



BOROUGH OF MANHATTAN COMMUNITY COLLEGE THE CITY UNIVERSITY OF NEW YORK 199 CHAMBERS STREET, NEW YORK, NY 10007-1097

February 21, 2002

Mr. R. Radhakrishnan, P.E.
Director
Asbestos Control Program
59-17 Junction Boulevard - 8th floor
Corona, NY 11373-5108

Dear Mr. Radhakrishnan:

The Borough of Manhattan Community College, located at 199 Chambers Street, was closed, except for emergency service personnel, from September 11, 2001 until October 1, 2001. Prior to opening, the school's air and dust were tested by H. A. Bader Consultants, Inc., Professional Industries, and Martin Levine, Ph.D.-Chemistry, the college's Occupational and Safety Officer. Under separate cover, with a copy of this letter, are their reports along with copies of subsequent tests through February, 2002.

At no time did we find asbestos in air exceeding 70 Asbestos Structures per square millimeter. All those samples were analyzed using transmission electron microscopy. Dust was analyzed for asbestos using polarized light microscopy and no sample exceeded one-percent asbestos.

The building environment is monitored frequently and protocols for cleaning are constantly reassessed. Filters and prefilters for our HVAC system are periodically examined and replaced. If you need further information, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read "E. J. Sullivan", is written over a horizontal line.

Edward J. Sullivan
Director of Operations, Planning, and Construction

EJS/mv



**Department of
Environmental
Protection**

59-17 Junction Boulevard
Corona, New York
11368-5107

CUNY Facilities Management
199 Chambers Street
New York, NY 10013

Subject: 199 CHAMBERS STREET

February 12, 2002

**Joel A. Miele Sr., P.E.
Commissioner**

**Robert C. Avaltroni
Deputy Commissioner**

**Bureau of
Environmental Compliance**
Tel (718) 595-4418
Fax (718) 595-4422

Dear Sir/ Madam:

In September 2001, the New York City Department and Environmental Protection (NYC DEP) and the Department of Health (NYC DOH) advised building owners regarding building maintenance and re-occupancy issues following the collapse of the World Trade Center. The steps included the professional assessment of building contamination for possible hazardous components, including asbestos, and a retrospective filing, as required, if applicable.

The NYC DEP is hereby requesting copies of the environmental hazard assessments including bulk sample results and air monitoring results and a summary of clean-up activities at the above referenced site. Please forward the requested documents to our offices within FIVE BUSINESS DAYS. They may be faxed to (718) 595-3744 or sent to the NYC DEP Asbestos Control Program at 59-17 Junction Boulevard, 8th floor, Corona, New York 11373-5108.

Please be advised building owners are responsible for the cleaning of building exteriors, grounds, and common areas. Due to changing conditions and continued activity at Ground Zero, building owners should periodically assess the condition of building exteriors and air conditioning systems for cleanliness and may have to periodically re-clean areas. Adherence to proper cleaning methods is important for the protection of public health and the environment. DEP inspectors will be following up on this matter.

If you have any questions, you may reach the Department at (718) 595-3682 during office hours or the 24-hour Help Center at (718) DEP-HELP. DEP staff is available to provide guidance and technical assistance.

Sincerely,

**R. Radhakrishnan, P.E.
Director
Asbestos Control Program**



www.nyc.gov/dep

(718) DEP-HELP



H.A. BADER
CONSULTANTS, INC.

**ENVIRONMENTAL
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88 Bleecker Street, Suite 4E
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HOWARD A. BADER, P.E.
President

September 21, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Asbestos Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing throughout 199 Chambers Street on September 20, 2001. The sampling was performed by Howard Bader, P.E. and Richard Massari of H. A. Bader Consultants.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader and Massari are New York City Department of Environmental Protection (DEP) Certified Asbestos Investigators. In addition, Mr. Bader and Massari are Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as Asbestos Air Sampling Technicians, Inspectors, Management Planners and Project Monitors. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. It is suspected that debris from the damaged buildings became airborne and potentially contaminated areas in lower Manhattan with asbestos fibers and lead dust.

Re: Asbestos Testing

Page 2 of 4

The 199 Chambers Street complex is currently being used to house various members of the rescue and recovery operation. There is concern that these personnel are carrying asbestos and lead contamination on their clothing when they return to the building. H. A. Bader Consultants scope of work was to determine if there is a potential asbestos and/or lead related health concern in the building.

The primary pathway for asbestos and lead to enter the building is through the ventilation systems and the main building entrances. There are approximately 30 air handling units (AHU) that have outdoor air capabilities. H. A. Bader Consultants performed asbestos testing in or near the outdoor air entry of every AHU. Asbestos and lead testing was performed at or near every building entrance, including those used by the rescue and recovery personnel. Concentrated sampling was performed in areas that are housing rescue and recovery operations. Samples were also taken in non occupied areas to evaluate ambient conditions.

Once asbestos fibers enter a building they may remain airborne or settle onto fixed surfaces (primarily horizontal surfaces). Lead dust is heavy and settles very quickly. H. A. Bader Consultants testing methods concentrated on both airborne and surface testing for asbestos and only surface testing for lead.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level is of $50 \mu\text{g}/\text{ft}^2$. These levels are extremely conservative and apply to buildings where small children (less than six years old) reside or frequently visit.

23 lead dust samples were taken. 21 samples were below the level of detection. Two samples from the gymnasium bleachers had detectable lead levels (32 and $42 \mu\text{g}/\text{ft}^2$), however they were within the HUD/DEP guideline levels. Reference the attached laboratory results from EMSL Analytical. The bleachers are used by the rescue and recovery personnel and there is a significant amount of dust and debris present. This testing indicates that significant lead contamination is not present in the building.

Re: Asbestos Testing

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Asbestos Air Sampling

20 air samples were taken and analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA 40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/mm²).

The laboratory results from the testing on September 20, found no asbestos structures present in 17 of the samples. 3 samples had two or less asbestos structures present and the levels were well below the allowable 70 AS/mm². Reference the attached laboratory results from EMSL Analytical.

The 3 areas with detectable asbestos fibers are heavily used by the rescue and recovery personnel. The asbestos fibers are probably carried into the building from their clothing. As a precaution, prior to the college re-opening, these areas should be thoroughly wet cleaned.

Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 67 surface dust samples using polarized light microscopy (PLM). 36 Samples were from the air handling unit outdoor air damper sections and plenums. None of the samples were identified as asbestos containing materials (ACM). An ACM is defined as a material with greater than one percent asbestos. Levels less than one percent are not regulated.

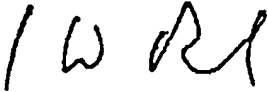
Six samples were found to have trace (i.e., less than 1%) asbestos content. Similar to the air samples, detectable asbestos fibers were limited to areas that are heavily used by the rescue and recovery personnel. As a precaution, prior to the college re-opening, these areas should be thoroughly wet cleaned (HEPA vacuum carpeting).

Re: Asbestos Testing

Page 4 of 4

Based on the results of the air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in any area of the building. If you have any questions, please call.

Sincerely,

A handwritten signature in black ink, appearing to read 'H A Bader', written in a cursive style.

Howard A. Bader, P.E.
President



H.A. BADER
CONSULTANTS, INC.

**ENVIRONMENTAL
CONSULTING ENGINEERS**
88 Bleecker Street, Suite 4E
New York, NY 10012
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HOWARD A. BADER, P.E.
President

September 30, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Asbestos Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing at 199 Chambers Street on September 28, 2001. The sampling was performed by Howard Bader, P.E. and Richard Massari of H. A. Bader Consultants. This testing was a followup survey to H. A. Bader Consultants testing on September 20, 2001.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader and Massari are New York City Department of Environmental Protection (DEP) Certified Asbestos Investigators. In addition, Mr. Bader and Massari are Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as Asbestos Air Sampling Technicians, Inspectors, Management Planners and Project Monitors. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. It is suspected that debris from the damaged buildings became airborne and potentially contaminated areas in lower Manhattan with asbestos fibers and lead dust.

Re: Asbestos Testing**Page 2 of 3**

The 199 Chambers Street complex is currently being used to house various members of the rescue and recovery operation. There is concern that these personnel are carrying asbestos and lead contamination on their clothing when they return to the building.

H. A. Bader Consultants test results from September 20, 2001, and report dated September 21, determined there was no significant evidence of a potential asbestos and/or lead related health concern in the 199 Chambers Street Complex. H. A. Bader Consultants scope of work on September 28, 2001, was to repeat the testing in select areas to insure that asbestos and lead levels remain non-problematic. The college is scheduled to reopen October 1, 2001.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level is of $50 \mu\text{g}/\text{ft}^2$. These levels are extremely conservative and apply to buildings where small children (less than six years old) reside or frequently visit.

17 lead dust samples were taken on September 28, 2001. 15 samples were below the level of detection. Two samples from the gymnasium bleachers had detectable lead levels (13 and $20 \mu\text{g}/\text{ft}^2$), however they were within the HUD/DEP guideline levels. Reference the attached laboratory results from EMSL Analytical. The bleachers are used by the rescue and recovery personnel and there is a significant amount of dust and debris present. This testing indicates that significant lead contamination is not present in the building.

Asbestos Air Sampling

13 air samples were taken and analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA

Re: Asbestos Testing

Page 3 of 3

40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/mm²).

The laboratory results from September 28, found no asbestos structures present in 11 of the samples. 2 samples (3rd floor south entrance by Bursar and the hallway between the Pool and Gymnasium) had one asbestos structures present and the levels were well below the allowable 70 AS/mm². Reference the attached laboratory results from EMSL Analytical.

Two samples with one asbestos structure present in a total sampling of 13 is considered statistically insignificant. As a precaution, prior to the college re-opening, these areas should be thoroughly wet cleaned.

Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 17 surface dust samples using polarized light microscopy (PLM). None of the samples were identified as asbestos containing materials (ACM). An ACM is defined as a material with greater than one percent asbestos. Levels less than one percent are not regulated.

Two samples (Gymnasium and First Floor South Harrison Street Entrance) were found to have trace (i.e., less than 1%) asbestos content. These areas are heavily used by the rescue/recovery and construction personnel. As a precaution, prior to the college re-opening, these areas should be thoroughly wet cleaned.

Based on the results of the asbestos air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in any area of the building. If you have any questions, please call.

Sincerely,



Howard A. Bader, P.E.
President



H.A. BADER
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HOWARD A. BADER, P.E.
President

October 10, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Theater Asbestos & Lead Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing in the Main B.M.C.C. Theater at 199 Chambers Street on October 9, 2001. Asbestos air sampling was also performed in the First Floor Paint Shop. The sampling was performed by Howard Bader, P.E. and Richard Massari of H. A. Bader Consultants.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader and Massari are New York City Department of Environmental Protection (DEP) Certified Asbestos Investigators. In addition, Mr. Bader and Massari are Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as Asbestos Air Sampling Technicians, Inspectors, Management Planners and Project Monitors. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. It is suspected that debris from the damaged buildings became airborne and potentially contaminated areas in lower Manhattan with asbestos fibers and lead dust.

Re: Asbestos & Lead Testing**Page 2 of 3**

For several weeks after the disaster, the Theater was used by members of the rescue and recovery operation. There is concern that these personnel may have carried asbestos and lead contamination on their clothing when they returned to the building. H. A. Bader Consultants scope of work was to determine if there is a potential asbestos and/or lead related health concern in the Theater. The asbestos testing in the Paint Shop was performed at the request of the Painting Staff.

If asbestos fibers enter a building they may remain airborne or settle onto fixed surfaces (primarily horizontal surfaces). Lead dust is heavy and settles very quickly. H. A. Bader Consultants testing methods concentrated on both airborne and surface testing for asbestos and only surface testing for lead.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level is of $50 \mu\text{g}/\text{ft}^2$. These levels are extremely conservative and apply to buildings where small children (less than six years old) reside or frequently visit.

Three lead dust samples were taken in the Theater. All 3 samples were below the level of detection. This testing indicates that lead contamination is not present in the Theater.

Asbestos Air Sampling

Three air samples were taken in the Theater and one sample in the Paint Shop. The samples were analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA 40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/mm²).

Re: Asbestos & Lead Testing

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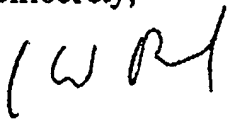
The laboratory results from the testing on October 9, found no asbestos structures present in the Theater. The Paint Shop sample had two asbestos structures present, however the level was well below the allowable 70 AS/mm². Reference the attached laboratory results from EMSL Analytical.

Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 16 surface dust samples using polarized light microscopy (PLM). In the Theater, 6 samples from carpet, 3 from the stage floor and 6 from upholstered seats were taken in spread out locations. One sample was taken from the concrete floor in the Paint Shop. None of the samples had any asbestos detected in them.

Based on the results of the air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in the Theater or Paint Shop. If you have any questions, please call.

Sincerely,



Howard A. Bader, P.E.
President



H.A. BADER
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HOWARD A. BADER, P.E.
President

October 18, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Gymnasium Asbestos & Lead Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing in the Gymnasium and adjacent south corridor at 199 Chambers Street on October 17, 2001. Asbestos sampling was also performed on the 6th Floor and at the Portable Classrooms on West Street. The sampling was performed by Howard Bader, P.E. and Richard Massari of H. A. Bader Consultants.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader and Massari are New York City Department of Environmental Protection (DEP) Certified Asbestos Investigators. In addition, Mr. Bader and Massari are Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as Asbestos Air Sampling Technicians, Inspectors, Management Planners and Project Monitors. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. A waste transfer operation is occurring directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with asbestos fibers and lead dust.

Re: Asbestos & Lead Testing

Page 2 of 3

For several weeks after the disaster, the Gymnasium was used by members of the rescue and recovery operation. There is concern that these personnel may have carried asbestos and lead contamination on their clothing when they returned to the building. H. A. Bader Consultants scope of work was to determine if there is a potential asbestos and/or lead related health concern in the Gymnasium. The asbestos testing in the 6th Floor Classrooms and Portable Classrooms on West Street was to evaluate if the barge transfer operation across West Street is creating an asbestos related hazard.

If asbestos fibers enter a building they may remain airborne or settle onto fixed surfaces (primarily horizontal surfaces). Lead dust is heavy and settles very quickly. H. A. Bader Consultants testing methods concentrated on both airborne and surface testing for asbestos and only surface testing for lead.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level is of 40 $\mu\text{g}/\text{ft}^2$.

