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

GROUNDWATER MONITORING REPORT
March 1997

1107 Fifth Street
Oakland, California

May 15, 1997
W.A. Craig, Inc.
Project No. 3628

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

May 15, 1997

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

Subject: **REPORT - Groundwater Monitoring** **Project No. 3628**
March 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 March 4 and 5, 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. Included in this report are WAC's conclusions and recommendations regarding groundwater quality.

This report includes groundwater quality and elevation data for three groundwater monitoring wells, installed at the site by WAC in October, 1996. Details of the installation of the wells are 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;
- Purging and sampling groundwater from the monitoring well at the site;
- Analyzing groundwater samples for total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as gasoline (TPH-g), and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE); and
- Preparation of this Report.

Groundwater Elevations

On March 4, 1997, WAC technical staff measured the water levels in the monitoring wells 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 March 4, 1997 was 0.090 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 **Figure 2.**

Groundwater Sampling

Three to four well casing volumes were purged from the monitoring wells on March 4, 1997. Because the wells are slow to recover, groundwater samples were collected on the following day. 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 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 in each of the monitoring wells at concentrations of 230 micrograms per liter (ug/l) in MW-1, 2300 ug/l in MW-2, and 210 ug/l in MW-3. The reported diesel concentration for samples from monitoring well MW-1 were slightly higher than previously reported and the results from monitoring wells MW-2 and MW-3 were lower than previously reported.

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 reported significantly higher (over 4x) concentrations of gasoline than previously reported. Benzene was detected in the samples from monitoring well MW-2 at a concentration of 1500 ug/l. The benzene concentration is in excess of one order of magnitude higher than reported during the previous quarter (120 ug/l). Toluene, ethylbenzene, and xylenes also showed increases although the concentrations detected are below California Maximum Contaminant Levels (MCLs) for drinking water.

MTBE was not detected in the sample from monitoring well MW-1 during this and the

previous quarter. The MTBE concentrations reported for samples collected from monitoring well MW-2 have increased from 470000 ug/l to 760000 ug/l during this quarter. MTBE was detected in groundwater samples from monitoring well MW-3 at a concentration of 13 ug/l. This concentration is significantly lower than previously reported (1000 ug/l).

Free Product Recovery

On March 7, 1997 WAC personnel installed a passive product recovery skimmer into one of the recovery sumps at the site. Schematic details of the skimmer are attached to this report. Approximately 1/4-inch of product was observed on the surface of the water in the recovery sump located on the west side of the underground storage tanks (RW-W). The recovery sump located on the east side of the underground storage tanks (RW-E) did not appear to have any free product, sheen, or hydrocarbon odor.

WAC personnel have intermittently returned to the site to decant product from the skimmer. The results of these visits are presented in **Table 3**. The product is currently stored in a 55-gallon drum in a secure area of the site. Approximately 211 pints of product has been collected since the installation of the skimmer. The product thickness in recovery well RW-W has been relatively consistent with the initial observations, approximately 1/4 inch.

Conclusions and Recommendations

The groundwater flow direction is toward the southeast which is consistent with flow directions previously observed at the site. The gradient interpretation assumes hydrologic continuity in the subsurface between the three wells at the site. The gradient evaluation has been significantly influenced by low 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. It has been reported that water levels at the site respond to tidal fluctuations. Water levels fluctuate significantly, however the flow direction has been consistently south to southeast.

Diesel concentrations in groundwater at the site appear relatively stable or are decreasing. Gasoline, MTBE, and benzene concentrations reported in groundwater samples from MW-2 have increased significantly. The cause of the increase is not understood at this time.

The increasing concentrations of gasoline, benzene, and MTBE in monitoring well MW-2 should be investigated further. In WAC's opinion, interim remedial action is not recommended at this time as downgradient wells have not shown similar increasing trends and the slow recovery of the monitoring wells suggests low groundwater transmissivity. There have been areas at the site where free product has been observed. Free product was observed in soil during drilling during the subsurface investigation and on water in recovery well RW-W.

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 monitoring wells have generally been

shallower than three feet below the ground surface. Mr. Reed Rinehart has stated that product recovery after the release was successful and that nearly all of the inventory lost was accounted for in the recovery process.

