CITY OF OAKLAND
PWA/ENVIRONMENTAL SERVICES DIVISION

250 FRANK H. OGAWA PLAZA, SUITE 5301
OAKLAND, CA 94612-2034

Need to write up for internal review

FAX

6898

DATE: 5/23/01

TO: Barney Chan FAX#: 510 337 9335

FROM: Odili Ojukwu PHONE #: 510 238 7371

FAX #: (510) 238-7286

Number of pages including this page: 12

Comments: Barney Here's the update to the RBCA report as per our phone discussions on monday 5/21/01.
I hope this addresses all your questions and concerns.
If you have any further questions, pls feel free to call me at (510) 238 7371.
Thx for your usual prompt attention.
Odili

Harding ESE
A MACTEC COMPANY

Harding ESE, Inc.
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• The description of site use is not correct. First floor could have residences.

does not reflect RBCA conclusion.

May 22, 2001

53380 4

Mr. Odili Ojukwu, P.E.
City of Oakland
Public Works Agency
Environmental Services Division
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, California 94612

Update to the Risk-Based Corrective Action (RBCA) Evaluation
Housewives Marketplace
801 Clay Street
Oakland, California

Dear Mr. Ojukwu:

This letter provides an update to the Risk-Based Corrective Action (RBCA) Evaluation that was conducted for the Housewives Marketplace at 801 Clay Street, Oakland, California (the Site) (*Harding, 2001a*). In the RBCA evaluation, Harding ESE recommended that the Alameda County Health Agency approve Site Closure contingent on additional work, including the following:

- The installation of three groundwater monitoring wells and measurement of water levels in these wells on two occasions to confirm the direction of groundwater flow at the Site.
- Monitoring of the three wells for selected parameters to evaluate if the water quality meets the requirements of a drinking water aquifer.

Harding ESE has completed these activities. In this letter, we (1) document the installation and sampling of three new groundwater monitoring wells, (2) present the groundwater data results, (3) show that the new data do not affect the overall conclusion of the RBCA evaluation, i.e. that chemicals in soil and groundwater do not pose a significant risk to human health or the environment, (4) provide revised Plate 2 from the RBCA Evaluation to show the former underground storage tanks (USTs) at the Site that Harding ESE has scaled from the 1951 Sanborn Map, and (5) present the locations of the recent shallow borings and monitoring wells. Harding ESE's complete report of the well installation, field procedures, chemical data, well completion logs, boring logs, etc. will be presented within three weeks.

INSTALLATION AND SAMPLING OF MONITORING WELLS

Harding ESE installed three monitoring wells at the site on May 1, 2001. We developed and sampled the wells on May 3, 2001 and measured the groundwater levels. The chemical analyses included total petroleum hydrocarbons (TPH) as diesel, TPH as motor oil, TPH as gasoline, and volatile organic compounds (VOCs), total dissolved solids (TDS), chloride, pH, and specific conductance (EC). On May 11, 2001 we received the results of the groundwater analyses. On May 17, 2001, we purged the wells for

Q. do we need to sample wells again?

add fluoro's (most possibly 3 more borings)

a second time, collected samples for TDS, chloride, pH, and EC, and we measured the groundwater levels.

GROUNDWATER DATA RESULTS

The groundwater data from the sampling on May 3, 2001 for chemicals detected in the three new monitoring well samples are summarized on Table 1. The laboratory report for all analyzed constituents is available in Appendix A. The groundwater data for the second sampling are not available yet and will be included in our report in three weeks.

The following petroleum-related chemicals were detected in groundwater at the Site:

- Dichlorofluoromethane at 0.0022 and 0.0032 milligrams per liter (mg/L) at MW-1 and MW-2, respectively
- [redacted] refrigerant, solvent
- Methyl ethyl ketone (2-butanone) at 2.4 mg/L (MW-3) ← ? lab impurity
- Chloroform at 0.002 mg/L (MW-1) solvent cleaning / solvent in paints
- TPH as gasoline at 0.15 mg/L (MW-3).

