Ultramar

Ultramar Inc.
P.O. Box 466
525 W. Third Street
Hanford, CA 93232-0466
(209) 582-0241

91 SEP 16 PM 3:47

Telecopy: 209-584-6113 Credit & Wholesale
209-583-3330 Administrative
209-583-3302 Information Services
209-583-3358 Accounting

September 12, 1991

Mr. Paul A. Smith
P.O. Box 546
Lower Lake, California 95457

SUBJECT: BEACON STATION NO. 721, 44 LEWELLING BLVD., SAN LORENZO, CALIFORNIA

Dear Mr. Smith:

The Alameda County Department of Environmental Health is requiring Ultramar Inc. (formerly Beacon Oil Company) to conduct an environmental investigation related to the operation of the above-referenced Beacon station. In connection with this investigation, Ultramar Inc. (Ultramar) requests permission, at its sole cost and expense, to drill, install, monitor, maintain, and inspect one ground-water monitoring well to be located on the property you own at 15810 Via Granada, San Lorenzo, CA, which is located to the southwest of the Beacon station ("Property"), as shown on the attached site plan. Such permission shall be granted by you under the following terms and conditions:

1. It is understood by the parties hereto that such work as may be conducted, including abandonment of wells, shall be under the sole jurisdiction of State and County regulating agencies ("Agencies") and that the Agencies shall have sole discretion to determine the completeness of any work performed.

2. If land use changes (e.g., building construction) not compatible with the location of the monitoring well warrant abandonment of that well, Ultramar agrees to promptly and properly abandon such well in accordance with the guidelines for abandonment set forth by the governing Agencies.

3. Ultramar agrees to promptly remove any soil resulting from the drilling of the well so that all soil is placed on the Beacon station property. Disposal of such soil shall be the responsibility of Ultramar.

4. Ultramar agrees to hold harmless and indemnify you, from and against all claims, causes of action, damages, cost and expense arising out of or resulting from Ultramar's negligence in drilling, inspecting, maintaining, monitoring, and abandoning the well.

5. The well will take approximately 4 hours to install so the work is anticipated to be completed in half a day. Ultramar, or their consultant, will provide you with at least 24 hours notice before starting work on the Property and a geologist will be present during drilling. Ultramar's consultant will do their best to keep the work area clean during drilling. The well will be covered with a flush mounted utility box; the cover and perimeter seal will be the only parts of the monitoring well visible at the ground surface.

6. The well will require periodic monitoring and sampling as required by the Agencies. Ultramar, or their consultant, will be provided access to the Property to perform monitoring, sampling, and maintenance at such times that will not unreasonably interfere with business activities on the Property.

7. This agreement would be effective until the well is no longer needed or required by the Agencies, at which time the well will be properly destroyed and the ground surface restored to resemble the surrounding ground surface.

8. This Agreement shall be binding on the Assigns, heirs, or successors in interest of Mr. Paul A. Smith and Ultramar Inc.

If the above-described conditions meet with your approval, please sign both copies of this agreement and return one copy to us for our files.

ULTRAMAR INC., a Nevada corporation

By Terrence A. Fox
Terrence A. Fox

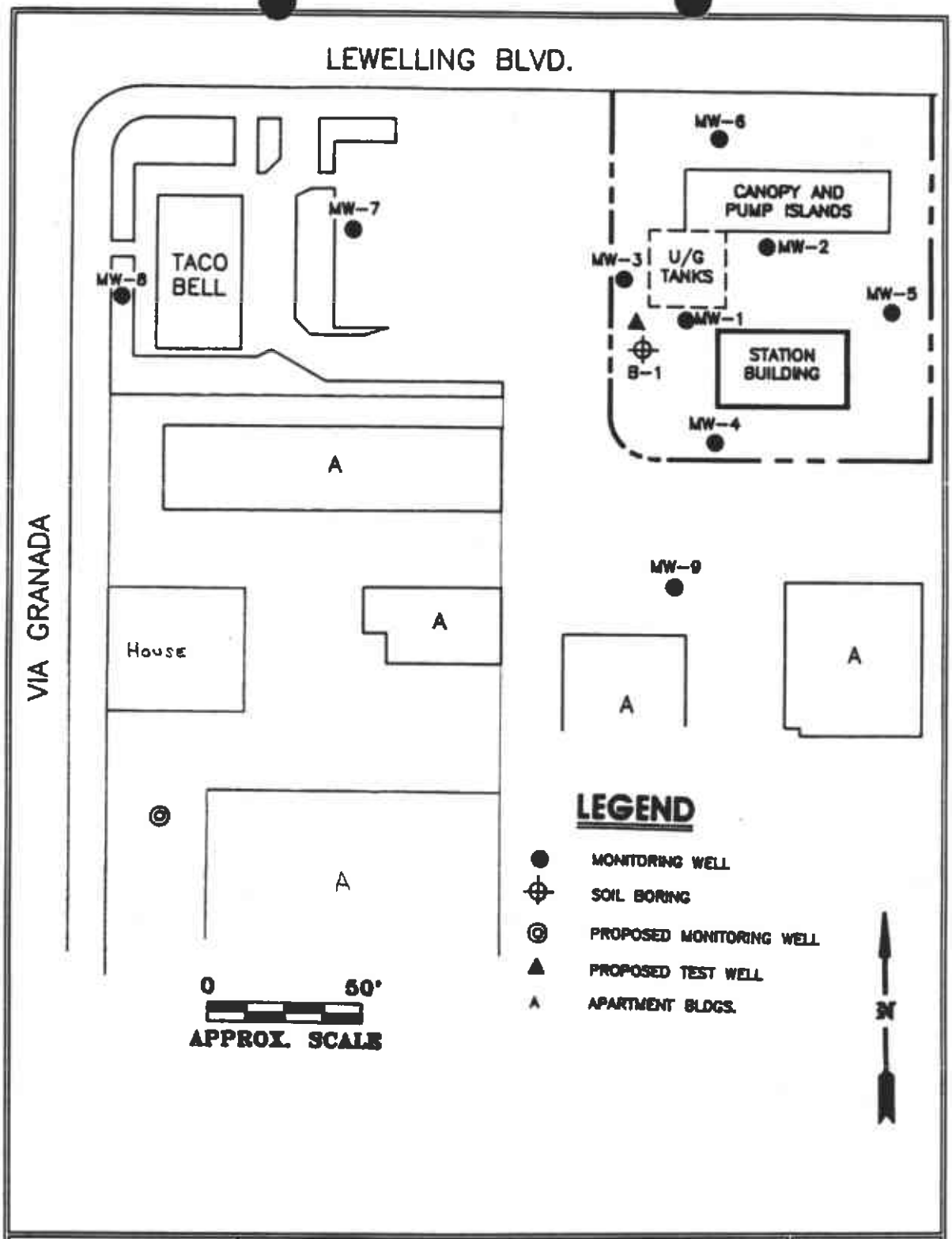
Title SENIOR PROJECT MANAGER

AGREED AND ACCEPTED:

By _____
Paul A. Smith, Owner Date

Attachment: Site Plan

cc: Ms. Pamela J. Evans
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621



GENERALIZED SITE MAP Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, California	9/11/91 Figure 1

Ultramar

Ultramar Inc.
P.O. Box 466
525 W. Third Street
Hanford, CA 93232-0466
(209) 582-0241

91 SEP 16 PM 3:45

Telecopy: 209-584-6113 Credit & Wholesale
209-583-3330 Administrative
209-583-3302 Information Services
209-583-3358 Accounting

September 11, 1991

Mr. and Mrs. Duc Wong
4065 Canyon Crest Road West
San Ramon, California 94583

SUBJECT: BEACON STATION NO. 721, 44 LEWELLING BLVD., SAN LORENZO, CALIFORNIA

Dear Mr. and Mrs. Wong:

The Alameda County Department of Environmental Health is requiring Ultramar Inc. (formerly Beacon Oil Company) to conduct an environmental investigation related to the operation of the above-referenced Beacon station. In connection with this investigation, Ultramar Inc. (Ultramar) requests permission, at its sole cost and expense, to drill, install, monitor, maintain, and inspect one ground-water monitoring well to be located on the property you own adjacent and to the southwest of the Beacon station ("Property"), as shown on the attached site plan. Such permission shall be granted by you under the following terms and conditions:

1. It is understood by the parties hereto that such work as may be conducted, including abandonment of wells, shall be under the sole jurisdiction of State and County regulating agencies ("Agencies") and that the Agencies shall have sole discretion to determine the completeness of any work performed.

2. If land use changes (e.g., building construction) not compatible with the location of the monitoring well warrant abandonment of that well, Ultramar agrees to promptly and properly abandon such well in accordance with the guidelines for abandonment set forth by the governing Agencies.