Further investigation of the site is recommended to assess the subsurface conditions on the southeast portion of the site, along Chestnut Street, and south of the site in the parking lot of the adjacent property. It is WAC's observation that there are significant areas impacted by the release(s) of fuel product but that the free product portion of the release appears to be limited in extent. The dissolved portion of the gasoline constituents appears to be concentrated in areas near the USTs and product delivery systems (product lines and dispensers).

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.

Closing Statement

The next quarterly sampling event is scheduled for June, 1997. 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 6-97
STATE OF CALIFORNIA

William A. Craig, II, R.E.A. 01414
Principal

REGISTERED PROFESSIONAL GEOLOGIST
GEOFFERY A. FIEDLER
No. 6340
Exp. 9/30/97
STATE OF CALIFORNIA

Geoffery A. Fiedler, R.G.
Principal 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
A - Groundwater Sampling Logs
B - Laboratory Analytical Reports
C - Product Skimmer - Details

cc: Jennifer Eberle, Alameda County Department of Environmental Health

TABLE 1

Groundwater Elevations
1107 5th Street, Oakland, CA

Well Number	Date	Top of Casing*	Depth to Water	Static Water Elevation
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
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
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

Notes: * Elevations are based upon the City of Oakland Datum #16NW15.
All elevations/depths measured in feet.

TABLE 2

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

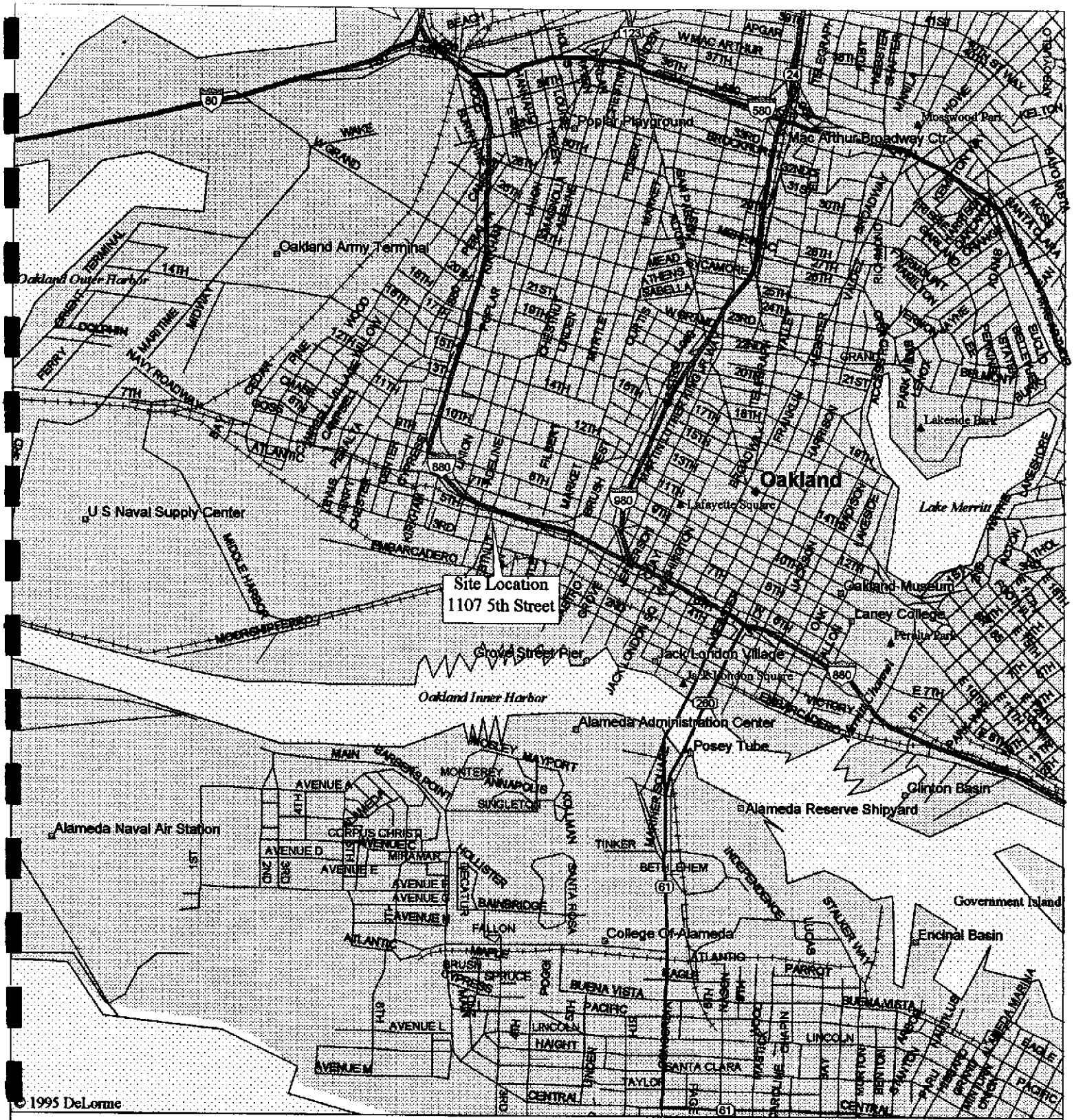
Sample	Date	ANALYTES						
		Diesel	TPH-g	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	11-04-96	**220**	ND	ND	ND	ND	ND	ND
	3-05-97	**230**	ND	ND	ND	ND	ND	ND
MW-2	11-04-96	**2700**	**910**	**470000**	**120**	**23**	**3.5**	**51**
	3-05-97	**2300**	**4400**	**760000**	**1500**	**51**	**24**	**100**
MW-3	11-04-96	**310**	ND	**1,000**	ND	ND	ND	ND
	3-05-97	**210**	ND	**13**	ND	ND	ND	ND
California MCL		None Listed	None Listed	40*	1	150	680	1750

