LFR ENVIRONMENTAL MANAGEMENT & CONSULTING ENGINEERING

June 30, 2008

LFR 003-09155-00

Mr. Charles Robitaille
Aspire Public Schools
1001 22nd Avenue Suite 100
Oakland, California 94606

Subject: Conceptual Remediation for the Former Pacific Electric Motors Property at 1009 66th Avenue in Oakland, California

Dear Mr. Robitaille:

As requested, LFR Inc. (LFR) has reviewed the analytical data for soil and groundwater samples collected at the Former Pacific Electric Motors Property located at 1009 66th Avenue in Oakland, California ("the Site") with respect to remedial alternatives and potential development strategies. Please note that the alternatives presented in this letter are subject to review and approval by the regulatory agency overseeing the redevelopment of this Site, in this case the Alameda County Department of Environmental Health (ACEH). At this point in the project, it would not be unusual for the ACEH to request that a soil-vapor survey be conducted at the Site to assess the concentrations of volatile organic compounds present in the subsurface.

Soil Quality

Based on the analytical results of soil samples collected at this Site, soil has been affected by metals (arsenic and lead), total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and polychlorinated biphenyls (PCBs).

The affected soil containing elevated concentrations of metals and PCBs is located in the upper 2 to 6 feet of soil at the Site at the following areas and as illustrated on the attached figure:

- Beneath and to the north of the warehouse building (arsenic-affected soil)
- West of the warehouse building (arsenic-affected soil)
- In the southeastern and southwestern corners of the Site (lead-affected soil)
- Adjacent to a floor drain in the former manufacturing building (PCBs)
- Two isolated areas west of the warehouse building (PCB-affected soil)
- The southern property opposite of the warehouse building (PCBs and arsenic)
- Beneath and to the south of the warehouse building (TPHg and BTEX)
- Adjacent to a floor drain in the former manufacturing building (TPHg and BTEX)

510.652.4500 m
510.652.2246 f
www.lfr.com
1900 Powell Street, 12th Floor
Emeryville, California 94608
Offices Nationwide

In general, the affected soil containing elevated concentrations of TPHg and BTEX is located approximately 7 feet below ground surface (bgs) or greater and appears to be associated with the affected groundwater at the Site.

Excavation Alternative

In order to limit potential contact with the metal- and PCB-affected soil by future site inhabitants, LFR would recommend excavation of the upper 2 feet of soil, where elevated concentrations of lead, arsenic, and PCBs have been detected in soil samples, and appropriate disposal of the excavated soils in a suitable landfill. The excavated areas would be backfilled with "clean" imported soil, thus limiting the potential contact with these known areas of affected soil. This remedial approach should mitigate the health risk issues associated with the metal- and PCB-affected soil at the Site. Note, however, that typically for school sites the regulatory agency may require removal of soils affected with metals to greater depths.

For the areas of TPHg- and BTEX-affected soil, LFR recommends the excavation of soil to a maximum depth of approximately 7 feet bgs or 1 foot into the saturated sediment or groundwater, whichever is shallower. This approach will remove the majority of the affected soil at the Site. This would significantly reduce the costs as outlined previously in the Removal Action Work Plan prepared by LFR. LFR was initially proposing excavating affected soils beneath the water table, which would be a more proactive, but costlier approach to this project. It has been our experience that soil-vapor intrusion issues (potential indoor air quality) can still be present following the removal of the TPHg- or BTEX-affected soil due to residual concentrations of TPHg and/or BTEX in groundwater that off-gas and affect soil-vapor quality.

To mitigate the potential health risks associated with soil-vapor intrusion, LFR recommends installing vapor barriers/gas control systems for the buildings to be constructed on site. If this area was used for a playground, a parking lot, or left as undeveloped land, then a vapor barrier would likely not be necessary as the open area would allow for ample air exchange and would likely not be a health risk issue.

