



Preliminary Summary of Findings

**Beverly Hills High School
241 S. Moreno Drive,
Beverly Hills, California 90212**

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Prepared for:

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The information contained in this summary of findings has received appropriate technical review and approval. The approach and methodology are based upon professional judgments founded upon review and interpretation of available data and upon our professional experience and background.

Prepared by:

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Preliminary Summary of Findings

CONCLUSION

Based on CDM's investigation, there is no basis for believing that the ambient air on the campus is adversely impacted by oil well operations or that exposure to air on the campus presents any different potential health impact than exposure to air elsewhere in the Los Angeles Basin. These conclusions are consistent with the results of previous studies of the SCAQMD, which have shown that airborne chemical constituents of concern measured in the air at the High School are well below the health limits established by the State of California.

DISCUSSION

This report summarizes the preliminary findings of an ambient air sampling program and assessment of potential public health impacts conducted by Camp Dresser & McKee Inc. (CDM) during the week of April 14th, 2003 at the Beverly Hills High School (the High School) located at 241 South Moreno Drive, Beverly Hills, California. The objective of the sampling program was to obtain additional data to help evaluate whether outdoor air quality at the High School is different than typical air quality throughout the Los Angeles Basin and, if so, to determine whether that difference presents any health risks to students, staff, or other individuals who use the school's facilities. Outdoor air at the school is a concern because of recent suggestions that it may contain elevated levels of volatile chemicals due to their release from a variety of sources including oil well operations and abandoned oil wells.¹

The sampling program followed standard US EPA methods of collection and analysis for volatile organic chemicals in ambient air. Air samples were collected over an 8-hour period during representative school and after-school activity hours. Samples were analyzed for more than 50 different volatile organic chemicals, including those recognized by regulatory agencies such as the South Coast Air Quality Management District (SCAQMD) to be of greatest health concern. Only ten of these chemicals were detected in any of the samples, and no chemicals linked to cancer were found at levels out of the ordinary for the Los Angeles area. These conclusions are consistent with the results of previous studies of the SCAQMD, which have shown that airborne chemical constituents of concern measured in

¹ An investigation is also being performed by another consultant under contract to the Beverly Hills Unified School District (BHUSD) to evaluate the air within school buildings. Results of the indoor air investigation will be presented in a separate report.



the air at the High School are well below the health limits established by the State of California.

One chemical of particular focus, benzene, was found at concentrations in the air consistent with those commonly reported by SCAQMD for all routine monitoring stations throughout the basin (Figure 1). Since these monitoring stations are located in areas where no unusual sources of benzene or other chemicals have been identified, data from these monitoring stations provides a range for typical air quality. No apparent difference between typical background for the L.A. Basin and measured benzene concentrations at the High School is observed. Thus available data provide no indication of an unusual source of benzene.

We therefore conclude that available data provide no basis for believing that the ambient air on the campus is adversely impacted by oil well operations or that exposure to air on the campus presents any different potential health impact than exposure to air elsewhere in the Los Angeles Basin.

It should be noted that two common and widely-used chemicals, acetone and methyl ethyl ketone, were detected in a few samples at elevated concentrations. Neither of these chemicals causes cancer and detected levels do not pose a health risk. Moreover, both chemicals were detected only sporadically at elevated concentrations and those detections were at different locations that did not show a consistent relationship with any known source. Although the source or sources of these readings are not known, such readings could result from common off site activities such as the use of paint removers or cleaning solvents, if these products were being used while air sampling was taking place. These chemicals are not associated with oil production.

SAMPLING DETAILS AND DATA SUMMARY

Locations at which CDM collected the samples for this study are shown on Figure 2. A total of nine sampling locations were selected to evaluate the possible influence of on-site and adjacent activities, either current or historical. Two additional sampling locations were selected to be representative of background concentrations of the selected analytes. A summary of sampling results is provided in Table 1². For comparison, data reported by the SCAQMD and BHUSD in their evaluation of local air quality are shown in Table 2. Data analysis as well as laboratory Quality Assurance and Quality Control evaluations are continuing at the time this preliminary summary is being prepared. Submission of a final report is anticipated in June 2003.

Chemicals detected in this investigation are routinely found in the ambient outdoor air throughout Los Angeles due to a variety of sources unrelated to oil well activities. For example, many common activities, such as driving or putting gasoline into a vehicle, having

² Included in Table 1 are the most current 2001 results of ambient air testing routinely conducted by the California Air Resources Board in Burbank, the monitoring site closest to



clothes dry-cleaned, etc, release chemicals to ambient air throughout the Los Angeles Basin, including those chemicals listed in Tables 1 and 2. Vehicle emissions (i.e., driving and fueling vehicles) are responsible for a large percentage of the chemicals detected in Los Angeles Basin air (SCAQMD 1999). Detection of a variety of airborne chemicals in the Los Angeles Basin is, therefore, to be expected.