Notes:
ND = Not detected at the laboratory reported limit of detection.
MW = Sample collected from monitoring well.
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, Marshack, 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	Recovered (total in gallons)	
RW-W	03/07/97	R. Gentry	Not Measured	None		Installed skimmer
RW-1	03/20/97	R. Gentry	Not Measured	None	0	Remove Skimmer for repairs (water in collection vessel)
	04/01/97	R. Gentry	0.2 inches	full	47	
	04/25/97	G. Ratliff	0.2 inches	full	94	
	04/29/97	G. Fiedler	0.2 inches	full	141	
	04/30/97	G. Fiedler	0.2 inches	half full	164	
	05/14/97	G. Fiedler	0.2 inches	full	211	
RW-E	03/07/97	R. Gentry	No product	None	0	No sheen - slight hydrocarbon odor
RW-2	03/20/97	R. Gentry	Not Measured	None	0	as above
	04/01/97	R. Gentry	None	None	0	as above
	04/25/97	G. Ratliff	None	None	0	as above
	04/29/97	G. Fiedler	None	None	0	as above
	04/30/97	G. Fiedler	None	None	0	as above
	05/14/97	G. Fiedler	None	None	0	Some 'blebs' of product observed



Project No. 3628

January 1997

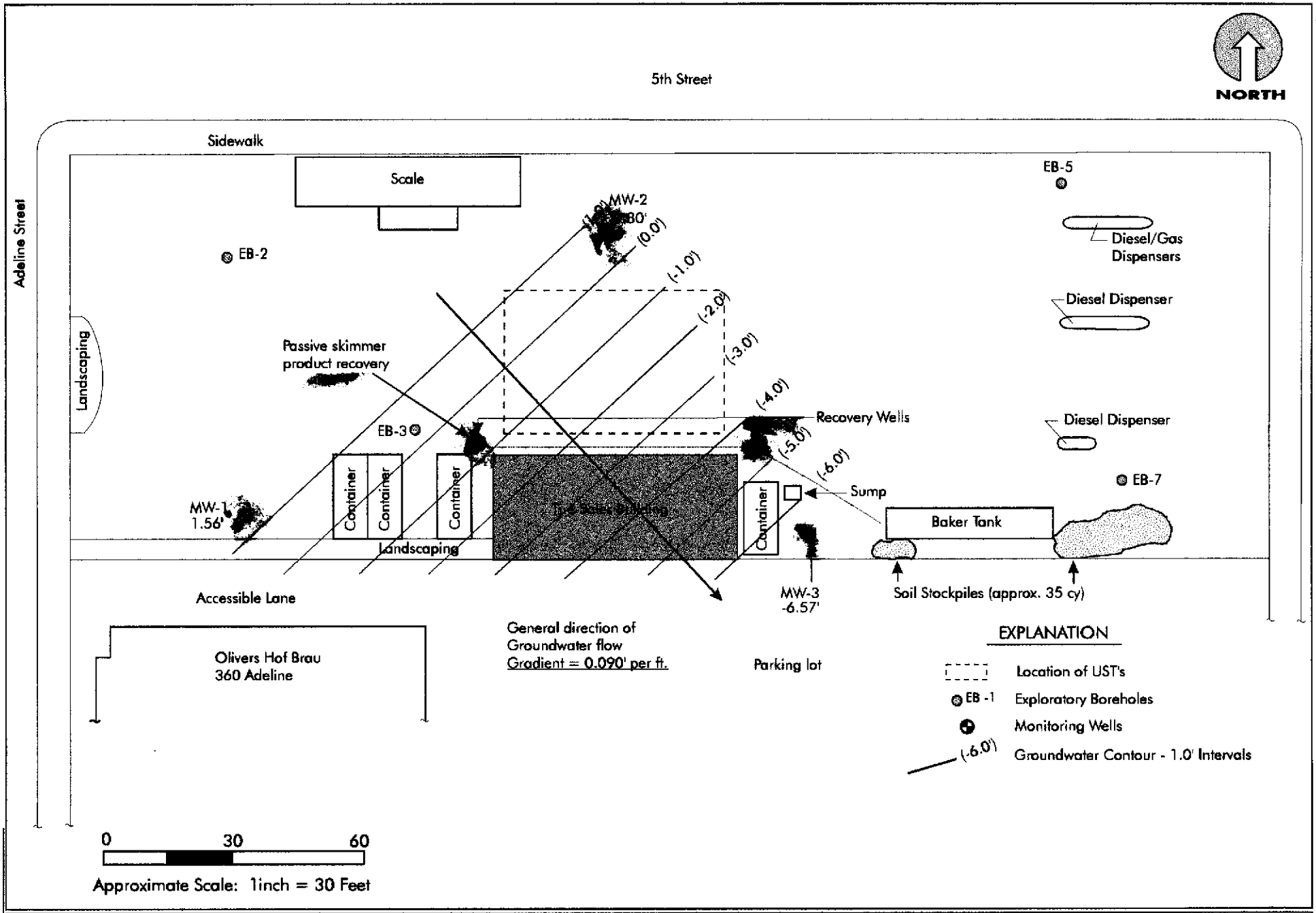
SITE LOCATION MAP

Rino Pacific
1007 5th Stree
Oakland, California

Figure 1

Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P. O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385



Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P.O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385

Groundwater Contour 03/04/97

Project No. 3628.2
March 1997

Rino Pacific
1107 5th Street
Oakland, CA

Figure 2

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW-1 FIELD PERSON(S): G FIEDLER

DATE STARTED: 3/4/97

TIME STARTED: 1320 JOB NUMBER:

DATE COMPLETED: 3/5/97 JOB NAME: 1107 5TH ST

TIME COMPLETED: 0825

DEPTH TO BOTTOM OR CASING LENGTH

TOTAL DEPTH TO BOTTOM: 19.10 − DEPTH TO WATER: ~~6.07~~ 4.19 3-30 2.28 = Δ(FT) 16.82 3/5-1.9

Δ H (FT): 16.82 X (V.F.): .16 = WELL CASING VOLUME (GAL): 2.7g

WELL INSIDE DIAMETER

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

DATE(S) PURGED: 3/4/97

PURGE METHOD: BAILED

INITIAL DEPTH TO WATER: 2.28

TOTAL VOLUME REMOVED (GAL): 6 GAL

CASING VOLUMES REMOVED: ~2

PURGE RATE (GPM): < 1 GPM

WELL DEWATERED [✓] YES [ ] NO

DATE SAMPLED: ~~3/4~~ 3/5/97

TIME SAMPLED: 0825

SAMPLING METHOD: BAILER

WEATHER CONDITIONS: CLEAR COOL CALM

PURGES/SAMPLED BY: JEFF FIEDLER

DEPTH TO WATER AFTER RECOVERY 1.9 (FT) = 102 % RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS:

