

January 31, 2013

Mr. Bernard P. Orlan  
Director, Environmental Health & Safety  
New York City Department of Education  
44-36 Vernon Boulevard  
Long Island City, NY 11101

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Subject: **Limited Indoor Air Quality Assessment**  
**P.S. 213 K**  
**580 Hegeman Avenue**  
**Brooklyn, NY 11207**

Dear Mr. Orlan:

Cardno ATC is pleased to provide this report of a limited Indoor Air Quality (IAQ) Assessment conducted on January 31, 2013 at the above referenced school. The New York City Department of Education (DOE) requested this assessment to evaluate the air quality in Room 232 of the school. This assessment was requested following the removal of 3 of 6 lighting fixtures in room 232 after observing smoking ballast on January 30, 2013. Cardno ATC was accompanied by the custodian during the assessment.

### **BACKGROUND**

According to the custodian, On January 30, 2013 in room 232 the lights located to the window side of the classroom were observed to be smoking when turned on for the day and were immediacy turned off. On January 31, 2013 Cardno ATC conducted limited indoor air quality assessments following the removal of the lighting fixtures and prior to there replacement. At the time of the assessment, the custodian reported that all three of the lighting fixtures to the window side of the classroom were removed after school hours on January 30, 2013. The IAQ testing was conducted in Room 232, 227, 230 and the adjacent corridor. The IAQ parameters were measured at levels that are considered acceptable for occupancy at the time of the assessment and no odors were observed at the time of the assessment.

### **SCOPE OF WORK**

Cardno ATC conducted this evaluation to assess the indoor air quality in room 232, the adjacent rooms and hallway. Cardno ATC measured carbon monoxide (CO) using a Q-Trak model 7565x, manufactured by TSI, Inc. Total volatile organic compounds (TVOC) concentrations were measured using a mini-RAE photoionization detector, equipped with a 10.6 eV lamp, manufactured by RAE Systems. Concentrations of particulate

matter, with an aerodynamic diameter of 10 micrometers (PM<sub>10</sub>) were measured using a DustTrak aerosol monitor, also manufactured by TSI.

## EVALUATION CRITERIA

Currently, no regulatory agency (e.g. OSHA, EPA) has promulgated standards for indoor air quality parameters in non-industrial buildings, such as offices and schools. For the real-time data collected, Cardno ATC uses the guidelines cited in the following publications:

- *Ventilation for Acceptable Indoor Air Quality* (ASHRAE 62.1-2004);
- *Industrial Hygienists Guide to Indoor Air Quality Investigations* (1993), American Industrial Hygiene Association (AIHA);

### *Carbon Monoxide, Particulate Matter and Total Volatile Organic Compounds*

Carbon monoxide (CO) usually originates from outside the building from such sources as automotive traffic and loading docks. Internal sources include cigarette smoke, boilers and furnaces. The most common sources of PM<sub>10</sub> in indoor air are cigarette smoke, internal combustion engines, wood stoves, incinerators (smoke drawn in through HVAC systems) and the abrading of building materials. The EPA National Primary Ambient Air Quality Standards (NPAAQs) for CO and PM have been adopted and presented in ASHRAE 62.1-2004 as the recommended limits for generally accepted indoor air quality conditions. In addition to the recommended limits, significant short-term increases of CO should not be noted indoors at any time.

Total volatile organic compounds (TVOC) include a wide variety of organic compounds, which may exist in the indoor air. Concentrations of TVOC measured in indoor air are often significantly higher than outdoors. Some potential sources of TVOC indoors include fragrances, cleaning products, and biological activities. Concentrations of TVOC in non-industrial indoor environments are usually orders of magnitude below any regulatory levels. However, some TVOCs may be present above their human odor thresholds (e.g., perfumes, cleaning solutions). Table 1 lists the target guidelines for CO, PM<sub>10</sub>, and TVOC.

**Table 1.** Target indoor air quality guideline concentrations of carbon monoxide (CO), PM<sub>10</sub>, and total volatile organic compounds (TVOC).

