

May 2, 2001  
RGA Job # HSHI3908  
Report 0164.R9

Mr. Tom Farrell  
Hardage Construction Corporation  
12730 High Bluff Drive, Suite 250  
San Diego, CA 92130

**RE: QUARTERLY MONITORING AND SAMPLING REPORT**  
Hardage Construction Corporation Site  
5800 Shellmound Street  
Emeryville, CA 94608

Dear Mr. Farrell:

RGA Environmental, Inc. (RGA) is pleased to present this report documenting the results of the monitoring and sampling of the seven groundwater monitoring wells at the subject site. The wells are designated as ATD1B, ATD2A, ATD3, ATD4A, ATD5, ATD6, and ATD7. The wells were monitored and sampled on April 21, 2001. The monitoring and sampling was performed to evaluate groundwater conditions as part of the quarterly monitoring and sampling program requested by Ms. Susan Hugo of the Alameda County Department of Environmental Health (ACDEH). A Site Location Map (Figure 1) and Site Plan (Figure 2) are attached with this report.

All work was performed under the direct supervision of an appropriately registered professional. This report is prepared in accordance with guidelines set forth in the document "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" dated August 10, 1990 and "Appendix A - Workplan for Initial Subsurface Investigation" dated August 20, 1991.

## **BACKGROUND**

A summary of investigations performed at the subject site is provided in RGA's "Environmental Site Assessment Update Report" dated December 11, 1997. A total of seven groundwater monitoring wells were installed at the site by others during previous subsurface investigations. Based on discussions with Ms. Susan Hugo of the ACDEH, the seven groundwater monitoring wells were determined to be adequate to characterize groundwater conditions at the subject site. One of the wells installed by others (ATD1) appeared to have been destroyed by others, and was subsequently replaced with a well designated as ATD1A. One of the wells installed by others (ATD2) was destroyed and replaced with well ATD2A because the wellhead had been removed during construction and the well had filled with gravel.



4701 Doyle Street  
Suite 14  
Emeryville, CA 94608

510 547 7771  
FAX 547 1983

One of the wells (ATD4) was destroyed and replaced with well ATD4A so as not to be located within the footprint of the new hotel at the site. Installation of the three wells was performed to restore the site groundwater monitoring network to a total of seven wells. Documentation of replacement of the wells is provided in RGA's report 0164.R4, "Well Installation Report," dated May 2, 2000.

Recent quarterly monitoring and sampling activity revealed that one well in the system (ATD1A) was partially full of sand. Documentation of attempts to flush and purge the sand out of ATD1A with clean water can be found in RGA's Report 0164.R5, "Quarterly Monitoring and Sampling Report," dated September 6, 2000. The sand in the well was the sand used for construction of the well filter pack. Based upon repeated attempts to remove the sand, it was determined that well replacement was appropriate. A Monitoring Well Replacement Work Plan (Letter 0164.L29) dated September 13, 2000 was submitted to the ACDEH for review and approval. The work plan was verbally approved by Ms. Susan Hugo of the ACDEH on September 19, 2000. On October 2, 2000, RGA personnel oversaw the destruction of ATD1A and the installation of one replacement groundwater monitoring well, designated as ATD1B, in the same borehole. Documentation of replacement of this well is provided in RGA's Report 0164.R6, "Monitoring Well Replacement Report," dated October 25, 2000.

## **FIELD ACTIVITIES**

On April 21, 2001, the seven groundwater monitoring wells at the site (designated as ATD1B, ATD2A, ATD3, ATD4A, ATD5, ATD6, and ATD7 on the attached Site Plan) were monitored by RGA personnel. The groundwater monitoring wells were monitored for depth to water and the presence of free product or sheen. Depth to water was measured to the nearest 0.01 foot using an electric water level indicator, and the presence of free product or sheen was evaluated using a transparent bailer. No sheen was observed on the water from any of the wells, with the exception of well ATD6. Free product was not observed in any of the wells. A faint sulfurous odor was detected from well ATD2A, and a creosote-like odor was detected from well ATD6. Depth to water level measurements for the wells and associated calculated groundwater surface elevations are presented in Table 1.

All of the wells were sampled on April 21, 2001. After monitoring and prior to sampling, the monitoring wells were purged of a minimum of three casing volumes of water or until the wells were purged dry. During purging operations, the field parameters of electrical conductivity, temperature and pH were monitored. Once the field parameters were observed to stabilize, and a minimum of three casing volumes had been purged or the wells had been purged dry and partially recovered, water samples were collected using a clean Teflon bailer. Records of the field parameters measured during well purging are attached with this report.