Eleven lead dust samples from the Gymnasium and one from the south corridor outside the Gymnasium were taken. 10 samples were below the level of detection. The remaining 2 samples had lead levels well below the HUD/DEP clearance level. Reference the attached laboratory results from EMSL Analytical. This testing indicates that lead contamination is not present in the Gymnasium Area.

Asbestos Air Sampling

Five air samples were taken in the Gymnasium, one in the Corridor, two in 6th Floor Classrooms and Four in the Portable Classrooms. The samples were analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA 40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/ mm^2).

Re: Asbestos & Lead Testing

Page 3 of 3

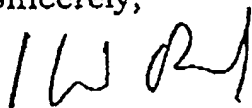
The laboratory results from the testing on October 17, found no asbestos structures present in any of the samples. Reference the attached laboratory results from EMSL Analytical.

Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 24 surface dust samples using polarized light microscopy (PLM). 18 samples were taken in the Gymnasium (including 4 from the upper cat walks). One sample from the bleachers had trace asbestos content. The remaining 17 samples had no asbestos detected in them. All 6 samples from the Classrooms had no asbestos detected. Reference the attached laboratory results from EMSL Analytical for locations.

Based on the results of the air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in any of the tested areas. As a precaution, prior to re-opening the Gymnasium the bleacher area should be thoroughly wet cleaned and HEPA vacuumed. If you have any questions, please call.

Sincerely,



Howard A. Bader, P.E.
President



BOROUGH OF MANHATTAN COMMUNITY COLLEGE THE CITY UNIVERSITY OF NEW YORK 199 CHAMBERS STREET, NEW YORK, NY 10007

TO: The College Community

FROM: Dr. Martin Levine

DATE: October 27, 2001

SUBJECT: Environmental Health and Safety

In response to the headline in the *Daily News*, dated Friday, October 26, 2001 that called the WTC area a "Toxic Zone", the air was resampled at BMCC that day. Air samples were collected inside BMCC at the entrance on 2 South, on 7 South, on the Harrison Street bridge, on 6 North, on 3 North, at the N. Moore entrance and in one of the classrooms on West Street (W102).

These samples were analyzed for benzene, mercury vapor and carbon monoxide using MSA detector tubes. The benzene tube measures up to 300 ppm, the mercury vapor tube will detect levels of mercury vapor up to 0.08 ppm and the carbon monoxide tube can measure levels up to 100ppm. *No detectable amounts of benzene, mercury vapor or carbon monoxide were found in any sample.*

The air in the building is of exceptionally high quality. To maintain the integrity of our air quality, it is imperative that all windows remain closed. Vice President Anderson has asked Buildings and Grounds to seal all windows with duct tape to prevent accidental air leakage into the building and this operation is in progress.

I will continue to keep you informed of any further sampling that occurs and the test results. Information from the EPA web site (epa.gov) is updated and posted weekly on the Human Resources bulletin boards.

Re: Asbestos & Lead Testing

Page 1 of 3

November 10, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Periodic Asbestos & Lead Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing in various areas at 199 Chambers Street on November 8, 2001. The sampling was performed by Howard Bader, P.E. and Richard Massari of H. A. Bader Consultants. This was followup testing for similar surveys performed by H. A. Bader Consultants on September 20 and 28, and October 9 and 17, 2001.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader and Massari are New York City Department of Environmental Protection (DEP) Certified Asbestos Investigators. In addition, Mr. Bader and Massari are Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as Asbestos Air Sampling Technicians, Inspectors, Management Planners and Project Monitors. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. A waste transfer operation is occurring directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with asbestos fibers and lead dust.

H. A. Bader Consultants scope of work was to determine if there is a potential asbestos and/or lead related health concern in the building. Representative areas of the building were tested, including the main entrance ways, interior areas on the west side of the building (including the portable units on West Street) across from the barge transfer operation and areas previously used by members of the rescue and recovery operation. In addition samples were taken at representative air handling units to evaluate potential contamination of the HVAC systems.

If asbestos fibers enter a building they may remain airborne or settle onto fixed surfaces (primarily horizontal surfaces). Lead dust is heavy and settles very quickly. H. A. Bader Consultants testing methods concentrated on both airborne and surface testing for asbestos and surface testing for lead.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level for floor surfaces is of 40 :g/ft².

Eleven lead dust samples were taken in representative areas of the building. All the samples were below the level of detection for lead. Reference the attached laboratory results from EMSL Analytical. This testing indicates that there is not a potential lead related health concern in the building.

Asbestos Air Sampling

Twenty air samples were taken in representative areas of the building. The samples were analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA 40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/mm²).

Re: Asbestos & Lead Testing

Page 3 of 3

The laboratory results from the testing on November 8, 2001, found no asbestos structures present in any of the samples. Reference the attached laboratory results from EMSL Analytical.

Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 23 surface dust samples in representative areas of the building using polarized light microscopy (PLM). All the samples had no asbestos detected. Reference the attached laboratory results from EMSL Analytical for locations.

Based on the results of the air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in any of the tested areas. If you have any questions, please call.

Sincerely,

Howard A. Bader, P.E.
President

November 14, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Direct-Reading Measurements for fine dust particles and VOCs

Dear Mr. Sullivan,

Tiffany-Bader Environmental, Inc. (TBE) performed direct-reading testing for fine dust particles (2.5 μm in diameter) and VOCs (volatile organic compounds) in various areas of B.M.C.C. at 199 Chambers Street on November 13, 2001. The sampling was performed by Howard Bader, P.E., and John Tiffany, senior Industrial Hygienist of TBE.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. A waste transfer operation is located directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with fine dust particles and/or VOCs. TBE's scope of work was to determine the levels in the building, and outdoor, of these contaminants.

Representative areas of the building were tested, including the main entrance ways, interior areas on the west and east side of the main building, and the portable trailer units on West Street (across from the barge transfer operation). Outdoor readings were collected at various points around the building. (See data sheet in Appendix B).

Fine Dust Particles Testing

TBE took realtime particle (aerosol) measurements in $\mu\text{g}/\text{m}^3$ at 2.5 μm diameters ($\text{PM}_{2.5}$), using a TSI Model 8520 Dust Trak Aerosol Monitor. The Dust Trak is a laser photometer, which uses light scattering technology to determine mass concentration. The instrument has a sample flowrate of 1.7 L/min.

**B.M.C.C.
Dust & VOC Levels**

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November 14, 2001

Based on the U.S. EPA's Air Quality Index, the level of concern for the general population from exposure to fine dust particles at $PM_{2.5}$ is $65 \mu g/m^3$ averaged over a 24 hour period. EPA lowers the level of concern for sensitive groups, including children, the elderly, and people with heart or lung disease, to $40 \mu g/m^3$ averaged over a 24 hour period.

According to the EPA, when outdoor levels exceed $40 \mu g/m^3$ over a 24 hour period, people with respiratory disease, such as asthma, should limit outdoor exertion. Also, the EPA states, when outdoor levels exceed $65 \mu g/m^3$, all people, especially the elderly and children should limit prolonged outdoor exertion. The EPA Web site for particulate testing related to the World Trade Center disaster states "most healthy adults and children are expected to recover quickly from any symptoms of short-term exposure like coughing, wheezing, or eye and throat irritation. EPA expects the long-term risk from these short-term exposures to be low."

The EPA is collecting $PM_{2.5}$ using gravimetric samplers, while TBE is using a laser particle counter (the TSI Dust Trak). According to TSI, some studies have shown that the Dust Trak sampled approximately 3 times more than the gravimetric samplers. This higher sampling efficiency may cause higher readings for the Dust Trak as compared to gravimetric samplers.

Following is a summary table of $PM_{2.5}$ particulate testing done on November 13th:

Date	Outdoor Readings ($\mu g/m^3$)	Indoor Range ¹ ($\mu g/m^3$)	Comments
11/13	30-86	7 - 25 [Main Building]	54 readings, none exceeded $65 \mu g/m^3$, none exceeded $40 \mu g/m^3$
11/13	30-86	23 - 74 [Portable Trailers]	24 readings, 1 exceeded $65 \mu g/m^3$, 3 exceeded $40 \mu g/m^3$

1 Readings were collected over 2 different time periods, 12:21-1:45 pm, and 2:32-3:54 pm. Readings were taken throughout the building. This includes classrooms, common areas, hallways, offices, gymnasium, etc.

The outdoor readings, collected at various outdoor points, varied over a 2 minute sampling period, with peaks up to $86 \mu g/m^3$. (Readings were collected every second during the sampling). These higher peaks would dissipate over a 1 minute range, and most of the outdoor reading were in the range of 30 to $40 \mu g/m^3$.

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None of the areas tested in the Main Building exceeded $40 \mu\text{g}/\text{m}^3$ at $\text{PM}_{2.5}$. Two rounds of sampling was conducted in the early and late afternoon. Most readings were in the range of 10 to $20 \mu\text{g}/\text{m}^3$.

The Portable Trailers, located on West Street, showed higher readings as compared to the Main Building. Most of the higher readings were detected on the first round of sampling. One measurement, in W-103, was $74 \mu\text{g}/\text{m}^3$. This reading was collected during class while the instructor was writing with chalk, which may have partially caused the higher reading. Three indoor readings ranged from 42 to $61 \mu\text{g}/\text{m}^3$, and were collected from W-108, W-107, and W-104. It appears that the outdoor levels were more directly impacting the portable trailers as compared to the Main Building.

It should be noted that the higher readings were not duplicated on the second round of testing, except for W-108. All of the other areas, including W-103, were below $40 \mu\text{g}/\text{m}^3$ during the second round of testing. The EPA's Air Quality Index standard is averaged over a 24 hour day. TBE was collecting direct reading levels, at that point in time. The levels detected were not averaged over a 24 hour period.

The outdoor readings indicate that the dust levels vary outdoors. An increase in outdoor levels appears to correspond to an increase in indoor levels in the portable trailers. The higher efficiency filters for the large central air handling units (AHUs) for the Main Building, based on these November 13th readings, are keeping dust levels significantly lower indoors. The grade of filters for the smaller units in the portable trailers are not as efficient in filtering the outdoor air.

TBE recommends using filters with the highest efficiency possible (per manufacturers recommendation) for the HVAC units in the portable trailers. In addition, windows and doors of the portable trailers should be kept closed as much as possible.

VOCs Air Sampling

On November 13, 2001, TBE used a direct reading, portable Photo Ionization Detector (PID) to: (1) compare levels of VOCs in various areas of the Main Building, the Portable Trailers, and outdoors, and, (2) to attempt to locate a possible point source(s) of VOCs that may be affecting the indoor air quality of the spaces.

The Mini-RAE PID is used for the measurement of most VOCs, down to a level of 0.1 ppm (part per million). The sensor consists of a sealed UV light source that emits photons which are energetic enough to ionize many trace species (particularly organics) but do not ionize the major components of air such as oxygen, nitrogen, carbon dioxide, carbon monoxide, or water. The field created on an electrode will drive any ions formed by adsorption of the UV light to the collector electrode where the

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current (proportional to concentration) is measured. Response time for this direct reading instrument is under 5 seconds.

TBE found that readings in the Main Building were in the range of 0.1 to 1.0 ppm of VOCs. The nearby portable trailers had a range of readings from 0.7 to 1.4 ppm. The outdoor VOC levels ranged from 0.4 to 2.0 ppm.

Almost all of the indoor readings were less than 1.0 ppm. This was mostly the case for the outdoor levels as well. The instrument that was used (a PID) is very sensitive, and will detected perfume, nail polish, and office supplies. TBE, in past indoor air surveys in other buildings, has detected indoor levels of VOCs using the PID in the range of 0.5-0.7 ppm, when the outdoor levels were in the range of 0.1-0.2 ppm. At B.M.C.C., the outdoor levels were impacting the indoor levels.

At present, no single organization develops guideline concentrations for indoor air contaminants nor are values available for all contaminants of potential concern. A number of organizations offer guideline values for selected indoor air contaminants. These values have been developed primarily for occupational settings and, in some cases, for residential settings. The values for individual VOCs are generally in the range of 5 ppm and above.

TBE will be conducting further testing next November 20th, to ascertain if VOC or fine dust particle levels have changed.

Sincerely,

John A. Tiffany,
President, TBE



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November 20, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Direct-Reading Measurements for fine dust particles and VOCs

Dear Mr. Sullivan,

Tiffany-Bader Environmental, Inc. (TBE) performed direct-reading testing for fine dust particles (2.5 μm in diameter) and VOCs (volatile organic compounds) in various areas of B.M.C.C. at 199 Chambers Street on November 20, 2001. The sampling was performed by John Tiffany, senior Industrial Hygienist of TBE.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. A waste transfer operation is located directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with fine dust particles and/or VOCs. TBE's scope of work was to determine the levels in the building, and outdoor, of these contaminants.

Representative areas of the building were tested, including the main entrance ways, interior areas on the west and east side of the main building, and the portable trailer units on West Street (across from the barge transfer operation). Outdoor readings were collected at various points around the building. (See data sheet in Appendix B). TBE had collected readings from the same data points the previous week, on November 13, 2001.

Fine Dust Particles Testing

TBE took realtime particle (aerosol) measurements in $\mu\text{g}/\text{m}^3$ at 2.5 μm diameters (PM_{2.5}), using a TSI Model 8520 Dust Trak Aerosol Monitor. The Dust Trak is a laser

photometer, which uses light scattering technology to determine mass concentration. The instrument has a sample flowrate of 1.7 L/min.

Based on the U.S. EPA's Air Quality Index, the level of concern for the general population from exposure to fine dust particles at PM_{2.5} is 65 ug/m³ averaged over a 24 hour period. EPA lowers the level of concern for sensitive groups, including children, the elderly, and people with heart or lung disease, to 40 ug/m³ averaged over a 24 hour period.

According to the EPA, when outdoor levels exceed 40 ug/m³ over a 24 hour period, people with respiratory disease, such as asthma, should limit outdoor exertion. Also, the EPA states, when outdoor levels exceed 65 ug/m³, all people, especially the elderly and children should limit prolonged outdoor exertion. The EPA Web site for particulate testing related to the World Trade Center disaster states "most healthy adults and children are expected to recover quickly from any symptoms of short-term exposure like coughing, wheezing, or eye and throat irritation. EPA expects the long-term risk from these short-term exposures to be low."

The EPA is collecting PM_{2.5} using gravimetric samplers, while TBE is using a laser particle counter (the TSI Dust Trak). According to TSI, some studies have shown that the Dust Trak sampled approximately 3 times more than the gravimetric samplers. This higher sampling efficiency may cause higher readings for the Dust Trak as compared to gravimetric samplers.

