Chem spill

Wahler Associates

Geotechnical and Water Resources Engineering

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Valwest Development, Inc.
96 North Third Street, Suite 400
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Attention: Mr. Michael W. Valley and
Mr. Ken Pastrof

Subject: Environmental Survey for the Able Auto Wrecking Yard
at the Heath/Rogers Property East
of Mowry Avenue in Newark, California

Gentlemen:

Wahler Associates (WA) was retained by Valwest Development, Inc. (VDI) to conduct an environmental survey for the auto junkyard portion of the Heath/Rogers property east of Mowry Avenue in Newark, California. WA is pleased to submit the results of this assessment in the following report.

A. INTRODUCTION

The auto junkyard is part of a larger property intended for residential development. The proposed development property is located east of Mowry Avenue and is bordered by the Southern Pacific Railroad to the northeast, and the Mowry Slough to the south. This report presents and discusses the results of chemical analysis of subsurface samples taken within the junkyard and groundwater samples taken from monitoring wells installed near the borders of the auto junkyard.

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1. Scope of Services

The scope of services agreed to by VDI included the following tasks:

- Advance up to twelve shallow borings and obtain subsurface samples at appropriate depths;
- Obtain the required permits for installation of three shallow aquifer monitoring wells;
- Drill, log and install three shallow aquifer monitoring wells, obtaining subsurface samples at appropriate depths;
- Develop the new monitoring wells;
- Survey the new monitoring wells, measure groundwater elevations, and develop a groundwater gradient map;
- Chemically analyze subsurface samples taken during the drilling of the soil borings and the monitoring wells;
- Obtain and chemically analyze groundwater samples from the new monitoring wells;
- Prepare a report which describes the work performed, presents the data gathered, and gives an assessment of the condition of the site with regard to potential soil and groundwater contamination in light of the new data gathered.

2. Site Location and Description

The junkyard covers approximately 14 acres and is located immediately east of Mowry Avenue in Newark, California (Figure 1). This location is very close to San Francisco Bay and adjacent to salt evaporation ponds. The site

is generally flat, and the regional topography slopes very gently to the southwest. Stockpiled automobiles and debris cover approximately ninety percent of the junkyard. The present owners informed WA that underground storage tanks have never existed beneath the junkyard.

3. Hydrogeology

Past environmental and geotechnical work by WA at a property located immediately east of the junkyard, the Newark Business Park, identified a shallow confined aquifer. Groundwater was generally encountered at about 7 feet below the ground surface during this work.

Regionally, the Newark aquifer occurs between about 35 to 55 feet below the ground surface. The Centerville aquifer lies beneath the Newark, approximately between 150 to 200 feet beneath the ground surface.

B. FIELD INVESTIGATION AND RESULTS

Three shallow aquifer monitoring wells (WA-1, WA-2 and WA-3) were installed near the borders of the junkyard, and ten borings were advanced within the interior of the junkyard. Since most of the junkyard is covered with stockpiled automobiles and debris, the number of borings advanced and their locations were based partly on accessibility. The borings were designated B-1 through B-4 and B-6 through B-11 (the location selected for a boring which would have been designated B-5 proved inaccessible). Figure 2 shows the approximate locations of the wells and borings. During the drilling of the wells or borings, subsurface samples were taken at appropriate depths. Appendix A contains the complete drilling, subsurface sampling and well installation protocol followed. Appendix A also contains lithologic logs of each subsurface boring, which include detailed geologic information and Unified Soil Classification System (USCS) labeling, and complete well construction details.

Selected subsurface samples taken during the drilling of each well or boring were chemically analyzed. Table I lists all of the subsurface samples taken and the analytical test(s) performed on each sample. Table II summarizes the subsurface sample chemical analytical results for the chemicals which were detected. Table III summarizes the soil pH measurements. Appendix A includes complete laboratory analytical reports for subsurface samples, and sampling chain-of-custody documentation.

Following well development, groundwater samples were obtained from each of the three wells. These samples were analyzed for volatile organic compounds (EPA method 8240 with an open-scan), semi-volatile organic compounds (EPA method 8270), low to medium boiling point petroleum fuel hydrocarbons, benzene, toluene, ethyl benzene, xylenes, cyanide, and organic lead. The waste extraction test (WET) for inorganic persistent and bioaccumulative toxic substances (listed in California Administrative Code, Title 22, Article II, Section 66699, excluding asbestos and fluoride salts) was also performed on selected samples.

