Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-1

Well Type: [X] Monitor [ ] Extraction [ ] Other ___
[X] PVC [ ] St. Steel [ ] Other ___

Job Name: HOUGHTON'S

Job Number: 53380.2

Recorded By: (Signature)

Date: 5/3/01

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): ~~30~~ 35
Water Level Depth (WL in ft BTOC): ~~23.29~~ TE 23.23
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(35 (TD feet) - 23.2 (WL Feet)) X 2 (D inches) ² X 3 (# V) X 0.0408 = 5~~3~~.8 gals (Calculated Purge Volume)

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	8.00	1201	73.6	
2	7.34	1402	71.8	
3	7.41	1368	71.8	
5	7.65	1251	71.5	
6	7.44	1199	71.4	
7	7.69	1142	71.5	
8	7.64	1078	71.3	
9	7.67	1106	71.3	
Meter S/N				

PURGE TIME

Purge Start. ___ GPM: ___
Purge Stop ___ GPM: ___
Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: 10 gallons

Observations During Purging (Well Condition, Color, Odor):
turbid, no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other Drums in building

WELL SAMPLING

[ ] Bailer - Type:

Sample Time: 1040

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-1	3 VOAs	8260 / GAS	HCl	Chromalab	
	1 L A	TPHd	—		
	4, 500 ML Poly	TDS, pH, SC, Cl	—	↓	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No	Dupl Sample No

Blank Samples	
Type	Sample No

Other Samples	
Type	Sample No

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-2

Well Type: [X] Monitor [ ] Extraction [ ] Other ___
[X] PVC [ ] St. Steel [ ] Other ___

Job Name: Housewives Market

Job Number: 53380.2

Date: 5/3/01

Recorded By: TAE (Signature)

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 30
Water Level Depth (WL in ft BTOC): 21.59
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(30 - 21.59) X 2 ² X 3 X 0.0408 = 4.1 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	4.52	1652	60.9	
1GAL	5.45	1715	61.5	
2	6.01	1639	60.2	
3	6.37	1474	60.3	
4	6.60	1412	59.5	
5	6.71	1304	58.1	
6	6.75	1214	58.5	
7	6.78	1173	58.4	
-	6.76	1154	59.1	
Meter S/N				

PURGE TIME

Purge Start: ___ GPM: ___
Purge Stop: ___ GPM: ___
Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: 8 gallons

Observations During Purging (Well Condition, Color, Odor):
Very turbid brown

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [ ] Other ___

WELL SAMPLING

[ ] Bailer - Type:

Sample Time: 0810

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-2	3 VOAs	8260 / GAO	HCl	Chromalab	
	1L Amber	TPHd	—	↓	
	4, 500ml PLY	4D5, pH, SC, Cl	—	↓	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No	Dupl. Sample No	Type	Sample No	Type	Sample No

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Well Type: [X] Monitor [ ] Extraction [ ] Other ___
[X] PVC [ ] St. Steel [ ] Other ___

Job Name: Housewives Market

Job Number: 53380.2

Date: 5/3/01

Recorded By: [signature] (Signature)

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 30
Water Level Depth (WL in ft BTOC): 21.72
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable
[ ] Submersible - Type:
[ ] Other - Type:

PURGE VOLUME CALCULATION

(30 - 21.72) x 2 ² x 3 x 0.0408 = 4 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	7.30	1660	64.0	
1	7.20	1691	63.3	
3	7.38	1580	62.4	
4	7.43	1554	60.2	
5	7.42	1360	60.9	
6	7.54	1270	61.4	
7	7.54	1020	61.2	
9	7.49	1140	62.5	
Meter S/N				

PURGE TIME

Purge Start: ___ GPM: ___
Purge Stop: ___ GPM: ___
Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: 8 gallons

Observations During Purging (Well Condition, Color, Odor):
Very turbid brown

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [X] Other Drum in building

WELL SAMPLING

[ ] Bailer - Type: ___

Sample Time: 0930

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-3	3 VOAs	8260 / GAS	HCl	Chromalab	
	1 LA	TPHd	—		
	4,500 mL Poly	TDS, pH, Sp Cond, Cl	—	↓	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No	Dupl. Sample No

Blank Samples	
Type	Sample No

Other Samples	
Type	Sample No

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Job Name: Housewives Market
Job Number: 53380.2
Recorded By: [signature] (Signature)