The water samples were transferred to 40-milliliter glass Volatile Organic Analysis (VOA) vials and 1-liter amber glass bottles which were sealed with Teflon-lined screw caps, and to plastic polypropylene bottles which were sealed with plastic screw caps. The VOA vials were overturned and tapped to assure that no air bubbles were present.

The VOA vials and bottles were then transferred to a cooler with ice, until they were transported directly to McCampbell Analytical, Inc. in Pacheco, California. McCampbell Analytical, Inc. is a State-Certified hazardous waste testing laboratory. Chain of custody documentation accompanied the samples to the laboratory.

## **HYDROGEOLOGY**

Water levels were measured in the monitoring wells once during the quarter. The measured depth to water in wells ATD1B through ATD7 ranged from 2.78 to 5.91 feet. Since the previous quarter, groundwater levels have increased in all of the wells ATD2A, ATD4A and ATD5 by 0.05, 0.50 and 0.07 feet, respectively, and have decreased in the remaining wells by 0.05 to 0.62 feet.

Based on the wellhead elevation survey data obtained from Santina & Thompson (State-licensed surveyors) and the measured depth to groundwater, the groundwater flow direction on April 21, 2001 was calculated to be to the west-southwest with a gradient of 0.012. This flow direction is consistent with the previous quarter and previous reports by others which have shown that the groundwater flow direction at the site is westerly, towards San Francisco Bay. The groundwater monitoring data collected during this monitoring and sampling episode is presented in Table 1.

## **LABORATORY RESULTS**

The groundwater samples collected on April 21, 2001 from monitoring wells ATD1B, ATD2A, ATD3, ATD4A, ATD5, ATD6, and ATD7 were analyzed for the following constituents: Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Method 3510 in conjunction with Modified EPA Method 8015; benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020; and the RCRA 8 metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver) by various EPA-approved methods.

The laboratory analytical results of the groundwater samples collected on January 15, 2001 show that TPH-D was detected in all of the wells except ATD3 at concentrations ranging from 0.062 to 1.6 ppm. Benzene was not detected in any of the wells with the exception of wells ATD2A and ATD4A, where it was detected at concentrations of 0.0015 and 0.0014 ppm, respectively. Review of the laboratory analytical reports indicates that the TPH-D results for wells ATD1B, ATD2A, ATD4A, and ATD7 showed

diesel-range compounds with no recognizable pattern; the TPH-D results for well ATD5 were described as unmodified or weakly modified diesel and a medium boiling point pattern which does not match diesel; and the TPH-D results for well ATD6 were described as gasoline-range compounds. The TPH-D results for well ATD2A were also reported to contain oil-range compounds.

The laboratory analytical results for the eight RCRA metals for the groundwater samples collected on April 21, 2001 show that: cadmium, chromium, mercury, selenium and silver were not detected in any of the wells. Arsenic was detected in wells ATD2A, ATD4A, and ATD5 at concentrations of 0.0055, 0.071, and 0.0098 ppm, respectively. Barium was detected in all of the wells (except ATD2A and ATD5 where it was not detected) at concentrations ranging from 0.059 to 0.12 ppm. Lead was detected in wells ATD4A and ATD5 at concentrations of 0.026 ppm and 0.013 ppm, respectively.

Since the previous quarter when the wells sampled on January 15, 2001, TPH-D concentrations have decreased in all of the wells except in wells ATD2A and ATD4A, where the TPH-D concentrations have increased. Benzene concentrations have decreased in the two wells where benzene was detected, since the previous quarter. Similarly, since the previous quarterly monitoring and sampling episode, concentrations of the eight RCRA metals have decreased in all of the wells with the exception of arsenic in wells ATD2A and ATD4A and barium in well ATD7. The laboratory analytical results for organic compound analysis of the groundwater samples are summarized in Table 2. Laboratory analytical results for metals analysis of the groundwater samples are summarized in Table 3. Copies of the laboratory analytical reports and chain of custody documentation are attached with this report.

## **DISCUSSION AND RECOMMENDATIONS**

All of the wells were monitored and sampled one time during the quarter. Sheen was detected in well ATD6 only. No measurable free product layers were detected in any of the wells.

The sample results showed that TPH-D was detected in all of the wells (except for well ATD3 where it was not detected) at concentrations ranging from 0.062 to 2 ppm. Benzene was not detected in any of the wells with the exception of wells ATD2A and ATD4A, where it was detected at concentrations of 0.0015 and 0.0014 ppm, respectively. Review of the laboratory analytical reports indicates that the TPH-D results for wells ATD1B, ATD2A, ATD4A, and ATD7 showed diesel-range compounds with no recognizable pattern; the TPH-D results for well ATD5 were described as unmodified or weakly modified diesel and a medium boiling point pattern which does not match diesel; and the TPH-D results for well ATD6 were described as gasoline-range compounds. The TPH-D results for well ATD2A were also reported to contain oil-range compounds.