Many of the chemicals evaluated in this study also have been the focus of routine monitoring in a variety of regions throughout the Los Angeles area for many years. When the ambient air concentrations of these chemicals reported in this study are compared to the regional monitoring data for the same chemicals as depicted in Table 1, there is no apparent difference between the levels of these chemicals detected on the school grounds and the typical levels found throughout the South Coast Air Basin³. The conclusion is the same when the results of this study are compared with the recently completed study by the SCAQMD at the site as depicted in Table 2.

NEXT STEPS

Based on the results of this initial sampling program, the following steps are planned:

Data used in this study were collected between the months of February and April in 2003. Additional sampling will be scheduled during the summer to characterize potential variation in releases and potential changes in outdoor air concentrations over time.

Samples taken to date for this study were of the ambient air. The next phase of the study will test for the presence of volatile organic chemicals in soil and soil gas.

Sampling protocol and data obtained by the SCAQMD and the BHUSD have been provided. Sampling protocol and data from any other investigations at, or in close proximity to, the High School should also be provided so it might be evaluated as part of this analysis.

References:

South Coast Air Quality Management District (SCAQMD). 1999. Multiple Air Toxics Exposure Study (MATES-II).

³ With the exception of acetone and methyl ethyl ketone, as discussed above.

Figure 1
Benzene Concentrations

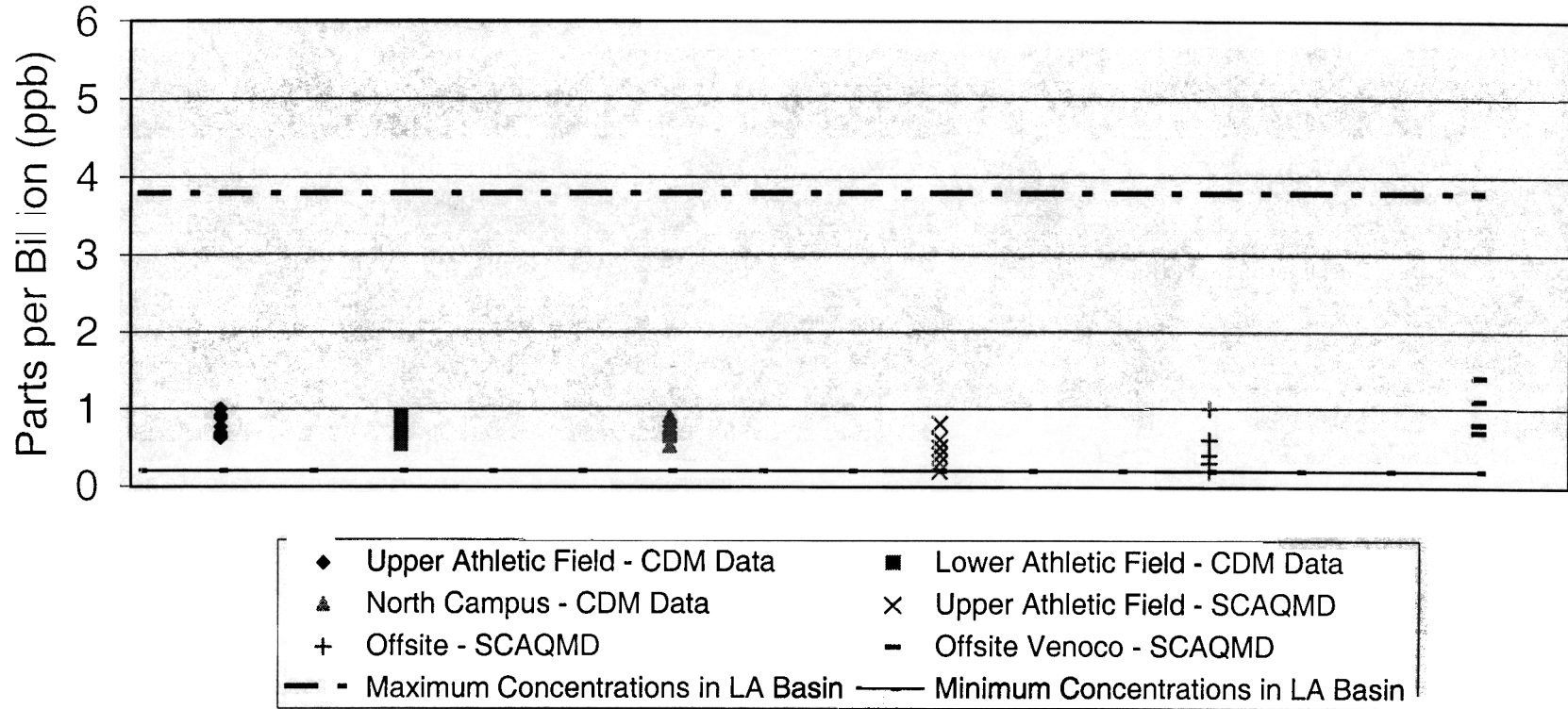


Table 1
Beverly Hills High School
Summary Statistics
Ambient Air Investigation Conducted by CDM