Following is a summary table of PM_{2.5} particulate testing done on November 13th & 20th:

Date	Outdoor Readings (µg/m ³)	Indoor Range ¹ (µg/m ³)	Comments
11/13	30-86	7 - 25 [Main Building]	54 readings, none exceeded 65 µg/m ³ , none exceeded 40 µg/m ³
11/13	30-86	23 - 74 [Portable Trailers]	24 readings, 1 exceeded 65 µg/m ³ , 3 exceeded 40 µg/m ³
11/20	10-46	1 - 20 [Main Building]	54 readings, none exceeded 65 µg/m ³ , none exceeded 40 µg/m ³
11/20	10-46	8 - 63 [Portable Trailers]	25 readings, none exceeded 65 µg/m ³ , 3 exceeded 40 µg/m ³

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1 Readings on November 20th were collected over 2 different time periods, 10:05-11:05 am, and 1:35-2:34 pm. Readings were taken throughout the building. This includes classrooms, common areas, hallways, offices, gymnasium, etc.

The outdoor readings, collected at various outdoor points, varied over a 2 minute sampling period, with peaks up to $46\mu\text{g}/\text{m}^3$. (Readings were collected every second during the sampling). These higher peaks would dissipate over a 1 minute range, and most of the outdoor reading on November 20th were in the range of 10 to $20\mu\text{g}/\text{m}^3$. The outdoor readings on November 20th were lower than the outdoor readings collected on November 13th. During the night of November 19th, there had been a rain storm, followed by a windy day on November 20th. This was in contrast to November 13th, which was a sunny, calm day. Clearly, the rain (and strong wind) had reduced the amount of fine dust particles outdoors.

None of the areas tested in the Main Building exceeded $40\mu\text{g}/\text{m}^3$ at $\text{PM}_{2.5}$. Two rounds of sampling were conducted, one in the morning and one in the afternoon. Most readings were in the range of 5 to $15\mu\text{g}/\text{m}^3$. This was lower than the November 13th readings, which showed a slightly higher range of 10 to $20\mu\text{g}/\text{m}^3$.

The Portable Trailers, located on West Street, showed higher readings as compared to the Main Building. One measurement from the afternoon, in W-103, was $63\mu\text{g}/\text{m}^3$. This reading was collected during class while the instructor was writing with chalk, which may have partially caused the higher reading. Two other morning indoor readings ranged from 48 to $52\mu\text{g}/\text{m}^3$, and were collected from W-108 and W-103, again while instructors were using the chalkboard. It appears that: (1) the outdoor levels were more directly impacting the portable trailers as compared to the Main Building, and (2) the use of chalk can cause a rise in the number of fine dust particles.

It should be noted that the higher readings were not duplicated on the second round of testing, except for W-103, which again had the use of chalk. All of the other areas, including W-108, were below $40\mu\text{g}/\text{m}^3$ during the second round of testing. The EPA's Air Quality Index standard is averaged over a 24 hour day. TBE was collecting direct reading levels, at that point in time. The levels detected were not averaged over a 24 hour period.

The outdoor readings indicate that the dust levels vary outdoors. An increase in outdoor levels appears to correspond to an increase in indoor levels in the portable trailers. The higher efficiency filters for the large central air handling units (AHUs) for the Main Building, based on these November 20th readings as well as the November 13th readings, are keeping dust levels significantly lower indoors. The grade of filters for the smaller units in the portable trailers are not as efficient in filtering the outdoor air.

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TBE recommends using filters with the highest efficiency possible (per manufacturers recommendation) for the HVAC units in the portable trailers. In addition, windows and doors of the portable trailers should be kept closed as much as possible.

VOCs Air Sampling

On November 20, 2001, TBE used a direct reading, portable Photo Ionization Detector (PID) to: (1) compare levels of VOCs in various areas of the Main Building, the Portable Trailers, and outdoors, and, (2) to attempt to locate a possible point source(s) of VOCs that may be affecting the indoor air quality of the spaces.

The Mini-RAE PID is used for the measurement of most VOCs, down to a level of 0.1 ppm (part per million). The sensor consists of a sealed UV light source that emits photons which are energetic enough to ionize many trace species (particularly organics) but do not ionize the major components of air such as oxygen, nitrogen, carbon dioxide, carbon monoxide, or water. The field created on an electrode will drive any ions formed by adsorption of the UV light to the collector electrode where the current (proportional to concentration) is measured. Response time for this direct reading instrument is under 5 seconds.

TBE found that readings on November 20th were lower than the readings collected on November 13th, in both the Main Building and the portable trailers. All indoor and outdoor readings were 0.0 ppm [non-detectable] for VOCs except for one portable trailer (W-108). W-108 had a range of readings from 0.1 to 0.2 ppm.

Almost all of the indoor readings were non-detectable (0.0 ppm). TBE, in past indoor air surveys in other buildings, has detected indoor levels of VOCs using the PID in the range of 0.2-0.5 ppm, when the outdoor levels were 0.0 ppm. At B.M.C.C., there is no strong indoor point source for VOCs.

At present, no single organization develops guideline concentrations for indoor air contaminants nor are values available for all contaminants of potential concern. A number of organizations offer guideline values for selected indoor air contaminants. These values have been developed primarily for occupational settings and, in some cases, for residential settings. The values for individual VOCs are generally in the range of 5 ppm and above.

Both the fine dust particle levels and the VOC levels measured indoors and outdoors were lower on November 20th as compared to November 13th.

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Sincerely,

**John A. Tiffany,
President, TBE**

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APPENDIX B: AIR SAMPLING RESULTS FOR VOCs & FINE DUST PARTICLES

B.M.C.C., 199 Chambers Street, New York, NY, November 20, 2001

Time	Location	VOC (ppm)	Dust Particle (µg/m ³)
Morning Readings			
10:05 AM	OUTDOORS, North Entrance Parking Lot	0.0	13
10:09	N-105	0.0	2
	1st Fl, North, Harrison Entrance Lobby	0.0	8
10:13	2nd Fl, Gym	0.0	4
	2nd Fl, North Entrance	0.0	4
	N-213 [ECC]	0.0	4
	N-210	0.0	4
	2nd Fl, Entrance, Harrison Entrance Lobby	0.0	5
10:19	3rd Fl, Financial Aid Office	0.0	5
	3rd Fl, Bridge over Harrison Street	0.0	7
10:21	N-412 [Core area]	0.0	9
	N-409 [perimeter, West]	0.0	6
	N-440 [perimeter, East]	0.0	7
10:25	N-516 [Core area]	0.0	7
	N-513, Chemistry Lab [perimeter, West]	0.0	5
	N-557 [perimeter, East]	0.0	7
10:30	N-644 [Core area]	0.0	6
	N-635 [perimeter, West]	0.0	6
	N-687 [perimeter, East]	0.0	7
10:35	N-736 [Core area]	0.0	7
	N-739 [perimeter, West]	0.0	7
	N-779 [perimeter, East]	0.0	9
10:40	3rd Fl, 330	0.0	10
	3rd Fl, Bursar	0.0	19
	3rd Fl, Entrance	0.0	20
10:45	2nd Fl, Entrance, Harrison Entrance Lobby	0.0	13
	2nd Fl, Main Entrance, South	0.0	14
	2nd Fl, Theater-1	0.0	9
10:49	OUTDOORS, Main Entrance, South	0.0	15
	OUTDOORS, Corner, Chambers & West Hgwy	0.0	20
10:52	OUTDOORS, Trailer W-112	0.0	16
	Trailer W-112	0.0	17
	Trailer W-111	0.0	19
	Trailer W-110	0.0	32
10:56	OUTDOORS, Trailer W-109	0.0	15
	Trailer W-109	0.0	21

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	Trailer W-108 [Instructor using chalk]	0.2	48
	Trailer W-107	0.0	14
	Trailer W-106	0.0	16
	Trailer W-105	0.0	14
11:01	OUTDOORS, Trailer W-104	0.0	17
	Trailer W-104 [Instructor using chalk]	0.0	31
	Trailer W-103 [Instructor using chalk]	0.0	52
11:03	Trailer W-102	0.0	20
11:05	OUTDOORS, Trailer W-101	0.0	22
Time	Location	VOC (ppm)	Dust (micrograms/m ³)
Afternoon Readings			
13:35	OUTDOORS, North Entrance Parking Lot	0.0	6-20 [2 minutes]
	N-105	0.0	1
	1st Fl, North, Harrison Entrance Lobby	0.0	3
13:40	2nd Fl, Gym	0.0	4
	2nd Fl, North Entrance	0.0	3
	N-213 [ECC]	0.0	3
	N-210	0.0	6
	2nd Fl, Entrance, Harrison Entrance Lobby	0.0	5
13:45	3rd Fl, Financial Aid Office	0.0	3
	3rd Fl, Bridge over Harrison Street	0.0	3
13:48	N-412 [Core area]	0.0	3
	N-409 [perimeter, West]	0.0	4
	N-440 [perimeter, East]	0.0	2
13:50	N-516 [Core area]	0.0	11
	N-513, Chemistry Lab [perimeter, West]	0.0	3
	N-557 [perimeter, East]	0.0	5
13:54	N-644 [Core area]	0.0	4
	N-635 [perimeter, West]	0.0	7
	N-687 [perimeter, East]	0.0	8
14:00	N-736 [Core area]	0.0	4
	N-739 [perimeter, West]	0.0	5
	N-779 [perimeter, East]	0.0	5
14:05	3rd Fl, 330	0.0	6
	3rd Fl, Bursar	0.0	16
	3rd Fl, Entrance	0.0	16
14:10	2nd Fl, Entrance, Harrison Entrance Lobby	0.0	7
	2nd Fl, Main Entrance, South	0.0	12
	2nd Fl, Theater-1	0.0	6
14:15	OUTDOORS, Main Entrance, South	0.0	19
	OUTDOORS, Corner, Chambers & West Hgwy	0.0	10
14:18	OUTDOORS, Trailer W-112	0.0	10-19 [2 minutes]
	Trailer W-112	0.0	17

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	Trailer W-111	0.0	12
	Trailer W-110	0.0	30
14:22	OUTDOORS, Trailer W-109	0.0	11
	Trailer W-109	0.0	9
	Trailer W-108	0.1	26
	Trailer W-107	0.0	8
	Trailer W-106	0.0	9
	Trailer W-105	0.0	9
14:28	OUTDOORS, Trailer W-104	0.0	11
	Trailer W-104	0.0	9
	Trailer W-103 [Instructor using chalk]	0.0	63
	Trailer W-102	0.0	11
14:34	OUTDOORS, Trailer W-101	0.0	10-46 [2 minutes]

Re: Asbestos & Lead Testing - December 5, 2001

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December 6, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Periodic Asbestos & Lead Testing

Dear Mr. Sullivan,

H. A. Bader Consultants, Inc. performed asbestos and lead testing in various areas at 199 Chambers Street on December 5, 2001. The sampling was performed by Howard Bader, P.E. of H. A. Bader Consultants. This was followup testing for similar surveys performed by H. A. Bader Consultants on September 20 and 28, October 9 and 17 and November 8, 2001.

H. A. Bader Consultants is licensed by the New York State Department of Labor (DOL) as an Asbestos Consultant. Mr. Bader is a New York City Department of Environmental Protection (DEP) Certified Asbestos Investigator. In addition, Mr. Bader is Certified by the DOL and United States Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Program as an Asbestos Air Sampling Technician, Inspector, Management Planner and Project Monitor. Mr. Bader has been trained and certified as a Lead Inspector and Risk Assessor by the New Jersey Department of Health. New York State does not have certifications in this area at this time.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. It is common knowledge that some of these buildings had asbestos containing materials and possibly lead-based paint. A waste transfer operation is occurring directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with asbestos fibers and lead dust.

Re: Asbestos & Lead Testing - December 5, 2001

Page 2 of 3

H. A. Bader Consultants scope of work was to determine if there is a potential asbestos and/or lead related health concern in the building. Representative areas of the building were tested, including the main entrance ways, areas on the west side of the building (including the portable units on West Street) across from the barge transfer operation and areas previously used by members of the rescue and recovery operation.

If asbestos fibers enter a building they may remain airborne or settle onto fixed surfaces (primarily horizontal surfaces). Lead dust is heavy and settles very quickly. H. A. Bader Consultants testing methods concentrated on both airborne and surface testing for asbestos and surface testing for lead.

Lead Testing

The U.S. Federal Department of Housing and Urban Development (HUD) and the City of New York Department of Environmental Protection (DEP) have established allowable levels of lead dust in residential settings occupied by children. The HUD/DEP clearance level for floor surfaces is of 40 :g/ft².

Nine lead dust samples were taken in representative areas of the building. All the samples were below the level of detection for lead. Reference the attached laboratory results from EMSL Analytical. This testing indicates that there is not a potential lead related health concern in the building.

Asbestos Air Sampling

Nine air samples were taken in representative areas of the building. The samples were analyzed by an accredited asbestos laboratory using transmission electron microscopy (TEM). TEM analysis is very accurate for finding even trace amounts of asbestos fibers present in the air.

The United States Environmental Protection Agency (EPA) has established a protocol for determining whether school areas are safe for re-occupancy after completion of asbestos abatement projects. This procedure is covered by EPA 40 CFR Part 763, Asbestos-Containing Materials in Schools. The procedures state that the average asbestos airborne fiber level in the abated work area must be less than 70 asbestos structures per square millimeter (AS/mm²).

The laboratory results from the testing on December 5, 2001, found no asbestos structures present in any of the samples. Reference the attached laboratory results from EMSL Analytical.

Re: Asbestos & Lead Testing - December 5, 2001

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Asbestos Surface Sampling

The accredited asbestos laboratory analyzed 9 surface dust samples in representative areas of the building using polarized light microscopy (PLM). All the samples had no asbestos detected. Reference the attached laboratory results from EMSL Analytical for locations.

Based on the results of the air and surface dust testing, H. A. Bader Consultants did not find any evidence to suggest a potential asbestos or lead related health concern is present in any of the tested areas. If you have any questions, please call.

Sincerely,

Howard A. Bader, P.E.
President



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December 6, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Direct-Reading Measurements for fine dust particles and VOCs

Dear Mr. Sullivan,

Tiffany-Bader Environmental, Inc. (TBE) performed direct-reading testing for fine dust particles (2.5 μ m in diameter) and VOCs (volatile organic compounds) in various areas of B.M.C.C. at 199 Chambers Street on December 4 & December 5, 2001. The December 5th monitoring was done only in the portable classroom trailers, to assess the performance of portable HEPA filtered air cleaners in the trailers. The sampling on both days was performed by Howard Bader, P.E., of TBE.