None of the RCRA metals were detected at concentrations exceeding their respective MCL values with the exception of arsenic in well ATD4A. The MCL value for arsenic is 0.05 mg/L, and arsenic was detected in well ATD4A at a concentration of 0.072 mg/L.

Based on the calculated water level elevations in the wells, the groundwater flow direction at the site on April 21, 2001 was calculated to be to the west-southwest with a gradient of 0.012. This flow direction is consistent with previous the previous quarter and previous reports by others which have shown that the groundwater flow direction at the site is westerly, towards San Francisco Bay.

Based on review of organic and inorganic water quality sample results for the past year, no significant increase in water quality analytes was observed. Based on these results, RGA recommends that the quarterly groundwater monitoring and sampling program be discontinued and the site be evaluated for case closure.

## **LIMITATIONS**

This report was prepared solely for the use of Hardage Construction Corporation. The content and conclusions provided by RGA in this assessment are based on information collected during our investigation, which may include, but not be limited to, visual site inspections; interviews with site owner, regulatory agencies and other pertinent individuals; review of available public documents; subsurface exploration and our professional judgement based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly reveeveal(U conditions must be evaluated and may invalidate the findings of this report.

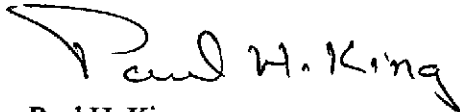
This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. RGA is not responsible for the accuracy or completeness of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

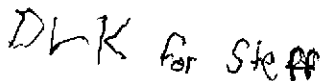
Should you have any questions, please do not hesitate to call us at (510) 547-7771.

Sincerely,

RGA Environmental



Paul H. King  
California Registered Geologist  
Registration No.: 5907  
Expires: 12/31/01



Steff Steiner  
Project Manager

Attachments: Tables 1, 2, & 3  
Site Location Map (Figure 1)  
Site Plan Showing Well Locations (Figure 2)  
Monitoring Well Purge Data Sheets  
Laboratory Analytical Results  
Chain of Custody Documentation

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**TABLE 1**  
**WELL MONITORING DATA**

Well No.	Date Monitored	Top of Casing Elev. (ft.)	Depth to Water (ft.)	Water Table Elev. (ft.)
ATD1B+	4/21/01	8.77	2.78	5.99
	1/15/01	8.77	2.73	6.04
	10/25/00	Unknown	3.56	Unknown
ATD1A+	10/2/00	Destroyed and replaced by well ATD1B		
	8/15/00	Unknown	3.90	Unknown
	8/10/00	Unknown	6.10	Unknown
	7/17/00	Unknown	5.22	Unknown
ATD2A	4/21/01	9.23	2.89	6.34
	1/15/01	9.23	2.94	6.29
	10/25/00	Unknown	3.95	Unknown
	7/17/00	Unknown	3.91	Unknown
	8/26/98	Unknown	3.77	Unknown
ATD3	4/21/01	9.96	4.77	5.19
	1/15/01	9.96	4.37	5.59
	10/26/00	Unknown	3.91	Unknown
	7/17/00	Unknown	3.64	Unknown
	8/26/98	Unknown	3.37	Unknown
ATD4A	4/21/01	10.28	5.78	4.50
	1/15/01	10.28	6.28	4.00
	10/26/00	Unknown	6.59	Unknown
	7/17/00	Unknown	4.30	Unknown
ATD5	1/15/01	10.05	5.14	4.91
	1/15/01	10.05	5.21	4.84
	10/25/00	Unknown	6.21	Unknown
	7/17/00	Unknown	5.96	Unknown
	11/9/97	Unknown	3.85	Unknown
	11/5/97	Unknown	3.92	Unknown

**Notes:**

+ = Well ATD1A was replaced by Well ATD1B on October 2, 2000.

Elev. = Elevation

ft. = feet

TABLE 1  
(Continued)  
WELL MONITORING DATA

Well No.	Date Monitored	Top of Casing Elev. (ft.)	Depth to Water (ft.)	Water Table Elev. (ft.)
ATD6	1/15/01	7.87	5.91	1.96
	1/15/01	7.87	5.29	2.58
	10/25/00	Unknown	5.80	Unknown
	7/17/00	Unknown	5.65	Unknown
ATD7	1/15/01	7.92	4.65	3.27
	1/15/01	7.92	4.54	3.38
	10/26/00	Unknown	4.85	Unknown
	7/17/00	Unknown	4.91	Unknown
	11/9/97	Unknown	5.23	Unknown
	11/5/97	Unknown	5.20	Unknown

**Notes:**

+ = Well ATD1A was replaced by Well ATD1B on October 2, 2000.