With the exception of 0.094 parts per million (ppm) cyanide detected in the groundwater sample from well WA-1, significant contamination of the types tested for was not detected in any of the groundwater samples analyzed. Appendix A includes well development details. Appendix B contains the complete groundwater sampling protocol followed, and the results of field sampling measurements, including pH, conductivity, and temperature. Appendix B also includes complete laboratory analytical results for groundwater samples and sampling chain-of-custody documentation.

C. DISCUSSION

1. Hydrogeology

During the drilling of wells WA-1, WA-2 and WA-3, groundwater was first encountered approximately 15 to 16.5 feet beneath the surface. After the wells were installed and developed, groundwater levels rose to approximately

1 to 6 feet beneath the surface. This information, and examination of the well boring logs, indicates the presence of a confined shallow saturated zone between roughly 15 to 20 feet beneath the surface. The aquifer material is a clayey sand, and it is bordered above and below by silty or sandy clay layers.

A local groundwater potentiometric surface map (Figure 2) was developed using groundwater elevations measured on November 9, 1988 (Table IV). Examination of this map reveals that the direction of groundwater flow in the vicinity of the junkyard is approximately to the south. This conclusion is based upon the data available from measuring groundwater elevations one time in only three monitoring wells.

2. Chemical Analysis

a. Groundwater - The only compound detected in significant concentrations in the groundwater samples analyzed was 0.094 ppm cyanide in the sample from well WA-1. According to the data developed so far, well WA-1 appears to be located down-gradient from the junkyard and well WA-3 appears to be located up-gradient. Since cyanide was not detected in wells WA-2 and WA-3 at detection levels of 0.02 ppm, and was detected in well WA-1, the junkyard may be a source of the cyanide found in the groundwater. Table V gives a comparison of the level of cyanide in the well WA-1 sample with various water quality standards or goals for cyanide relating to human health and the protection of aquatic life and resources. The level of cyanide in the well WA-1 sample does not exceed any of the standards or goals relating to human health. However, this level does exceed all of the standards or goals given in Table V for the protection of aquatic life or resources. Contamination in groundwater beneath the site can potentially affect surface water if the groundwater seeps or discharges into a tidal slough or nearby creek. Any contaminants in groundwater which did enter surface waters would likely be attentuated by dispersion, dilution and possible biological transformation. It is impossible to determine with certainty the location

and degree of interconnection between the groundwater and nearby surface waters, and the amount of attenuation that would occur. In addition, the concentration of cyanide could be higher in the groundwater in locations other than where well WA-1 was installed. These uncertainties make it difficult to predict the possible effect, if any, that cyanide in the groundwater beneath the junkyard would have on nearby surface waters. However, based on the data available so far, WA believes it is unlikely that significant concentrations of cyanide would be found in nearby surface waters, if the junkyard is the only source.

b. Subsurface - With the exception of total recoverable petroleum hydrocarbons (TRPH), the contaminants tested for were not detected in any subsurface samples. This suggests that the subsurface is contaminated by oil and grease only, and not by any Environmental Protection Agency (EPA) priority pollutants. Examination of Table II reveals that with the exception of one subsurface sample (510 ppm in B-10, 3.0-3.5 feet), the level of contamination detected was low (less than 100 ppm). The depth of oil and grease contamination throughout the site and the extent of this contamination in the vicinity of boring B-10 have not completely been defined.

Oil and grease are relatively immobile substances in the subsurface soils. Additionally, the top layer of subsurface material throughout the junkyard appears to be approximately fifteen feet of silty or sandy clays, materials which generally exhibit low permeability. These factors may limit the possible spatial extent of subsurface contamination, as well as the threat to the groundwater beneath the junkyard.

The pH values listed in Table III are all within the normal range for subsurface soils.

3. Possible Remedial Methods

If oil and grease in the subsurface prove to be the only significant contamination at the junkyard, possible future remedial alternatives include the following:

For subsurface oil and grease contamination at concentrations less than 100 ppm:

- Leave the contamination in place and cover with surcharge during subsequent site development.