3. Ultramar agrees to promptly remove any soil resulting from the drilling of the well so that all soil is placed on the Beacon station property. Disposal of such soil shall be the responsibility of Ultramar.

4. Ultramar agrees to hold harmless and indemnify you, from and against all claims, causes of action, damages, cost and expense arising out of or resulting from Ultramar's negligence in drilling, inspecting, maintaining, monitoring, and abandoning the well.

5. The well will take approximately 4 hours to install so the work is anticipated to be completed in half a day. Ultramar, or their consultant, will provide you with at least 24 hours notice before starting work on the Property and a geologist will be present during drilling. Ultramar's consultant will do their best to keep the work area clean during drilling. The well will be covered with a flush mounted utility box; the cover and perimeter seal will be the only parts of the monitoring well visible at the ground surface.

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7. This agreement would be effective until the well is no longer needed or required by the Agencies, at which time the well will be properly destroyed and the ground surface restored to resemble the surrounding ground surface.

8. This Agreement shall be binding on the Assigns, heirs, or successors in interest of Mr. and Mrs. Wong and Ultramar Inc.

If the above-described conditions meet with your approval, please sign both copies of this agreement and return one copy to us for our files.

ULTRAMAR INC., a Nevada corporation

By Terrence A. Fox
Terrence A. Fox

Title SENIOR PROJECT MANAGER

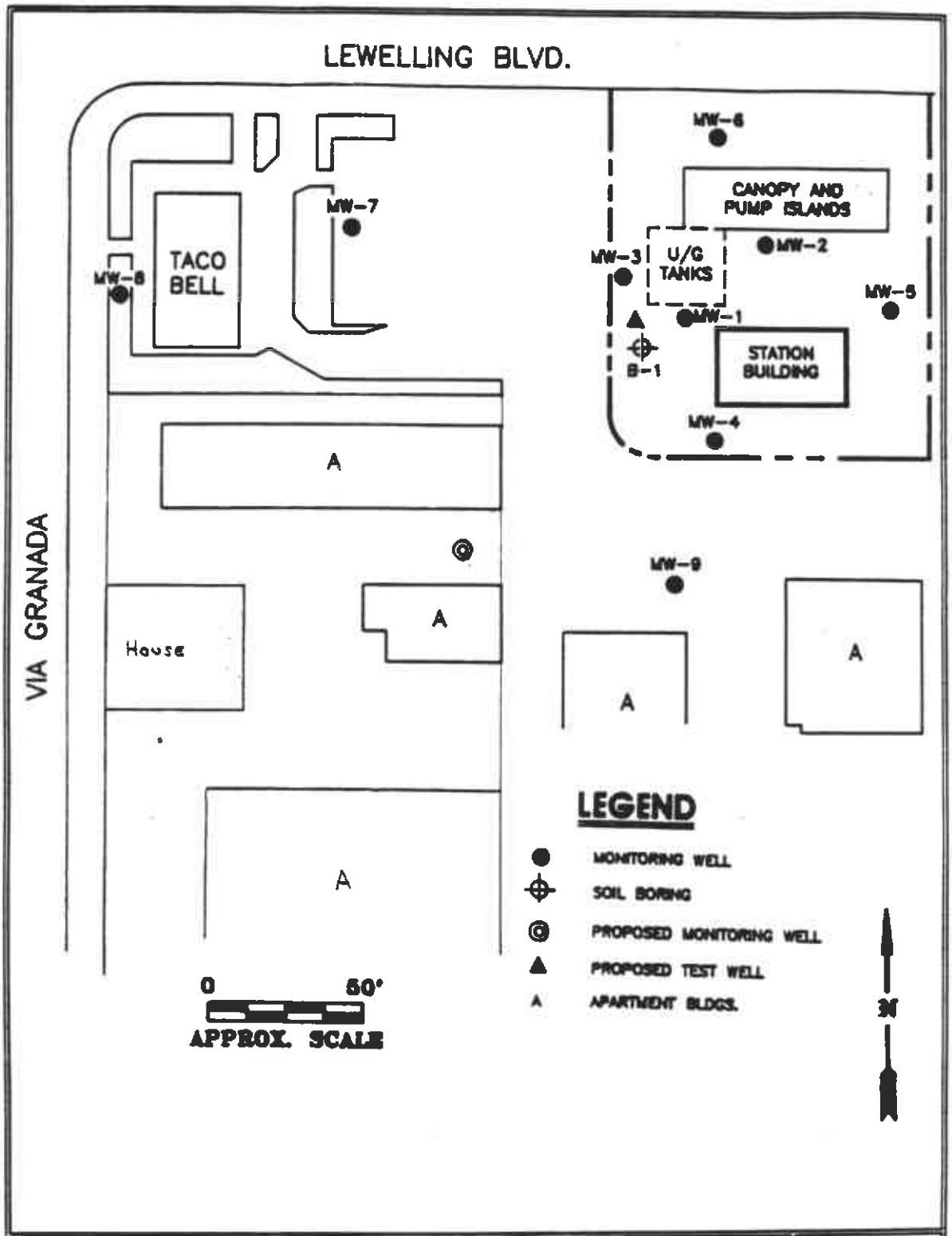
AGREED AND ACCEPTED:

By _____
Duc S. Wong, Co-owner Date

By _____
Oi Y. Wong, Co-owner Date

Attachment: Site Plan

cc: Ms. Pamela J. Evans
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621



GENERALIZED SITE MAP
Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California

9/11/91

Figure 1

GROUNDWATER TECHNOLOGY, INC.
1401 Halyard Drive, Suite 140, West Sacramento, CA 95691, (916) 372-4700
FAX (916) 372-8781

September 11, 1991

Project Number: 02320 1009

Mr. Terrence A. Fox
Environmental Specialist
Ultramar, Inc.
525 West Third Street
Hanford, CA 93230

RE: SECOND QUARTER 1991 MONITORING RESULTS
BEACON STATION #721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

Dear Mr. Fox:

Groundwater Technology, Inc. has completed the second quarter of monitoring and sampling at the above referenced site in accordance with Ultramar, Inc. Task Order No. 721-11-0000-C dated February 5, 1991. The methods and results of the monitoring are documented below. A site location map and a site plan are attached as Figure 1 and Figure 2, respectively.

Monitoring Well Gauging
Prior to well purging and water sample collection on June 25, 1991, Groundwater Technology personnel gauged all accessible site-related monitoring wells to determine the depth to water and the depth to separate-phase petroleum, if present. The well gauging was conducted in accordance with the attached standard operating procedure (SOP). A well monitoring form with gauging data converted to water table elevations is also attached. The water table elevations for June 25, 1991 were used to prepare a potentiometric surface map (Figure 3).

Monitoring Well Sampling
Subsequent to well gauging on June 25, 1991, water quality samples were collected from monitoring wells MW-1, MW-2 and MW-4 through MW-9 in accordance with the attached SOP. A water sample was not collected from MW-3 due to the presence of separate-phase petroleum hydrocarbons in the well. The samples were submitted under a chain-of-custody to Applied Analytical Environmental Laboratories in Fremont, California. Each water sample was analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), and total petroleum hydrocarbons-as-gasoline (TPH-G) by EPA-approved methods 5030 and 602. The analytical data are summarized in Table 1, and the analytical laboratory reports are attached. A dissolved benzene concentration map presented as Figure 4.

Discussion
The potentiometric surface elevation in the site-related groundwater monitoring wells declined an average of 0.8 foot since the last quarterly monitoring conducted on March 28, 1991. The apparent separate-phase petroleum thickness has decreased from a 0.25 foot to 0.04 foot in MW-3. Dissolved hydrocarbon concentrations are similar to those reported for the first quarter 1991 data.

Please contact Groundwater Technology's West Sacramento office if you have any questions or comments regarding this project.

Sincerely,

GROUNDWATER TECHNOLOGY, INC.

