

# Summary of Findings Ambient Air Investigation

**Beverly Hills High School  
241 South Moreno Drive,  
Beverly Hills, California 90212**

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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.

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# Summary of Findings

## Conclusion

Ambient air data from sampling conducted in March 2006 are consistent with previous CDM and SCAQMD studies. As with these earlier studies, the data provide no basis for believing that ambient air at the High School is adversely impacted by oil well operations or Central Plants or that air at the High School is substantively different than air elsewhere in the Los Angeles area.

## Discussion

CDM collected ambient air samples on March 24, 2006 at Beverly Hills High School (the High School) located at 241 South Moreno Drive, Beverly Hills, California. The purpose of this sampling was to continue to gather additional data to monitor ambient air quality. At the time of the March 24, 2006 sampling, Venoco wells were in operation and produced 494 barrels of oil and liquids and 321 million cubic feet (mcf) of natural gas. This report summarizes the findings of ambient air sampling conducted in March 2006 and evaluates and compares the results to previous investigations of ambient air at the High School.

The sampling program followed standard US EPA methods of collection and analysis for volatile organic chemicals in ambient air. Samples were collected over an 8-hour period during representative school and after-school activity hours (generally from about 7 a.m. in the morning until about 5 p.m. in the afternoon). Samples were collected at the same 11 locations used in CDM's previous ambient air investigations, as shown in Figure 1. Table 1 summarizes results of ambient air sampling and analysis from March 2006 and compares these data to previous sampling results and health limits established by the State of California.

Ambient air samples were collected from a height equivalent to the breathing zone (approximately 5 feet above the ground). In addition, samples were collected from the ground surface at three locations. No noticeable difference in chemicals or their concentrations between ambient air samples collected at the breathing height and at the ground surface was observed.

Results of the ambient air sampling performed in March 2006 are comparable to ambient air data collected in previous investigations by SCAQMD and CDM through November 2005 (Table 1). Toluene was detected at 11 locations at concentrations ranging between 1.2 and 2.9 parts per billion by volume (ppbv). The detected toluene concentrations were below 9 ppbv which was the highest concentration detected during the November 2005 sampling event. Similarly, benzene concentrations were detected at all locations at concentrations ranging between 0.53 and 0.76 ppbv. However, these concentrations were below 1.1 ppbv (highest concentration observed during the November 2005 event) and well below 1.6 ppbv which was the highest concentration detected in any of the previous sampling events conducted at the High School by CDM and SCAQMD (See Table 1).

Monitoring of air quality in the Los Angeles basin routinely reports a variety of chemicals, including those detected in the current sampling at the High School. Vehicle emissions and emissions from refueling are responsible for a large percentage of the chemicals detected in Los Angeles Basin air (SCAQMD, 1999).

Benzene has been a focus of previous investigations based on allegations by plaintiffs' lawyers that it may be released from oil well operations. This chemical was found in the ambient air at levels consistent with those commonly reported by SCAQMD from routine monitoring of air quality throughout the basin. Therefore, the investigations conducted by CDM continue to indicate that no unusual source of benzene exists at or near the High School.

Based on available data, we conclude that the overall ambient air on the campus is not measurably affected by oil well operations or Central Plants, and that air quality at the campus is not notably different from air quality reported by SCAQMD for monitoring stations elsewhere in the Los Angeles basin.

## **Next Steps**

- Additional ambient air sampling will be scheduled to continue monitoring ambient air quality.

### References:

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

Agency for Toxic Substances and Disease Registry (ATSDR). 2001. ToxFAQs™ for Toluene. January

Table 1  
 Summary Statistics for  
 March 2006  
 Ambient Air Sampling  
 Beverly Hills High School  
 Beverly Hills, California