- Place contaminated subsurface material beneath paved surfaces on the site.

For subsurface oil and grease contamination at concentrations greater than 100 ppm:

- Place contaminated subsurface material beneath paved surfaces on the site.

- Spread contaminated subsurface material out in a thin layer on the surface of the site, add nutrients and occasionally turn, to stimulate biodegradation of the contamination ("landfarming" technique). Using this method, a substantial decrease in oil and grease levels might require six months to a year or longer to achieve.

- Haul the contaminated subsurface material to a landfill that accepts hazardous wastes.

The State Department of Health Services considers oil and grease soil contamination below 100 ppm insignificant. In addition, other regulatory agencies generally place less significance on oil and grease soil

contamination below a concentration of 100 ppm. These conclusions are based on conversations with Dennis Byrne of the Alameda County Health Department, Jill Durig of the Alameda County Water District, M. Hossain Kazemi of the California Regional Water Quality Control Board, San Francisco Bay Region, and Jo Ann Knight of the State Department of Health Services.

The above outlined remedial methods would require further definition of the horizontal and vertical extent of TRPH. In addition, any plan which includes leaving contaminated material in-place or beneath paved surfaces on the site would require final approval by local, county and state regulatory agencies. This approval might require the performance of a human health risk assessment, since residential development is planned for the site.

D. CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

- Based on one sampling episode, groundwater in the locations where wells WA-1, WA-2 and WA-3 were installed does not appear to contain detectable levels of volatile organic compounds, semi-volatile organic compounds detected by EPA Method 8270, low to medium boiling point petroleum fuel hydrocarbons, benzene, toluene, ethyl benzene, xylenes, or organic lead.

- The groundwater in the location where well WA-1 was installed may be contaminated with cyanide. The data gathered so far suggests that if cyanide is present, its concentration is below that considered dangerous to human health. The groundwater in the location where wells WA-2 and WA-3 were installed did not contain detectable levels of cyanide.

- The soil beneath the site is contaminated by petroleum hydrocarbons. With the exception of one location (510 ppm in boring B-10, 3.0-3.5

feet), the level of contamination was low (less than 100 ppm) in all the locations sampled.

- Gasoline hydrocarbons, including EPA priority pollutants benzene, ethyl benzene, toluene and xylenes, were not detected in any soil samples.

- The data gathered so far suggests that the soil beneath the site may not be contaminated with pesticides, polychlorinated biphenyls (PCBs), volatile or semi-volatile organics, cyanide or organic lead.

- The persistent and bioaccumulative toxic substances tested for by the Waste Extraction Test were not present in significant concentrations in any groundwater or soil samples analyzed.

2. Recommendations

- Perform another round of groundwater sampling and analysis from the three monitoring wells to confirm the previous chemical analytic results.

- If the results of the above groundwater sample analyses are similar to previous results with respect to cyanide levels, obtain water samples from nearby surface waters down-gradient from the junkyard. Analyze these samples for cyanide, to assess whether levels potentially harmful to aquatic life are present.

- Perform more subsurface sampling in areas currently inaccessible because of stockpiled automobiles. Perform complete chemical analyses on these samples.

- As part of the above surface sampling and analyses, further define the lateral extent and depth of the oil and grease contamination throughout the site.

- Perform further subsurface sampling in the vicinity of boring B-10. Chemically analyze these samples to define the extent of oil and grease contamination in this area, and to insure that no other EPA priority pollutants are associated with the oil and grease contamination.

E. LIMITATIONS

The data, information, interpretations, and recommendations contained in this technical report are presented solely as preliminary bases and guides to the existing environmental conditions at the Able Auto Wrecking yard at the Heath/Rogers property. The conclusions and professional opinions presented herein were developed by Wahler Associates in accordance with generally accepted engineering principles and practices. As with all geotechnical and environmental reports, the opinions expressed here are subject to revisions in light of new information which may be developed in the future, and no warranties are expressed or implied.

This report has not been prepared for use by parties other than Valwest Development, Inc. It may not contain sufficient information for the purposes of other parties or other uses. If any changes are made in the project as described in this report, the conclusions and recommendations contained herein should not be considered valid, unless the changes are reviewed by Wahler Associates, and the conclusions and recommendations are modified or approved in writing.