Table 2 presents the results of the drinking water parameters that were analyzed. The following is a summary of these results:

- Chloride was detected between 180 and 230 mg/L
- pH ranged from 6.8 to 6.9
- [redacted]
- [redacted]

RBCA UPDATE

The section presents an update to the RBCA evaluation using the new groundwater data at the Site. First, a summary of the original RBCA evaluation is provided. Then, an update to the RBCA process is conducted using only new data to determine if groundwater at the Site potentially poses a human health risk. In this assessment, maximum chemical concentrations from the new groundwater samples were applied. This is a conservative approach given that hypothetical receptors are not expected to be continually exposed to maximum concentrations at the Site. (assumes adequate characterization)

The RBCA report (*Harding, 2001a*) documents the approach used to evaluate human health and ecological risks at the Site. The assessment followed RBCA guidelines established by the City of Oakland (*Oakland, 2000a,b*). The assessment demonstrated that ecological receptors would not likely be exposed to chemicals in groundwater at the Site given the lack of complete exposure pathways. However, in the Health Risk Evaluation (HRE), it was determined that future receptors could potentially be exposed to chemicals in groundwater via inhalation of vapors emanating from groundwater at the Site. The future receptors evaluated in the HRE were adult and child residents (apartment/loft style living), commercial worker, parking lot attendant, and construction worker. Chemicals with maximum concentrations exceeding drinking water maximum contaminant levels (MCLs) or action levels (ALs) were selected as chemicals of potential concern (COPCs). For all COPCs, exposure point concentrations (EPCs) were derived as the lesser of the 95 percent upper confidence limit (95% UCL) and the maximum detected concentration. The EPCs were compared with Tier 1 risk-based screening levels (RBSLs) for residential

Min # of samples?

and commercial receptors. If EPCs exceeded Tier 1 levels, EPCs were compared with Tier 2 site-specific target levels (SSTLs). All EPCs were below RBSLs or SSTLs, indicating that exposure to chemicals in groundwater is unlikely to pose adverse health risks to future receptors at the Site.

Table 1 provides a comparison of maximum detected concentrations in the three new groundwater samples to MCLs. Of the detected chemicals, only trichloroethene has an available MCL. Th[redacted]m [redacted] All other detected VOCs were selected as COPCs because they lack MCLs. Note, of the detected chemicals, only trichloroethene was detected and evaluated as a COPC in the original RBCA assessment. TPH as gasoline was not identified as a COPC because TPH lacks toxicity data and is typically evaluated by its indicator chemicals (i.e., VOCs).

Maximum concentrations of the COPCs were compared with Tier 1 RBSLs (Table 3). Maximum concentrations were used as EPCs because there were not enough data to calculate 95% UCLs. All chemicals had maximum concentrations below Tier 1 RBSLs. Dichlorofluoromethane lacks RBSLs; however, the maximum detected concentration of dichlorofluoromethane of 0.0032 mg/L is below the U.S. Environmental Protection Agency (EPA) P[redacted]mg/L. These results indicate that chemicals in groundwater at the Site are not anticipated to pose a threat to human health.

3.9 E2 ppb

dichloro di fluoro methane ?