SCOTT E. GABLE
Environmental Geologist
Project Manager

E. K. SIMONIS
California Registered
Geologist, No. 4422

REGISTERED GEOLOGIST
EDVARDAS (ED) K. SIMONIS
No. 4422
STATE OF CALIFORNIA

SEG/EKS:rc

Attachments
2Q91.RPT

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

WELL ID	DATE SAMPLED	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYLBENZENE (ug/L)	XYLENES (ug/L)	TPH-G (ug/L)	COMMENTS
MW-1	29-MAY-87	490	150	930	3,790	18,050	
	14-JUL-87	560	120	950	3,270	14,750	
	17-AUG-87	630	40	320	1,130	12,860	
	01-SEP-87	558	84	562	1,942	14,269	
	10-DEC-87	200	138	273	777	14,000	
	10-MAR-88	70	40	340	940	7,300	
	14-JUN-88	290	ND(10)	330	790	34,000	
	05-DEC-88	100	16	140	310	4,000	
	08-MAR-89	670	20	580	1,200	9,100	Odor, Sheen
	22-JUN-89	1,000	20	1,200	2,200	12,000	Odor, Sheen
	27-SEP-89	960	9	260	360	6,800	Odor
	29-DEC-89	210	33	1,200	250	4,800	
	29-MAR-90	1,100	42	510	1,800	14,000	Odor
	21-JUN-90	1,400	ND(30)	160	130	7,900	
	25-SEP-90	NS	NS	NS	NS	NS	0.9' Petroleum
	18-DEC-90	NS	NS	NS	NS	NS	0.4' Petroleum
	28-MAR-91	230	75	570	2,000	26,000	Sheen
	25-JUN-91	970	35	300	610	22,000	Odor
MW-2	29-MAY-87	113	14	46	58	4,870	
	14-JUL-87	103	25	34	48	2,207	
	17-AUG-87	37.6	10.9	6.2	11.1	756	
	01-SEP-87	75.3	14.2	16.4	27.6	1,482.5	
	10-DEC-87	28	40.6	38.1	100.3	1,800	
	10-MAR-88	9.2	3.1	7.3	2.6	1,200	
	14-JUN-88	ND(0.9)	ND(1.0)	2.2	5.7	500	
	05-DEC-88	ND(0.3)	1.3	5.6	3.6	500	
	08-MAR-89	ND(1.0)	1.3	3.5	3.7	730	
	22-JUN-89	ND(0.4)	ND(0.4)	ND(0.5)	ND(0.8)	570	
	27-SEP-89	3.8	0.64	2.9	54	420	
	29-DEC-89	6.7	2.0	5.7	2.9	270	
	29-MAR-90	10	0.68	10	3.3	420	
	21-JUN-90	ND(1)	ND(1)	4	ND(4)	650	
	25-SEP-90	ND(0.5)	1.5	3.5	1.5	680	
	18-DEC-90	ND(0.5)	1.7	2.2	0.6	500	
	28-MAR-91	ND(0.5)	2.2	2.7	1.1	730	
	25-JUN-91	ND(0.5)	ND(0.5)	ND(0.5)	1.2	610	

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

WELL ID	DATE SAMPLED	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYLBENZENE (ug/L)	XYLENES (ug/L)	TPH-G (ug/L)	COMMENTS
MW-3	29-MAY-87	5,400	3,900	1,700	5,200	40,300	
	14-JUL-87	6,880	7,080	1,580	4,770	30,320	
	17-AUG-87	5,930	4,180	1,240	3,370	25,620	
	01-SEP-87	8,540	6,860	1,020	3,740	38,210	
	10-DEC-87	4,240	2,350	890	1,860	25,000	
	10-MAR-88	3,210	950	940	950	13,400	
	14-JUN-88	5,900	7,600	450	4,600	54,000	
	05-DEC-88	4,200	2,400	1,000	3,100	19,000	Odor
	08-MAR-89	11,000	9,400	2,300	9,900	53,000	Odor, Sheen
	22-JUN-89	16,000	5,900	2,100	6,600	60,000	Odor, Sheen
	27-SEP-89	8,100	2,800	1,200	4,300	34,000	Odor
	29-DEC-89	NS	NS	NS	NS	NS	0.02' Petroleum
	29-MAR-90	NS	NS	NS	NS	NS	0.04' Petroleum
	21-JUN-90	19,000	22,000	22,000	120,000	2,100,000	
	25-SEP-90	NS	NS	NS	NS	NS	0.04' Petroleum
	18-DEC-90	NS	NS	NS	NS	NS	0.42' Petroleum
	28-MAR-91	NS	NS	NS	NS	NS	0.25' Petroleum
	25-JUN-91	NS	NS	NS	NS	NS	0.04' Petroleum
MW-4	05-DEC-88	ND(2.0)	ND(2.0)	2.3	6.5	4,500	
	08-MAR-89	ND(9.0)	ND(8.0)	ND(10)	ND(10)	3,900	
	22-JUN-89	ND(0.4)	ND(0.4)	ND(0.5)	ND(0.8)	1,500	
	27-SEP-89	11	ND(1)	ND(1)	ND(4)	1,200	
	29-DEC-89	ND(1)	2.1	2.3	ND(3)	920	
	29-MAR-90	ND(0.6)	ND(0.9)	8.0	ND(3)	870	
	21-JUN-90	ND(5)	ND(5)	ND(6)	ND(20)	1,500	
	25-SEP-90	ND(0.5)	11	4.6	6.0	3,100	
	18-DEC-90	ND(0.5)	4.4	15	6.3	3,600	
	28-MAR-91	8.9	4.4	4.4	2.2	2,000	
	25-JUN-91	ND(0.5)	5.4	1.7	ND	2,000	

GROUNDWATER TECHNOLOGY

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

WELL ID	DATE SAMPLED	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYLBENZENE (ug/L)	XYLENES (ug/L)	TPH-G (ug/L)	COMMENTS
MW-5	05-DEC-88	ND(0.2)	0.78	0.23	0.92	3.9	
	08-MAR-89	2.7	6.7	2.7	15	58	
	22-JUN-89	0.91	ND(0.1)	ND(0.1)	ND(0.3)	5.0	
	27-SEP-89	1.3	ND(0.1)	ND(0.1)	ND(0.4)	5.3	
	29-DEC-89	ND(0.5)	ND(0.5)	ND(0.5)	ND(2)	ND(5)	
	29-MAR-90	ND(1)	ND(0.5)	ND(0.5)	ND(2)	ND(5)	
	21-JUN-90	ND(0.7)	ND(0.6)	ND(0.7)	ND(2)	12	
	25-SEP-90	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(20)	
	18-DEC-90	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(50)	
	28-MAR-91	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(50)	
	25-JUN-91	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(50)	
MW-6	05-DEC-88	4.0	1.3	0.63	1.3	190	
	08-MAR-89	2.2	ND(0.4)	ND(0.5)	1.1	23	
	22-JUN-89	0.82	2.6	0.18	1.2	57	
	27-SEP-89	0.2	0.24	ND(0.1)	ND(0.4)	2.1	
	29-DEC-89	ND(0.5)	ND(0.5)	ND(0.5)	ND(2)	ND(5)	
	29-MAR-90	2.1	ND(0.5)	ND(0.5)	ND(2)	12	
	21-JUN-90	ND(0.7)	ND(0.6)	ND(0.7)	ND(2)	ND(5)	
	25-SEP-90	1.4	ND(0.5)	ND(0.5)	ND(0.5)	98	
	18-DEC-90	2.2	ND(0.5)	ND(0.5)	ND(0.5)	200	
	28-MAR-91	3.5	ND(0.5)	ND(0.5)	ND(0.5)	140	
	25-JUN-91	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	95	
MW-7	05-DEC-88	140	150	40	370	1,500	
	08-MAR-89	730	72	180	370	2,400	
	22-JUN-89	570	43	180	220	2,000	
	27-SEP-89	420	5.9	140	28	1,400	
	29-DEC-89	87	3.5	18	15	150	
	29-MAR-90	110	40	53	150	530	
	21-JUN-90	620	34	290	400	4,100	
	25-SEP-90	49	2.4	30	42	750	
	18-DEC-90	74	4.5	25	69	510	
	28-MAR-91	53	0.8	24	24	500	
	25-JUN-91	23	ND(0.5)	32	37	570	

TABLE 1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CALIFORNIA

WELL ID	DATE SAMPLED	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYLBENZENE (ug/L)	XYLENES (ug/L)	TPH-G (ug/L)	COMMENTS
MW-8	27-SEP-89	ND(1)	ND(1)	16	ND(1)	4,200	
	29-DEC-89	ND(1)	3.2	18	ND(3)	2,800	
	29-MAR-90	ND(6)	ND(9)	19	ND(30)	2,600	
	21-JUN-90	ND(2)	ND(2)	13	ND(6)	4,600	
	25-SEP-90	2.3	22	16	26	4,500	
	18-DEC-90	0.7	6.0	9.7	2.3	1,100	
	28-MAR-91	2.6	4.6	3.2	3.1	1,600	
	25-JUN-91	ND(.5)	ND(0.5)	2.5	1.3	760	
MW-9	27-SEP-89	ND(0.1)	ND(0.1)	ND(1)	ND(0.4)	25	
	29-DEC-89	ND(0.5)	ND(0.5)	ND(0.5)	2.5	11	
	29-MAR-90	ND(0.5)	ND(0.5)	ND(0.5)	ND(2)	ND(5)	
	21-JUN-90	ND(0.5)	ND(0.5)	ND(0.6)	ND(2)	ND(5)	
	25-SEP-90	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(20)	
	18-DEC-90	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	100	
	28-MAR-91	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(50)	
	25-JUN-91	ND(.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(50)	

NOTES:
1) TPH-G = Total Petroleum Hydrocarbons-as-Gasoline.
2) ND = Not detected, detection limit above in parentheses.
3) Odor refers to petroleum hydrocarbon odor.
4) All results are presented in parts per billion.
5) Samples prior to December 1988 taken by Applied GeoSystems.
6) Samples from December 1988 through December 1990 taken by DuPont Environmental.
7) NS = Not Sampled.