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. A waste transfer operation is located directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with fine dust particles and/or VOCs. TBE's scope of work was to determine the levels in the building, and outdoor, of these contaminants.

Representative areas of the building were tested, including the main entrance ways, interior areas on the west and east side of the main building, and the portable trailer units on West Street (across from the barge transfer operation). Outdoor readings were collected at various points around the building. (See data sheet in Appendix B). TBE had collected readings from the same data points 2 previous times, on November 13, and November 20, 2001.

Fine Dust Particles Testing

TBE took realtime particle (aerosol) measurements in $\mu\text{g}/\text{m}^3$ at 2.5 μm diameters ($\text{PM}_{2.5}$), using a TSI Model 8520 Dust Trak Aerosol Monitor. The Dust Trak is a laser photometer, which uses light scattering technology to determine mass concentration. The instrument has a sample flowrate of 1.7 L/min.

Based on the U.S. EPA's Air Quality Index, the level of concern for the general population from exposure to fine dust particles at $\text{PM}_{2.5}$ is $65 \mu\text{g}/\text{m}^3$ averaged over a 24 hour period. EPA lowers the level of concern for sensitive groups, including children, the elderly, and people with heart or lung disease, to $40 \mu\text{g}/\text{m}^3$ averaged over a 24 hour period.

According to the EPA, when outdoor levels exceed $40 \mu\text{g}/\text{m}^3$ over a 24 hour period, people with respiratory disease, such as asthma, should limit outdoor exertion. Also, the EPA states, when outdoor levels exceed $65 \mu\text{g}/\text{m}^3$, all people, especially the elderly and children should limit prolonged outdoor exertion. The EPA Web site for particulate testing related to the World Trade Center disaster states "most healthy adults and children are expected to recover quickly from any symptoms of short-term exposure like coughing, wheezing, or eye and throat irritation. EPA expects the long-term risk from these short-term exposures to be low."

The EPA is collecting $\text{PM}_{2.5}$ using gravimetric samplers, while TBE is using a laser particle counter (the TSI Dust Trak). According to TSI, some studies have shown that the Dust Trak sampled approximately 3 times more than the gravimetric samplers. This higher sampling efficiency may cause higher readings for the Dust Trak as compared to gravimetric samplers. The EPA's Air Quality Index standard is averaged over a 24 hour day. TBE was collecting direct reading levels, at that point in time. The levels detected were not averaged over a 24 hour period.

Following is a summary table of $\text{PM}_{2.5}$ particulate testing done on November 13th & 20th, and December 4 & 5:

Date	Outdoor Readings ($\mu\text{g}/\text{m}^3$)	Indoor Range ¹ ($\mu\text{g}/\text{m}^3$)	Comments
11/13	30-86	7 - 25 [Main Building]	54 readings, none exceeded $65 \mu\text{g}/\text{m}^3$, none exceeded $40 \mu\text{g}/\text{m}^3$
11/13	30-86	23 - 74 [Portable Trailers]	24 readings, 1 exceeded $65 \mu\text{g}/\text{m}^3$, 3 exceeded $40 \mu\text{g}/\text{m}^3$
11/20	10-46	1 - 20 [Main Building]	54 readings, none exceeded $65 \mu\text{g}/\text{m}^3$, none exceeded $40 \mu\text{g}/\text{m}^3$
11/20	10-46	8 - 63 [Portable Trailers]	25 readings, none exceeded $65 \mu\text{g}/\text{m}^3$, 3 exceeded $40 \mu\text{g}/\text{m}^3$

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Dust & VOC Levels December 6, 2001

12/4	46-87	13 - 41 [Main Building]	54 readings, none exceeded 65 $\mu\text{g}/\text{m}^3$, none exceeded 40 $\mu\text{g}/\text{m}^3$
12/4	46-87	42 - 220 [Portable Trailers]	25 readings, 5 exceeded 65 $\mu\text{g}/\text{m}^3$, 20 exceeded 40 $\mu\text{g}/\text{m}^3$
12/5	31-70	4 - 19 [Portable Trailers with HEPA Air Cleaners]	8 readings, none exceeded 65 $\mu\text{g}/\text{m}^3$, none exceeded 40 $\mu\text{g}/\text{m}^3$
12/5	31-70	32 - 39 [Portable Trailers]	4 readings, none exceeded 65 $\mu\text{g}/\text{m}^3$, none exceeded 40 $\mu\text{g}/\text{m}^3$

1 Readings on December 4th were collected over 2 different time periods, 9:30-11:00 am, and 1:00-3:00 pm. Readings were taken throughout the building. This includes classrooms, common areas, hallways, offices, gymnasium, etc. The December 5th measurements were done only in the portable trailers.

The outdoor readings, collected at various outdoor points, varied over a 2 minute sampling period, with peaks up to 87 $\mu\text{g}/\text{m}^3$. (Readings were collected every second during the sampling). These higher peaks would dissipate over a 1 minute range, and most of the outdoor reading on December 4th were in the range of 55 to 65 $\mu\text{g}/\text{m}^3$. The outdoor readings on December 4th were higher than the outdoor readings collected on November 13th and November 20th.

Two rounds of sampling were conducted, one in the morning and one in the afternoon. One area (at 41 $\mu\text{g}/\text{m}^3$) tested in the Main Building exceeded 40 $\mu\text{g}/\text{m}^3$ at PM_{2.5}. The reading was collected by the main entrance and was directly impacted by the open doors. Most readings in the Main Building were in the range of 15 to 25 $\mu\text{g}/\text{m}^3$. This was slightly higher than the previous readings, which showed a range of 5 to 20 $\mu\text{g}/\text{m}^3$.

The Portable Trailers, located on West Street, showed higher readings as compared to the Main Building. The range was 42 to 220 $\mu\text{g}/\text{m}^3$, and most readings were in the range of 45-65 $\mu\text{g}/\text{m}^3$. One measurement from the morning, in W-108, was 220 $\mu\text{g}/\text{m}^3$. This reading was collected during class just after the instructor had erased the blackboard, which released chalk dust in the air. Two other indoor readings ranged from 95 to 150 $\mu\text{g}/\text{m}^3$, and were collected from W-104 and W-103, while instructors were writing with chalk on the chalkboard. It appears that: (1) the outdoor levels were more directly impacting the portable trailers as compared to the Main Building, and (2) the use of chalk can cause a rise in the number of fine dust particles.

On the following day, December 5th, eight portable HEPA-filtered air cleaners were placed in 8 trailer classrooms (out of 12 trailers), and the dust particles were measured again. A noticeable drop in fine dust particles was recorded, with a range of 4 to 19 $\mu\text{g}/\text{m}^3$ in the trailers with the air cleaners, while the 4 trailers without air cleaners had a range from 32 to 39 $\mu\text{g}/\text{m}^3$. The portable air cleaners reduced dust levels in the trailers to similar levels detected in the Main Building.

B.M.C.C. Page 4**Dust & VOC Levels December 6, 2001**

The outdoor readings indicate that the dust levels vary outdoors. An increase in outdoor levels appears to correspond to an increase in indoor levels in the portable trailers. The higher efficiency filters for the large central air handling units (AHUs) for the Main Building, based on these December 4th readings as well as the November 13th & November 20th readings, are keeping dust levels significantly lower indoors. The grade of filters for the smaller units in the portable trailers are not as efficient in filtering the outdoor air.

Using portable HEPA-filtered air cleaners in the trailers markedly reduced the dust levels, as seen in the December 5th readings.

TBE recommends using portable HEPA-filtered air cleaners in all of the classroom trailers. In addition, windows and doors of the portable trailers should be kept closed as much as possible.

VOCs Air Sampling

On December 4, 2001, TBE used a direct reading, portable Photo Ionization Detector (PID) to: (1) compare levels of VOCs in various areas of the Main Building, the Portable Trailers, and outdoors, and, (2) to attempt to locate a possible point source(s) of VOCs that may be affecting the indoor air quality of the spaces.

The Mini-RAE PID is used for the measurement of most VOCs, down to a level of 0.1 ppm (part per million). The sensor consists of a sealed UV light source that emits photons which are energetic enough to ionize many trace species (particularly organics) but do not ionize the major components of air such as oxygen, nitrogen, carbon dioxide, carbon monoxide, or water. The field created on an electrode will drive any ions formed by adsorption of the UV light to the collector electrode where the current (proportional to concentration) is measured. Response time for this direct reading instrument is under 5 seconds.

TBE found that readings on December 4th were lower than the readings collected on November 13th and similar to the November 20th data, in both the Main Building and the portable trailers. All indoor readings in the Main Building were 0.0 ppm [non-detectable] for VOCs. The outdoor readings were also 0.0 ppm. Most portable trailers showed some detectable levels, with a range of readings from 0.1 to 1.5 ppm; most of the readings were below 1.0 ppm. The morning readings were lower than the afternoon readings. For example, W-103 had a morning reading of 0.2 ppm and an afternoon reading of 1.5 ppm.

All of the indoor readings in the Main Building were non-detectable (0.0 ppm). The portable trailers mostly had readings below 1.0 ppm. TBE, in past indoor air surveys in other buildings, has detected indoor levels of VOCs using the PID in the range of 0.2-

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Dust & VOC Levels December 6, 2001

0.5 ppm, when the outdoor levels were 0.0 ppm. At present, no single organization develops guideline concentrations for indoor air contaminants nor are values available for all contaminants of potential concern. A number of organizations offer guideline values for selected indoor air contaminants. These values have been developed primarily for occupational settings and, in some cases, for residential settings. The values for individual VOCs are generally in the range of 5 ppm and above.

The portable trailers have just recently been installed for use in this Fall semester. Typically, new trailers will off-gas some detectable levels of VOCs for a 4 to 6 month period. Normally, TBE would recommend high levels of outdoor air to help "flush out" a trailer. However, due to concerns about the quality of the ambient air, we do not recommend this approach at this time. Even the highest levels detected on December 4th (1.5 ppm in one trailer) are not considered very elevated, and over an additional time frame of 3 to 6 months, the VOC levels in the trailers should drop to background levels.

Sincerely,

John A. Tiffany,
President, TBE

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Dust & VOC Levels December 6, 2001

APPENDIX B: AIR SAMPLING RESULTS FOR VOCs & FINE DUST PARTICLES**B.M.C.C., 199 Chambers Street, New York, NY, December 4, 2001**

" \ 2Location	VOCs [ppm]	Dust Particle, ug/m3	Notes
Morning Readings 9:30 am - 11:00 am			
OUTDOORS, North Entrance Parking Lot	0.0	68	
N-105	0.0	19	
1st Fl, North, Harrison Entrance Lobby	0.0	40	
2nd Fl, Gym	0.0	19	
2nd Fl, North Entrance	0.0	18	
N-213 [ECC]	0.0	21	
N-210	0.0	27	
2nd Fl North, Harrison Entrance Lobby	0.0	22	
3rd Fl, Financial Aid Office	0.0	22	
3rd Fl, Bridge over Harrison Street	0.0	22	
N-412 [Core area]	0.0	16	
N-409 [perimeter, West]	0.0	20	
N-440 [perimeter, East]	0.0	18	
N-516 [Core area]	0.0	18	
N-513, Chemistry Lab [perimeter, West]	0.0	16	
N-557 [perimeter, East]	0.0	17	
N-644 [Core area]	0.0	18	
N-635 [perimeter, West]	0.0	18	
N-687 [perimeter, East]	0.0	19	
N-736 [Core area]	0.0	20	
N-741 [perimeter, West]	0.0	21	
N-777 [perimeter, East]	0.0	20	
3rd Fl, 330	0.0	27	
3rd Fl, Bursar	0.0	30	
3rd Fl, Entrance	0.0	33	
2nd Fl South, Harrison Entrance Lobby	0.0	22	
2nd Fl, Main Entrance, South	0.0	29	
2nd Fl, Theater-1	0.0	19	
OUTDOORS, Main Entrance, South	0.0	80	
OUTDOORS, Corner, Chambers & West Hgwy	0.0	65	
S-762 (perimeter East)	0.0	19	
S-755 (perimeter West)	0.0	15	
S-702 [Core area]	0.0	15	
S-720 Administration	0.0	25	
S-667 [Core area]	0.0	17	
S-632 (perimeter West)	0.0	17	
S-660 Business Management (East)	0.0	19	
S-500 Learning Resource Center	0.0	14	
S-509 (perimeter West)	0.0	16	

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Dust & VOC Levels December 6, 2001

S-400 Library	0.0	19	
S-422 (perimeter East)	0.0	17	

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Dust & VOC Levels December 6, 2001

OUTDOORS, Trailer W-112	0.0	70	
Trailer W-112	0.2	57	
Trailer W-111	0.2	64	
Trailer W-110	0.1	71	
OUTDOORS, Trailer W-109	0.0	62	
Trailer W-109	0.8	55	
Trailer W-108	0.1	220	1, 3
Trailer W-107	0.0	49	1
Trailer W-106	0.0	46	
Trailer W-105	0.0	42	
OUTDOORS, Trailer W-104	0.0	71	1
Trailer W-104	0.0	95	2
Trailer W-103	0.2	67	
Trailer W-102	0.0	48	
OUTDOORS, Trailer W-101	0.0	76	
Trailer W-101	0.0	54	

Note 1 - Window open.

Note 2 - Instructor using chalk.

Note 3 - Instructor erased entire blackboard just prior to sampling.