DRINKING WATER CLASSIFICATION

The *Water Quality Control Plan, San Francisco Bay Basin* (*RWQCB, 1995*), commonly known as the Basin Plan, specifies that in order for a groundwater aquifer to be classified as a suitable, or potentially suitable, municipal or domestic water supply, TDS cannot exceed 3,000 mg/L (or 5,000 µS/cm, electrical conductivity) and the aquifer must sustain a yield of 200 gallons per day. Table 2 provides drinking water parameters analyzed in the groundwater samples for the first sampling. TDS levels do not exceed 3,000 mg/L. The Site is primarily underlain by Merritt sands, which are dense and moist. It is likely that the aquifer would sustain a yield of 200 gallons per day. In addition, pH at the Site ranges from 6.8 to 6.9 which falls within the drinking water standard range for pH of 6.5 to 8.5. Given these conditions, it is likely that groundwater at the Site could potentially be classified as a municipal or domestic water supply. However, the Site is located in a heavily developed area of downtown Oakland. The unconfined, shallow groundwater is not currently used as a drinking water source at the Site. There are no drinking water wells within a one mile radius of the Site (*Harding, 2001b*). The City of Oakland obtains drinking water from the East Bay Municipal Utility District (EBMUD) water supply system. There are no plans to use the groundwater for domestic purposes in the future.

ADDITIONAL SUBSURFACE INVESTIGATION

As part of the continuing investigation at the Housewives Marketplace, Harding ESE drilled and sampled 12 shallow borings to a depth of 4 to 5 feet and installed three groundwater monitoring wells at the Site in May 2001. Nine of the shallow borings were located within the Housewives Marketplace Building and three were located outside in the parking area. The purpose of the shallow borings was to evaluate the total and soluble lead concentrations in the shallow soil The three groundwater monitoring wells were located in the parking area because the drilling rig could not access the interior of the structure. Harding ESE installed the three wells on May 1, 2001 and developed, sampled and collected water level measurements on May 3. Harding ESE purged, sampled, and collected water level measurements on May 17 The water level measurements are presented on Table 4. The locations of the shallow borings and

three monitoring wells are presented in Plate A. Please note that we have corrected the direction of the North arrow on this plate. Harding ESE contracted with PLS Surveys, Inc. to provide horizontal and vertical control for the 12 shallow borings, the three monitoring wells, and the previous borings that Harding ESE personnel could recognize in the field.

DIRECTION OF GROUNDWATER FLOW

Harding ESE presents in Table 4 the water level measurements of the three well from May 3 and May 17, 2001. [redacted] ease note that this direction is the one anticipated in the RBCA Evaluation. Releases from the former UST in the northeast corner of the site would be detected at the three monitoring wells.

CONCLUSIONS

Harding ESE recommends that the Alameda County Health agency approve Site Closure for the Housewives Marketplace given the following:

- A RBCA assessment was conducted which demonstrated that the Site does not pose a significant risk to human health or the environment.
- Three additional groundwater monitoring wells were installed and sampled. Chemical concentrations from the three wells did not exceed health-based levels, further indicating that the Site does not pose a significant risk to human health or the environment.
- Although aquifer conditions at the Site are suitable for a water supply, the shallow groundwater is not currently used as a source of potable water, and it is unlikely that groundwater at the Site will be used in the future because the Site is located in downtown Oakland which obtains water from EBMUD. Currently, there are no plans to use the shallow groundwater at the Site for municipal or domestic purposes.
- [redacted] found [redacted] RBCA

If you have any questions, please contact Steve Osborne at (510) 628-3211.

Yours very truly,

HARDING ESE, Inc.

Genevieve DiMundo
Project Environmental Scientist

Stephen J. Osborne, P.E.
Geotechnical Engineer

Harding ESE
A MACTEC Company

REFERENCES

City of Oakland (Oakland), 2000a. *Oakland Urban Land Redevelopment Program: Guidance Document*. City of Oakland Public Works Agency. January 1.

_____, 2000b. *Oakland Risk-Based corrective Action: Technical Background Document*. Environmental Services Division. January 1.

Harding ESE, Inc. (Harding), 2001a. *Risk-Based Corrective Action (RBCA) Evaluation, Housewives Marketplace, 801 Clay Street, Oakland, California*. May 4.