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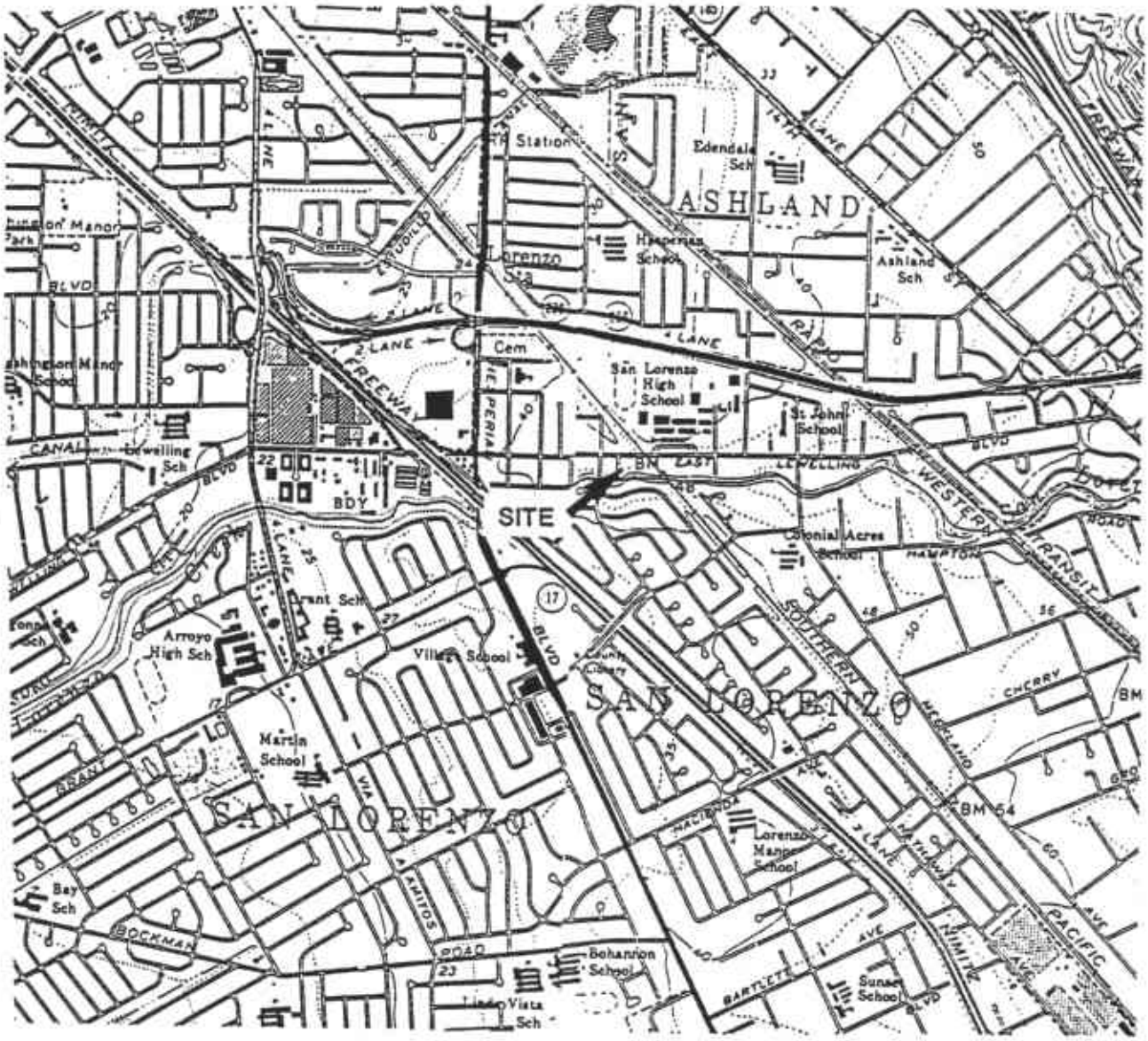


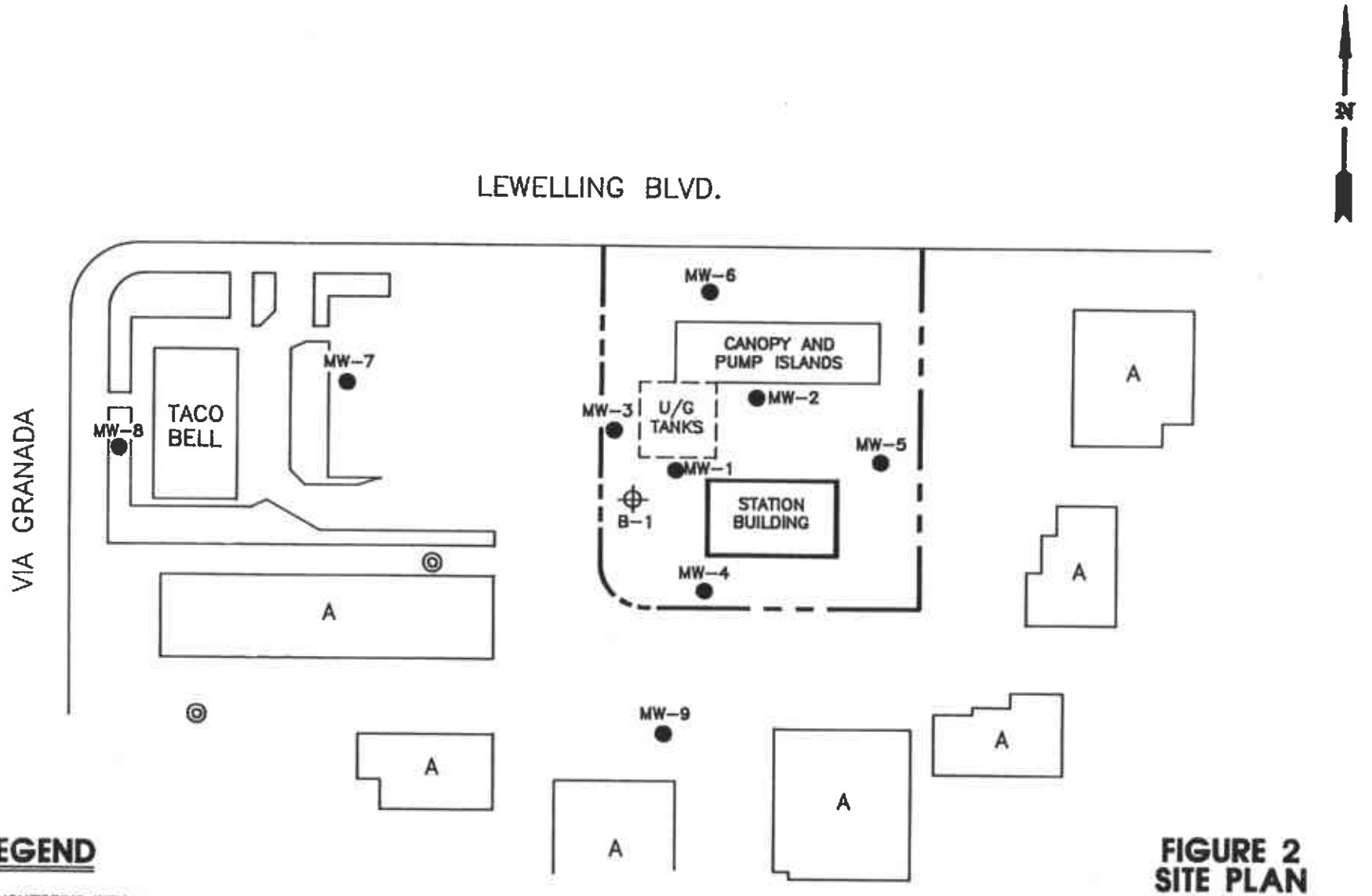
U.S.G.S. 7.5 MIN. HAYWARD, CA.
QUADRANGLE

FIGURE 1
SITE LOCATION MAP

202/899-7072
ULTRAMAR INC.
44 LEWELLING BLVD.
SAN LORENZO, CA. 2/25/91

0 MILES 1

GROUNDWATER TECHNOLOGY, INC.



