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By Alameda County Environmental Health at 11:15 am, Mar 11, 2015



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THE MARTIN CO.

Mr. Tom Gram  
The Martin Group  
6475 Christie Avenue, Suite 500  
Emeryville, CA 94608

NOTES OF  
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Dear Mr. Gram:

**PHASE I REVIEW OF DOCUMENTS AND VERIFICATION OF GROUNDWATER FLOW DIRECTION AT 6070 BAY STREET IN EMERYVILLE, CALIFORNIA**

Per your request, a review was conducted of work performed to date at the Mike Roberts Color Production facility (MRCP) located at 6070 Bay Street in Emeryville, California as outlined in our authorization to proceed letter dated October 24, 1989. The purpose of the work was to determine if the work completed to date was sufficient to ascertain the extent of chemicals detected in soil and groundwater at the site.

The scope of work included a site visit and neighborhood drive-by, a review of published lists for known hazardous waste sites, surveying of four existing groundwater wells on the site, measurement of the water levels in the wells, verification of the groundwater flow direction, and a building walk through.

This report presents the results of the work conducted, recommendations for further investigative activities, discusses the anticipated results of the proposed further investigative activities, and describes how this information could potentially be used to recommend to the agencies that the site has been characterized such that the only immediate future requirement is groundwater monitoring. To expedite the issue of this report, associated costs to implement the recommendations will be provided as a separate transmittal.

This report is organized as follows:

- . Background;
- . General Site Soil Conditions;
- . General Site Groundwater Conditions;

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- Metals in Soil;
- Groundwater Flow Direction;
- Surrounding Sites;
- Potential Sources of Oil and Grease Contamination;
- Chemical Use Areas; and
- Recommendations

#### Background

The site houses a printing and warehouse facility with a small adjoining office building. The balance of the site is paved parking lots to the east, north, and west of the buildings. Immediately to the south are two abutting warehouse type buildings; one is a trucking facility (Voitainer at 6603 Bay Street) and the other (6601/6602 Bay Street) is currently vacant. The area is generally light and heavy industrial with redevelopment and new construction of residential and commercial space occurring to the south. To the north of the site is the Highway 80 Ashby off-ramp and beyond that the Berkeley Marina park/lagoon. Figure 1 shows a plot plan of the site.

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A total of fourteen documents were submitted to McLaren for review. LW Environmental and Kaldeveer Associates had performed a series of limited investigations which included sampling and analysis of drum and wastes, installation of soil borings and groundwater monitoring wells, sampling and analysis of soil and groundwater, review of neighboring hazardous waste site and historical aerial photographs, and removal of three underground tanks.

#### General Site Soil Conditions

Table 1 shows the analytical results of compounds identified in soil samples. Soil from various locations at the site were analyzed for petroleum hydrocarbons, metals, and volatile organic parameters. Most of the locations across the site showed some level of contamination by petroleum hydrocarbon constituents, at a variety of depths. Because there is an overlap between a diesel analysis by gas chromatography and a gravimetric method oil and grease determination, it is likely that the values found for oil and grease and diesel are both measuring the same

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type of contamination at the site. Further, the oil and grease analytical method utilized in some samples (EPA 9071) would also detect vegetable fats and oils as well as petroleum hydrocarbons.

Levels of total petroleum hydrocarbons as gasoline (TPH/G) and diesel (TPH/D) in soils were low for the majority of the site. The maximum concentrations of TPH/G and TPH/D were located near the former underground storage tanks (boring B-3 at a depth of 15 feet, and samples taken during the tank removal). Also, TPH/G was detected near the drum storage area, upgradient of well W-5, at a concentration of 300 ppm from a depth of 10 feet. The only other location in which TPH/D or TPH/G were detected at a level above 100 ppm was from B-2 at a depth of 10 feet (172 ppm of TPH/D).

Oil and grease levels in site soils were much higher than TPH/D or TPH/G. This indicates that the majority of hydrocarbons present in site soils may be compounds of high boiling range and high molecular weight. These compounds would generally be expected to exhibit low mobility and are not expected to pose a threat to groundwater. Oil and grease was identified in samples taken from 6, 11, and 15 foot intervals. Samples from the 20 foot interval along the eastern side of the site (MW-1, -3, & B-2) were either free of contamination or showed only low levels of oil and grease, while 20 foot samples from the western side of the site (MW-5 & -6) showed moderate levels of oil and grease.