Elev. = Elevation

ft. = feet



TABLE 2  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
ORGANIC ANALYSIS RESULTS

Well No.	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	Total Xylenes
(Samples Collected on April 21, 2001)							
ATD1B	0.062	NA	NA	ND	ND	ND	ND
ATD2A*	0.63	NA	NA	0.0015	ND	ND	ND
ATD3	ND	NA	NA	ND	ND	ND	ND
ATD4A	1.6	NA	NA	0.0014	ND	ND	0.00098
ATD5****	0.58	NA	NA	ND	ND	0.0065	0.014
ATD6***	0.29	NA	NA	ND	ND	ND	ND
ATD7	0.2	NA	NA	ND	ND	ND	ND
(Samples Collected on January 15, 2001)							
ATD1B	0.088	NA	NA	ND	ND	ND	ND
ATD2A	0.53	NA	NA	0.0019	ND	ND	ND
ATD3	0.1	NA	NA	ND	ND	ND	ND
ATD4A	2.5	NA	NA	0.002	0.00098	ND	0.0014
ATD5	1.2	NA	NA	ND	ND	0.012	0.025
ATD6	0.9	NA	NA	ND	ND	0.0011	ND
ATD7	0.25	NA	NA	ND	ND	ND	ND

**Notes:**

NA = Not Analyzed.

ND = Not Detected.

\* = Laboratory analytical report note: both diesel- and oil-range compounds are significant in the TPH-D result.

\*\*\* = Laboratory analytical report note: gasoline-range compounds significant in TPH-D result.

\*\*\*\*=Laboratory analytical report note: unmodified or weakly modified diesel is significant, and medium boiling point pattern that does not match diesel fuel (fuel oil?).

Results are in ppm (mg/L), unless otherwise indicated.

TABLE 2  
(Continued)  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
ORGANIC ANALYSIS RESULTS

Well No.	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	Total Xylenes
(Samples Collected on October 25 and 26, 2000)							
ATD1B	ND	NA	NA	ND	ND	ND	ND
ATD2A*	0.51	NA	NA	0.0024	ND	ND	ND
ATD3	ND	NA	NA	ND	ND	ND	ND
ATD4A*	2.9	NA	NA	0.0023	0.0014	ND	ND
ATD5*	0.7	NA	NA	ND	0.00051	0.015	0.023
ATD6#	NA	NA	NA	NA	NA	NA	NA
ATD7*	0.23	NA	NA	ND	ND	ND	ND
(Samples Collected on July 17, 18, and August 15, 2000)							
ATD1A**	0.12	NA	NA	ND	ND	ND	ND
ATD2A**	0.5	NA	NA	0.0018	ND	ND	0.0023
ATD3**	0.099	NA	NA	ND	ND	ND	ND
ATD4A	3	NA	NA	0.0032	0.0021	ND	0.003
ATD5	0.72	NA	NA	ND	0.00055	0.012	0.011
ATD6***	0.22	NA	NA	ND	ND	0.0019	0.00092
ATD7	0.26	NA	NA	ND	ND	ND	ND

**Notes:**

NA = Not Analyzed.

ND = Not Detected.

# = Sample ATD6 was analyzed using the Fuel Fingerprint method; the laboratory analytical report describes the chromatogram for this sample as having two significant hydrocarbon patterns, one between C9 and C12 resembling Stoddard solvent, and one between C18 and C30, in the oil range.

\* = Laboratory analytical report note: both diesel- and oil-range compounds are significant in the TPH-D result.

\*\* = Laboratory analytical report note: oil-range compounds significant in TPH-D result.

\*\*\* = Laboratory analytical report note: gasoline-range compounds significant in TPH-D result.

Results are in ppm (mg/L), unless otherwise indicated.

TABLE 2  
(Continued)  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
ORGANIC ANALYSIS RESULTS

Well No.	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	Total Xylenes
(Samples Collected on August 26, 1998)							
ATD2	1.2	ND	NA	0.0021	ND	ND	ND
ATD3	ND	ND	NA	ND	ND	ND	ND
(Samples Collected on November 9, 1997)							
ATD5	0.22	NA	NA	NA	NA	NA	NA
ATD7	0.24	NA	NA	NA	NA	NA	NA
(Samples Collected on November 5, 1997)							
ATD5	0.23	ND	ND	ND	ND	ND	ND
ATD7	0.21	ND	ND	ND	ND	ND	ND

**Notes:**

NA = Not Analyzed.