LEGEND

- MONITORING WELL
- SOIL BORING
- PROPOSED MONITORING WELL
- A APARTMENT BLDGS.

REVISIONS:
DATE: 2/25/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

FIGURE 2
SITE PLAN

ULTRAMAR INC.
BEACON STATION #721
44 LEWELLING BLVD.
SAN LORENZO, CA.
202/899-7072

GROUNDWATER TECHNOLOGY, INC.

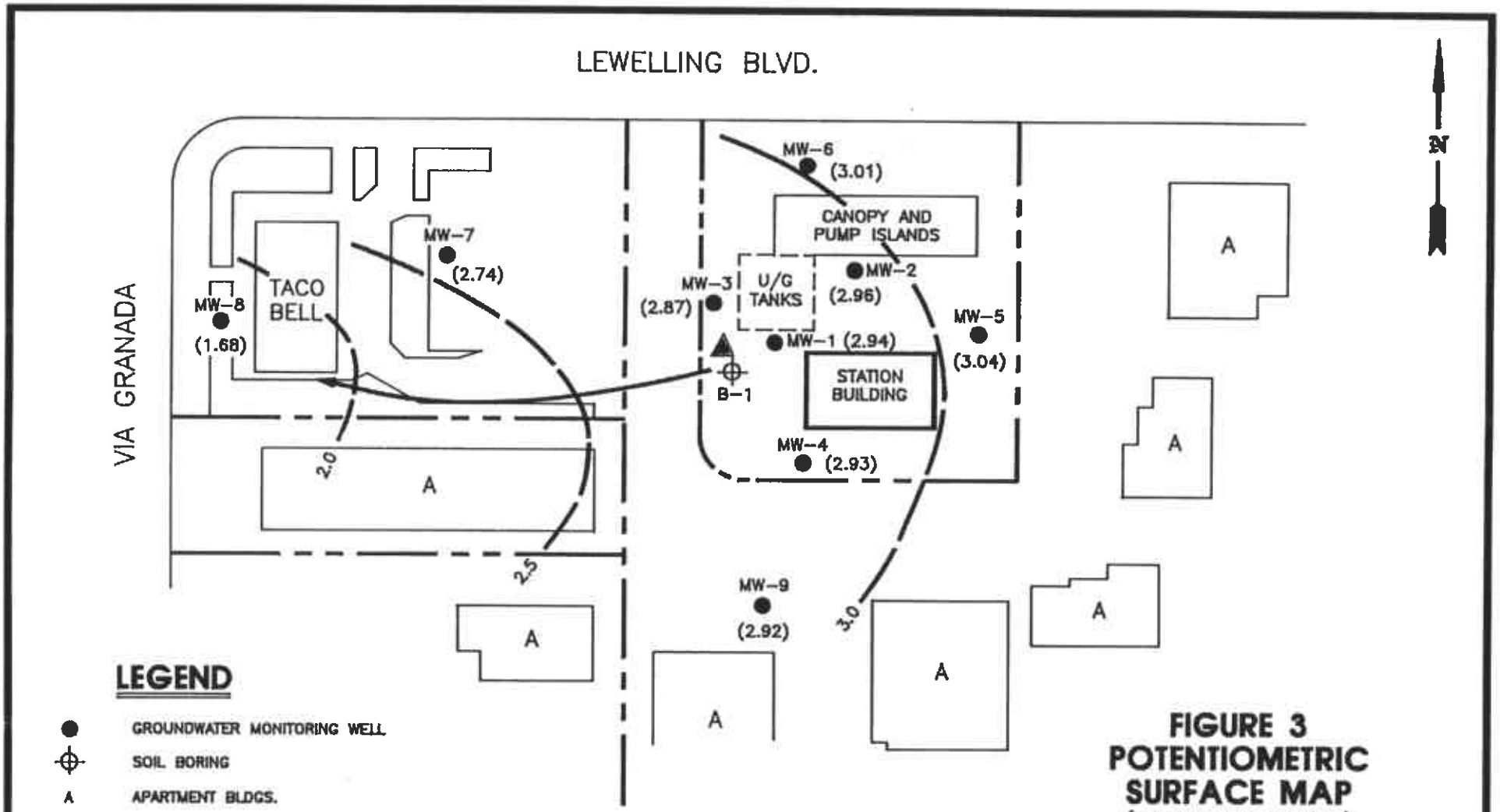
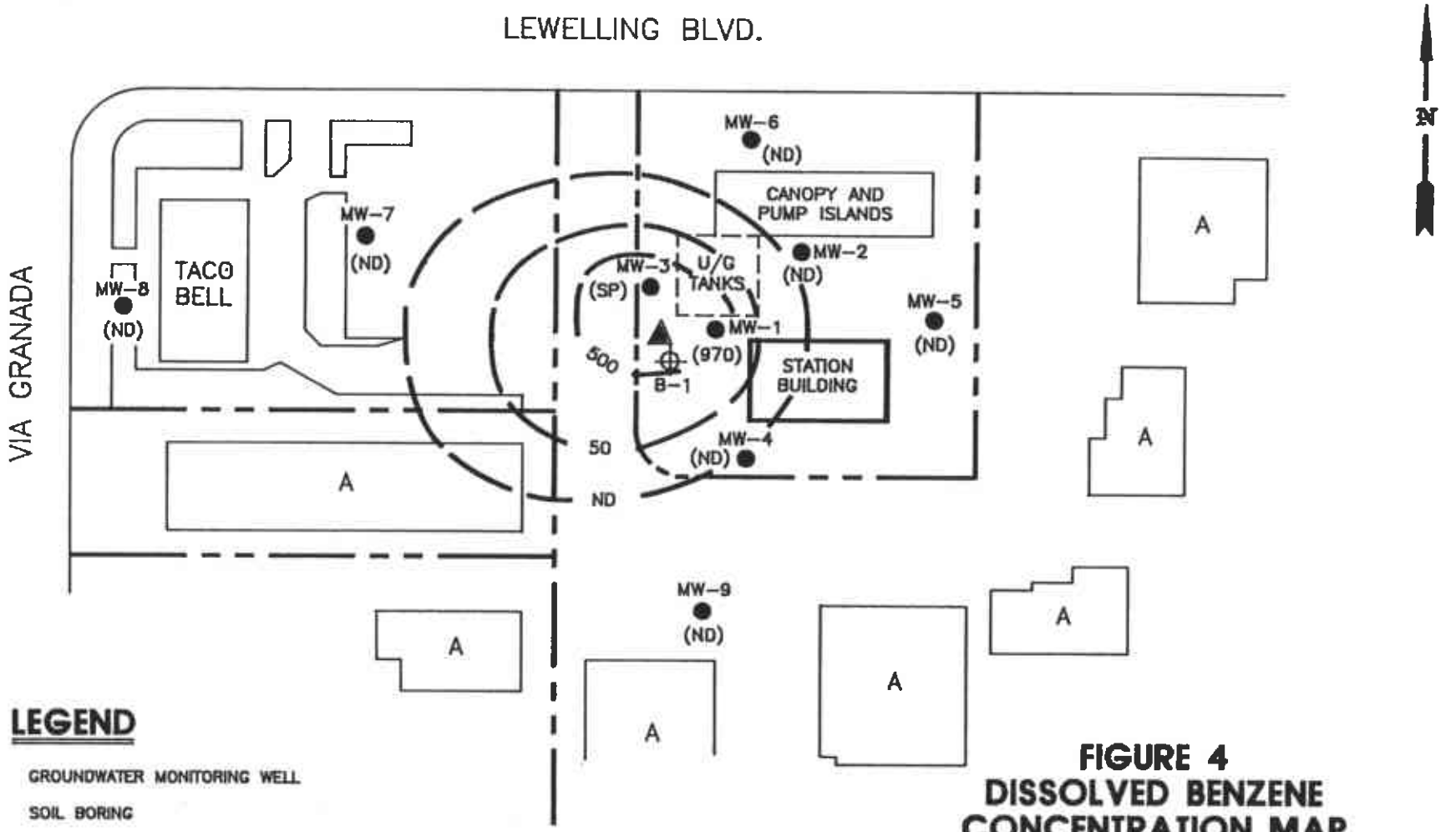


FIGURE 3
POTENTIOMETRIC SURFACE MAP
(ARBITRARY DATUM)
JUNE 25, 1991
ULTRAMAR INC.
BEACON STATION #721
44 LEWELLING BLVD.
SAN LORENZO, CA.
02320-1744

REVISIONS:
DATE: 9/9/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.