#### General Site Groundwater Conditions

Groundwater was encountered at the site between 9 and 12 feet. Existing chemical analysis of groundwater from the wells on-site (MW-1, -3, -5, & -6) has revealed contamination in only one well, MW-5 at the western boundary of the site. Low levels of benzene, vinyl chloride, trans-1,2-dichloroethylene, naphthalene, 2-methyl naphthalene, and 2,4-dimethyl phenol were identified in MW-5. Of these chemicals, the levels of benzene (8 ppb), vinyl chloride (4 ppb), and trans-1,2-dichloroethylene (8 ppb) pose the greatest concern. The concentrations of these compounds exceed the levels set by the Department of Health Services Maximum Contaminant Level for contaminants in drinking water.

Table 2 presents the findings of groundwater analyses at the site and Figure 1 shows the site and sampling locations. The presence of chlorinated compounds in MW-5 may be related to release of solvents, or may be intermediate breakdown products associated with microbial degradation of petroleum related compounds. Well MW-5 is located near the

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southwestern property boundary and may be impacted by migration of off-site contaminants.

WHICH MAP?

### Metals in Soils

Moderate amounts of heavy metals contamination were identified in soil in the vicinity of the former underground tanks and the drum storage area. However, elevated metals were also found in soil at location B-2, just west of the office building where no chemical usage appears to have occurred. The presence of metals in soil may be due to chemical leakage, but elevated levels could also be due to debris in fill materials present beneath the site.

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The presence of elevated levels of zinc (6040 ppm) in MW-1 soil at the 16 foot depth may be due either to leakage from the nearby underground tanks or historic fill materials. This level exceeds the California Title 22 Total Threshold Limit Concentration of 5000 ppm defining the soil as a hazardous waste.

Metals in soil could potentially impact the groundwater at the site. Only well MW-1 has been sampled for metals. This well showed the presence of lead at 63 ppb and chromium at 64 ppb which slightly exceeds the state Maximum Contaminant Level for drinking water sources of 50 ppb for lead or chromium. Thus, sampling of groundwater wells for metals is recommended to determine if metals in soil warrants further concern. The installation of a groundwater monitoring well is also recommended near boring B-2 to determine to what extent metals in this area have impacted the groundwater.

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### Groundwater Flow Direction

Previous work shows the groundwater flow direction to be to the northwest. Because other sites in the general vicinity have southwesterly or westerly groundwater flow directions, McLaren Resurveyed the wells and measured the current water levels. McLaren used an oil-water interface probe to determine if floating product was present. Results of this work verified that the apparent groundwater flow direction is to the northwest and did not reveal any floating product to be present. Groundwater flow in the area may be influenced by land patterns prior to filling and the pools of water present at the nearby Berkeley Marina. Since the groundwater flow direction parallels the site ground surface topography, the groundwater flow appears to be controlled by topography.



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### Surrounding Sites

No known hazardous waste sites are present immediately upgradient of the subject site except the 6601/6602 Bay and 6603 Bay (Voitainer) facilities where leaking diesel tanks have been excavated and floating product is present in open excavations. While an obvious release to groundwater is evidenced by the presence of floating product in the tank pit, the site is not yet listed on the Regional Water Quality Control Board (RWQCB) fuel leak list. Monitor wells on the Voitainer facility were being surveyed by EA Engineering on November 20, 1989. The 6601/2/3 Bay Street site is immediately to the southwest of MW-5, the only well on-site showing groundwater contamination.

Other nearby potential chemical users which are upgradient of the subject site include Rayerson Steel and Grove Valve and Regulator, but neither of these sites are listed as having a known underground tank leak.

Henry Horn and Sons and HJH Limited at 6400 Hollis Street, both approximately 0.25 mile southeast of the site have documented fuel leaks. Known problem sites which are located cross gradient within 0.25 mile of the subject site include the Emeryville Bayfront/US Postal Service at 1650 65th Street, Peterson Manufacturing at 1600 63rd Street, Garrett Freight Line at 64th and Laccoste, Bay Center Project at 65th and Christie, Texaco at 840 Ashby, Bay Export Services at 717 Porter, and Gring Pest Control at 741 Folger. All sites are fuel leak sites indicating the primary contaminants may be similar to those encountered on the subject site. \*

### Potential Sources of Oil and Grease Contamination

Several scenarios can be proposed to explain the widespread presence of oil and grease contamination found on-site:

High levels of oil and grease are present in groundwater across the site and the groundwater has risen and fallen (due to tidal action, seasonal fluctuations, or groundwater pumping) resulting in a smearing of the contamination on soil above and below the current water table. This scenario seems unlikely since the groundwater samples do not indicate the presence of oil and grease, TPH/D, or TPH/G;

Fill materials (known to be debris as well as soil) deposited at the site in the past may have been composed of materials containing petroleum hydrocarbons or vegetable and animal fats.