Parameter	Target Level	Agency or Organization
CO	9 part per million (ppm) 8-hour average 35 ppm 1-hour average	ASHRAE 62 (adopted from USEPA NPAAQs)
PM <sub>10</sub>	150 micrograms per cubic meter of air (µg/m <sup>3</sup> ) 24-hour average	ASHRAE 62 (adopted from USEPA NPAAQs)
TVOC	1 ppm	AIHA

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

AIHA = American Industrial Hygiene Association (AIHA).

Meeting one, some, or all of the listed values does not assure that acceptable indoor air quality will be achieved at all times.

## **SAMPLING RESULTS**

On January 31, 2013, Cardno ATC observed the general conditions and collected CO, TVOCs, and PM<sub>10</sub> measurements in Rooms 232, 230, 227 and the associated corridor. These tested parameters results were acceptable at the time of the assessment. The real-time IAQ measurements were transcribed onto field data collection sheet, which is attached.

## **FINDINGS & OBSERVATIONS**

During the site visit, conducted on January 31, 2013 Cardno ATC noted the following:

- Rooms were not occupied at the time of the assessment;
- IAQ measurements in Rooms 232, 230, 227 and the adjacent corridor were acceptable for occupancy at the time of the assessment;
  - Room 230 – Girls Restroom adjacent to room 232
  - Room 227 – Classroom across the hall from room 232
- No smoke odor was noted;

## **CONCLUSION**

Based on the findings and IAQ measurements, Cardno ATC concludes that;

- The IAQ measurements in Rooms 232, 230, 227 were acceptable for occupancy at the time of the assessment.

## **RECOMMENDATIONS**

Based on the observed conditions, Cardno ATC recommends the following:

- Complete the repairs (lighting replacement) in room 232;
- Additional follow-up IAQ assessments are not considered necessary at this time.

## **LIMITATIONS**

ATC provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of the Department of Education (DOE). The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such assessments, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this assessment was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information

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presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during ATC's inspection of the site.

It is our pleasure to provide these consultative services to the New York City Department of Education. Please contact us if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Greene", is written over a light blue circular stamp.

Robert Greene  
Industrial Hygienist  
for Cardno ATC

Enc: Attachments

File: 015.19125.1542

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**ATTACHMENT 1**  
**IAQ FIELD REPORT JANUARY 31, 2013**



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**ATTACHMENT 2**  
**DOE WORK ORDER**

Facility: DSF DIVISION OF SCHOOL FACILITIES  
 Unit : K Project :  
 W/O Type: CO Priority: 04 W/O Dspln: H  
 Planner : SNAPOLIT NAPOLITANO  
 W/O Title : 75/19K213/ REMOVE SMOKING BALLAST  
 W/O Task Title: 75/19K213/ I.A.Q. TEST IN RM 232  
 Written To : P.S. 213 - BROOKLYN  
 Task Dspln : Completed By:



**Work Order Package**  
 00491080 03  
 Rpt : TIPMC11  
 Date: 01/30/2013



NEW YORK CITY  
 DEPT. OF EDUCATION

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**Work Order Task Written To**

Facility : DSF Unit : K Op Sys : GEO-19  
 Division : Area : ISC4 Sys/Cls: K213  
 Equipment : ABLDG K213 Component:  
 Work Item : Eqt. List: Ops Review Req'd: N  
 Equip. Tag: Alt:  
 UTC : Tbl/Brkdown: (Past 12 mo)  
 Catalog ID: Job Type : ET UCS: GN13  
 Client/Act:  
 Location : K04 32400001 000001 580 HEGEMAN AV, BROOKLYN, NY 11207  
 Cost Centr: G839 Activity : User Def:  
 Percentage: 100.000 Acct No. : GL

**Work Order Task Instructions**

I.A.Q. TEST IN ROOM 232, AS PER BERNIE ORLAN  
 Custodian ANDRE BAYNE 718-649-0614  
 MH.

**Completion Comments on Work Performed**

Completion Comments Required : N

Comments:

Comments:

Comments:

Continued on Additional Sheets? : \_\_\_\_\_