LEGEND

- ● GROUNDWATER MONITORING WELL
- ⊕ SOIL BORING
- A APARTMENT BLDGS.
- ▲ PROPOSED TEST WELL
- (970) DISSOLVED BENZENE CONCENTRATION (ppb)
- (SP) SEPARATE-PHASE PETROLEUM HYDROCARBONS
- (ND) NOT DETECTABLE AT OR ABOVE METHOD DETECTION LIMIT
- ⌒ LINE OF ESTIMATED EQUAL DISSOLVED BENZENE CONCENTRATION (ppb)

FIGURE 4
DISSOLVED BENZENE CONCENTRATION MAP

(IN PARTS PER BILLION [ppb])
JUNE 25, 1991
ULTRAMAR INC.
BEACON STATION #721
44 LEWELLING BLVD.
SAN LORENZO, CA.
02320-1744

REVISIONS:
DATE: 9/9/91
REVISION: FINAL DRAFT
BY: GWS

0 50'
APPROX. SCALE

GROUNDWATER TECHNOLOGY, INC.

ATTACHMENT I

WELL MONITORING FORM

Project:	**BEACON STATION #721**
Location:	**SAN LORENZO, CALIFORNIA**
Date:	**06-25-91**
Operator:	**H. Merino**
Method:	**Interface Probe #46**

WELL ID	WELL DEPTH (feet)	GRADE ELEV. (feet)	DEPTH to WATER (feet)	DEPTH to PETRO (feet)	PETRO THICK (feet)	PETRO GRAV.	HYDRO EQUIV (feet)	CORR DTW (feet)	CORR WAT ELEV (feet)
MW-1	32	21.54	18.60	NA	NA		NA	18.60	2.94
MW-2	31	20.91	17.95	NA	NA		NA	17.95	2.96
MW-3	35	20.96	18.12	18.08	0.04	0.80	0.03	18.09	2.87
MW-4	24	22.52	19.59	NA	NA		NA	19.59	2.93
MW-5	20	21.66	18.62	NA	NA		NA	18.62	3.04
MW-6	28	20.37	17.36	NA	NA		NA	17.36	3.01
MW-7	24	19.40	16.66	NA	NA		NA	16.66	2.74
MW-8	23	19.13	17.45	NA	NA		NA	17.45	1.68
MW-9	24	22.82	19.90	NA	NA		NA	19.90	2.92

Notes:
NA = Not Applicable

1009/Q2MON.WK1

GROUNDWATER TECHNOLOGY

ATTACHMENT II

ANALYTICAL LABORATORY REPORTS

Ultramar Inc.
CHAIN OF CUSTODY REPORT 091714

BEACON

Beacon Station No.	Sampler (Print Name) Hector Merino			ANALYSES							Date 6-25	Form No. 1 of
Project No. 023201009-030504	Sampler (Signature)										Pg. 1	
Project Location 44 Lewelling Blvd San Lorenzo, CA	Affiliation Groundwater Technology			BTEX	TPH (gasoline)	TPH (diesel)	Btex TPHAS Gasoline	HOLD		No. of Containers		
Sample No./Identification	Date	Time	Lab No.								REMARKS	
Site Blank	6/25/91	2:00						X		1		
RB MW-8	6/25/91		✓				X	X		1		
MW-8	6/25/91		✓				X			2	Run 8020/8015 Btex/TPHAS Gasoline	
RB MW-7	6/25/91		✓					X		1		
MW-7	6/25/91		✓				X			2		
RB MW-9	6/25/91		✓					X		1		
MW-9	6/25/91		✓				X			2		
RB MW-4	6/25/91		✓					X		1		

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	6/25/91	4:00			
Relinquished by: (Signature/Affiliation) K. Zatha - Airborne	Date 6/26	Time 11:50	Received by: (Signature/Affiliation) Anthony Guerra - Applied Analytical	Date 6/26/91	Time 11:55
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Report To: Brian Barrie
4057 Port Chicago Hwy
Concord, CA
94520

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Terry Fox

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

32 8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES								Date	Form No. 2 of
	Heeyer Merino											6-25	Pg. 2
Project No. 02320109 - 030504	Sampler (Signature)												
Project Location 44 Lewelling Blvd, San Lorenzo, CA	Affiliation Groundwater Technology			BTEX	TPH (gasoline)	TPH (diesel)			HOLD			No. of Containers	REMARKS
Sample No./Identification	Date	Time	Lab No.										
MW-4	6/25/91	2:30		✓	X	X						2	
RBMW-5	6/25/91			✓					X			1	
MW-5	6/25/91			✓	X	X						2	
RBMW-6	6/25/91			✓					X			1	
MW-6	6/25/91			✓	X	X						2	
RBMW-2	6/25/91			✓					X			1	
MW-2	6/25/91			✓	X	X						2	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	6/25/91	4:00			
Relinquished by: (Signature/Affiliation) R. Latka - AIRBORNE	Date 6/26	Time 1150	Received by: (Signature/Affiliation) Anthony Lucero - Applied Analytical	Date 6/26/91	Time 11:55
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Report To: Brian Barrie
4057 Port Chicago Hwy
Concord, CA 94520

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Terry Fox

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

32-8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES							Date	Form No. 3 of
	Hector Merino											
Project No.	Sampler (Signature)											
023201009-030504												
Project Location	Affiliation											
44 Lewelling Blvd, San Lorenzo, CA	Groundwater Technology											
Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)	BTEX MTBE 5 Oxygenates EDB/DCA	Hold blank		No. of Containers	REMARKS	
RBmw 1	6/25/91	1						X		1		
mw-1	6/25/91	3:00					X			2	Rainbow Shen/HoT	
5												

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	6/25/91	4:00			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
K. Latha - AIR BORNE	6/26	11:50	Anthony Guerra - Applied Analytical	6/26	11:55
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Report To: Brian Barrie
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Hanford, CA 93230
Attention: Terry Fox

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

32-8003 1/90

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Mr. Brian Barrie	Date Sampled:	06-25-91
	Groundwater Technology Inc.	Date Received:	06-26-91
	1401 Halyard Dr., Suite 140	BTEX Analyzed:	07-03-91
	West Sacramento, CA 95691	TPHg Analyzed:	07-03-91
Project:	AGS 19505-L, San Leandro	TPHd Analyzed:	NR
	Project # 023201009-030504	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
MW-5 W1106423	ND	ND	ND	ND	ND	NR
MW-6 W1106425	ND	ND	ND	ND	95	NR
MW-2 W1106427	ND	ND	ND	1.2	610	NR
MW-1 W1106437	970	35	300	610	22000	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

July 10, 1991
Date Reported

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Mr. Brian Barrie	Date Sampled:	06-25-91
	Groundwater Technology Inc.	Date Received:	06-26-91
	1401 Halyard Dr., Suite 140	BTEX Analyzed:	07-03-91
	West Sacramento, CA 95691	TPHg Analyzed:	07-03-91
Project:	AGS 19505-L, San Leandro	TPHd Analyzed:	NR
	Project # 023201009-030504	Matrix:	Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
RB-MW8 W1106429	ND	ND	ND	ND	ND	NR
MW-8 W1106430	ND	ND	2.5	1.3	760	NR
MW-7 W1106432	23	ND	32	37	570	NR
MW-9 W1106434	ND	ND	ND	ND	ND	NR
MW-4 W1106421	ND	5.4	1.7	ND	2000	NR

ppb = parts per billion = µg/L = micrograms per liter.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

July 10, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

ATTACHMENT III

STANDARD OPERATING PROCEDURES

13.0 Well Gauging with ORS Interface Probe

13.1 Purpose

Obtaining consistent and accurate well gauging data is a critical part of each project. The well gauging data collected at each site provide a long-term record of: the seasonal groundwater fluctuations at a site; the presence, location, and thickness of measurable amounts of free-phase hydrocarbons; and, the effectiveness of recovery well operations.

13.2 Equipment

- Interface probe
- Monitoring Form
- Monitoring/Sampling Record Form
- Roadway box key or channel lock wrench
- Keys
- Bailer
- Rags; probe wipers
- Alconox solution and distilled water
- Site plan
- Previous well gaugings

13.3 Procedure

13.3.1 Check the interface probe to see that it is functioning properly before departure.

13.3.2 Familiarize yourself with the way the interface probe works. A beeping tone indicates water and a solid tone indicates a fluid other than water. To avoid spark hazard, attach the E.I.P. grounding clamp to the metal casing prior to gauging.

13.3.3 At sites with free-phase petroleum, arrange to bail the petroleum from the wells 24 - 48 hours prior to gauging all of the wells. Be consistent and establish a routine. Bailing the accumulated petroleum from the wells is done in an effort to obtain an accurate measurement of the amount of petroleum in the formation surrounding the well. Dispose of the bailed petroleum following Disposal of Gasoline Procedure.

13.3.4 Inform appropriate parties (such as the station manager) of your arrival at the site and the purpose of your visit.