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An area just to the south of the subject site is known to have been used as a municipal landfill from approximately 1940 and 1960, and this may have resulted in oil and grease containing materials being either dumped on the subject site or on an adjacent area;

Chemicals used at nearby sites, either from underground tank leaks or surface spills, may have impacted off-site groundwater which is migrating onto the subject site; or

The underground tanks or surface spillage at the subject site may have resulted in localized impacts to the site soil and/or groundwater.

Because the hydrocarbons observed in soil are so widespread across the site and are present at both shallow and deep depths, and the groundwater does not contain detectable levels of diesel or oil and grease, it is likely that one of the last three scenarios is occurring. The oil and grease soil contamination appears to be from a separate source than the groundwater contamination observed in MW-5. At this time, it appears that the widespread oil and grease contamination is not due to leakage of the former underground tanks on-site or surface spillage at the drum storage area. Because diesel and oil and grease contamination was not identified in any of the groundwater wells, the widespread soil problem may be most likely due to historical fill materials on-site.

#### Chemical Use Areas

Several former chemical use areas are present at the site:

- Drum Storage Area;
- Underground Tanks;
- Exterior Sump; and
- Building Interior.

The following discusses each known chemical use area, the results of previous investigations in each area, and potential concerns, if any, associated with each area. No chemical usage was apparent in the north and east parking lots, and the reports reviewed did not make mention chemical usage in these areas.



Drum Storage Area

A fence drum storage area is located along the west side of the printing/warehouse building. Small chemical containers, approximately drums, a storage shed, and miscellaneous equipment were noted stored within the area. On October 17, 1989, the surface was observed to be stained and cracked and a white granular substance was present on the concrete surface. Stains were evident on the pavement where run-off has occurred from the west edge of the bermed area to the curb at the western property boundary. However, on November 20, 1989, no stains were noted on the pavement and the rainfall in late October may have washed the stains off the pavement. ✓

Low levels of volatile organics were identified in soil from the two borehole locations adjacent to the drum storage area (B-1a and B-2a, also referenced in the reports as IS-1 and IS-2). This indicates it is likely some surface contamination has taken place in the drum storage area. Preliminary investigations adjacent to this area indicate elevated levels of metals, volatile aromatic compounds, and petroleum compounds to be present. ✓

Soil samples from the rear excavation surrounding MW-5, downstream of the drum storage area, revealed low to moderate levels of toluene, ethylbenzene, and xylene. These compounds are typically found in gasoline or diesel fuel. Their presence in this area is either due to run-off from the drum storage area, release of chemicals to surface in this area, or the presence of a hydrocarbon plume which may have originated off-site. These compounds have also been detected in the groundwater from MW-5. ✓

Another groundwater monitor well should be installed upstream of MW-5, as close to the property boundary as possible, to determine if the source of chemicals to MW-5 is from off-site or from chemicals in soil near the drum storage area.

The materials in the drum storage area should be inventoried and disposed of as appropriate. If the materials are hazardous waste, regulations require that they be stored for no longer than 90 days unless the facility has a treatment, storage, or disposal facility (TSDF) permit. This task is not included in the proposed scope of work.

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### Underground Tanks

Three underground tanks were previously located on the northeastern corner of the printing/warehouse building. The tanks have been removed, the excavation left open and fenced, and piles of soil left in place around the area. McLaren's initial site inspection on October 17, 1989 revealed floating globules of non-miscible products to be present in the groundwater present in the excavation (the groundwater as viewed from the surface appeared orange in color with a black sheen). An odor of acetone was noted in this area. On November 20, 1989, the tank pit did not contain water.

The LW Environmental report dated November 3, 1989 indicates the composition of the wastes formerly stored in the three underground tanks on-site to be 98% methyl ethyl ketone. Soil samples were not analyzed for this chemical, so it cannot be positively determined if the tanks were leaking.

While petroleum hydrocarbons as TPH/D and TPH/G were found in the soil samples taken beneath the tanks, it cannot be determined without further investigation whether this is due to tank leakage or one of the scenarios outlined above. Soil samples from beneath the tank should be analyzed for methyl ethyl ketone to determine if the tanks leaked.

Per the Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks (Regional Board Guidelines), dated June 2, 1988, the TPH level which triggers the need for additional investigation is 100 ppm. The guidelines require that a monitor well be installed within 10 feet of the tank, in the verified downgradient direction, if TPH is detected above 100 ppm in soils from beneath the tanks. Since a well already exists approximately 20 feet downgradient of the tank pit, MW-1, this requirement may be argued to have already been fulfilled. If groundwater contamination is discovered, a monitoring well sampling frequency must be established with Regional Board staff concurrence. If groundwater contamination is not discovered, some minimum groundwater monitoring may still be required.