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	x1000 ELECTRICAL CONDUCTIVITY	PH	TURBIDITY
1320	1	70.2	9.24	7.01	~~(NTU)~~
1325	3	68.3	9.78	7.10	CLOUDY
1328	5	68.5	9.98	7.08	"
1340	6	69.0	8.87	6.89	"
0825	SAMPLED 3/5				

COMMENTS: FOAM ON WATER IN WELL. NO SHEEN OR HYDROCARBON ODOR. SLIGHT H_2S ODOR

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW-2 FIELD PERSON(S): G. FIGLER

DATE STARTED: 3/4/97

TIME STARTED: 1625 JOB NUMBER:

DATE COMPLETED: 3/5/97 JOB NAME: 1107 5TH ST

TIME COMPLETED: 0810

DEPTH TO BOTTOM OR CASING LENGTH

TOTAL DEPTH TO BOTTOM 12.86 - DEPTH TO WATER 3.68 = Δ(FT) 9.18

WELL CASING VOLUME (GAL) = Δ H (FT) 9.18 X (V.F.) = 1.5g

WELL INSIDE DIAMETER

VOLUME FACTOR V.F.= GAL/FT

1"=0.041	4"=0.653	
1-1/2"=0.092	6"=1.469	
2"=0.163	8"=2.611	
3"=0.367	12"=5.875	

DATE(S) PURGED: 3/4/95

PURGE METHOD: BAILER

INITIAL DEPTH TO WATER: 3.68

TOTAL VOLUME REMOVED (GAL): 5

CASING VOLUMES REMOVED: 3+

PURGE RATE (GPM): <1

WELL DEWATERED [✓] YES [ ] NO

DATE SAMPLED: 3/5/97

TIME SAMPLED: 0810

SAMPLING METHOD: BAILER

WEATHER CONDITIONS: CLEAR COOL CALM

PURGES/SAMPLED BY: G. FIGLER

DEPTH TO WATER AFTER RECOVERY 3.50 (FT) = 102 % RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS:

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	x1000 ELECTRICAL CONDUCTIVITY	PH	TURBIDITY ~~(NTU)~~
1625	1	72.8	3.78	6.82	CLOUDY YELLOW/GRAY
1630	3	74.8	3.20	6.76	"
1637	5 (DRY)	74.1	3.41	6.78	"
0810	SAMPLED				"

COMMENTS: H2S ODOR, NO SHEEN OR PRODUCT

GROUNDWATER SAMPLING
WELL DEVELOPMENT LOG

WELL NUMBER: MW-3 FIELD PERSON(S): LAF

DATE STARTED: 3/4/97

TIME STARTED: 1610 JOB NUMBER:

DATE COMPLETED: 3/5/97 JOB NAME: 1107 5TH St

TIME COMPLETED: 0740

DEPTH TO BOTTOM OR CASING LENGTH

TOTAL DEPTH TO BOTTOM 14.72 − DEPTH TO WATER 11.79 = Δ(FT) 3.34

11.38
3/5 − 10.83

Δ H (FT) 3.34 X (V.F.) = -16 = WELL CASING VOLUME (GAL) 0.54

DATE(S) PURGED: 3/4/97

PURGE METHOD: BAILED

INITIAL DEPTH TO WATER: 11.38

TOTAL VOLUME REMOVED (GAL): 2 GAL

CASING VOLUMES REMOVED: ~4

PURGE RATE (GPM): 2

WELL INSIDE DIAMETER

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

WELL DEWATERED [✓] YES [ ] NO

DATE SAMPLED: 3/5/97

TIME SAMPLED: 0740

SAMPLING METHOD: BAILER

WEATHER CONDITIONS: CLEAR WARM CALM

PURGES/SAMPLED BY: JEFF FIEDLER

DEPTH TO WATER AFTER RECOVERY 10.83 (FT) = 116 % RECOVERED PRIOR TO SAMPLING

FIELD PARAMETERS:

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE	ELECTRICAL CONDUCTIVITY (1000)	PH	TURBIDITY (NTU)
1616	1	70.7	1.86	6.85	SILTY
1620	2	71.3	1.82	6.87	SILTY
0740	SAMPLED				

COMMENTS: MODERATE H_2S ODOR, PRESSURE RELEASED UPON OPENING WELL, No SHEEN

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

PROJECT NO.	PROJECT NAME																
	1107 5TH ST																
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER																
	A. Fiedler																
DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Lead				Preserved?	REMARKS	LABORATORY I. D. NUMBER
3/5	0825	MW-1	WATER			X	X	X						
	0910	MW-2	↓			X	X	X						
	0940	MW-3				X	X	X						
3/5	0700	TB1	↓		X									

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
A. Fiedler	3/5/97 9:20	Neeta Kunia
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: MAI

TURNAROUND TIME: 5 DAY

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN: G. FIEDLER

McCAMPBELL ANALYTICAL INC.

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

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: 1107 5th Street	Date Sampled: 03/05/97
		Date Received: 03/05/97
	Client Contact: Geoff Fiedler	Date Extracted: 03/05-03/06/97
	Client P.O:	Date Analyzed: 03/05-03/06/97

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	% Rec. Surrogate
74053	MW-1	W	ND	ND	ND	ND	ND	ND	102
74054	MW-2	W	4400,a	760,000	1500	51	24	100	110#
74055	MW-3	W	ND	13	ND	ND	ND	ND	100
74056	TB1	W	---	---	ND	ND	ND	ND	102
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, soil and sludge samples in mg/kg, and all TCLP extracts in mg/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

Edward Hamilton, Lab Director

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

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: 1107 5th Street	Date Sampled: 03/05/97
		Date Received: 03/05/97
	Client Contact: Geoff Fiedler	Date Extracted: 03/05/97
	Client P.O:	Date Analyzed: 03/05/97

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
74053	MW-1	W	230,b	105
74054	MW-2	W	2300,a,d	99
74055	MW-3	W	210,b	99
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	
		S	1.0 mg/kg	

* water samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP and STLC extracts in mg/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: 03/05/97-03/06/97 Matrix: Water

Analyte	Concentration (mg/L) Sample (#74034)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	100.2	100.2	100.0	100.2	100.2	0.0
Benzene	0.0	9.6	9.9	10.0	96.0	99.0	3.1
Toluene	0.0	9.9	9.9	10.0	99.0	99.0	0.0
Ethyl Benzene	0.0	10.3	10.3	10.0	103.0	103.0	0.0
Xylenes	0.0	30.8	30.8	30.0	102.7	102.7	0.0
TPH (diesel)	0	135	129	150	90	86	4.5
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

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: 03/05/97-03/06/97 Matrix: Water

Analyte	Concentration (mg/L) Sample (#74060)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	98.4	97.3	100.0	98.4	97.3	1.2
Benzene	0.0	9.6	9.4	10.0	96.0	94.0	2.1
Toluene	0.0	10.0	9.6	10.0	100.0	96.0	4.1
Ethyl Benzene	0.0	10.4	10.0	10.0	104.0	100.0	3.9
Xylenes	0.0	30.9	30.0	30.0	103.0	100.0	3.0
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

8189 AWAC.733

PROJECT NO.	PROJECT NAME	PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	1107 5TH ST		G. Fiedler

	DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	METALS				Preserved?	REMARKS	LABORATORY I. D. NUMBER
+	3/5	0825	MW-1	WATER			X	X	X						74053
+		0810	MW-2				X	X	X						74054
+		0740	MW-3				X	X	X						74055
✓	3/5	0700	TB1			X									74056

ICE/T ✓ PRESERVATIVE ✓ VOAS | O&G | METALS | OTHER
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT ✓ CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
G. Fiedler	3/5/97 9:20	Nelida Lucio
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