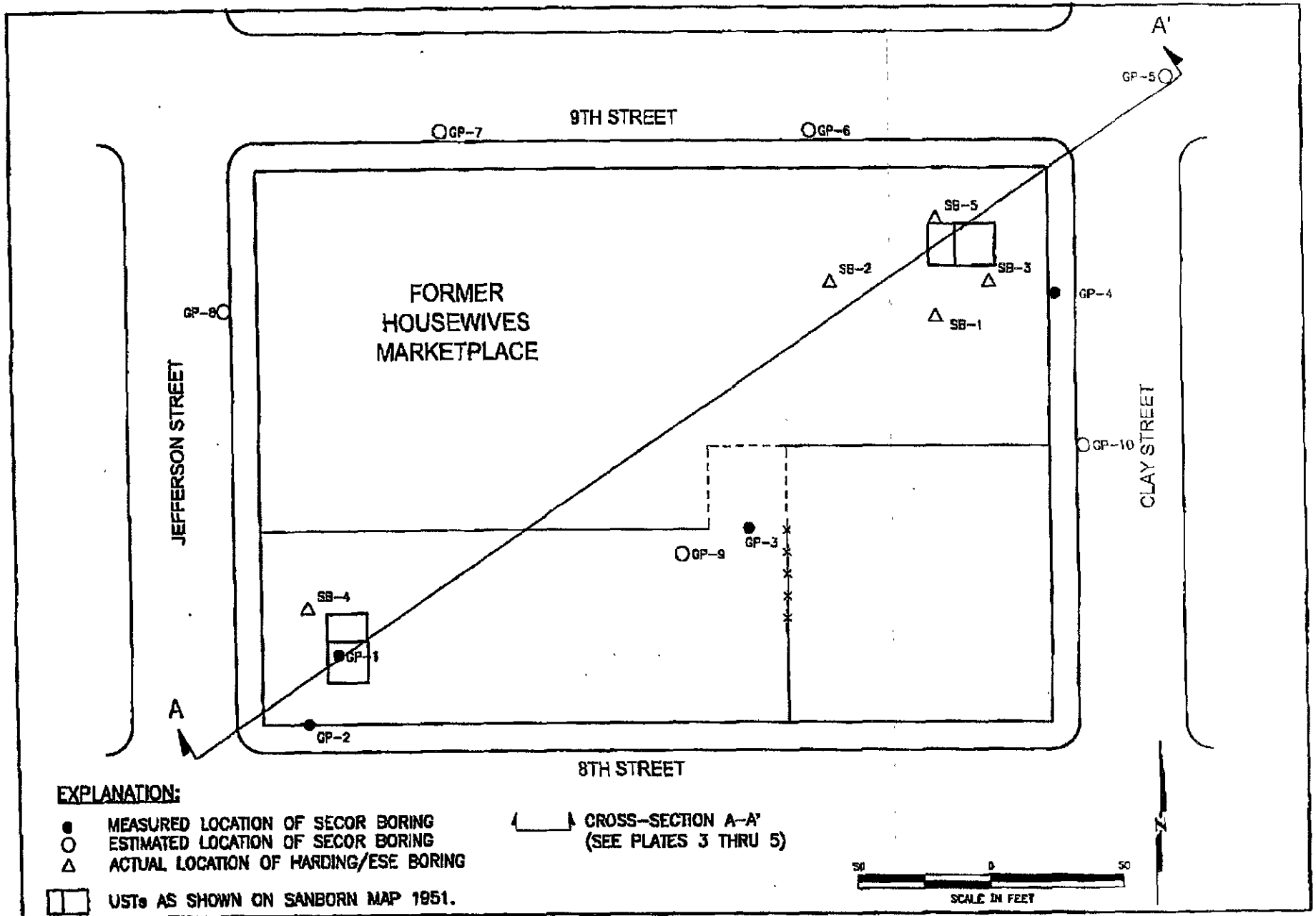
_____, 2001b. Harding letter to Mr. Odili Ojukwu, "Investigation of Drinking Water Wells Within One-Mile Radius, Housewives Marketplace, 801 Clay Street, Oakland, California". May 15.