To minimize potential problems in this area in the future, we recommend that surrounding soils be excavated to a limit of 100 ppm for TPH/D and TPH/G and that the groundwater in the tank pit be sampled if its presence reoccurs. Well MW-1 should also be sampled and analyzed for methyl ethyl ketone. A letter should be sent to the Regional Board to document the presence of Well MW-1, present the results of groundwater analysis which





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do not show TPH/D or TPH/G contamination, and inquire about future monitoring needs.

Exterior Sump

Stains were observed near the sump. However, soil samples from the area adjacent to the exterior sump along the west side of the building did not reveal significant levels of contamination, indicating this area is not likely to be a source area. Therefore, no further investigation is recommended in this area. ✓

Building Interior

Two floor sumps (one circular and one square) were identified near the middle of the northern side of the printing and warehouse facility. An air compressor was reported to previously be located in this area. Two trenches of approximately one foot depth and twelve foot length were identified on the southern side of this area, east of the two floor sumps. Additionally, in the southwestern portion of the building, an area was identified which appeared to have been repaved. This area was reported to be the location of an extruding machine used by the previous building tenant.

The as-built design drawings of the facility should be reviewed to determine the former use of the floor sumps, trenches, and type of extruding machine. A groundwater monitor well should be installed downstream of the building to determine if the noted areas contributed contaminants to the subsurface which have impacted groundwater. This well would preferably be located close to the warehouse building and south of boring B-2. // ✕

Recommendations

Further Review of Neighboring Sites and Historical Chemical Usage

McLaren recommends information be obtained from the City of Emeryville and the RWQCB regarding the status, extent, and type of contaminants for those sites not reviewed by McLaren during the Marketplace site project. This information will be used to determine if off-site contamination and migration are potential sources of chemicals detected in soil and groundwater at the site. Additional historical information on chemical usage appears warranted to assure that all potential sources have been addressed.



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### Underground Tanks

McLaren recommends that if groundwater reoccurs in the tank pit, that it be sampled and analyzed to comply with regulations. Also, soils should be further excavated in this area to a limit of 100 ppm TPH/D and TPH/G. Soils samples from beneath the tanks should be analyzed for methyl ethyl ketone to determine if the tanks leaked. A letter should be sent to the Regional Board which documents the tank pull activities, discusses the existence of downgradient monitor well MW-1, presents groundwater sampling results and future excavation plans, and inquires about a monitoring schedule.

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### Groundwater Sampling

The four monitoring wells on-site should be sampled for a second time for three reasons: to obtain additional data to establish a baseline for the site prior to encroachment of contamination from the neighboring site onto the subject site, to analyze for selected compounds not previously requested, and to ensure that correct sampling and analytical procedures are utilized to prevent false negative results for petroleum analyses. The wells should be submitted for analysis of TPH/D, oil and grease, volatile organics by Method 8240 (including methyl ethyl ketone and acetone), semi-volatile organics by Method 8270, and metals.

Should petroleum products as TPH/D and TPH/G be confirmed to only exist in the southwestern corner of the site, the case may be made that oil and grease contamination in soils is not adversely affecting the groundwater. Further, if metals are not detected in groundwater, the case may be made that the presence of metals in soil is not adversely affecting the groundwater, and hence, may only be a problem if the soil is excavated and requires disposal.

### Installation of Well and Soil Borings Upgradient to Well MW-5

To determine whether contaminated groundwater is migrating onto the subject site from the adjacent 6601/2/3 Bay Street facility to the south or coming from the drum storage area, a new well should be installed between the MW-5 and the leaking tank area on the adjoining property. This well should be located as close to the property boundary as possible. The wells should be sampled and analyzed as noted for existing wells. Additionally, two soil borings should be installed beneath the drum storage area to help determine if soils in this area may be the source of chemicals to the groundwater in MW-5.



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- . The presence of low levels of volatile chemicals in Well W-5 is due to off-site contamination; ✓
- . The removal of the underground storage tanks will satisfy regulatory requirements; ✓
- . The presence of metals in soil is not substantially impacting the groundwater and is not a problem unless the soil is excavated and requires disposal. ✓

The results of the further investigation will be used to recommend to the agencies that the site has been characterized such that the only immediate future requirement is groundwater monitoring.

If you have any questions regarding this report or require cost information, please do not hesitate to call.

Sincerely,

*Linda Thompson*

for: Susan Cahry  
Supervising Engineer