Vapor Barrier Alternatives

A typical vapor barrier would be recommended for any buildings that are proposed to be constructed at this Site, especially the area(s) where TPHg- and BTEX-affected soil and groundwater have been detected (see attached figure). A typical vapor barrier would include the installation of an impermeable product beneath the foundation such as Liquid Boot™ with a protective layer of soil or concrete over the vapor barrier. In order to provide a secondary barrier, the foundations of the buildings would be equipped with a sub-slab depressurization system designed to intercept vapors that passed through the main vapor barrier. A sub-slab depressurization system is a network of pipes that are installed beneath the foundation and collect the vapors beneath the foundation, which are vented to the atmosphere. The depressurization system can be passive or can be equipped with active fans, as appropriate.

Order of Magnitude Costs

The following costs are not to be considered as engineering cost estimates, but rather to provide a rough estimate for the remedial alternatives provided in this letter:

- Soil-vapor survey: $10,000 to $25,000 (dependent upon the number of soil-vapor samples and analyses)
- Excavate, transport, and dispose of metal-affected shallow soil (less than 2 feet below ground surface): $150,000 to $200,000 (dependent upon the volume of soil and whether the soil is characteristically hazardous)
- Excavate, transport, and dispose of TPHg- and BTEX-affected soil: $250,000 to $300,000 (dependent upon the volume of soil)
- Backfill areas of excavation: $150,000 to $225,000 (dependent upon the volume of soil)
- Dewater excavation of TPHg- and BTEX-affected soil: $50,000 to $100,000 (dependent upon the volume of groundwater)
- Install vapor barriers with a sub-slab depressurization system: typically $12 to $18 per square foot (dependent upon the size of the buildings)

Limitations

The opinions and recommendations presented in this letter are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by LFR and the party for whom this letter was originally prepared. This letter is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that LFR relied upon any information prepared by other parties not under contract to LFR, LFR makes no representation as to the accuracy or completeness of such information. This letter is expressly for the sole and exclusive use of the party for whom this letter was originally prepared for a particular purpose. Only the party for whom this letter was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of this letter or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

Results of any investigations or testing and any findings presented in this letter apply solely to conditions existing at the time when LFR's investigative work was performed. It must be recognized that any such investigative or testing activities are inherently limited and do not represent a conclusive or complete characterization. Conditions in other parts of the project site may vary from those at the locations where data were collected. LFR's ability to interpret investigation results is related to the availability of the data and the extent of the investigation

activities. As such, 100 percent confidence in environmental investigation conclusions cannot reasonably be achieved.

LFR, therefore, does not provide any guarantees, certifications, or warranties regarding any conclusions regarding environmental contamination of any such property. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

As we have discussed there are many alternatives to remediate this Site and many factors that can drive the cost of this remediation and redevelopment of this property. LFR looks forward to working closely with Aspire Public Schools and the ACEH to bring this project to a successful redevelopment. If you have any questions regarding this letter or the project in general, please do not hesitate to contact either of the undersigned.

Sincerely,

Alan D. Gibbs, P.G., C.H.G.
Vice President/Principal Hydrogeologist

Ron Goloubow
Senior Associate Geologist

Attachment: Figure

APN 041–4056–002

APN 041–4056–003

WAREHOUSE BUILDING

"PACIFIC ELECTRIC MOTORS"

MANUFACTURING/OFFICE BUILDING

ASPHALT

ASPHALT

ASPHALT

ASPHALT PARKING LOT

CONCRETE SIDEWALK

Approximate areas with TPH and BTEX-affected soil
Buildings in this area would likely require a vapor barrier

LEGEND

MW1 ⊕	MONITORING WELLS
1B ●	PEA SAMPLE LOCATIONS - MARCH 2005
1C1 ▲	SSI SOIL SAMPLE LOCATIONS - AUG/SEPT 2005
1AN-GW ■	SSI GW SAMPLE LOCAITONS - AUG 2005
SB 1 ⊙	LFR SSI SAMPLE LOCATIONS - DEC 2005/JAN 2006
NW1 ⊕	NESTED MONITORING WELLS; S = SHALLOW, I = INTERMEDIATE, D = DEEP

0 40 FEET

(SCALE: 1" = 40')

SOURCE: TRONOFF ASSOCIATES

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Site Plan with Surveyed PEA and SSI Sampling Locations

Proposed Charter School Site
1009 66th Avenue, Oakland, California

LFR

Figure