ND = Not Detected.

\* = Laboratory analytical report note: oil-range compounds significant in TPH-D result.

\*\* = Laboratory analytical report note: gasoline-range compounds significant in TPH-D result.

\*\*\* = Laboratory analytical report note: both diesel- and oil-range compounds are significant in the TPH-D result.

Results are in ppm (mg/L), unless otherwise indicated.

**TABLE 3**  
**SUMMARY OF LABORATORY ANALYTICAL RESULTS**  
**GROUNDWATER SAMPLES**  
**METALS RESULTS**

Well No.	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MCL	0.05	1.00	0.01	None	0.05	0.002	0.01	0.05
(Samples Collected on April 21, 2001)								
ATD1B	ND	0.12	ND	ND	ND	ND	ND	ND
ATD2A	0.0055	ND	ND	ND	ND	ND	ND	ND
ATD3	ND	0.12	ND	ND	ND	ND	ND	ND
ATD4A	0.071	0.059	ND	ND	0.026	ND	ND	ND
ATD5	0.0098	ND	ND	ND	0.013	ND	ND	ND
ATD6	ND	0.065	ND	ND	ND	ND	ND	ND
ATD7	ND	0.11	ND	ND	ND	ND	ND	ND
(Samples Collected on January 15, 2001)								
ATD1B	ND	0.14	ND	ND	ND	ND	ND	ND
ATD2A	ND	ND	ND	ND	ND	ND	ND	ND
ATD3	ND	0.15	ND	ND	ND	ND	ND	ND
ATD4A	ND	0.088	ND	ND	0.10	ND	ND	ND
ATD5	0.084	0.027	ND	ND	0.017	ND	ND	ND
ATD6	0.0065	0.075	ND	ND	ND	ND	ND	ND
ATD7	ND	0.14	ND	ND	ND	ND	ND	ND

**Notes:**

MCL = Maximum Concentration Limit.

NA = Not Analyzed.

ND = Not Detected.

Results are in ppm (mg/L), unless otherwise indicated.

TABLE 3  
(Continued)  
SUMMARY OF LABORATORY ANALYTICAL RESULTS  
GROUNDWATER SAMPLES  
METALS RESULTS

Well No.	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MCL	0.05	1.00	0.01	None	0.05	0.002	0.01	0.05
(Samples Collected on October 25 and 26, 2000)								
ATD1B	ND	0.078	ND	ND	ND	ND	ND	ND
ATD2A	0.0077	ND	ND	ND	ND	ND	ND	ND
ATD3	ND	0.14	ND	ND	ND	ND	ND	ND
ATD4A	0.23	0.12	ND	ND	0.12	ND	ND	ND
ATD5	0.022	ND	ND	ND	0.027	ND	ND	ND
ATD6	NA	NA	NA	NA	NA	NA	NA	NA
ATD7	ND	0.16	ND	ND	ND	ND	ND	ND
(Samples Collected on July 17, 18, and August 15, 2000)								
ATD1A	0.015	0.22	ND	ND	ND	ND	ND	ND
ATD2A	0.0087	ND	ND	ND	ND	ND	ND	ND
ATD3	ND	0.14	ND	ND	ND	ND	ND	ND
ATD4A	10	0.34	ND	0.031	0.72	0.006	ND	ND
ATD5	0.016	ND	ND	0.024	0.04	0.001	ND	ND
ATD6	0.0066	0.088	ND	ND	ND	ND	ND	ND
ATD7	ND	0.11	ND	0.17	ND	ND	ND	ND
(Samples Collected on August 26, 1998)								
ATD2	0.023	ND	ND	ND	ND	ND	ND	ND
ATD3	ND	ND	ND	ND	ND	ND	ND	ND
(Samples Collected on November 9, 1997)								
ATD5	NA	NA	NA	ND	NA	NA	NA	NA
ATD7	NA	NA	NA	NA	NA	NA	NA	NA
(Samples Collected on November 5, 1997)								
ATD5	0.026	0.11	ND	0.01	0.016	ND	ND	ND
ATD7	ND	0.095	ND	0.0055	ND	ND	ND	ND

**Notes:**

MCL = Maximum Concentration Limit.

NA = Not Analyzed.

ND = Not Detected.

Results are in ppm (mg/L), unless otherwise indicated.