Analyte	Frequency of Detection (number of detects/number of samples)	Frequency of Detection (%)	Minimum Detected Concentration	Maximum Detected Concentration	Arithmetic Mean ^a	Range of Background Concentrations ^b	Average Concentrations of Analytes Measured at Burbank by ARB/SCAQMD	Range of Analytes Measured by ARB/SCAQMD at Burbank ^c	Units
<i>Hydrocarbons</i>									
Methane	11 / 11	100%	2	2.9	2.19	ND to 2.3	No Data	No Data	ppm
<i>Other Volatile Organic Compounds (VOCs)</i>									
Acetone	30 / 30	100%	3.4	200 ^f	16	3.4 to 54	~2.8 ^d	No Data	ppb
Benzene	3 / 30	10%	0.57	1.0	0.38	Not detected ND to 16 (one detection out of 7 samples)	1.06 ^c	0.4 to 3.8	ppb
2-Butanone (MEK)	12 / 30	40%	1.2	46 ^f	3.68	ND to 1.0	~5.9 ^d	No Data	ppb
Chloromethane	24 / 30	80%	0.7	1.2	0.78	ND to 0.94	0.62 ^d	No Data	ppb
Dichlorodifluoromethane	22 / 30	73%	0.68	1.0	0.69	ND to 0.94	No Data	No Data	ppb
2-Hexanone (MiBK)	4 / 30	13%	1.8	7.5	1.03	Not detected	No Data	No Data	ppb
Tetrachloroethene (Perchloroethylene)	1 / 30	3%	1.0	1.0	0.4 ^e	Not detected	0.3 ^c	0.08 to 1.1	ppb
Toluene	26 / 30	87%	0.76	1.6	1.08	ND to 1.8 ND to 1.5 (one detection out of 7 samples)	3.21 ^c	1 to 10	ppb
m,p-Xylenes	4 / 30	13%	1.3	2	0.82	Not detected	2.06 ^c	0.6 to 7.1	ppb
o-Xylene	2 / 30	7%	0.62	1.0	0.37	Not detected	0.54 ^c	0.2 to 1.9	ppb

a. Average concentrations include those samples with non-detected concentrations. A value of one-half of the reporting limit was used for non-detected concentrations.

b. Background concentrations as measured at sample point 10 and 11.

c. Source: California Air Resources Board. Annual Toxics Summary. Data for Burbank, year 2001. <http://www.arb.ca.gov/aqd/toxics/sitesubstance.html>

d. Source: SCAQMD. 1999. Multiple Air Toxics Exposure Study (MATES-II). Concentrations are estimated from figures presenting study results.

e. There was only one detection of tetrachloroethene out of 30 samples. Likewise, it was not detected in the SCAQMD results.

Therefore, the reporting limit drives the average concentration.

f. Two common and widely-used chemicals, acetone and 2-butanone (methyl ethyl ketone), were detected in elevated concentrations, but at concentrations far below levels of health concern established by SCAQMD. Neither of these chemicals causes cancer. Moreover, both chemicals were elevated only sporadically across the site and these locations did not show a consistent downgradient relationship with any known sources. Current data suggest that nearby obvious sources (e.g. the oil production wells) are not the source of these chemicals to air at the High School.

ARB = California Air Resources Board

SCAQMD = South Coast Air Quality Management District

ppm = parts per million

ppb = parts per billion

Table 2
 Beverly Hills High School
 Summary Statistics
 Ambient Air Investigation Conducted by SCAQMD and BHUSD

Analyte	Frequency of Detection (number of detects/number of samples)	Frequency of Detection (%)	Minimum Detected Concentration	Maximum Detected Concentration	Arithmetic Mean ^a	Units
<i>Hydrocarbons</i>						
Methane	22 / 22	100%	2.1	3.9	2.74	ppm
<i>Other Volatile Organic Compounds (VOCs)</i>						
Acetone	25 / 25	100%	2.3	16.3	4.77	ppb
Benzene	25 / 25	100%	0.2	1.4	0.56	ppb
2-Butanone (MEK)	15 / 25	60%	0.1	0.5	0.29	ppb
Ethylbenzene	15 / 19	79%	0.1	0.6	0.25	ppb
Methyl tert-Butyl Ether (MTBE)	8 / 25	32%	0.1	0.5	0.26	ppb
Toluene	25 / 25	100%	0.2	2.5	1.20	ppb
m,p-Xylenes	22 / 25	88%	0.1	1.7	0.62	ppb
o-Xylene	18 / 25	72%	0.1	0.4	0.20	ppb

a. Reporting limits were not provided in the SCAQMD reports. Therefore, the arithmetic mean was calculated using detected concentrations only. This may cause the arithmetic mean to be skewed to a higher concentration. Concentrations of 0.0 were considered non-detect.

SCAQMD = South Coast Air Quality Management District

BHUSD = Beverly Hills Unified School District

ppm = parts per million

ppb = parts per billion