

December 13, 2002

Mr. Bernard P. Orlan
 Director, Environmental Health and Safety
 New York City Department of Education
 28-11 Queens Plaza North
 Long Island City, NY 11101

**Re: Air Sampling for Volatile Organic Compounds
 Francis Lewis High School (Q430)
 Flushing, New York
 ATC Project No. 15-19125-0374**

Dear Mr. Orlan:

ATC Associates, Inc. (ATC), performed indoor air quality testing on December 8, 2002 at Francis Lewis High School, located at 58-20 Utopia Parkway, Flushing, NY. This testing was performed at the request of the New York City Department of Education (NYCDOE) due to indoor air quality concerns as a result of a gasoline spill in July, 2002 resulting in contamination of soil and ground water.

SCOPE OF WORK

ATC collected a total of six (6) air samples for volatile organic compounds (VOCs) using Summa canisters. The canisters were supplied and samples analyzed by Lancaster Laboratories, a New York State ELAP-approved laboratory (Lab ID #10670) in Lancaster, PA. The canisters were supplied with flow controllers calibrated by the laboratory to sample for eight hours. Analysis was performed according to EPA Method TO-15.

ATC collected the samples from the following locations: Basement hallway by elevator, Boiler Room, Room 134, Room 122, Room 104 and outdoors by the 59th Avenue side.

Mr. Wagdi Abdelshahid, Industrial Hygienist from ATC's New York City office, collected the samples consistent with accepted industrial hygiene practices. The results represent conditions on the day the samples were collected.

RESULTS

The air in each cannister was analyzed for a panel of seventy eight (78) specific volatile organic compounds. The following table summarizes concentrations of selected gasoline components in each of the samples collected:

TABLE 1
AIRBORNE CONCENTRATIONS
OF SELECTED VOLATILE ORGANIC COMPOUNDS

ANALYTE	LOCATION	Sample Concentration (ppb)*
BENZENE	Basement by elevator	<0.9
	Boiler Room	<0.6
	Room 134	<0.8
	Room 122	<0.6
	Room 104	<0.6
	Outdoors	<0.6
TOLUENE	Basement by elevator	3
	Boiler Room	1
	Room 134	1
	Room 122	1
	Room 104	1
	Outdoors	1
ETHYL BENZENE	Basement by elevator	<1
	Boiler Room	<0.4
	Room 134	<0.4
	Room 122	<0.4
	Room 104	<0.2
	Outdoors	ND
TOTAL XYLENES	Basement by elevator	5
	Boiler Room	1.7
	Room 134	1.5
	Room 122	2
	Room 104	<1.4
	Outdoors	<0.8
METHYL TERT-BUTYL ETHER (MTBE)	Basement by elevator	5
	Boiler Room	<0.8
	Room 134	1
	Room 122	<0.7
	Room 104	<0.6
	Outdoors	1

* parts per billion

Benzene

Benzene was present just above the limits of detection but below levels that could be specifically quantified. Two indoor levels (<0.8 - <0.9 ppb) were slightly above that detected outdoors and in the other four samples (<0.6 ppb). The Environmental Protection Agency (EPA) has set a screening level for benzene, based on one-year continuous exposure, of 20 ppb. The levels here are *below* the EPA screening level.

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Toluene

Toluene was detected in four indoor samples at a concentration of 1 ppb, this was the same as the outdoor sample concentration. One indoor sample (Basement by the elevator) contained toluene at 3 ppb. There is no EPA screening level for toluene however, EPA has established, based on experimental data, a Reference Concentration for Chronic Exposure (RfC) of 0.4 milligrams per cubic meter (0.4 mg/m^3). This is equal to 106 ppb. The levels in these samples are *below* the RfC for toluene.

Total Xylenes

There are three forms of xylene, meta-xylene, para-xylene and ortho-xylene (m-xylene, p-xylene, o-xylene) present in combination in the samples. The analyses are separated into two parts, m/p-xylene and o-xylene. The results in the table are the sums of the concentrations the two xylene concentrations reported for each sample. Indoor concentrations ranged from <1.4 ppb to 5 ppb. The outdoor concentration was <0.8 ppb. The Federal Agency for Toxic Substances and Disease Registry (ASTDR) has calculated a Minimal Risk Level (MRL) for xylenes of 0.1 parts per million (100 ppb) for chronic inhalation exposure. The levels in these samples are *below* the MRL for xylenes.

Ethylbenzene

Ethylbenzene was detected in the indoor samples in a concentration range of <0.2 to <1 ppb, it was not detected in the outdoor air. The EPA RfC for ethylbenzene is 1 mg/m^3 (equal to 231 ppb). The levels in these samples are *below* the RfC for ethylbenzene.

Methyl tert-Butyl Ether (MTBE)

MTBE is a common gasoline additive ("octane booster"). The indoor concentration range was <0.6 ppb to 5 ppb, the outdoor concentration was 1 ppb. The MRL for chronic MTBE exposure is 700 ppb. The levels in these samples are *below* the MRL for MTBE.

The Occupational Safety and Health Administration (OSHA) has a Permissible Exposure Limits (PEL) for benzene (1 ppm), toluene (200 ppm), xylenes (100 ppm) and ethylbenzene (100 ppm). There is no PEL for MTBE. The OSHA PELs are intended for industrial exposures and are not applicable to school populations.

The sample collected in the Basement by the elevator contained the highest indoor concentrations of all of the five VOCs discussed above, however these concentrations were very low.

Tetrachloroethylene (PERC) and trichloroethylene (TCE) were included in the analyte panel and both compounds had been previously detected in the ground water and soil gas. TCE was *not detected* in any of these samples. PERC was found just above the limit of detection in only the sample collected in the Basement by the elevator, it was not detected in any of the other samples.

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CONCLUSION

Five VOCs that are components of gasoline were found at levels above the limits of detection in all five indoor samples. The sample collected in the basement by the elevator had the highest concentration of each of these VOCs, it also was the only sample with a detectable level of PERC. All VOC levels are below federal guideline concentrations.

A copy of the analytical laboratory report listing concentrations of all of the compounds in the analyte panel in each sample collected and the associated chain-of-custody form are included in the Attachment to this report. Should you have any questions or require additional information regarding these samples, please do not hesitate to contact us at (212) 353-8280.

Sincerely,
ATC Associates, Inc.

Reviewed by:

Tenzin Namgyal
Industrial Hygienist

James R. Cohn, CIH, CSP
Regional Manager
Industrial Hygiene Division

Attachment