Location	VOCs [ppm]	Dust Particle, ug/m3	Notes
Afternoon Readings 1:00 pm - 3:00 pm			
OUTDOORS, North Entrance Parking Lot	0.0	65	
N-105	0.0	17	
1st Fl, North, Harrison Entrance Lobby	0.0	14	
2nd Fl, Gym	0.0	16	
2nd Fl, North Entrance	0.0	18	
N-213 [ECC]	0.0	21	
N-210	0.0	22	
2nd Fl North, Harrison Entrance Lobby	0.0	17	
3rd Fl, Financial Aid Office	0.0	22	
3rd Fl, Bridge over Harrison Street	0.0	18	
N-412 [Core area]	0.0	15	
N-409 [perimeter, West]	0.0	16	
N-440 [perimeter, East]	0.0	16	
N-516 [Core area]	0.0	36	2
N-513, Chemistry Lab [perimeter, West]	0.0	NA	
N-557 [perimeter, East]	0.0	16	
N-644 [Core area]	0.0	18	
N-635 [perimeter, West]	0.0	18	
N-687 [perimeter, East]	0.0	18	

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Dust & VOC Levels December 6, 2001

N-736 [Core area]	0.0	19	
N-741 [perimeter, West]	0.0	19	
N-777 [perimeter, East]	0.0	19	
3rd FI, 330	0.0	23	
3rd FI, Bursar	0.0	22	
3rd FI, Entrance	0.0	25	
2nd FI South Harrison Entrance Lobby	0.0	22	
1st FI South, Harrison Entrance Lobby	0.0	22	
2nd FI, Main Entrance, South	0.0	41	
2nd FI, Theater-1	0.0	18	
OUTDOORS, Main Entrance, South	0.0	46	
OUTDOORS, Corner, Chambers & West Hgwy	0.0	70	
S-762 (perimeter East)	0.0	NA	
S-755 (perimeter West)	0.0	15	
S-702 [Core area]	0.0	17	
S-720 Administration	0.0	21	
S-667 [Core area]	0.0	NA	
S-632 (perimeter West)	0.0	17	
S-660 Business Management (East)	0.0	18	
S-500 Learning Resource Center	0.0	12	
S-509 (perimeter West)	0.0	14	
S-400 Library	0.0	14	
S-422 (perimeter East)	0.0	13	

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Dust & VOC Levels December 6, 2001

OUTDOORS, Trailer W-112	0.0	87	
Trailer W-112	0.2	55	
Trailer W-111	0.3	58	
Trailer W-110	0.2	59	1
OUTDOORS, Trailer W-109	0.0	61	
Trailer W-109	1.0	53	
Trailer W-108	1.0	63	1
Trailer W-107	0.7	53	1
Trailer W-106	0.3	49	
Trailer W-105	0.0	46	
OUTDOORS, Trailer W-104	0.0	57	
Trailer W-104	0.3	61	
Trailer W-103	1.5	150	2
Trailer W-102	0.0	64	
OUTDOORS, Trailer W-101	0.0	58	
Trailer W-101	0.0	53	

Note 1 - Window open.

Note 2 - Instructor using chalk.

Note 3 - Instructor erased entire blackboard just prior to sampling.

AIR SAMPLING RESULTS FOR FINE DUST PARTICLES ON DECEMBER 5, 2001
[After The Installation of Portable Room HEPA Filtration Units]

Location	Dust Particle, ug/m3	Notes
Afternoon Readings 2:00 pm - 3:00 pm		
OUTDOORS, North Entrance Parking Lot	31	
OUTDOORS, Trailer W-112	70	
Trailer W-112	37	NH
Trailer W-111	39	NH
Trailer W-110	37	NH
OUTDOORS, Trailer W-109	55	
Trailer W-109	32	NH
Trailer W-108	13	H
Trailer W-107	14	H
Trailer W-106	6	H
Trailer W-105	4	H
OUTDOORS, Trailer W-104	42	
Trailer W-104	18	H
Trailer W-103	19	H
Trailer W-102	13	H
OUTDOORS, Trailer W-101	42	
Trailer W-101	15	H

H = Room has Portable HEPA Filtration Unit /// NH = Room Does Not Have Portable HEPA Filtration Unit



Tiffany-Bader Environmental, Inc.
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08648-2679
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E-Mail: tbenvir@aol.com

December 22, 2001

Mr. Edward Sullivan
Director of Operations
B.M.C.C.
199 Chambers Street
New York, New York 10007-1097

Re: Direct-Reading Measurements for fine dust particles

Dear Mr. Sullivan,

Tiffany-Bader Environmental, Inc. (TBE) performed direct-reading testing on December 19, 2001, for fine dust particles ($2.5 \mu\text{m}$ in diameter) in the portable classrooms, to assess the performance of the portable HEPA filtered air cleaners. The sampling was performed by Howard Bader, P.E., of TBE. At the time of sampling, the portable HEPA filtered air cleaners had been installed in all the portable classrooms

Several buildings at and adjacent to the World Trade Center Complex in lower Manhattan were destroyed or severely damaged on or around September 11, 2001. A waste transfer operation is located directly across the street (West Street) from the school building. It is suspected that debris from the initial building damage and waste transfer operation is potentially contaminating areas in lower Manhattan with fine dust particles. Past sampling by TBE had determined that the particulate levels in the portable classrooms that did not have the portable HEPA filtered air cleaners were higher than those that had the HEPA units. TBE's scope of work was to evaluate the particulate levels in the portable classrooms now that the HEPA units were installed in each classroom.

Fine Dust Particles Testing

TBE took realtime particle (aerosol) measurements in $\mu\text{g}/\text{m}^3$ at $2.5 \mu\text{m}$ diameters ($\text{PM}_{2.5}$), using a TSI Model 8520 Dust Trak Aerosol Monitor. The Dust Trak is a laser photometer, which uses light scattering technology to determine mass concentration. The instrument has a sample flowrate of 1.7 L/min.

Based on the U.S. EPA's Air Quality Index, the level of concern for the general population from exposure to fine dust particles at $\text{PM}_{2.5}$ is $65 \mu\text{g}/\text{m}^3$ averaged over a 24

BMCC, Portable Classrooms Page 2

Tiffany-Bader Envir. December 22, 2001

hour period. EPA lowers the level of concern for sensitive groups, including children, the elderly, and people with heart or lung disease, to $40 \mu\text{g}/\text{m}^3$ averaged over a 24 hour period.

According to the EPA, when outdoor levels exceed $40 \mu\text{g}/\text{m}^3$ over a 24 hour period, people with respiratory disease, such as asthma, should limit outdoor exertion. Also, the EPA states, when outdoor levels exceed $65 \mu\text{g}/\text{m}^3$, all people, especially the elderly and children should limit prolonged outdoor exertion. The EPA Web site for particulate testing related to the World Trade Center disaster states "most healthy adults and children are expected to recover quickly from any symptoms of short-term exposure like coughing, wheezing, or eye and throat irritation. EPA expects the long-term risk from these short-term exposures to be low."

The EPA is collecting $\text{PM}_{2.5}$ using gravimetric samplers, while TBE is using a laser particle counter (the TSI Dust Trak). According to TSI, some studies have shown that the Dust Trak sampled approximately 3 times more than the gravimetric samplers. This higher sampling efficiency may cause higher readings for the Dust Trak as compared to gravimetric samplers. The EPA's Air Quality Index standard is averaged over a 24 hour day. TBE was collecting direct reading levels, at that point in time. The levels detected were not averaged over a 24 hour period.

TBE collected readings from 10 AM to 12 PM on December 19th in the portable classrooms. The readings outdoors, which ranged from 19 to $30 \mu\text{g}/\text{m}^3$; this relatively light loading outdoors reflected the impact of several days of rain. The reading in the portable classrooms were all lower than the outdoor readings, with a range of 1 to $14 \mu\text{g}/\text{m}^3$. The highest reading indoors [$14 \mu\text{g}/\text{m}^3$] was in a classroom with the HEPA air cleaner turned off. Using the HEPA air cleaners show a marked difference in fine dust particle levels.

TBE recommends that the HEPA air cleaners be kept on during any occupancy in the portable classrooms. As much as possible, doors and windows should be closed.

Following is a summary table of $\text{PM}_{2.5}$ particulate testing done on the morning of December 19, 2001.

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Tiffany-Bader Envir. December 22, 2001

AIR SAMPLING RESULTS FOR FINE DUST PARTICLES ON DECEMBER 19, 2001
[After The Installation of Portable Room HEPA Filtration Units]

Location	Dust Particle, g/m3	Notes
Morning Readings 10:00 am - 12:00 pm		
OUTDOORS, Corner Chambers and West Street	30	
OUTDOORS, Trailer W-112	20	
Trailer W-112	2	E, H ₂
Trailer W-111	1	H ₁
Trailer W-110	10	W, H ₀
OUTDOORS, Trailer W-109	24	
Trailer W-109	2	E, H ₁
Trailer W-108	14	H ₀
Trailer W-107	5	E, H ₂
Trailer W-106	3	H ₃
Trailer W-105	5	E, H ₀
OUTDOORS, Trailer W-104	26	
Trailer W-104	6	W, E, H ₃
Trailer W-103	11	E, H ₀
Trailer W-102	6	W, E, H ₁
OUTDOORS, Trailer W-101	19	
Trailer W-101	9	C, H ₂

Notes:

H_n - Room has Portable HEPA Filtration Unit, the _n designation indicates the fan setting where:

H₀ = Unit Off

H₁ = Low Speed

H₂ = Medium Speed

H₃ = High Speed

E - Room Unoccupied at time of Testing

W - Window Open in Room

C - Chalk in Use



October 2, 2001

Mr. Niles Miller
Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

Subject: Environmental Testing Results
Borough of Manhattan Community College
199 Chambers Street
New York, NY
PSI Project Number: 622-1A139

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc. (PSI) performed environmental testing at the subject facility on September 28 and September 29, 2001. PSI performed a walkthrough of the facility on Friday September 21, 2001. The purpose of our walkthrough was to perform a visual inspection and develop an appropriate sampling strategy.

Results of all air and surface testing for asbestos, lead, silica, and dust are below the established regulatory or guideline levels for the selected analyte. Please find a summary of our testing results below.

Asbestos in Air

PSI collected 3 representative air samples from each floor of the north and south buildings. In addition, 3 samples were collected from within the Gymnasium (north building) and Theater 1 (south building) as these areas were subject to use by emergency/rescue workers. A total of 48 air samples were collected. Samples were collected and analyzed by Transmission Electron Microscopy in accordance with EPA 40 CFR Part 763 Final Rule (ASHERA). ASHERA regulations establish the post abatement air clearance criteria for asbestos abatement projects performed within schools (Grades K-12). The ASHERA post asbestos abatement clearance criteria is defined as an airborne asbestos fiber concentration less than 70 structures per millimeter squared ($<70 \text{ s/mm}^2$). The samples collected are not intended to be post abatement clearance samples, and the results have been compared to the established ASHERA criteria for the purposes of referencing an established regulatory limit.

Laboratory analysis found no asbestos fibers present in 46 of the 48 samples collected. Asbestos was detected in the following 2 locations however, the airborne asbestos concentrations are below the established ASHERA post abatement clearance criteria.

Sample	Location	Result
A-25	South Bldg., 3 rd Floor, outside Room S330	32 s/mm ²
A-47	South Bldg., Theater	16 s/mm ²

Asbestos in Dust

PSI visually observed dust accumulations on surfaces within the Gymnasium (north building) and Theater 1 (south building). The presence of dust is likely due to usage of these areas by emergency/rescue workers.

PSI collected 3 microvacuum samples within each of these areas for a total of 6 samples. Dust samples were collected by microvacuum and analyzed by Transmission Electron Microscopy in accordance with ASTM Method D5755-95. TEM has the ability to distinguish between asbestos structures and non-asbestos structures. The subject ASTM methodology reports analytical results in asbestos structure concentration per square centimeter of surface area (s/cm²). The publication "Advances in Environmental Measurement Methods for Asbestos" prepared by the ASTM Committee D-22 on Sampling Analysis of Atmospheres in conjunction with the Environmental Information Association references the following guidelines pertaining to asbestos in surface dust.

<1,000 s/cm² indicates low level

>10,000 s/cm² indicates above general background level

>100,000 s/cm² indicates high level

Asbestos structures were detected in 2 of 6 samples as shown below. Although asbestos structures were detected, results indicate low level concentrations ranging from well below to slightly above the stated criteria of 1,000 s/cm². As a precautionary measure, PSI recommends the surfaces in the gymnasium and theater be cleaned via wet wiping and/or HEPA vacuuming.

Sample	Location	Result
MV-02	North Bldg., Gymnasium Floor, Center	315.438 s/cm ²
MV-05	South Bldg., Theater 1, Center	1,051.850 s/cm ²

In addition to microvacuum samples, surface wipe samples were collected within the Gymnasium (north building) and Theater 1 (south building). PSI collected 3 wipe samples within each of these areas for a total of 6 samples. Qualitative analysis was performed by Polarized Light Microscopy (PLM) to determine the presence or absence of asbestos fibers. No asbestos fibers were detected in any of the samples.

Lead Wipe Sampling

Surface wipe samples were collected within the Gymnasium (north building) and Theater 1 (south building). PSI collected 3 wipe samples within each of these areas for a total of 6 samples. Surface wipe samples were analyzed by EPA Method SW846-7420 and demonstrate concentrations below the EPA Lead Dust Level Criteria of 40 micrograms per square foot.

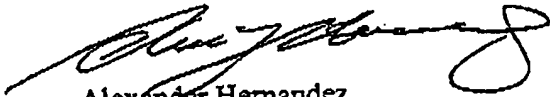
Air Sampling-Nuisance Dust & Silica

PSI collected 2 representative air samples from each floor of the north and south buildings. Samples were collected from within classrooms, common corridors, escalators, the Library and select rooms/offices. In addition, 2 samples were collected from within the Gymnasium (north building) and Theater 1 (south building) as these areas were subject to use by emergency/rescue workers. A total of 32 samples were collected and analyzed by NIOSH Method 7500 to determine ambient or background airborne nuisance dust and respirable silica concentrations. Nuisance dust concentrations ranged from 0.0267 mg/m³-2.60 mg/m³ which are below the OSHA limit of 5 mg/m³ and the ACGIH limit of 3 mg/m³. Respirable silica was not detected in any samples.

PSI is pleased to be of service to DASNY/CUNY on this project. Please contact me if you should have any questions or comments concerning this correspondence.

Sincerely,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Alexander Hernandez
Senior Scientist

cc: Matt Stewart - DASNY
Art Fasolino - CUNY



December 17, 2001

Mr. Niles Miller
Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

Subject: Environmental Testing
Borough of Manhattan Community College
199 Chambers Street, New York, NY
PSI Project Number: 622-1A139

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc (PSI) has been directed to performed periodic environmental testing at the subject facility. The first round of testing was performed on September 28 and September 29, 2001. Results of all air and surface testing for asbestos, lead, silica, and dust at that time were below the established regulatory or guideline levels for the selected analyte.

* { Due to accessibility issues PSI has been unable to return to the facility for subsequent testing until December 15 and December 17, 2001. Frequent periodic testing will be performed on the site until further notice. PSI is working with BMCC facilities personnel to ensure full access to the site

Monitoring performed on 12/15 and 12/17 includes testing for airborne asbestos, airborne silica, respirable dust, selected airborne metals and Total Volatile Organic Compounds

Preliminary testing results follow.

