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December 14, 2001

Mr. Bernard P. Orlan  
 Director, Environmental Health & Safety  
 New York City Board of Education  
 28-11 Queens Plaza North  
 Long Island City, NY 11101-4008

**Re: Wipe Samples for Dioxin  
 Stuyvesant High School  
 345 Chambers Street  
 New York, New York  
 ATC Project No. 15-19125-0246**

Dear Mr. Orlan:

ATC Associates Inc. (ATC) is pleased to provide this report of the results of the wipe-samples for polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) collected on November 8, 14 and 20, 2001, at the referenced location. The New York City Board of Education (BOE) requested these samples to evaluate possible contamination in the school building per the recommendation of H. A. Bader, consultant to the parents association..

#### **SCOPE OF WORK**

Wagdi Abdelshahid, Industrial Hygienist of ATC's New York City office, collected the samples on all three days.

The samples were collected using gauze pads and hexane as a solvent. The solvent was provided and samples were analyzed by Pace Analytical Services, Inc. (Pace) of Minneapolis, MN, a laboratory experienced in dioxin analysis. The analysis was performed by modified EPA Method 8290 using combined capillary column gas chromatography/high resolution mass spectrometry.

ATC's findings and conclusions are based on the laboratory samples results and the conditions present in the school at the time of the assessment.

The sampling was performed consistent with generally accepted industrial hygiene practices. There were inherent limitations created by constraints of time, operational and work practice variability, variations in contaminant concentrations, and sampling and analytical accuracy. The results of the sampling represent conditions found on the dates the samples were collected.

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### **SUBSTANCE DESCRIPTION**

"Dioxins" or "dioxin" is a name used for a group of chlorinated multi-ringed organic compounds that includes polychlorinated dibenzo dioxins (PCDDs) and polychlorinated dibenzo furans (PCDFs). They are related to polychlorinated biphenyls (PCBs). PCDDs and PCDFs are not produced commercially except for research purposes. They occur as trace level by-products of combustion and industrial chemical processes. Combustion of PCB-containing oils, such as during an electrical transformer fire, is known to produce dioxins. Burning of some plastics may also produce dioxins. Dioxins are toxic and are considered to be carcinogenic.

The Environmental Protection Agency has a screening level for dioxins in air of 0.16 nanograms per cubic meter (0.16 ng/m<sup>3</sup>). A nanogram is a thousandth of a microgram (1 X 10<sup>-9</sup> gram). The Occupational Safety and Health Administration (OSHA) has not established a Permissible Exposure Limit (PEL) for dioxin in air or on surfaces.

The New York State Department of Environmental Conservation (NYSDEC) has set 0.0006 parts per million (ppm) as the allowable concentration of dioxin in soil.

### **WIPE SAMPLING RESULTS**

ATC submitted three wipe samples for PCDDs/PCDFs (plus one blank) to Pace for analysis. A copy of the laboratory report is provided in Attachment 1. Samples were taken from areas specified by the parents association consultant. The sample area for each sample was 100 square centimeters (100cm<sup>2</sup>). The areas sampled were:

- 1<sup>st</sup> floor main entrance wall;
- 2<sup>nd</sup> floor bridge entrance wall;
- Mixed air plenum-AC#2 or AC #1

Each sample was analyzed for sixteen (16) PCDD/PCDF isomers. The results for each isomer were then converted to 2, 3, 7, 8 tetrachloro-dibenzo-p-dioxin (2, 3, 7, 8-TCDD) equivalents by multiplying by an established equivalency factor (See Attachment 2). This provides a single value (in nanograms) for the analytical results for each sample.

The results of the samples are shown in the following table.

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**DIOXIN WIPE SAMPLE RESULTS  
 (2, 3, 7, 8 TCDD EQUIVALENTS)**

| LOCATION                                 | NOV. 8                      | NOV. 14                    | NOV. 20                    |
|------------------------------------------|-----------------------------|----------------------------|----------------------------|
| 1 <sup>ST</sup> FLOOR<br>MAIN ENTRANCE   | 0.00049 ng/sample           | 0.0014 ng/sample           | 0.0013 ng/sample           |
| 2 <sup>ND</sup> FLOOR<br>BRIDGE ENTRANCE | 0.00019 ng/sample           | 0.0014 ng/sample           | 0.00044 ng/sample          |
| MIXED AIR PLENUM                         | 0.0014 ng/sample<br>(AC #2) | 0.081 ng/sample<br>(AC #2) | 0.020 ng/sample<br>(AC #1) |
| BLANK                                    | 0.00 ng/sample              | 0.00048 ng/sample          | 0.00027 ng/sample          |

**DISCUSSION**

The concentrations on indoor surfaces ranged from 0.00019 ng/sample 0.0014 ng/sample. The concentrations in the mixed air plenums ranged from 0.0014 ng/sample to 0.020 ng/sample. One nanogram is equivalent to one part per billion (ppb) by weight. No standard has been established for dioxin on indoor surfaces. The NYSDEC acceptable soil concentration is 0.0006 parts per million (ppm) or 0.6 ppb. The levels found in these samples are well below the NYSDEC level.

It is not possible to determine when the 2, 3, 7, 8 - TCDD equivalents detected in these samples were deposited. Dioxin samples were not collected from these locations prior to November 8<sup>th</sup>.

It is our pleasure to provide these indoor environmental services to the NYC 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