Soil deposits may vary in type, strength and many other important properties between points of observation and exploration. Additionally, changes can occur in groundwater and soil moisture conditions due to seasonal variations, or for other reasons. Furthermore, the distribution of chemical concentrations in the soil and groundwater can vary spatially and over time. The chemical analysis results, valid as of the present time only, are based on data collected at the sampling locations only. Therefore, it must be recognized that WA does not and cannot have complete knowledge of the

TABLE I

SUBSURFACE SAMPLE ANALYSIS SUMMARY

Well or Boring No.	Sample Number	Sample Depth (feet)	Analyses Performed
WA-1	R-1	2.5-3.0	EPA 8080
WA-3	R-15	2.5-3.0	EPA 8240
B-1	R-25	1.0-1.5	Pb, TRPH
	R-26	1.5-2.0	WET, cyanide*
	R-27	2.5-3.0	pH, TPH, BTEX
	R-29	5.0-5.5	EPA 8270
B-2	R-31	1.0-1.5	Pb, TRPH
	R-32	1.5-2.0	WET, EPA 8240
	R-34	3.0-3.5	TPH, BTEX, pH
B-3	R-37	1.0-1.5	WET, Pb, TRPH
B-4	R-40	1.5-2.0	Pb, TRPH EPA 8080
B-6	R-46	1.0-1.5	Pb, TRPH
	R-47	1.5-2.0	TPH, BTEX, pH
B-7	R-52	1.5-2.0	Pb, TRPH
B-8	R-58	1.0-1.5	Pb, TRPH
B-9	R-63	1.0-1.5	Pb, TRPH
B-10	R-66	1.0-1.5	TPH, BTEX, cyanide,* EPA 8080, pH
	R-68	3.0-3.5	EPA 8270, TRPH
	R-69	5.0-5.5	EPA 8240, TRPH
B-11	R-71	1.5-2.0	WET
	R-72	3.0-3.5	EPA 8240

* - A single test for cyanide was performed on a composite of B-1/R-26 and B-10/R-66

TABLE II

SUBSURFACE SAMPLE ANALYSIS RESULTS SUMMARY

Boring Number	Sample Number	Sample Depth (feet)	TRPH (ppm)
B-1	R-25	1.0-1.5	88
B-2	R-31	1.0-1.5	72
B-3	R-37	1.0-1.5	76
B-4	R-40	1.5-2.0	84
B-6	R-46	1.0-1.5	4
B-7	R-52	1.5-2.0	64
B-8	R-58	1.0-1.5	68
B-9	R-63	1.0-1.5	60
B-10	R-68	3.0-3.5	520
B-10	R-69	5.0-5.5	18

TABLE III

SUBSURFACE SAMPLE pH

Boring Number	Sample Number	Sample Depth (feet)	pH
B-1	R-27	2.5-3.0	8.2
B-2	R-34	3.0-3.5	8.4
B-6	R-47	1.5-2.0	8.3
B-10	R-66	1.0-1.5	8.1

TABLE IV

MONITORING WELL AND GROUNDWATER ELEVATIONS

Well Number	Elevation of Top of Casing (ft. above MSL)	Water Depth From Top of Casing* (ft.)	Water Elevation* (ft. above MSL)
WA-1	4.52	2.84	1.68
WA-2	9.96	7.73	2.23
WA-3	10.03	7.62	2.41

MSL - Mean Sea Level

* - for November 9, 1988

TABLE V

COMPARISON OF GROUNDWATER SAMPLE CYANIDE CONCENTRATIONS WITH WATER QUALITY STANDARDS OR GOALS FOR CYANIDE

Well Number		Cyanide (ppm)
WA-1		0.096
WA-2	less than	0.020
WA-3	less than	0.020
Standards or Goals		
MCL		0.200
SNARL		0.154
NAWQC		0.200
NAWQC-FAL-4 Day		0.0052
NAWQC-FAL-1 Hour		0.022
COP - 6 Month Median		0.005
COP - Daily Maximum		0.020
COP - Instantaneous Maximum		0.050