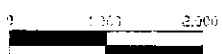


**FIGURE 1**  
**SITE LOCATION MAP**  
 Hardage Construction Corporation Site  
 5800 Shellmound Street  
 Emeryville, California

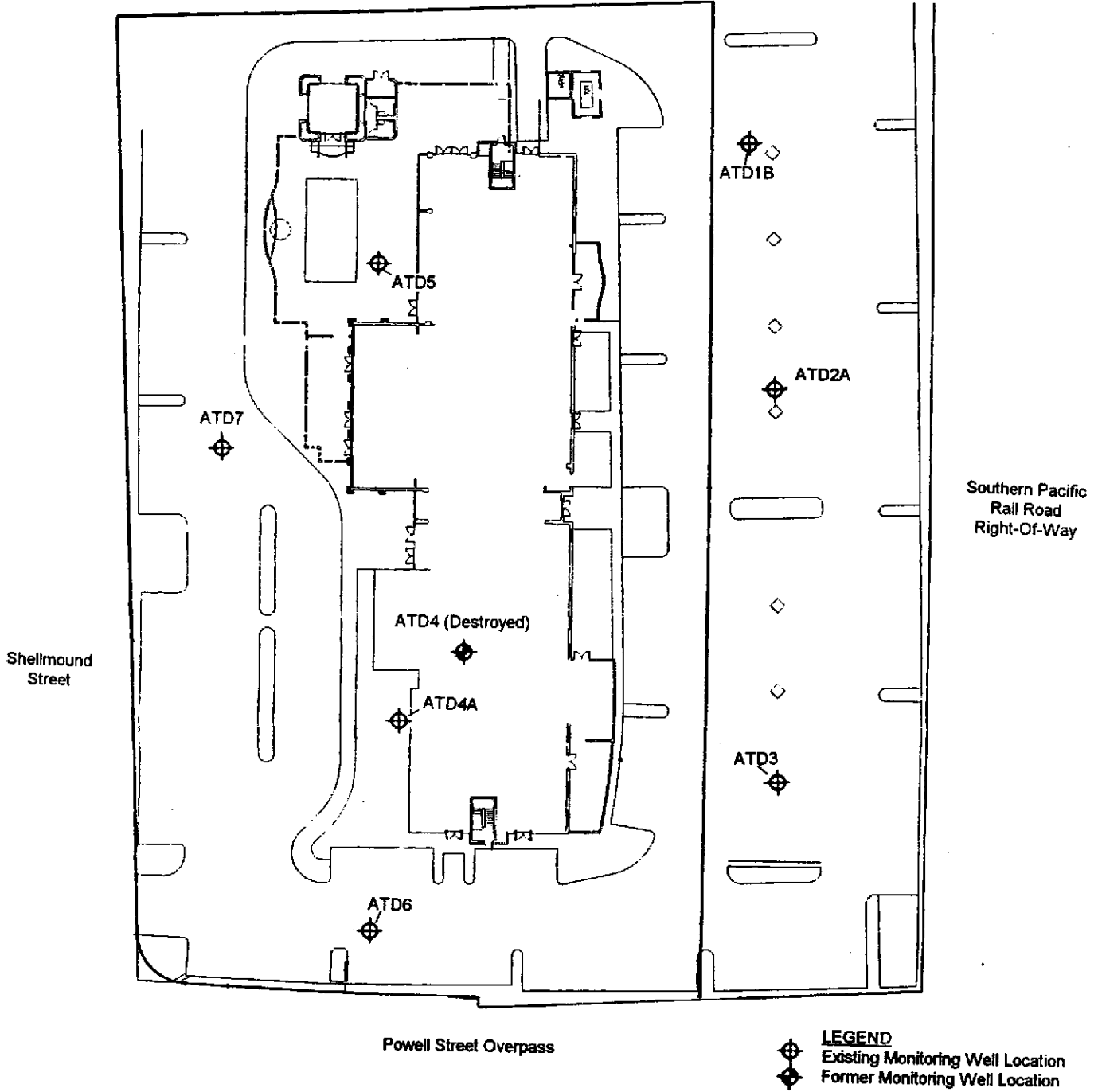


Source:  
 U.S. Geological Survey  
 Oakland West, California  
 7.5 Minute Quadrangle  
 Photorevised, 1980

RGA Environmental, Inc.  
 4701 Doyle Street, Suite 14  
 Emeryville, California 94608



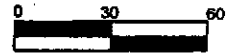
SCALE IN FEET



**FIGURE 2**  
**SITE PLAN**  
 Hardage Construction Corporation Site  
 5800 Shellmound Street  
 Emeryville, California

Source:  
 Santina & Thompson, Inc.  
 Woodfin Suite Hotel  
 Monitoring Well Location and Elevation Map  
 March, 1999

RGA Environmental, Inc.  
 4701 Doyle Street, Suite 14  
 Emeryville, California 94608