Monitoring Asbestos in Air

PSI collected 8 representative air samples from the Trailers at the West Side Highway location. In addition, 1 sample was collected from within the Gymnasium (north building) and Theater 1 (south building) as these areas were subject to use by emergency/rescue workers. Samples were collected and analyzed by Transmission Electron Microscopy in accordance with EPA 40 CFR Part 763 Final Rule (AHERA). AHERA regulations establish the post abatement air clearance criteria for asbestos abatement projects performed within schools (Grades K-12). The AHERA post asbestos abatement clearance criteria is defined as an airborne asbestos fiber concentration less than 70 structures per millimeter squared ($<70 \text{ s/mm}^2$). The samples collected are not intended to be post abatement clearance samples, and the results have been compared to the established AHERA criteria for the purposes of referencing an established regulatory limit.

Laboratory analysis found no asbestos fibers present in any of the samples collected. Refer to Table 1 for analytical results

Sample No.	Location	Asbestos Types Identified
A-01	Theatre 1	None detected
A-02	Gymnasium	None detected
A-03	Trailer 101	None detected
A-04	Trailer 103	None detected
A-05	Trailer 105	None detected
A-06	Trailer 107	None detected
A-07	Trailer 109	None detected
A-08	Trailer 111	None detected
A-09	Trailer Harrison St. East	None detected
A-10	Trailer Harrison St. West	None detected
FBL-1	Field blank 1	None detected
FBL-2	Field blank 2	None detected
SBL-1	Sealed blank 1	None detected

Table 1 Asbestos Air Sampling

Lead Wipe Sampling

Surface wipe samples were collected December 17 from all floors of the North and South Buildings. Surface wipe samples will be analyzed by EPA Method SW846-7420. Results will be reported shortly upon receipt of analysis from the laboratory.

Air Sampling-Nuisance Dust & Silica

Air samples from each floor of the north and south buildings are being collected from within classrooms, common corridors, escalators, the Library, select rooms/offices and Trailers. Samples will be analyzed by NIOSH Method 7500 to determine ambient or background airborne nuisance dust and respirable silica concentrations. Results will be reported shortly upon receipt of analysis from the laboratory.

Airborne Metals

Air samples were collected December 17 from within the Trailers. Samples will be analyzed for airborne lead, chromium, arsenic and iron. Results will be reported shortly upon receipt of analysis from the laboratory.

Volatile Organic Compounds

Measurement of total VOC's is used to determine general quality of air associated with the level of volatile organic compounds. Samples were collected within the north and south buildings and the Trailers, as well as outside. The Indoor Air Quality Association (Standard IAQA #95-1) recommends levels be maintained at or below 3.0 mg/m³ ppm for acceptable indoor air quality. The data indicated that total VOC's were not detectable within the areas sampled. Please refer to Table 2 for measured results.

Sample No.	Location	VOC ppm
V-01	7 th Floor North Room 779	0.0
V-02	6 th Floor North Hallway by Room 635	0.0

V-03	5 th Floor North Hallway by Room 513	0.0
V-04	4 th Floor North Room 416	0.0
V-05	3 rd Floor North Elevator Lobby #1	0.0
V-06	2 nd Floor North Room 212	0.0
V-07	Basement North Hallway by Room 102	0.0
V-08	Outside West Loading Dock	0.0
V-09	7 th Floor South Stairs #4	0.0
V-10	6 th Floor South Room 631	0.0
V-11	5 th Floor South Room 500-505 LRC	0.0
V-12	4 th Floor South Room 400 Library	0.0
V-13	3 rd Floor South Hallway by Room 368	0.0
V-14	2 nd Floor South Cyber Café II	0.0
V-15	Basement South Room 172	0.0
V-16	Outside Harrison St. by North Stairs	0.0
V-17	Trailer 111	0.0
V-18	Trailer 109	0.0
V-19	Trailer 107	0.0
V-20	Outside Trailer 107	0.0
V-21	Trailer 105	0.0
V-22	Trailer 103	0.0
V-23	Trailer 101	0.0
V-24	Trailer Harrison St. East	0.0
V-25	Trailer Harrison St. West	0.0

Table 2 VOC Air Sampling

PSI is pleased to be of service to DASNY/CUNY on this project. Please contact me if you should have any questions or comments concerning this correspondence.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.



Alexander Hernandez
 Senior Scientist



December 30, 2001

Mr. Niles Miller
Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

Subject: Environmental Testing (December 15 & 17, 2001)
Borough of Manhattan Community College
199 Chambers Street, New York, NY
PSI Project Number: 622-1A139

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc. (PSI) has been directed to perform periodic environmental testing at the subject facility. The first round of testing was performed on September 28 and September 29, 2001. Results of all air and surface testing for asbestos, lead, silica and dust at the time were below the established regulatory or guideline levels for the selected analyte.

Due to accessibility issues PSI has been unable to return to the facility for subsequent testing until December 15 and December 17, 2001. Frequent periodic testing will be performed on the site until further notice. PSI is working with BMCC facilities personnel to ensure full access to the site.

Monitoring performed on 12/15 and 12/17 includes testing for airborne asbestos, airborne silica, respirable dust, selected airborne metals and Total Volatile Organic Compounds (VOCs).

Preliminary testing results follow.

Monitoring Asbestos in Air

PSI collected 8 representative air samples from the Trailers at the West Side Highway location. In addition, 1 sample was collected from within the Gymnasium (north building) and 1 sample from within Theater 1 (south building), as these areas were subject to use by emergency/rescue workers. Samples were collected and analyzed by Transmission Electron Microscopy in accordance with EPA 40 CFR Part 763 Final Rule (AHERA). AHERA regulations establish the post abatement air clearance criteria for asbestos abatement projects performed within schools (Grades K-12). The AHERA post asbestos abatement clearance criteria is defined as an airborne asbestos fiber concentration less than 70 structures per millimeter squared (<70 s/mm²). The samples collected are not intended to be post abatement clearance samples, and the results have been compared to the established AHERA criteria for the purposes of referencing an established regulatory limit.

Laboratory analysis found no asbestos fibers present in any of the samples collected. Refer to Table 1 for analytical results.

Sample No.	Location	Result
A-01	Theatre 1	None detected
A-02	Gymnasium	None detected
A-03	Trailer 101	None detected
A-04	Trailer 103	None detected
A-05	Trailer 105	None detected
A-06	Trailer 107	None detected
A-07	Trailer 109	None detected
A-08	Trailer 111	None detected
A-09	Trailer Harrison St. East	None detected
A-10	Trailer Harrison St. West	None detected
FBL-1	Field Blank 1	None detected
FBL-2	Field Blank 2	None detected
SBL-1	Sealed Blank 1	None detected

*Table 1 Asbestos Air Sampling*Lead Wipe Sampling

Surface wipe samples were collected on December 17 from all floors of the North and South Buildings and the Bridge between both buildings. PSI collected 18 wipe samples from within both buildings. Surface wipe samples were analyzed by EPA Method SW846-7420. Results indicate all sample concentrations are below the EPA Lead Dust Level Criteria of 40 micrograms per square foot.

Refer to Table 2 for analytical results.

Sample No.	Location	Result – Lead Concentration
Pb-01	Field Blank prior	<10.0 ug/wipe
Pb-02	Floor – Hallway by Rm N736	<10.0 ug/ft ²
Pb-03	Floor-Rm N635 North Center	<10.0 ug/ft ²
Pb-04	Floor-Hallway by Rm N501	<10.0 ug/ft ²
Pb-05	Floor-Lobby by Rm N404	<10.0 ug/ft ²
Pb-06	Floor-Across from Rm N301	<10.0 ug/ft ²
Pb-07	Floor-Passageway between N & S bldgs.	<10.0 ug/ft ²
Pb-08	Floor-Lobby by Rm N212	<10.0 ug/ft ²
Pb-09	Floor-Gym by NW entrance	<10.0 ug/ft ²
Pb-10	Floor-2 nd Flr. Lobby NW entrance	<10.0 ug/ft ²
Pb-11	Floor-1 st Flr. By West entrance	<10.0 ug/ft ²
Pb-12	Field Blank after	<10.0 ug/wipe
Pb-13	Field Blank prior	<10.0 ug/wipe
Pb-14	Floor-Hallway by Rm S736A	<10.0 ug/ft ²
Pb-15	Floor-Room S602	<10.0 ug/ft ²

Pb-16	Floor-5 th Flr. Escalator landing	<10.0 ug/ft ²
Pb-17	Floor-4 th Flr. Entrance to Library	<10.0 ug/ft ²
Pb-18	Floor-Hallway by Rm S368	<10.0 ug/ft ²
Pb-19	Floor-Hallway by Rm S206A	<10.0 ug/ft ²
Pb-20	Floor-2 nd Flr. Cafeteria entrance	<10.0 ug/ft ²
Pb-21	Floor-Hallway by Rm. S165	<10.0 ug/ft ²
Pb-22	Field Blank after	<10.0 ug/wipe

Table 2 Lead Wipe Sampling

Air Sampling-Nuisance Dust & Silica

PSI collected 2 representative air samples from each odd numbered floor of the north and south buildings. Samples were collected from common corridors, escalators, the Gymnasium and Theater 3. A total of 16 samples were collected and analyzed by NIOSH Method 7500 to determine ambient or background airborne nuisance dust and respirable silica concentrations. Nuisance dust concentrations ranged from 0.0578 mg/m³ to 0.6778 mg/m³ which are below the OSHA limit of 5 mg/m³ and the ACGIH limit of 3 mg/m³. Respirable silica was detected in two (2) samples and not detected in fourteen (14) samples. Concentrations in the two samples detected were 0.0213 mg/m³ and 0.0276 mg/m³, which are below the NIOSH limit of 0.05 mg/m³ and the ACGIH limit of 0.1 mg/m³.

Refer to the attached laboratory analysis conducted by RMSL Laboratories for the analytical results.

Airborne Metals

Air samples were collected on December 15th from each floor in the North Building and the South Building and from eight (8) Trailers. A total of 23 samples were collected and analyzed by NIOSH Method 7300 to determine ambient or background levels of airborne lead, chromium, arsenic and iron concentrations. All samples indicated levels below the NIOSH or ACGIH limits established for airborne concentrations of these metals.

Refer to the attached laboratory analysis conducted by American Analytical Laboratories for the analytical results.

Volatile Organic Compounds

Measurement of total VOC's is used to determine general quality of air associated with the level of volatile organic compounds. Samples for volatile organic compounds were collected with a MINIRAE 2000, direct reading photoionization detector. Samples were collected within the North and South Buildings and the Trailers, as well as outdoors. The Indoor Air Quality Association (Standard IAQA #95-1) recommends levels be maintained at or below 3.0 ppm for acceptable indoor air quality. The data indicated that total VOC's were not detected within the areas sampled. Please refer to Table 3 for measured results.

Sample No.	Location	VOC ppm
V-01	7 th Floor North Room 779	0.0
V-02	6 th Floor North Hallway by Room 635	0.0

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V-03	5 th Floor North Hallway by Room 513	0.0
V-04	4 th Floor North Room 416	0.0
V-05	3 rd Floor North Elevator Lobby #1	0.0
V-06	2 nd Floor North Room 212	0.0
V-07	Basement North Hallway by Room 102	0.0
V-08	Outside West Loading Dock	0.0
V-09	7 th Floor South Stairs #4	0.0
V-10	6 th Floor South Room 631	0.0
V-11	5 th Floor South Room 500-505 LRC	0.0
V-12	4 th Floor South Room 400 Library	0.0
V-13	3 rd Floor South Hallway by Room 368	0.0
V-14	2 nd Floor South Cyber Café II	0.0
V-15	Basement South Room 172	0.0
V-16	Outside Harrison Street by North Stairs	0.0
V-17	Trailer 111	0.0
V-18	Trailer 109	0.0
V-19	Trailer 107	0.0
V-20	Outside Trailer 107	0.0
V-21	Trailer 105	0.0
V-22	Trailer 103	0.0
V-23	Trailer 101	0.0
V-24	Trailer Harrison Street East	0.0
V-25	Trailer Harrison Street West	0.0

Table 3 VOC Air Sampling

PSI is pleased to be of service to DASNY/CUNY on this project. Please contact me if you should have any questions or comments concerning this correspondence.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Alexander Hernandez
 Senior Scientist

cc: Matt Stewart - DASNY
 Art Fasolino - CUNY

January 14, 2002

received 1/24/02

Mr. Niles Miller
Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

**Subject: Environmental Testing (December 26th and January 11th)
Borough of Manhattan Community College
Trailers, North Building & South Building
199 Chambers Street, New York, NY
PSI Project Number: 622-1A139**

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc. (PSI) has been directed to perform periodic environmental testing at the Borough of Manhattan Community College's, South Building, North Building and the temporary Trailers located at the West Side Highway adjacent to a staging area for WTC structural steel removal. This report covers the results of testing performed on December 26th, 2001 and January 11th, 2002.

Monitoring performed on 12/26/01 and 01/11/02 included testing for Airborne Asbestos, Airborne Silica, Respirable Dust, Total Dust and total Volatile Organic Compounds (VOC).

Testing results follow.

Monitoring Asbestos in Air

PSI collected 12 representative air samples from alternate floors from within the North and South Buildings on December 26th, 2001. Samples were collected and analyzed by Transmission Electron Microscopy in accordance with EPA 40 CFR Part 763 Final Rule (ASHERA). ASHERA regulations establish the post abatement air clearance criteria for asbestos abatement projects performed within schools (Grades K-12). The ASHERA post asbestos abatement clearance criteria is defined as an airborne asbestos fiber concentration less than 70 structures per millimeter squared ($<70 \text{ s/mm}^2$). The samples collected are not intended to be post abatement clearance samples, and the results have been compared to the established ASHERA criteria for the purposes of referencing an established regulatory limit.

Laboratory analysis detected no asbestos fibers present in the samples collected. Analytical results are shown below in Table 1.

PSI collected 5 representative air samples on January 11th, 2002, one from each of four of the Trailers and one from a nearby outside area. Samples were collected and analyzed by NIOSH Method 0500 to determine ambient or background airborne total dust concentrations. Total dust concentrations ranged from 4.452 mg/m³ to 9.095 mg/m³ which are below the OSHA limit of 15 mg/m³ and the ACGIH limit of 10 mg/m³. Analytical results are shown below in Table 5. Samples collected on January 11 have the suffix "0111" attached.