13.3.5 If possible, gauge cleaner wells first to avoid cross-contamination.

13.3.6 Gauging should be obtained to the surveyed point. If you do not know where that point is, ask the Project Manager. Generally, the survey point will be marked with paint or marker. If you cannot determine where the mark is, take measurements from the highest point on the well casing, the lip of the roadway box and the top of the roadway box. Make a notation as to which gaugings were taken from which reference point. (For example: DTW 10.0' from top of PVC; DTW 10.3' from top of road box lip.) It is extremely important to measure to the same point each time a well is gauged.

13.3.7 If a probe is missing any footage from the tape, make a notation on the gauging form. (For example: Subtract 1 ft. from all gaugings.) Read the measurements directly from the tape. The data will be corrected when it is entered into the computer. Record the probe I.D. number.

13.3.8 Compare current gaugings to previous gaugings.

13.3.9 Note any unusual occurrences such as bacterial buildup on equipment. At sites where recovery wells, air strippers, soil vent systems, etc. are in operation check to see that the equipment is running normally.

13.3.10 It is important to keep probes clean and free of dirt. Always clean probe tape before reeling it back into the housing. Use a rag and probe wiper.

13.3.11 When petroleum is detected in a well, confirm the reading with a bailer. Note the color and clarity of the petroleum on the gauging form. Bail the petroleum from the well and store the bailed petroleum in the product storage tank at the site. (Do not dispose in facility waste oil tank.)

13.3.12 If petroleum is detected in a well where petroleum has not been detected before or has not been detected in several gaugings, verify the reading with a bailer. Communicate this to the Project Manager when you call the office.

13.3.13 If a petroleum storage tank is in use at the site, gauge the DTW and DTP in the tank. Mark the gauging accordingly on the monitoring form. Notify the Project Manager when the tank is getting full.

13.3.14 WRITE DOWN EVERYTHING YOU SEE OR DO!
(No matter how hard you try, you cannot remember everything you did at a site when you are back at the office.)

13.3.15 Complete all paper work (monitoring forms, monitoring/sampling record form) with all notes as to events that occurred while you were at the site. Do not forget to note the weather, temperature, operation of equipment, the number of the probe used, whether water samples were obtained and from where, etc. If you are questioned by the client or by representatives from the state and/or town where the site is located, note the name and the affiliation of the person, the questions asked, and the answers given.

13.3.16 Call the project manager prior to leaving the site. Under no circumstances leave the site without talking to someone at the office if you encounter problems such as equipment failure.

13.3.17 When you return to the office, submit all paper work to the Project Manager.

14.0 Reduction of Well Gauging Data

14.1 Purpose

To correct for the presence of hydrocarbons floating on the water table surface.

14.2 Procedure

14.2.1 See Well Monitoring Form Example.

14.2.2 See Corrected Water Table Schematic.

14.2.3 The following information is required in order to reduce the gauging data collected in the field:
- T.O.C. elevation - the survey point from which the gauging is measured
- depth to water (DTW)
- depth to petroleum (DTP)
- petroleum gravity

14.2.4 To determine the petroleum thickness, subtract DTP from DTW.
ex: 20.97 ft - 19.01 ft = 1.96 ft

14.2.5 To determine the hydraulic equivalent, multiply the petroleum thickness by the petroleum gravity.
ex. 1.96 ft x 0.88 = 1.72 ft

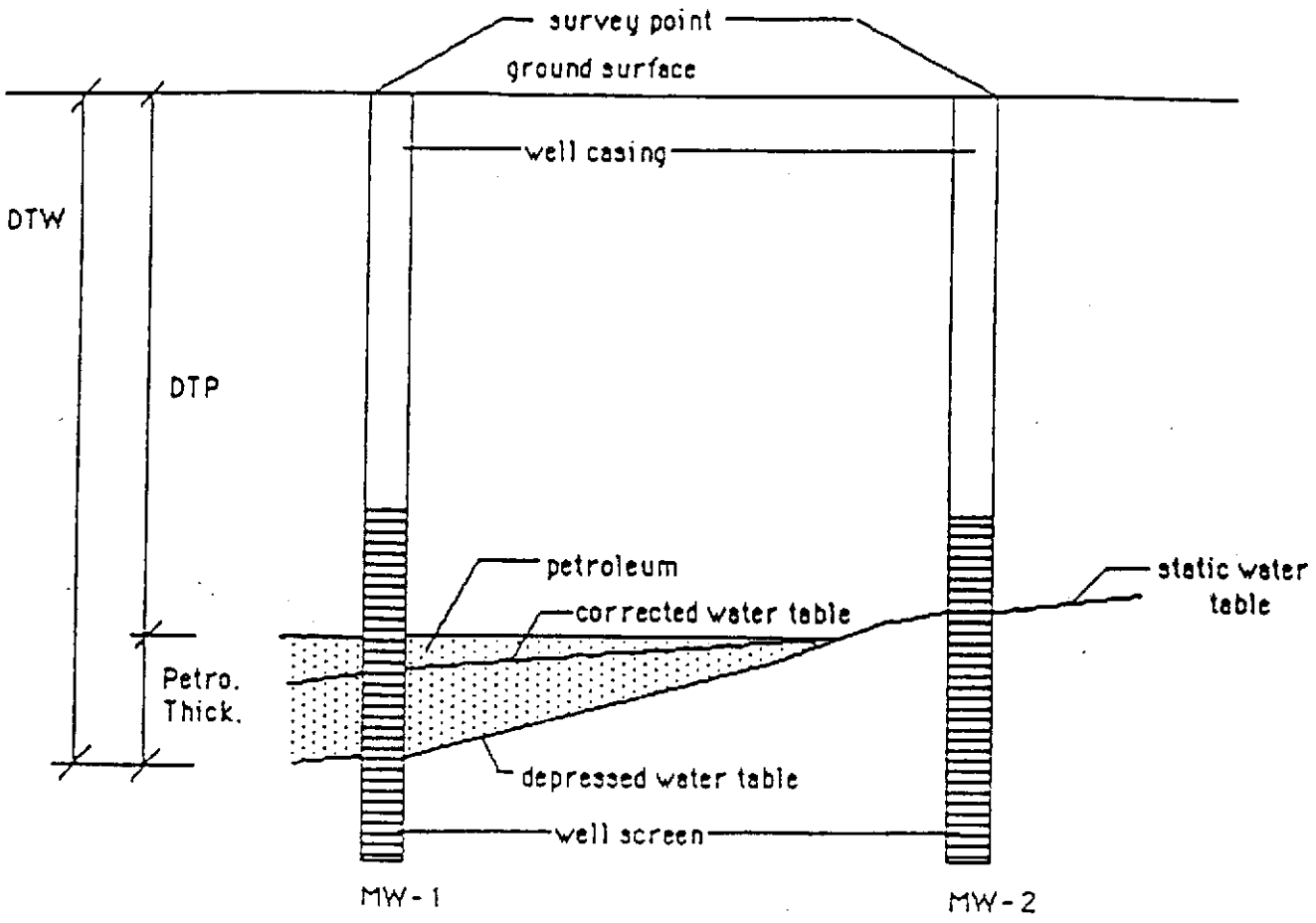
14.2.6 To determine the corrected depth to water (CDTW), subtract the hydraulic equivalent from the original DTW.
ex. 20.97 ft - 1.72 ft = 19.25 ft

14.2.7 To determine the corrected water elevation, subtract the CDTW from the T.O.C. elevation.
ex. 224.00 ft - 19.25 ft = 204.75 ft

14.2.8 Referring to the variables on the example monitoring form:

F = Petroleum thickness	=	D - E
H = Hydraulic Equivalent	=	F x G
I = Corrected DTW	=	D - H
J = Corrected Water Elevation	=	C - I

CORRECTED WATER TABLE SCHEMATIC



Petroleum Thickness = DTW - DTP

Hydro. Equiv. = Petroleum Thickness x Petroleum Gravity

Corrected DTW = DTW - Hydro. Equiv.

Corrected Water Elevation = T.O.C. - Corrected DTW

16.0 Water Quality Sampling

16.1 Purpose

Water quality samples are taken to establish the water quality at each sampling point and to obtain bacteriological information as part of a bioremediation program. Special care must be taken to ensure that the sample taken from a well is representative of the water at that location and that the sample is not altered or contaminated by the sampling and handling procedure. The procedures for obtaining and handling water quality samples differ depending on the type of analysis required. Standard water quality analyses for volatile organic compounds (VOC) are EPA Analytical Methods 601, 602, and 624. The standard analysis for semi-volatile organics is EPA Analytical Method 625. Bacterial analyses for a bioremediation program can be obtained by standard plating, membrane plating, and fermentation inoculum.