Regional Water Quality Control Board (RWQCB), 1995. *Water Quality Control Plan, San Francisco Bay Basin*. June 21.

TABLES

PLATE

APPENDIX

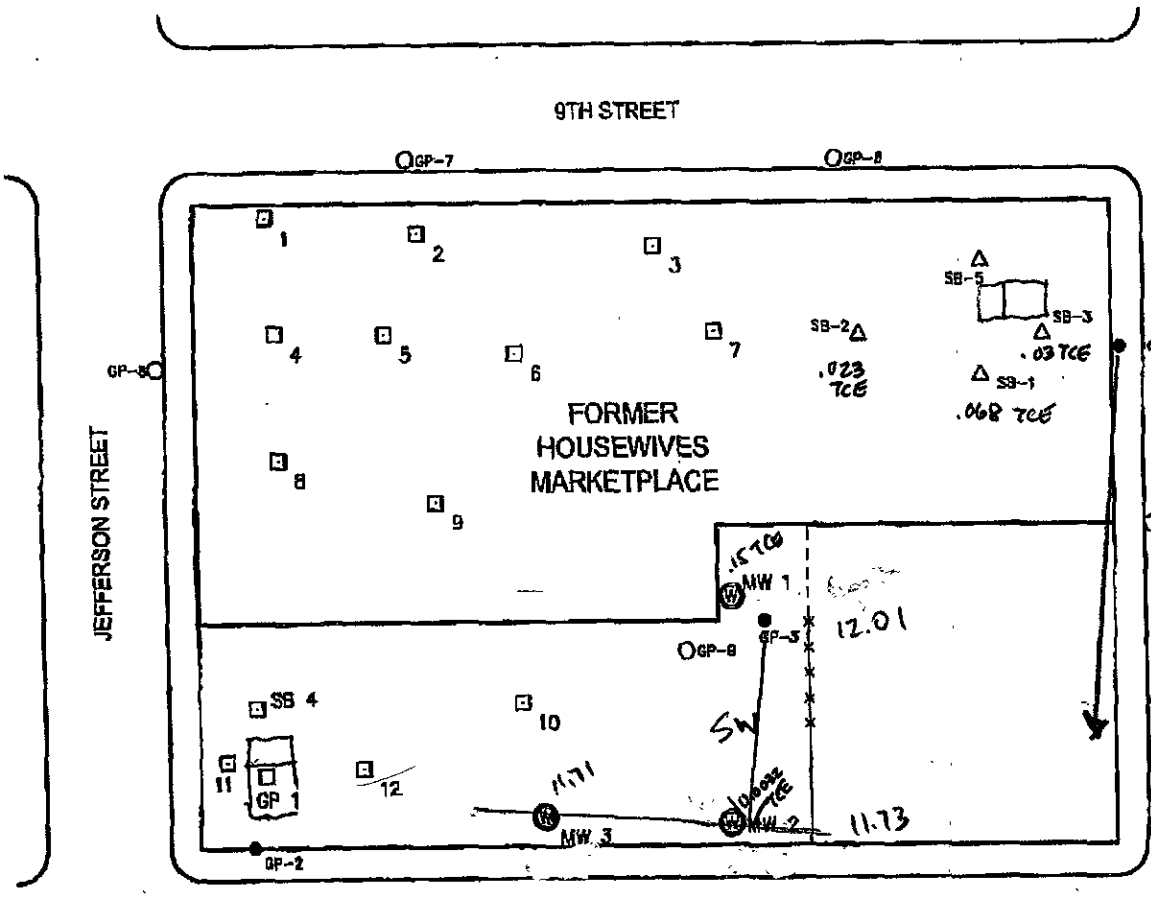


Harding ESE
A MACTEC COMPANY

Site Plan
Locations of Borings and USTs
Housewives Marketplace
Oakland, California

PLATE
2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	52901		03/2001	



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

50 0 50
SCALE IN FEET

PLATE

Harding ESE
A MACTEC COMPANY

Site Plan
Locations of Borings and Monitoring Wells
Housewives Marketplace
Oakland, California