Table 5 Total Dust Air Sampling (January 11th, 2002)

Sample No.	Location	Total Dust
TD-01/0111	Trailer # 110	9.095 mg/m ³
TD-02/0111	Trailer # 108	8.525 mg/m ³
TD-03/0111	Trailer # 106	4.452 mg/m ³
TD-04/0111	Trailer # 104	5.611 mg/m ³
TD-05/0111	Outside Trailer # 101 – North side	5.631 mg/m ³
TD-FBL-1	Field Blank 1	Not detected

Volatile Organic Compounds (VOC)

Measurement of total VOC's is used to determine general quality of air associated with the level of volatile organic compounds. 25 samples for volatile organic compounds were collected with a MINIRAE 2000, direct reading photoionization detector on January 11th, 2002. Samples were collected within the North Building, the South Building and Trailers. Outside air background samples were also collected. The Indoor Air Quality Association (Standard IAQA #95-1) recommends levels be at or below 3.0 ppm for acceptable indoor air quality. The data indicated that total VOC's were not detected in 18 of the areas sampled. VOC's were detected in 7 of the samples, however at a concentration of 0.1 ppm the levels are below the IAQA guideline. Please refer to Table 6 for measured results.

Table 6 VOC Air Sampling

Sample No.	Location	VOC ppm
V-01	7 th Floor North Room N733	0.0
V-02	6 th Floor North Room N620	0.0
V-03	5 th Floor North Room N505	0.0
V-04	4 th Floor North Hallway by Escalator	0.0
V-05	3 rd Floor North Hallway by Room N320	0.0
V-06	2 nd Floor North Gymnasium	0.0
V-07	Basement North Lobby by Room N123	0.0
V-08	Outside South Harrison Street	0.0
V-09	7 th Floor South Hallway by Escalator	0.0
V-10	6 th Floor South Room S632A	0.0
V-11	5 th Floor South Room S508	0.0
V-12	4 th Floor South Room S400 Library	0.1
V-13	3 rd Floor South Conference Center	0.0
V-14	2 nd Floor South Bathroom Lobby	0.0
V-15	Basement South Room S110	0.0
V-16	Outside North Harrison Street	0.0
V-17	Trailer 112	0.1
V-18	Trailer 110	0.1

February 2, 2002

Mr. Niles Miller

Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

**Subject: Environmental Testing (January 26th)
Borough of Manhattan Community College
Trailers, North Building & South Building
199 Chambers Street, New York, NY
PSI Project Number: 622-1A139**

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc. (PSI) has been directed to perform periodic environmental testing at the Borough of Manhattan Community College's, South Building, North Building and the temporary Trailers located at the West Side Highway adjacent to a staging area for WTC structural steel removal. This report covers the results of testing performed on January 26th, 2002.

Monitoring performed on 01/26/02 included testing for Airborne Silica, Respirable Dust, Total Dust and total Volatile Organic Compounds (VOC).

Based on the methodologies described in this report, this assessment revealed that, at the time of testing, measured parameters were generally within recommended guidelines. Airborne Silica, Respirable Dust, Total Dust and total Volatile Organic Compounds levels were within established guidelines.

Testing results follow.

Air Sampling for Respirable Dust & Silica

PSI collected 7 representative air samples on January 26th, 2002, one from each of six of the Trailers and one from a nearby outside area. Samples were collected and analyzed by NIOSH Method 7500 to determine ambient or background airborne nuisance dust and respirable silica concentrations. Respirable dust concentrations ranged from $<0.004 \text{ mg/m}^3$ to 1.1489 mg/m^3 , which are well below the OSHA limit of 5 mg/m^3 and the ACGIH limit of 3 mg/m^3 .

Respirable silica was detected in two (2) samples and below the Analytical Sensitivity of the measuring instrument in five (5) samples. Concentrations detected were; 0.0149 mg/m^3 in Trailer #107 and 0.0236 mg/m^3 in Trailer #109, both of which are below the NIOSH limit of 0.05 mg/m^3 and the ACGIH limit of 0.1 mg/m^3 .

Analytical results are shown below in Table 1.

Table 1 Respirable Dust & Silica Air Sampling (January 26th, 2002)

Sample No.	Location	Respirable Dust	Respirable Silica
RS-01	Trailer # 101	<0.004 mg/m ³	<0.0100 mg/m ³
RS-02	Trailer # 103	<0.004 mg/m ³	<0.0100 mg/m ³
RS-03	Trailer # 105	<0.004 mg/m ³	<0.0100 mg/m ³
RS-04	Trailer # 107	0.0533 mg/m ³	0.0149 mg/m ³
RS-05	Trailer # 109	<0.004 mg/m ³	0.0236 mg/m ³
RS-06	Trailer # 111	1.1489 mg/m ³	<0.0100 mg/m ³
RS-07	Outside Trailer # 101 – West side	1.0133 mg/m ³	<0.0100 mg/m ³
RS-FBL-1	Field Blank 1	Not detected	<0.0100 mg/m ³

Air Sampling for Total Dust

PSI collected 7 representative air samples on January 26th, 2002, one from each of six of the Trailers and one from a nearby outside area. Samples were collected and analyzed by NIOSH Method 0500 to determine ambient or background airborne total dust concentrations. Total dust concentrations ranged from <0.004 mg/m³ to 0.759 mg/m³ which are below the OSHA limit of 15 mg/m³ and the ACGIH limit of 10 mg/m³. Analytical results are shown below in Table 2.

Table 2 Total Dust Air Sampling (January 26th, 2002)

Sample No.	Location	Total Dust
TD-01	Trailer # 101	0.759 mg/m ³
TD-02	Trailer # 103	0.130 mg/m ³
TD-03	Trailer # 105	0.083 mg/m ³
TD-04	Trailer # 107	<0.004 mg/m ³
TD-05	Trailer #109	0.022 mg/m ³
TD-06	Trailer #111	<0.004 mg/m ³
TD-07	Outside Trailer # 101 – West side	0.077 mg/m ³
TD-FBL-1	Field Blank 1	Not detected

Volatile Organic Compounds (VOC's)

Measurement of total VOC's is used to determine general quality of air associated with the level of volatile organic compounds. 25 samples for volatile organic compounds were collected with a MINIRAE 2000, direct reading photoionization detector on January 26th, 2002. Samples were collected within the North Building, the South Building and Trailers. Outside air background samples were also collected. The Indoor Air Quality Association (Standard IAQA #95-1) recommends levels be at or below 3.0 ppm for acceptable indoor air quality. Momentary spikes above 3 ppm related to janitorial operations are considered acceptable. The data indicated that total VOC's were not detected in 23 of the areas sampled. VOC's were detected in 2 of the samples, however at a concentration of 0.1 ppm the levels are well below the IAQA guideline. Please refer to Table 3 for measured results.

Table 3 VOC Air Sampling

Sample No.	Location	VOC ppm
	North Building	
V-01	7 th Floor Hallway by Escalator	0.0
V-02	6 th Floor Hallway by Room N635	0.0
V-03	5 th Floor Room N505	0.0
V-04	4 th Floor Stairwell #1	0.0
V-05	3 rd Floor Hallway by Escalator	0.0
V-06	2 nd Floor Gymnasium	0.0
V-07	Basement Lobby by Room N123	0.0
V-08	Outside South Harrison Street	0.0
	South Building	
V-09	7 th Floor Stairwell #4	0.0
V-10	6 th Floor Hallway by Room S632A	0.0
V-11	5 th Floor Hallway by Rooms S500-505	0.0
V-12	4 th Floor Room S400 Library	0.0
V-13	3 rd Floor Hallway by Escalator	0.0
V-14	2 nd Floor Entrance to Cyber Café II	0.0
V-15	Basement Room S110	0.0
V-16	Outside – North side of Harrison Street	0.0
	Trailers	
V-17	Trailer 101	0.1
V-18	Trailer 103	0.0
V-19	Trailer 105	0.0
V-20	Trailer 107	0.0
V-21	Trailer 109	0.1
V-22	Trailer 111	0.0
V-23	Outside Trailer 101 by West Side Hwy.	0.0
V-24	Outside Trailer Harrison Street West	0.0
V-25	Outside Trailer Harrison Street East	0.0

PSI is pleased to be of service to DASNY/CUNY on this project. Please contact us if you should have any questions or comments concerning this correspondence.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Alexander Hernandez
 Senior Scientist

cc: Matt Stewart - DASNY
 Art Fasolino – CUNY
 Dr. Martin Levine – BMCC (*sent via e-mail 2/2/02*)

February 9, 2002

Mr. Niles Miller

Dormitory Authority State of New York
One Penn Plaza, 52nd Floor
New York, NY 10119

**Subject: Environmental Testing (January 31st and February 1st, 2002)
Borough of Manhattan Community College
Trailers, North Building & South Building
199 Chambers Street, New York, NY
PSI Project Number: 622-1A139**

Dear Mr. Miller:

At the request of the Dormitory Authority State of New York, Professional Service Industries, Inc. (PSI) has been directed to perform periodic environmental testing at the Borough of Manhattan Community College's, South Building, North Building and the temporary Trailers located at the West Side Highway adjacent to a staging area for WTC structural steel removal. This report covers the results of testing performed on January 31th and February 1, 2002.

Monitoring performed on 1/31/02 and 02/01/02 included testing for Airborne Asbestos, Asbestos in Dust, Lead Surface Sampling, Airborne Silica, Respirable Dust, Total Dust and total Volatile Organic Compounds (VOC).

At the time samples were collected, Trailer windows were closed and HEPA air filtration units were operating.

Based on the methodologies described in this report, this assessment revealed that, at the time of testing, measured parameters were within recommended guidelines.

Testing results follow.

Monitoring Asbestos in Air

PSI collected 16 representative air samples from alternate floors from within the North and South Buildings and 8 representative air samples from each of eight of the Trailers on February 2nd, 2001. Samples were collected and analyzed by Transmission Electron Microscopy in accordance with Environmental Protection Agency (EPA) 40 CFR Part 763 Final Rule - Asbestos Hazard Emergency Response Act (AHERA). AHERA regulations establish the post abatement air clearance criteria for asbestos abatement projects performed within schools (Grades K-12). The AHERA post asbestos abatement clearance criteria is defined as an airborne asbestos fiber concentration less than 70 structures per millimeter squared ($<70 \text{ s/mm}^2$). The samples collected are not intended to be post abatement clearance samples, and the results have

been compared to the established AHERA criteria for the purposes of referencing an established regulatory limit.

Laboratory analysis detected no asbestos fibers present in the samples collected. Analytical results are shown below in Table 1.

Table 1 Asbestos Air Sampling

Sample No.	Location	Results – Asbestos Concentration
	North Building	
NB-01	1 st Floor by Escalator	None detected
NB-02	1 st Floor Gymnasium – Center	None detected
NB-03	3 rd Floor Hallway by Room N301	None detected
NB-04	3 rd Floor Elevator Lobby No.1	None detected
NB-05	5 th Floor Hallway by Room N557	None detected
NB-06	5 th Floor by Escalator	None detected
NB-07	7 th Floor Room N740	None detected
NB-08	7 th Floor Room N736	None detected
	South Building	
SB-01	1 st Floor Hallway between S138 & S136	None detected
SB-02	1 st Floor Theatre #3	None detected
SB-03	3 rd Floor Northern Corridor	None detected
SB-04	3 rd Floor Southern Corridor	None detected
SB-05	5 th Floor Library – Center	None detected
SB-06	5 th Floor by Elevator Bank	None detected
SB-07	7 th Floor Southern Corridor	None detected
SB-08	7 th Floor Northern Corridor	None detected
	Trailers	
W-103	Trailer #W103	None detected
W-105	Trailer #W105	None detected
W-107	Trailer #W107	None detected
W-109	Trailer #W109	None detected
W-112	Trailer #W112	None detected
W-101	Trailer #W101	None detected
H-103	Harrison St. Trailer #H103	None detected
H-101	Harrison St. Trailer #H100	None detected

Asbestos in Dust

PSI collected 8 microvacuum samples from alternate floors from within the North and South Buildings and 8 representative air samples from each of eight of the Trailers on January 31st, 2001. Dust samples were collected by microvacuum and analyzed by Transmission Electron Microscopy (TEM) in accordance with American Society for Testing and Materials (ASTM) Method D5755-95. TEM has the ability to distinguish between asbestos structures and non-asbestos structures. The subject ASTM methodology reports analytical results in asbestos

structure concentration per square centimeter of surface area (s/cm^2). The publication "Advances in Environmental Measurement Methods for Asbestos" prepared by the ASTM Committee D-22 on Sampling Analysis of "Atmospheres in conjunction with the Environmental Information Association references the following guidelines pertaining to asbestos in surface dust.

- <1,000 s/cm^2 indicates low level
- >10,000 s/cm^2 indicates above general background level
- >100,000 s/cm^2 indicates high level

Laboratory analysis found no asbestos fibers present in 14 of the 16 samples collected. Chrysotile was detected in 2 samples, however results indicate low level concentrations below the stated "low level" criteria of 1,000 s/cm^2 . Analytical results are shown below in Table 2.

Table 2 Asbestos in Dust Sampling

Sample No.	Location	Results – Asbestos Concentration
	North Building	
MV-01	7 th Floor Room N733	None detected
MV-03	5 th Floor Hallway by Room N516	None detected
MV-05	3 rd Floor Lobby by Room N306	None detected
MV-07	1 st Floor Hallway by Room N118C	<851.899str/ cm^2 - Chrysotile
	South Building	
MV-02	7 th Floor Room S757	None detected
MV-04	5 th Floor Media Center Room S506	None detected
MV-06	3 rd Floor Corridor by Room S332	None detected
MV-08	3 rd Floor Lobby by Room S110H	None detected
	Trailers	
MV-09	Harrison Street Trailer #H103	None detected
MV-10	Trailer #W102	None detected
MV-11	Trailer #W105	None detected
MV-12	Trailer #W109	None detected
MV-13	Trailer #W112	None detected
MV-14	Trailer #W107	<340.760str/ cm^2 - Chrysotile
MV-15	Harrison St. Trailer #H101	None detected
MV-16	Trailer #W103	None detected

Lead Surface Sampling

PSI collected 8 representative surface wipe samples from alternate floors from within the North and South Buildings and 8 representative air samples from each of eight of the Trailers on January 31st, 2001. Surface wipe samples were analyzed by EPA Method SW846-7420. Results indicate all sample concentrations are below the EPA Leaded Dust Level Criteria of 40 micrograms per square foot for floor surfaces. The analytical results of lead surface testing are summarized in Table 3 below.