16.2 References

Driscoll, Fletcher G., Ph.D., 1986, "Groundwater and Wells", Second Edition, Johnson Division, St. Paul, Minnesota.

Scalf, Marion R., McNabb, James F., Dunlap, William J., Cosby, Roger L., Fryberger, John, 1981, "Manual of Ground-Water Sampling Procedures", Robert S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, Ada, Oklahoma.

U.S. EPA, 1977, "Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities", SW-611, U.S. EPA, Cincinnati, Ohio.

16.3 Procedure

16.3.1 Water samples should not be taken from the stagnant water in the well.

16.3.2 Water samples should be taken in triplicate.

16.3.3 Remove 3 to 5 volumes of water in the well prior to sampling. The water may be removed by bailing, submersible pump, or purge system. Wells with a slow recovery period should be bailed dry and then sampled within 1 hour or

when recovered to 50%. Monitor pH, temperature and specific conductivity with each well volume to insure water quality stabilization has occurred. However, this is not necessary at every well or in all circumstances.

16.3.4 Use only Teflon, stainless steel, or glass bailers to obtain the sample. Use Teflon, only, for sampling water containing chlorinated compounds and also for bacteriological samples. PVC bailers can be used for one-time sampling for other than EPA 624 analysis. Using a bailer for a one-time sampling reduces the possibility for cross-contamination.

16.3.5 When sampling, avoid stirring up any sediments in the well.

16.3.6 All sampling equipment must be cleaned following the appropriate procedure to avoid cross contamination from site to site and sample to sample. The sampling equipment should be cleaned before each well sampling, between each sampling, and at the end of each sampling round.

16.3.7 Monitoring wells should be gauged prior to sampling.

16.3.8 If possible, the monitoring wells should be sampled starting with the cleanest well and ending with the most contaminated well.

16.3.9 Wells containing free-phase contaminants should not be sampled.

16.3.10 When filling out the chain of custody form:
- enter the samples in the order in which they were collected;
- make a note as to the cleaning fluid used to clean the sampling equipment;
- attempt to identify which samples are the most contaminated;
- complete all other requested information.

16.3.11 The laboratory sample identification label should be filled out with a waterproof pen and firmly affixed to each sample container.

Typically, identification labels require that the following information be supplied:
- job name
- job number
- sampler's name
- date
- sample identification (ex: MW-1)
- date sampled (time is sometimes requested, too)
- analysis requested

16.3.12 Acidification is required for samples that will by analyzed by the EPA 624 method. (see Acidification Procedure in this section)

16.3.13 Acidification is recommended for EPA method 601 and 602 samples to preserve them and increase their holding life. (see Acidification Procedure in this section)

16.3.14 Field blanks should be taken as part of each sampling round. A field blank consists of a sample of distilled water which has been collected by putting the distilled water into a sampling bailer after the bailer has been cleaned following the procedure used to clean that bailer during the sampling round. The field blank is stored with the samples. It is not analyzed unless requested by the Project Manager.

16.3.15 Handling of decontaminated equipment:

- Always use "pristine" gloves (latex, solvex, etc.).
- Place decontaminated bailers on clean surface (plastic).
- Do not wipe down bailer with paper towels or cloth. Follow decontamination procedure.

16.4 Cautions

16.4.1 Sample accuracy can be adversely affected by the entrainment of sediment in wells which have not been properly developed. Contaminants adhering to the sediments can be released when samples are acidified for preservation.

Therefore, when sampling for inorganics (metals), field filtering of the samples is recommended.

16.4.2 Chemical changes can take place because the sample was oxidized during sampling. It is critical to avoid oxidation of samples when sampling for VOC.

16.4.3 All samples should be properly and promptly preserved.

16.4.4 All samples should be analyzed quickly; arrangements should be made with the testing laboratory to insure prompt analysis.

16.4.5 Bailer strings that have contacted water or contaminants should be replaced between each well to avoid contamination from a bailer string which has absorbed contamination. A good practice would be to replace the strings of both the evacuation and sampling bailers at the start of each sampling round, and in some instances, between wells. Caution: some bailer strings are treated with a fungicide which may be detected in priority pollutant analysis.

16.4.6 Notify laboratory that samples are being shipped in advance of sampling to insure proper delivery and turnaround.

16.4.7 On Chain of Custody, note what type of decontamination or preservation fluids, chemicals were used.

16.5 Acidification Procedure

16.5.1 At the start of each sampling round, the amount of acid required to lower a sampling container of water to be sampled to a pH of less than 2 should be determined.

16.5.2 After removing 3 to 5 well volumes from the first well to be sampled, put 5-10 drops of 50% HCL into a 40 ml sample vial (larger sampling containers will require more acid) and fill the vial with water from the well; determine the pH of the water in the vial with the pH paper; if

the pH is too high, repeat the procedure using 15-20 drops of acid in the vial; repeat until the pH of the water in the sample vial is a pH of less than 2 on the pH paper; note the amount of acid required to lower the pH of the volume of water in the sampling vial. (pH paper should not be placed into sampling container. Pour sample onto pH paper to check for proper pH.)

16.5.3 Discard the practice acidified sample.

16.5.4 Once the amount of acid required to reach a pH of <2 is known, the acid can be routinely added to each sample container directly; the water to be analyzed is added to vial or container containing the appropriate amount of acid.

16.5.5 Note that the amount of acid required is site specific and should be noted on the Chain of Custody form.

16.5.6 The procedure should be repeated at each site at the start of each sampling round.

16.6 EPA Analytical Methods 601, 602, and 624 Sampling Procedures

16.6.1 Equipment

- Bailer or other means to remove 3 to 5 well volumes
- Sampling bailer
- Polyethylene squirt bottle of 50% hydrochloric (HCL) acid
- Narrow range pH paper (1.0 - 2.5 pH range)
- Paper towels
- Waterproof pen
- Laboratory sample identification labels
- Cooler with ice
- Chain of custody forms
- Sample containers (usually 40 ml glass vials with teflon faced septums)
- Alconox solution and/or methanol
- Distilled water
- Safety equipment (gloves, etc.)
- Dissolved oxygen meter (sometimes used in limited biorec projects in conjunction with bacteriological testing)

- pH, temperature and conductivity meter
- Site map with well locations
- Site Sampling Plan (QAPP)

16.6.2 All sampling equipment will be cleaned by washing thoroughly with alconox solution or methanol and rinsed with distilled water; this procedure should be repeated three times. When sampling for metals, the sampling equipment should be acid washed. Other cleaning techniques may be required, depending on the testing requirements and chemicals in question (check with the Laboratory).

16.6.3 Carefully remove five bailerfulls of water from the well using the sample bailer before retaining the sample from the fifth bailer; this thoroughly rinses the sample bailer with the water to be sampled helping to insure a representative sample and to reduce cross contamination.

16.6.4 Thoroughly rinse the sample containers with the water to be sampled.

16.6.5 If the samples are to be acidified, add acid to the sample containers (EPA method 624 requires acidification).

16.6.6 Fill two sample containers with the contents of the sampling bailer.

16.6.7 BE CAREFUL not to touch the rim of the sample container or the sample container top with your fingers or with the bailer.

16.6.8 DO NOT pour the sample from the sample bailer over the bailer cord; do not allow the cord to touch the sample container.

16.6.9 Avoid aeration of the sample during transfer of the water from the bailer to the sample container in order to reduce the possibility of oxidation of the sample; gently and carefully pour the sample into the sample container in a steady stream.

16.6.10 The sample should contain no air; fill the sample container to the top so that a meniscus

is formed; wait for any bubbles to rise to the surface; carefully and quickly slip the cap of the sampling container onto the container and tighten securely.

16.6.11 Invert the sample and tap it gently against the heal of your hand; look for any air bubbles; if the sample contains air bubbles, discard the sample and repeat the sampling process with new sampling containers.

16.6.12 Obtain duplicate and triplicate samples from the same well following the same procedure.

16.6.13 Affix the laboratory sample identification labels.

16.6.14 Place samples in cooler with ice.

16.6.15 Complete the chain of custody form.

16.7 EPA Analytical Method 625

16.7.1 The procedure for sampling for EPA 625 is the same as for EPA 601, 602, and 624.

16.7.2 The sample container size is a 1-liter glass sample container.

16.7.3 DO NOT acidify EPA 625 samples.

16.8 Bacteriological Sampling

16.8.1 Refer to "Handbook of Bioremediation" prepared by Groundwater Technology, Inc., Chadds Ford, PA.

16.8.2 Sampling for an initial feasibility sampling should have the goal of assessing the total water ecology of the impacted area; the following parameters should be determined:

- water temperature
- dissolved oxygen
- total dissolved solids (TDS)
- pH
- conductivity
- inorganic chemistry
- organic chemistry
- microbiology