SCALE IN FEET





RGA ENVIRONMENTAL  
GROUNDWATER MONITORING/WELL PURGING  
DATA SHEET

Site Name NSHE

Well No. ATD2A

Job No. 0164

Date 4/21/01

TOC to Water (ft.) 2.89

Sheen None

Well Depth (ft.) 9.9

Free Product Thickness ∅

Well Diameter 4"

Sample Collection Method Teflon Bailor

Gal./Casing Vol. 4.5

$\Sigma = 13.5$

TIME	GAL. PURGED	pH	TEMPERATURE (°F)	ELECTRICAL CONDUCTIVITY $\mu S/cm$
4:20	1	8.35	63.7	11.36
4:21	2	8.40	62.5	11.98
4:22	4	8.66	62.2	11.12
4:23	6	9.18	62.1	11.08
4:24	8	9.66	62.0	11.12
4:25	10	10.10	62.0	11.15
4:26	12	10.36	61.9	11.13
4:27	14	10.51	62.0	11.04
4:28	16	10.67	62.0	11.04
4:29	18	10.81	62.0	11.01
4:30	20	10.97	62.0	11.04
4:31	22	11.13	62.0	11.08
4:32	24	11.28	61.9	11.10
4:33	26	11.38	61.8	11.09
4:44	28	11.48	61.9	11.11
4:45	Collect sample			

NOTES: Sulfurous odor in purge water












 <b>McCAMPBELL ANALYTICAL INC.</b>	110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone : 925-798-1620 Fax : 925-798-1622 <a href="http://www.mccampbell.com">http://www.mccampbell.com</a> E-mail: main@mccampbell.com
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RGA Environmental 4701 Doyle Street, #14 Emeryville, CA 94608	Client Project ID: #0164/3908; HSHI-Emeryville	Date Sampled: 04/21/01
	Client Contact: Paul King	Date Received: 04/23/01
	Client P.O:	Date Extracted: 04/23/01
		Date Analyzed: 04/23-04/24/01

**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) <sup>+</sup>	% Recovery Surrogate
66011	ATD-1B	W	62,b	105
66012	ATD-2A	W	630,g,b	106
66013	ATD-3	W	ND	104
66014	ATD-4A	W	1600,b	93
66015	ATD-5	W	580,a/e	100
66016	ATD-6	W	290,d	99
66017	ATD-7	W	200,b	98
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L		
	S	1.0 mg/kg		

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

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

\*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (fuel oil?); 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.

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	Client P.O:	Date Extracted: 04/23-04/25/01
		Date Analyzed: 04/23-04/25/01

**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) <sup>+</sup>	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
66011	ATD-1B	W	---	---	ND	ND	ND	ND	96
66012	ATD-2A	W	---	---	1.5	ND	ND	ND	104
66013	ATD-3	W	---	---	ND	ND	ND	ND	98
66014	ATD-4A	W	---	---	1.4	ND	ND	0.98	104
66015	ATD-5	W	---	---	ND	ND	6.5	14	104
66016	ATD-6	W	---	---	ND	ND	ND	ND	100
66017	ATD-7	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, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

\* cluttered chromatogram; sample peak coelutes with surrogate peak

\*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.





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RGA Environmental 4701 Doyle Street, #14 Emeryville, CA 94608	Client Project ID: #0164/3908; HSHI- Emeryville	Date Sampled: 04/21/01
	Client Contact: Paul King	Date Received: 04/23/01
	Client P.O:	Date Extracted: 04/23/01
		Date Analyzed: 04/23-04/25/01

**RCRA Metals\***

EPA methods 6010/200.7; 7470/7470/245.1/245.5 (Hg); 7060/206.2 (As); 7740/270.2 (Se); 239.2 (Pb, water matrix)

Lab ID	66011	66012	66013	66014	Reporting Limit		
					S	W	STLC, TCLP
Client ID	ATD-1B	ATD-2A	ATD-3	ATD-4A			
Matrix	W	W	W	W	S	W	STLC, TCLP
Extraction <sup>o</sup>	Dissolved	Dissolved	Dissolved	Dissolved	TTLc	Dissolved	
Compound	Concentration*				mg/kg	mg/L	mg/l.
Arsenic (As)	ND	0.0055	ND	0.071	2.5	0.005	0.25
Barium (Ba)	0.12	ND	0.12	0.059	1.0	0.05	0.05
Cadmium (Cd)	ND	ND	ND	ND	0.5	0.005	0.01
Chromium (Cr)	ND	ND	ND	ND	0.5	0.02	0.05
Lead (Pb)	ND	ND	ND	0.026	3.0	0.005	0.2
Mercury (Hg)	ND	ND	ND	ND	0.06	0.0008	0.005
Selenium (Se)	ND	ND	ND	ND	2.5	0.005	0.25
Silver (Ag)	ND	ND	ND	ND	1.0	0.01	0.05
% Recovery Surrogate	N/A	N/A	N/A	N/A			
Comments							

