NYC 9/11 Public Portal Document

ATC ASSOCIATES INC.

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April 1, 2002

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

Re: Respirable Dust Assessment
Stuyvesant High School (M477)
ATC Project No. 15-19125-0246

Dear Mr. Orlan:

ATC Associates Inc. (ATC) is pleased to provide this report of a respirable particulate assessment conducted February 27 - March 13, 2002, in the referenced school building. The New York City Board of Education (BOE) requested this monitoring to determine if acceptable indoor air quality (IAQ) is being maintained and to compare sampling methods.

SCOPE OF WORK

ATC recorded concentrations of respirable particulates ($PM_{2.5}$) for 24 hours with a DustTrak® Aerosol Monitor Model 8520, manufactured by TSI, Inc. Samples of $PM_{2.5}$ for gravimetric analysis were also collected for 24 hours using a Micro Environmental Monitor® (MEM®), manufactured by SKC, Inc. The gravimetric samples were collected on pre-weighed PVC filters supplied and analyzed by PSC Analytical Services, Inc., an American Industrial Hygiene Association-accredited laboratory in Reading, PA.

The assessment was performed consistent with generally accepted indoor air quality assessment practices. As with all such assessments, there were inherent limitations created by constraints of time, operational and work practice variability, variations in indoor air quality parameters and sampling and analytical accuracy.

Wagdi Abdelshahid and Tenzin Namgyal, Industrial Hygienists of ATC's New York City office, conducted the sampling.

The results of the sampling represent conditions found on the dates the samples were collected. The information presented in this report should be used by the BOE as a guide to assess the need for further improvements in current indoor air quality control activities.

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EVALUATION CRITERIA

Currently, there are no regulatory standards for indoor air quality in non-industrial buildings, such as offices and schools. Table 1 lists target guideline for the parameter that ATC evaluated during this investigation. Meeting the listed value does not assure that acceptable indoor air quality will be achieved at all times.

TABLE 1
TARGET GUIDELINES FOR IAQ PARAMETER EVALUATED

PARAMETER	TARGET LEVEL	AGENCY OR ORGANIZATION
Respirable Particulates ($PM_{2.5}$)	65 micrograms per cubic meter of air ($\mu g/m^3$) 24-hour average	USEPA NPAAQS
	40 micrograms per cubic meter of air ($\mu g/m^3$) 24-hour average	USEPA recommendation for children and sensitive individuals

USEPA = United States Environmental Protection Agency
NPAAQS = National Primary Ambient-Air Quality Standard

RESULTS

ATC collected one (1) real-time 24-hour data-logging respirable particulate measurement and one 24-hour gravimetric sample in Main Lobby on each day. The two types of samplers were placed side-by-side at the sampling location. The results are shown in Table 2. The Dust Trak® data summaries and graphs are provided in Attachment 1, the laboratory results of the MEM® samples are provided in Attachment 2.

TABLE 2
MAIN LOBBY 24-HOUR AVERAGE $PM_{2.5}$ CONCENTRATIONS BY SAMPLING DEVICE (ug/m^3)

DATE	DUST-TRAK®	MEM®
Feb. 27-28	1.00	6.25
Feb. 28 - March 1	-553.0*	20.1
March 3 – 4	1.00	<3.47
March 5 – 6	5.00	<3.47
March 6 – 7	6.00	<3.47
March 7 – 8	10.00	3.47
March 11 – 12	7.00	12.5
March 12 – 13	10.00	17.4

* anomalous result

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The $PM_{2.5}$ concentrations in the Main Lobby measured by the Dust Trak® were generally higher than those measured with the MEM®. On February 27- 28, March 3-4, March 11-12 and March 12-13, the Dust Trak® measurements were less than the gravimetric results. These levels are the exceptions to the pattern that has been so far observed. The Dust Trak® results of February 28-March 1 cannot be considered accurate and may be due to an over-correction of the instrument calibration factor (see next paragraph). The Dust Trak® detects volatile aerosol particles that are not recovered by the gravimetric method.

The calibration factor of the Dust Trak® was electronically reset from 1.00 to 0.34 and the reset instrument was put in place beginning with the February 25-26 sampling period. The adjustment was made, based on previous side-by-side sampling results, to see if the Dust Trak® data would more closely approximate the gravimetric results. This was reset again to 0.5 on March 4, 2002. The results obtained show that there is still a substantial difference between the gravimetric method and the Dust Trak®.

Results by both methods on all eight days were below the EPA NPAAQS of 65 ug/m^3 and the EPA recommended level of 40 ug/m^3.

CONCLUSION

Side-by-side sampling conducted to date does not indicate a predictable conversion factor for results from these two instruments. The Dust Trak® can provide instantaneous readings that may be used to demonstrate trends in $PM_{2.5}$ concentrations but it should not be used to determine compliance with EPA standards. The results are subject to misinterpretation.

Sample results obtained by both instruments were *below* both the EPA NPAAQS for $PM_{2.5}$ of 65 ug/m^3 (24-hour average) and the EPA recommended level of 40 ug/m^3.

It is our pleasure to provide these indoor air consultative services to the New York City Board of Education. If you have any questions about this report, please call (212) 353-8280, extension 212.

Sincerely,
ATC ASSOCIATES INC.

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

Attachments

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