2"=0.163, 3"=0.367, 4"=0.653, 6"=1.469, 8"=2.611, 12"=5.875
ΔH (FT) 4.56 X (V.F.) = 0.163 = WELL CASING VOLUME (GAL) 0.74	
DATE(S) PURGED:	WELL DEWATERED [✓] YES [ ] NO
PURGE METHOD: 12 Volt Pump.	DATE SAMPLED: 9/9/97
INITIAL DEPTH TO WATER: 10.16	TIME SAMPLED: 12:05
TOTAL VOLUME REMOVED (GAL): 5 gallons.	SAMPLING METHOD: Bailer disposable
CASING VOLUMES REMOVED: 6.76	WEATHER CONDITIONS: Good Sunny.
PURGE RATE (GPM): 0.05.	PURGES/SAMPLED BY: [signature]
DEPTH TO WATER AFTER RECOVERY ______ (FT) = ______	% RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS;

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	ELECTRICAL CONDUCTIVITY	PH	TURBIDITY (NTU)
11:47 Im	1	75.6	1000 17.36	6.55	Clear
Rest 11.55 "	3	76.9	1000 12.97	5.72	Clear
11.59 "	5	76.5	1000 12.85	5.69	Clear

COMMENTS: [illegible handwriting] Slight [illegible] Smell. [illegible] in sample.

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW2
FIELD PERSON(S): [signature]
DATE STARTED: 9/9/97
TIME STARTED: 12:10 PM
JOB NUMBER: 3628
DATE COMPLETED: 9/9/97
JOB NAME: Rond Pacific
TIME COMPLETED: 12:15 PM

DEPTH TO BOTTOM OR CASING LENGTH	WELL INSIDE DIAMETER
TOTAL DEPTH TO BOTTOM 12.86 - DEPTH TO WATER = 3.88 = Δ(FT) 8.98	VOLUME FACTOR V.F. = GAL/FT: 1"=0.041, 1-1/2"=0.092, 2"=0.163 (checked), 3"=0.367, 4"=0.653, 6"=1.469, 8"=2.611, 12"=5.875
Δ H (FT) 8.98 X (V.F.) = .163 = WELL CASING VOLUME (GAL) 1.46	
DATE(S) PURGED:	WELL DEWATERED [X] YES [ ] NO
PURGE METHOD: 12 Volt Pump	DATE SAMPLED: 9/9/97
INITIAL DEPTH TO WATER: 3.88	TIME SAMPLED: 12:15PM
TOTAL VOLUME REMOVED (GAL): 6 gallons	SAMPLING METHOD: Bailer Disposable
CASING VOLUMES REMOVED: 4.11	WEATHER CONDITIONS: Good Sunny 70°
PURGE RATE (GPM): 1 GPM	PURGES/SAMPLED BY: [signature]

DEPTH TO WATER AFTER RECOVERY ________ (FT) = ________ % RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS;

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	ELECTRICAL CONDUCTIVITY	PH	TURBIDITY (NTU)
12:10	3	81.0	(1000) 3.74	5.36	Clear light
12:12	5	79.9	(1000) 4.16	5.50	Clear light
12:13 Dry					
12:14 Restart	6	79.7	(1000) 4.12	5.48	Clear light

COMMENTS: Head pressure when opened Slight odor. Noted Sheen or Detected in Bailer surface. Slight Chemical odor

19.10
2.45
16.65

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW1.
FIELD PERSON(S): [signature]

DATE STARTED: 9/9/97

TIME STARTED: 11.22 AM
JOB NUMBER: 3628

DATE COMPLETED: 9/9/97
JOB NAME: Rino Pacific

TIME COMPLETED: 11.35 AM

DEPTH TO BOTTOM OR CASING LENGTH

TOTAL DEPTH TO BOTTOM 19.10 - DEPTH TO WATER = 2.45 = Δ(FT) 16.65

Δ H (FT) 16.65 X (V.F.) = .0163 = WELL CASING VOLUME (GAL) 2.71

WELL INSIDE DIAMETER

VOLUME FACTOR V.F.= GAL/FT: 1"=0.041, 1-1/2"=0.092, 2"=0.163 ✓, 3"=0.367, 4"=0.653, 6"=1.469, 8"=2.611, 12"=5.875

DATE(S) PURGED:
PURGE METHOD: 12 Volt Pump.
INITIAL DEPTH TO WATER: 2.45
TOTAL VOLUME REMOVED (GAL): 11 gallons
CASING VOLUMES REMOVED: 4.06.
PURGE RATE (GPM): .05 GPM

WELL DEWATERED [✓] YES [ ] NO
DATE SAMPLED: 9/9/97
TIME SAMPLED: 11.35 AM
SAMPLING METHOD: Bailer disposable
WEATHER CONDITIONS: Good Sunny 70
PURGES/SAMPLED BY: [signature]

DEPTH TO WATER AFTER RECOVERY ________ (FT) = ________ % RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS;

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	ELECTRICAL CONDUCTIVITY	PH	TURBIDITY (NTU)
11.22	1	72.9	(100) 12.30	8.25	Light.
11.25	3	73.4	8.17	7.32	"
11.27	5	72.2	8.69	7.10	"
11.30	7	71.5	8.81	6.82	"
11.32	9	71.3	9.2?	6.78	"
11.34	11	70.3	10.66	6.67	"
11.35 Pump dry					
	0				

COMMENTS: Head pressure when opened. Slight Odor more sewage smell. Bolts missing on well box

McCAMPBELL ANALYTICAL INC.
110 Second Avenue South, #D7, Pacheco, CA 94553
Telephone : 510-798-1620 Fax : 510-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

W. A. Craig, Inc.	Client Project ID: #3628; Rino Pacific	Date Sampled: 09/09/97
P.O. Box 448		Date Received: 09/11/97
Napa, CA 94559-0448	Client Contact: Geoff Fiedler	Date Extracted: 09/11-09/12/97
	Client P.O:	Date Analyzed: 09/11-09/12/97

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

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Recovery Surrogate
80700	MW1	W	ND	ND	ND	ND	ND	ND	96
80701	MW3	W	ND,i	12	ND	ND	ND	ND	94
80702	MW2	W	3700,c	470,000	570	31	19	60	97
80703	Trip Blank	W	ND	ND	ND	ND	ND	ND	105
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* 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 coelutes 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?; e) 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.

DHS Certification No. 1644

for Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 Second Avenue South, #D7, Pacheco, CA 94553
Telephone : 510-798-1620 Fax : 510-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

W. A. Craig, Inc.	Client Project ID: #3628; Rino Pacific	Date Sampled: 09/09/97
P.O. Box 448		Date Received: 09/11/97
Napa, CA 94559-0448	Client Contact: Geoff Fiedler	Date Extracted: 09/11/97
	Client P.O:	Date Analyzed: 09/11-09/12/97

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	% Recovery Surrogate
80700	MW1	W	180,b	104
80701	MW3	W	2300,a,g,i	97
80702	MW2	W	970,a	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	
		S	1.0 mg/kg	

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

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

+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.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/11/97 Matrix: Water

Analyte	Concentration (mg/L) Sample #(80583)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	97.1	102.8	100.0	97.1	102.8	5.7
Benzene	0.0	9.9	10.6	10.0	99.0	106.0	6.8
Toluene	0.0	10.1	10.9	10.0	101.0	109.0	7.6
Ethyl Benzene	0.0	9.9	10.6	10.0	99.0	106.0	6.8
Xylenes	0.0	29.9	31.8	30.0	99.7	106.0	6.2
TPH(diesel)	0	142	143	150	94	95	0.8
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100