Volatile Organic Compounds	CDM March 2006 Sampling Event				Maximum Detected in Previous SCAQMD and CDM Investigations (through June 2005)	OEHHA Acute REL	OEHHA Chronic REL	Units
	Number of Detections	Number of Samples Collected <sup>1</sup>	Minimum Concentration Detected	Maximum Concentration Detected				
Acetone	16	16	4.9	16	200	NA	NA	ppbv
Benzene	16	16	0.53	0.76	1.6	401	19	ppbv
n-Butane	ND	8	ND	ND	56.6	NA	NA	ppbv
iso-Butane	ND	8	ND	ND	22.4	NA	NA	ppbv
1,3-Butadiene	ND	16	ND	ND	0.41	NA	9.0	ppbv
2-Butanone (MEK)	5	16	0.74	2.1	46	4437	NA	ppbv
Carbon disulfide	ND	16	1.6	1.6	2.4	1984	256	ppbv
Carbon tetrachloride	ND	16	ND	ND	0.11	297	6	ppbv
Chlorobenzene	ND	16	ND	ND	0.4	NA	217	ppbv
Chloroethane	ND	16	ND	ND	0.17	NA	NA	ppbv
Chloroform	ND	16	ND	ND	0.74	NA	60	ppbv
Chloromethane	16	16	0.56	0.92	1.5	NA	NA	ppbv
n-Decane	NA	NA	NA	NA	0.2	NA	NA	ppbv
1,1-Dichloroethane	ND	16	ND	ND	0.37	NA	NA	ppbv
1,1-Dichloroethene	ND	16	ND	ND	0.4	NA	202	ppbv
1,2-Dichlorobenzene	ND	16	ND	ND	0.14	NA	NA	ppbv
1,4-Dichlorobenzene	1	16	0.25	0.25	0.79	NA	133	ppbv
Dichlorodifluoromethane (Freon 12)	16	16	0.54	0.67	1	NA	NA	ppbv
2,2-Dimethylpropane	ND	8	ND	ND	ND	NA	NA	ppbv
n-Dodecane	NA	NA	NA	NA	0.1	NA	NA	ppbv
Ethane	ND	8	ND	ND	599.7	NA	NA	ppbv
Ethene	NA	NA	NA	NA	12.8	NA	NA	ppbv
Ethylbenzene	16	16	0.16	0.26	1.9	NA	460	ppbv
4-Ethyltoluene	ND	16	ND	ND	0.71	NA	NA	ppbv
n-Heptane	NA	NA	NA	NA	3.7	NA	NA	ppbv
n-Hexane	ND	16	ND	ND	6.6	NA	1989	ppbv
2-Hexanone	ND	16	ND	ND	7.5	NA	NA	ppbv
Methane	8	8	2.3	2.4	3.9	NA	NA	ppbv
Methylene chloride	13	16	0.37	0.73	3.4	3966	113	ppbv
Methyl tert-Butyl Ether	ND	16	ND	ND	0.5	NA	2216	ppbv
4-Methyl-2-Pentanone (MIBK)	ND	16	ND	ND	39	NA	NA	ppbv
2-Methyl-butane	ND	8	ND	ND	ND	NA	NA	ppbv
n-Octane	NA	NA	NA	NA	1.8	NA	NA	ppbv
n-Nonane	NA	NA	NA	NA	0.5	NA	NA	ppbv
n-Pentane	ND	8	ND	ND	16.3	NA	NA	ppbv
iso-Pentane	NA	NA	NA	NA	16.9	NA	NA	ppbv
Propane	ND	8	ND	ND	298.4	NA	NA	ppbv
Propene	NA	NA	NA	NA	1.9	NA	NA	ppbv
Propylene	NA	NA	NA	NA	12	NA	1734	ppbv
Styrene	ND	16	ND	ND	2.2	NA	NA	ppbv
Tetrachloroethene (PCE)	14	16	0.18	0.33	1.2	2950	5	ppbv
Trichloroethene	5	16	0.24	1.3	2.4	NA	NA	ppbv
Toluene	16	16	1.2	2	30	9867	80	ppbv
Trichlorofluoromethane (Freon 11)	16	16	0.27	0.34	2.6	NA	NA	ppbv
1,1,1-Trichloroethane	ND	16	ND	ND	0.13	NA	NA	ppbv
1,1,2-Trichloro-1,2,2 Trifluoromethane	ND	16	ND	ND	2	NA	NA	ppbv
1,2,4-Trimethylbenzene	15	16	0.18	0.27	2.9	NA	NA	ppbv
1,3,5-Trimethylbenzene	ND	16	ND	ND	0.64	NA	NA	ppbv
n-Undecane	NA	NA	NA	NA	0.1	NA	NA	ppbv
m,p-Xylenes	16	16	0.6	0.89	3.2	5069	161	ppbv
o-Xylene	16	16	0.22	0.34	1.4	5069	161	ppbv

OEHHA: Office of Environmental Health Hazard Assessment

REL: Reference Exposure Level

NA: not analyzed

ND: not detected at a concentration above the laboratory limit

ppbv = parts per billion by volume

<sup>1</sup> Previous summary tables included Trip Blank Sample results. Starting February 2005, trip blanks were eliminated for consideration in the number of samples collected