A

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	52901 1		03/2001	

52901007.DWG 10
20010522.1712

Table 1. Groundwater Data Summary for Detected Chemicals
RBCA Evaluation - Update
Housewives Marketplace
Oakland, California

Analyte	Sample Results (mg/L) MW-1	MW-2	MW-3	Maximum Detected Value (mg/L)	MCL (mg/L)	COPC?
Volatile Organic Compounds (EPA Method 8260A)						
Chloroform	0.002	< 0.0005	< 0.01	0.002	--	Yes
Dichlorofluoromethane	0.0022	0.0032	< 0.01	0.0032	--	Yes
Methyl ethyl ketone	< 0.1	< 0.05	2.4	2.4	--	Yes
Trichloroethene	0.15	0.0025	< 0.01	0.15	0.005	Yes
Total Petroleum Hydrocarbons (EPA Method 8015 Modified)						
TPHg	< 0.005	< 0.05	0.15	0.15	--	No
TPHms	< 0.061	< 0.061	< 0.061	< 0.061		
TPHd	< 0.061	< 0.061	< 0.061	< 0.061	--	No
TPHmo	< 0.61	< 0.61	< 0.61	0.67	--	No

mg/L	Milligrams per liter.
MCL	Maximum contaminant level.
COPC	Chemical of potential concern.
TPHg	Total petroleum hydrocarbons as gasoline.

Table 2. Drinking Water Parameters
RBCA Evaluation - Update
Housewives Marketplace
Oakland, California

Parameter	MW-1	MW-2	MW-3
Chloride (mg/L)	180	230	210
pH	6.9	6.8	6.8
Total Dissolved Solids (mg/L)	920	860	550
Specific conductance (µS/cm)	1,200	1,400	1,200

mg/L	Milligrams per liter.
µS/cm	Microsiemens per centimeter.

Table 3. RBCA Tier 1 Evaluation
RBCA Evaluation - Update
Housewives Marketplace
Oakland, California

COPC	Maximum Detected Concentration (mg/L)	Oakland RBSLs (mg/L)[a] Residential Receptor (Inhalation of Indoor Air Vapors)	Commercial Receptor (Inhalation of Indoor Air Vapors)	Commercial Receptor (Inhalation of Outdoor Air Vapors)	EPC Exceeds Residential Indoor Air RBSL?	EPC Exceeds Commercial Indoor Air RBSL?	EPC Exceeds Commercial Outdoor Air RBSL?
Volatile Organic Compounds (EPA Method 8260A)							
Chloroform	0.002	0.75	12	130	No	No	No
Dichlorofluoromethane	0.0032	–	–	–	No	No	No
Methyl ethyl ketone	2.4	60,000	> Sol.	> Sol.	No	No	No
Trichloroethene	0.15	0.69	11	150	No	No	No

COPC	Chemical of potential concern.
RBSL	Risk-based screening level.
mg/L	Milligrams per liter.
> Sol	Screening level exceeds solubility threshold of chemical in water.
–	Not available.

[a] From: *Oakland, 2000a* - recommended RBSLs assuming groundwater is not a current or potential drinking water resource.
For carcinogenic chemicals, the lower of the carcinogenic and noncarcinogenic values is presented.

Table 4
Groundwater Elevations
RBCA Evaluation
Housewives Marketplace
Oakland, CA

Surface Elevation

Monitoring Well	Evaluation of Casing	Water Level	Elevation
1	~~35.18~~ 35.45	11.95ft	12.01ft
2	~~33.32~~ 33.72	11.67ft	11.73ft
3	33.41	11.68ft	11.71ft

DTW

Note: All Elevations are feet above the City of Oakland Datum.

Groundwater measurements indicate groundwater flows to the southeast.

P:wpdata/53360/037972T
5/22/01

1 of 1