Well Number: MW-1
Well Type: [X] Monitor [ ] Extraction [ ] Other ___
[X] PVC [ ] St. Steel [ ] Other ___
Date: 5/17/01
Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 30
Water Level Depth (WL in ft BTOC): 23.17
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(30 - 23.17) X 2 ² X 3 X 0.0408 = 3.5 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

PURGE TIME

Purge Start.
Purge Stop:
Elapsed:

PURGE RATE

GPM:
GPM:

PURGE VOLUME

Volume: 4 gallons

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	7.55	676	61.1	
1	7.43	667	62.1	
2	7.42	678	63.2	
3	7.38	683	62.7	
4	7.39	683	62.5	
Meter S/N				

Observations During Purging (Well Condition, Color, Odor):
turbid, No odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other drums in building

WELL SAMPLING

[ ] Bailer - Type: disposable
Sample Time. 0905

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-1	2@500mL Poly	TDS, pH, SpCond, Cl⁻	—	Chromalab	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No	Dupl. Sample No

Blank Samples	
Type	Sample No

Other Samples	
Type	Sample No

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-2

Well Type: [X] Monitor [ ] Extraction [ ] Other ___
[X] PVC [ ] St. Steel [ ] Other ___

Job Name: Hakewives Market

Job Number: 53880.2

Recorded By: Tim Eliason (Signature)

Date: 5/17/01

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2

Total Depth of Casing (TD in ft BTOC): 30

Water Level Depth (WL in ft BTOC): 21.59

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable

___ Submersible - Type: ___

___ Other - Type: ___

PUMP INTAKE SETTING

___ Near Bottom [ ] Near Top

___ Other ___

Depth in feet (BTOC): ___

Screen Interval in feet (BTOC). from ___ to ___

PURGE VOLUME CALCULATION

(30 TD (feet) - 2159 WL (Feet)) x 2 D (inches) ^{2} x 3 #V x 0.0408 = 4 gals Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	7.21	605	61.5	
1	7.17	752	61.9	
2	7.23	776	63.0	
~~4~~ 3	7.29	761	63.6	
4	7.33	754	63.1	
5	7.29	752	62.7	
Meter S/N				

PURGE TIME

Purge Start: ___

Purge Stop: ___

Elapsed: ___

PURGE RATE

GPM: ___

GPM: ___

PURGE VOLUME

Volume: 5 gallons

Observations During Purging (Well Condition, Color, Odor): very silty brown, no odor

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [X] Other drums in building

WELL SAMPLING

[ ] Bailer - Type: ___

Sample Time: 0830

Sample No	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-2	2@500mL Poly	TDS, pH, spCond, Cl	—	Chromalab	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No	Dupl. Sample No

Blank Samples	
Type	Sample No

Other Samples	
Type	Sample No

Engineering and Environmental Services

Job Name: Housewives Market
Job Number: 53380.2
Recorded By: [signature] (Signature)

Well Number: MW-3
Well Type: [X] Monitor [ ] Extraction [ ] Other
[X] PVC [ ] St. Steel [ ] Other
Date: 5/17/01
Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 30
Water Level Depth (WL in ft BTOC): 21.7
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[X] Bailer - Type: disposable
[ ] Submersible - Type:
[ ] Other - Type:

PURGE VOLUME CALCULATION

(30 TD (feet) - 21.7 WL (Feet)) X 2 D (inches) ² X 3 # V X 0.0408 = 4 Calculated Purge Volume gals

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from to

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [X] °C [ ] °F	Turbidity (NTU)
Initial	5.84	695	64.3	
1	6.06	704	63.6	
2	6.20	694	64.3	
3	6.34	654	64.9	
4	6.47	640	64.7	
5	6.55	629	64.4	
6	6.65	630	64.5	
7	6.70	625	64.7	
Meter S/N				

PURGE TIME

Purge Start: GPM:
Purge Stop: GPM:
Elapsed:

PURGE RATE

PURGE VOLUME

Volume: 7 gallons

Observations During Purging (Well Condition, Color, Odor)
silty, very turbid

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [X] Other drum in building

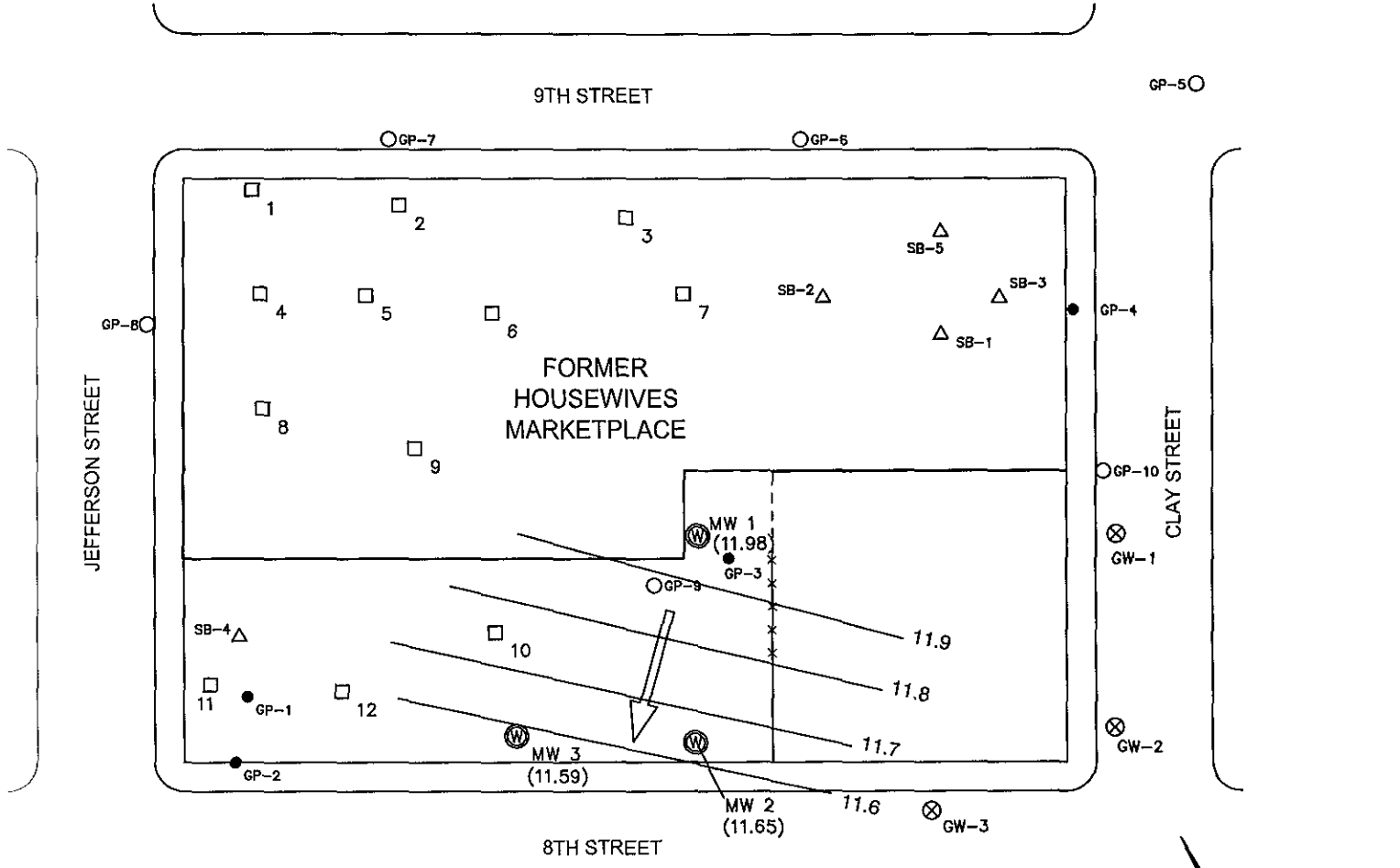
WELL SAMPLING

[ ] Bailer - Type:
Sample Time: 0735

Sample No	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-3	2@ ~~500ml~~ Poly	TDS, pH, Sp Cond, Cl	—	Chromalab	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No	Dup. Sample No	Type	Sample No	Type	Sample No



EXPLANATION

- ● MEASURED LOCATION OF SECOR BORING
- ○ ESTIMATED LOCATION OF SECOR BORING
- △ ACTUAL LOCATION OF HARDING/ESE BORING
- □ ACTUAL LOCATION OF SHALLOW HARDING ESE BORING
- Ⓦ ACTUAL LOCATION OF HARDING ESE MONITORING WELL
- ⊗ ESTIMATED LOCATION OF HARDING ESE GROUNDWATER SAMPLE
- (11.98) GROUNDWATER ELEVATION – MEASURED IN FEET ABOVE MSL
- —— GROUNDWATER CONTOUR
- ⇦ GROUNDWATER FLOW DIRECTION

54023004.DWG 1.0
20021011.1103

Harding ESE

Groundwater Elevations, June 15, 2001

Housewives Marketplace
801 Clay Street
Oakland, California

PLATE **7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54023.1		10/02	