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

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

<sup>o</sup> EPA extraction methods 1311(TCLP), 3010/3020(water,TTLc), 3040(organic matrices,TTLc), 3050(solids,TTLc); STLC -CA Title 22<sup>o</sup> DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.<sup>o</sup> surrogate diluted out of range<sup>o</sup> reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

Edward Hamilton, Lab Director



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	Client Contact: Paul King	Date Received: 04/23/01
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		Date Analyzed: 04/23-04/25/01

## RCRA Metals\*

EPA methods 6010/200.7; 7470/7470/245.1/245.5 (Hg); 7060/206.2 (As); 7740/270.2 (Se); 239.2 (Pb, water matrix)

Lab ID	66015	66016	66017	Reporting Limit		
				S	W	STLC, TCLP
Client ID	ATD-5	ATD-6	ATD-7			
Matrix	W	W	W			
Extraction <sup>†</sup>	Dissolved	Dissolved	Dissolved	TTLIC	Dissolved	
Compound	Concentration*			mg/kg	mg/l.	mg/L
Arsenic (As)	0.0098	ND	ND	2.5	0.005	0.25
Barium (Ba)	ND	0.065	0.11	1.0	0.05	0.05
Cadmium (Cd)	ND	ND	ND	0.5	0.005	0.01
Chromium (Cr)	ND	ND	ND	0.5	0.02	0.05
Lead (Pb)	0.013	ND	ND	3.0	0.005	0.2
Mercury (Hg)	ND	ND	ND	0.06	0.0008	0.005
Selenium (Se)	ND	ND	ND	2.5	0.005	0.25
Silver (Ag)	ND	ND	ND	1.0	0.01	0.05
% Recovery Surrogate	N/A	N/A	N/A			
Comments						

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

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

° EPA extraction methods 1311(TCLP), 3010/3020(water, TTLIC), 3040(organic matrices, TTLIC), 3050(solids, TTLIC); STLC -CA Title 22

\* DISTIC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTIC results are not applicable to STLC regulatory limits.

† surrogate diluted out of range

\* reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

 Edward Hamilton, Lab Director



ENVIRONMENTAL INC.

4701 Doyle St, #145 Emeryville  
FAX: (510) 547-1983

TEL: (510) 547-7771  
EMERYVILLE, CA 94608

25562 ZLQA78.doc

# CHAIN OF CUSTODY

Project Number: **0164 / 3908**  
 Project Name: **ASHI - Emeryville**  
 Sampled By: (Printed and Signature): **Paul H. King**

No. of Containers:	Analysis(es):	TPH-Direct	ISTEX	KORAB Method	Other	Sample No.
6	X	X	X			66011
6	X	X	X			66012 +
6	X	X	X			66013
6	X	X	X			66014 +
6	X	X	X			
6	X	X	X			
6	X	X	X			

Sample Number	Date	Time	Type	Sample Location
ATD-1B	4/23/01		Water	
ATD-2A	"		"	
ATD-3	"		"	
ATD-4A	"		"	
ATD-5	"		"	
ATD-6	"		"	
ATD-7	"		"	

VOAS  GAGMETALS  OTHER

GOOD CONDITION  PRESERVATION APPROPRIATE  CONTAINERS

HEAD SPACE ABSENT

Filtered & preserved upon arrival in lab

Relinquished By: (Signature): <b>Paul H. King</b>	Date: <b>4/23</b>	Time: <b>9:25</b>	Relinquished By: (Signature): <b>11/TPA EX #280</b>	Total No. of Samples: <b>7</b>	Total No. of Containers: <b>42</b>	Laboratory: <b>McCampbell Analytical</b>
Relinquished By: (Signature): <b>11/TPA EX #280</b>	Date: <b>7/23</b>	Time: <b>15:40</b>	Relinquished By: (Signature): <b>Mona [Signature]</b>	Laboratory Contact: <b>Ed Hamilton</b>	Laboratory Phone Number: <b>925-798-1620</b>	
Relinquished By: (Signature):	Date:	Time:	Received For Laboratory By: (Signature): <b>[Signature]</b>	Sample Analysis Request Sheet Attached ( ) Yes (X) No		

Comments: VOAs preserved with HCl. Polypropylene containers are not preserved. Please filter and preserve contents of polypropylene containers upon receipt.

TB:SV W

66017 +

Sent By: McCampbell Analytical, Inc.; 1 925 798 4612; Apr-27-01 12:11PM; Page 2