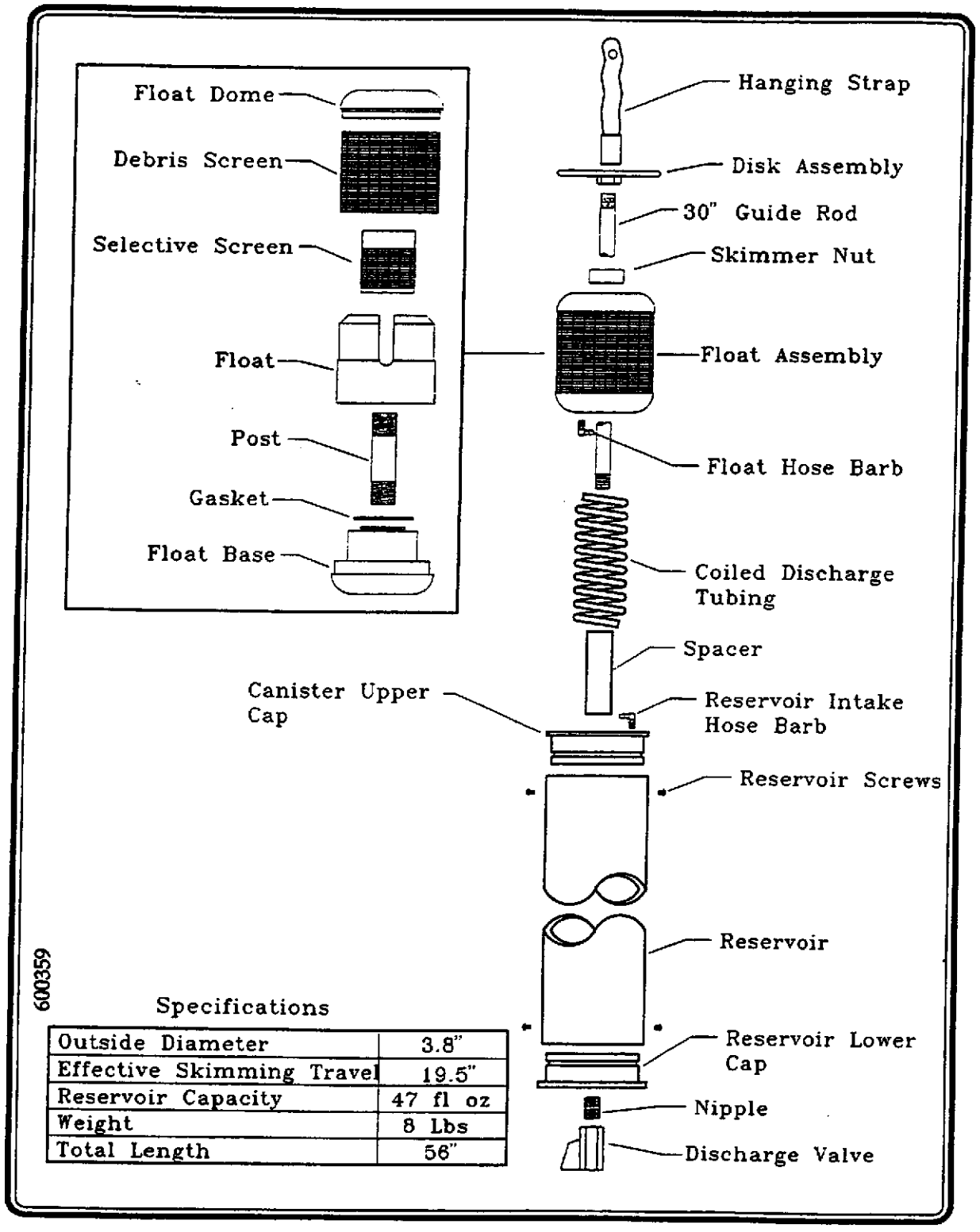
LABORATORY: MAI

TURNAROUND TIME: 5 DAY

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN: G. FIEDLER



Specifications

Outside Diameter	3.8"
Effective Skimming Travel	19.5"
Reservoir Capacity	47 fl oz
Weight	8 Lbs
Total Length	56"

Figure 3 - Four-Inch Passive Selective Oil Skimmer (SOS-4)