Table 3 Lead Surface Sampling

Sample No.	Location	Results – Lead Concentration
	North Building	
LW-02	7 th Floor Room N733	<10.0 µgm/ft ²
LW-04	5 th Floor Hallway by Room N516	<10.0 µgm/ft ²
LW-06	3 rd Floor Lobby by Room N306	<10.0 µgm/ft ²
LW-08	1 st Floor Hallway by Room N118C	<10.0 µgm/ft ²
	South Building	
LW-03	7 th Floor Room S757	<10.0 µgm/ft ²
LW-05	5 th Floor Media Center Room S506	<10.0 µgm/ft ²
LW-07	3 rd Floor Corridor by Room S332	<10.0 µgm/ft ²
LW-09	3 rd Floor Lobby by Room S110H	<10.0 µgm/ft ²
	Trailers	
LW-10	Harrison Street Trailer #H103	<10.0 µgm/ft ²
LW-11	Trailer #W102	<10.0 µgm/ft ²
LW-12	Trailer #W105	<10.0 µgm/ft ²
LW-13	Trailer #W109	<10.0 µgm/ft ²
LW-14	Trailer #W112	<10.0 µgm/ft ²
LW-15	Trailer #W107	<10.0 µgm/ft ²
LW-16	Harrison St. Trailer #H101	<10.0 µgm/ft ²
LW-17	Trailer #W103	<10.0 µgm/ft ²

Air Sampling for Respirable Dust & Silica

PSI collected 7 representative air samples on January 31st, 2002, one from each of six of the Trailers and one from a nearby outside area. Samples were collected and analyzed by National Institute for Occupational Safety and Health (NIOSH) Method 7500 to determine ambient or background airborne nuisance dust and respirable silica concentrations. Respirable dust concentrations ranged from 0.0178 mg/m³ to 0.4978 mg/m³, which are well below the Occupational Safety and Health Administration (OSHA) limit of 5 mg/m³ and the American Conference of Governmental Industrial Hygienists (ACGIH) limit of 3 mg/m³. Analytical results are shown below in Table 4.

Respirable silica was below the analytical sensitivity of 0.0100 mg/m³ for all of the samples collected, therefore all concentrations are below the NIOSH limit of 0.05 mg/m³ and the ACGIH limit of 0.1 mg/m³ for airborne silica. Analytical results are shown below in Table 4.

Table 4 Respirable Dust & Silica Air Sampling

Sample No.	Location	Respirable Dust	Respirable Silica
RS-01	Trailer #H102 – Center	0.0222 mg/m ³	<0.0100 mg/m ³
RS-02	Trailer #W102 – Center	0.0178 mg/m ³	<0.0100 mg/m ³
RS-03	Trailer #W106 - Center	0.4978 mg/m ³	<0.0100 mg/m ³
RS-04	Trailer #W107 - Center	0.0467 mg/m ³	<0.0100 mg/m ³
RS-05	Trailer #W110 - Center	0.0600 mg/m ³	<0.0100 mg/m ³
RS-06	Trailer #W112 - Center	0.0711 mg/m ³	<0.0100 mg/m ³
RS-07	Outside on wooden walkway	0.0622 mg/m ³	<0.0100 mg/m ³

Air Sampling for Total Dust

PSI collected 7 representative air samples on January 31st, 2002, one from each of six of the Trailers and one from a nearby outside area. Samples were collected and analyzed by NIOSH Method 0500 to determine ambient or background airborne total dust concentrations. Total dust concentrations ranged from 0.022 mg/m³ to 0.751 mg/m³, which are below the OSHA limit of 15 mg/m³ and the ACGIH limit of 10 mg/m³. Analytical results are shown below in Table 5.

Table 5 Total Dust Air Sampling

Sample No.	Location	Total Dust
TD-01	Trailer #H102 - Center	0.751 mg/m ³
TD-02	Trailer #W102 - Center	0.022 mg/m ³
TD-03	Trailer #W106 - Center	Pump failure – not valid reading
TD-04	Trailer #W107 - Center	0.239 mg/m ³
TD-05	Trailer #W110 - Center	0.087 mg/m ³
TD-06	Trailer #W112 - Center	0.631 mg/m ³
TD-07	Outside on wooden walkway	0.069 mg/m ³

Volatile Organic Compounds (VOC)

Measurement of total VOC's is used to determine general quality of air associated with the level of volatile organic compounds. PSI collected 17 samples for volatile organic compounds using a MINIRAE 2000, direct reading photoionization detector on January 31st, 2002. Samples were collected within the North Building, the South Building and Trailers. An outside air background sample was also collected. The Indoor Air Quality Association (Standard IAQA #95-1) recommends levels be maintained at or below 3.0 ppm for acceptable indoor air quality. The data indicated that total VOC's were not detected in 13 of the areas sampled. VOC's were detected in 4 of the samples, however at a concentration of 0.1 ppm the levels are below the IAQA guideline. Please refer to Table 6 for measured results.

Table 6 VOC Air Sampling

Sample No.	Location	VOC Concentration ppm
	North Building	
V-01	7 th Floor Room N733	0.0
V-03	5 th Floor Hallway by Room N516	0.0
V-05	3 rd Floor Lobby by Room N306	0.0
V-07	1 st Floor Hallway by Room N118C	0.0
	South Building	0.0
V-02	7 th Floor Room S757	0.0
V-04	5 th Floor Media Center Room S506	0.0
V-06	3 rd Floor Corridor by Room S332	0.0
V-08	3 rd Floor Lobby by Room S110H	0.0
	Trailers	0.0
V-09	Harrison Street Trailer #H103	0.0
V-10	Trailer #W102	0.1
V-11	Trailer #W105	0.0

V-12	Trailer #W109	0.0
V-13	Trailer #W112	0.1
V-14	Trailer #W107	0.1
V-15	Harrison St. Trailer #H101	0.0
V-16	Trailer #W103	0.0
V- 17	Outside on wooden walkway	0.1

PSI is pleased to be of service to DASNY/CUNY on this project. Please contact us if you should have any questions or comments concerning this correspondence.

Sincerely,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Alexander Hernandez
Senior Scientist

cc: Matt Stewart - DASNY
Art Fasolino – CUNY
Dr. Martin Levine, Ph. D. – CUNY *e-mailed 2/11/02*

APPENDIX A: AIR MONITORING METHODS AND INSTRUMENTATION**1. Dust Trak Aerosol Monitor**

The TSI Model 8520 Dust Trak Aerosol Monitor is a laser photometer, which uses light scattering technology to determine mass concentration. The sensing mechanism consists of a laser diode directed at the aerosol stream. The laser diode has a wavelength of 780 nanometers (nm) which limits the smallest detectable particle to about 0.1 μm . Scattered light is collected with optics and a photodetector at 90° to the light beam. The intensity of the scattered light is a function of the particle mass concentration, and the results are expressed in units of mass per volume (mg/m^3). The instrument has a sample flowrate of 1.7 L/min. Particle measurements can be taken at 1.0, 2.5, 4.0, and 10.0 μm diameters. Inlet conditioners (impactors) are used to limit the upper size particle ranges to 1.0 and 2.5 μm . Additionally, a 10-millimeter cyclone is used for respirable sampling with a particle size cut-off at 4 μm (internationally accepted as the 50% cut-off size for respirable aerosol mass). The mass concentration range for the instrument is 0.001 to 100 mg/m^3 ; the particle size range is 0.1 to 10 μm .

2. Photo Ionization Detector

The Mini-RAE 2000 Photo Ionization Detector (PID) is used for the measurement of most VOCs, down to a level of 0.1 ppm, with an accuracy of +/- 2%. The sensor consists of a sealed UV light source that emits photons which are energetic enough to ionize many trace species (particularly organics) but do not ionize the major components of air such as oxygen, nitrogen, carbon dioxide, carbon monoxide, or water.

The field created on an electrode will drive any ions formed by adsorption of the UV light to the collector electrode where the current (proportional to concentration) is measured. Response time for this direct reading instrument is under 5 seconds. The instrument was calibrated on site using a zero gas calibration setup (using a charcoal filter to exclude any organic gas) and a known concentration of 100 ppm isobutylene.

The findings presented in this report were valid during the times the survey was conducted and within the scope of TBE's protocol as discussed above.

B.M.C.C.
Dust & VOC Levels

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APPENDIX B: AIR SAMPLING RESULTS FOR VOCs & FINE DUST PARTICLES

B.M.C.C., 199 Chambers Street, New York, NY, November 13, 2001

Time	Location	VOC (ppm)	Dust (particles/m ³)
12:21 PM	OUTDOORS, North Entrance Parking Lot	0.0	35 - 86 [2 minutes]
	N-105	0.1	8
	1st Fl, North, Harrison Entrance Lobby	0.1	25
12:30	2nd Fl, Gym	0.1	15
	2nd Fl, North Entrance	0.1	13
	N-213 [ECC]	0.2	11
	N-210	0.3	14
12:38 PM	2nd Fl, Entrance, Harrison Entrance Lobby	0.5	12
	3rd Fl, Financial Aid Office	0.4	11
	3rd Fl, Bridge over Harrison Street	0.4	10
12:46 PM	N-412 [Core area]	0.6	10
	N-409 [perimeter, West]	0.6	12
	N-440 [perimeter, East]	0.5	17
12:51	N-516 [Core area]	0.6	11
	N-513, Chemistry Lab [perimeter, West]	3.8	12
	N-557 [perimeter, East]	0.7	18
12:58	N-664 [Core area]	0.8	11
	N-635 [perimeter, West]	0.7	11
	N-687 [perimeter, East]	0.8	12
13:03	N-736 [Core area]	1.0	11
	N-739 [perimeter, West]	0.8	11
	N-779 [perimeter, East]	0.8	12
13:06	3rd Fl, 330	0.9	14
	3rd Fl, Bursar	0.9	18

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	3rd Fl, Entrance		0.9	16
13:12	2nd Fl, Entrance, Harrison Entrance Lobby		0.9	13
	2nd Fl, Main Entrance, South		0.9	22
	2nd Fl, Theater-1		0.9	15
13:18	OUTDOORS, Main Entrance, South		0.8	68
	OUTDOORS, Corner, Chambers & West Hgwy		0.8	39
13:22	OUTDOORS, Trailer W-112		1.0	37
	Trailer W-112		1.0	30
13:25	Trailer W-111		1.4	32
	Trailer W-110		1.3	35
	OUTDOORS, Trailer W-109		2.0	34
13:31	Trailer W-109		2.0	34
	Trailer W-108		1.3	49
	Trailer W-107		1.2	42
	Trailer W-106		1.1	30
	Trailer W-105		1.0	29
13:40	OUTDOORS, Trailer W-104		0.8	39-66 [2 minutes]
	Trailer W-104		1.0	43
	Trailer W-103		1.4	74
13:45	Trailer W-102		1.0	31
	Late Afternoon Readings			
14:32	OUTDOORS, North Entrance Parking Lot		0.4	43
	N-105		0.7	7
14:35	1st Fl, North, Harrison Entrance Lobby		1.0	20
	2nd Fl, Gym		0.6	14
14:38	2nd Fl, North Entrance		0.6	23
	N-113 [ECC]		0.6	13
	N-210		0.5	16
	2nd Fl, Entrance, Harrison Entrance Lobby		0.8	14
14:51	3rd Fl, Financial Aid Office		0.6	13

B.M.C.C.
Dust & VOC Levels

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	3rd Fl, Bridge over Harrison Street	0.7	9
14:55	N-412 [Core area]	0.7	13
	N-409 [perimeter, West]	0.8	18
	N-440 [perimeter, East]	0.7	11
14:59	N-516 [Core area]	0.6	14
	N-513, Chemistry Lab [perimeter, West]	0.6	11
	N-557 [perimeter, East]	0.7	10
15:05	N-664 [Core area]	0.7	13
	N-635 [perimeter, West]	0.7	12
	N-687 [perimeter, East]	0.7	11
15:09	N-736 [Core area]	0.8	11
	N-739 [perimeter, West]	0.7	10
	N-779 [perimeter, East]	0.8	11
15:13	3rd Fl, 330	0.8	14
	3rd Fl, Bursar	0.9	15
	3rd Fl, Entrance	0.8	16
15:17	2nd Fl, Entrance, Harrison Entrance Lobby	0.9	15
	2nd Fl, Main Entrance, South	0.8	16
	2nd Fl, Theater-1	0.9	9
15:30	OUTDOORS, Main Entrance, South	0.7	26
	OUTDOORS, Corner, Chambers & West Hgwy	0.8	46
	OUTDOORS, Trailer W-112	0.7	30
15:36	Trailer W-112	0.9	28
	Trailer W-111	1.0	26
	Trailer W-110	1.0	24
15:40	OUTDOORS, Trailer W-109	0.8	38
	Trailer W-109	1.1	25
	Trailer W-108	1.8	61
	Trailer W-107	1.0	27
	Trailer W-106	0.9	24

**B.M.C.C.
Dust & VOC Levels**

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15:47	Trailer W-105	0.9	23
	OUTDOORS, Trailer W-104	0.7	38-40 [2 minutes]
	Trailer W-104	1.8	34
	Trailer W-103	1.0	38
	Trailer W-102	1.1	25
15:54	OUTDOORS, Trailer W-101	0.6	33-71 [2 minutes]

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The Mini-RAE 2000 Photo Ionization Detector (PID) is used for the measurement of most VOCs, down to a level of 0.1 ppm, with an accuracy of +/- 2%. The sensor consists of a sealed UV light source that emits photons which are energetic enough to ionize many trace species (particularly organics) but do not ionize the major components of air such as oxygen, nitrogen, carbon dioxide, carbon monoxide, or water.

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Dust & VOC Levels December 6, 2001

APPENDIX A: AIR MONITORING METHODS AND INSTRUMENTATION

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OCT-09-2001 11:51

US ENV PROTECTION AGENCY

732 321 4425

P.03/11

NYC Response
Wipe Samples - Modified Method for PCB results
Sampling Date 09/28/01
COC 09115

no detectable PCB's

Sample No.	Method Blank	AD4678	AD4678	AD4678	AD4678	AD4680	AD4681	AD4682
Sampling Location	Method Blank	MCC Floor/L. Dock	MCC Theater L. Front	MCC S. Bldg INE	MCC S. Bldg Eval	MCC NPark ENT	MCC Gym Bleachers	MCC Gym N.EM
Sample Area-cm ²	0	100	100	100	100	100	100	100
Analyte	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Sum of PCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of DiCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of TriCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of TetCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of PentaCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of HexCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of HeptaCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of OctCBs	U	5.0	U	5.0	U	5.0	U	5.0
Sum of NonCBs	U	5.0	U	5.0	U	5.0	U	5.0
Total	0	0	0	0	0	0	0	0

Area wiped was 10 cm x 10 cm = 100 cm²

4405502.xls

ENT: 100401 13:50