



May 6th, 2007

York University
4700 Keel Street
Toronto, Ontario
M3J 1P3

ATTEN: Mr. Blair W. Price
Campus Services Business Operations

RE: Type 3 Asbestos Air Clearance Sampling Report –THEM Project #11743
Selected Mechanical Room – York University

1.0 INTRODUCTION AND BACKGROUND

T. Harris Environmental Management Inc. (THEM) personnel were onsite to conduct air clearance sampling for the Type 3 asbestos abatement enclosure located within a basement level mechanical room at the Health, Nursing & Environmental studies building, York University. Air clearance sampling was conducted at the request of Mr. Blair W. Price, Campus Services Business Operations. A summary of the air sample results can be found in Section 5.0.

2.0 BACKGROUND OF ASBESTOS

Asbestos is a general name for several varieties of highly fibrous silicate minerals. Commercially significant types include *Chrysotile*, *Amosite* and *Crocidolite*. The fibres are valued for their heat- and chemical-resistant properties. The combination of fibrous structures, low heat conductivity, high electrical resistance, chemical inertness, strength, flexibility and its effectiveness as a reinforcing or binding agent when combined with cement or plastic, made it popular for wide industrial use.

3.0 ONTARIO REGULATIONS FOR ASBESTOS IN BUILDING MATERIALS

Asbestos is a Designated Substance and, as such, exposure to airborne asbestos is regulated by Ontario Regulation 278/05 – *Asbestos on Construction Projects and in Buildings and Repair Operations* and, Ontario Regulation 279/05 – *Designated Substance – Asbestos* – both made under the Occupational Health and Safety Act.

Waste management of materials that contain asbestos is regulated by Ontario Regulation 347/90 as amended, made under the Environmental Protection Act. Section 17 of this regulation outlines the requirements for proper handling, transportation and disposal of materials that contain asbestos.



4.0 AIR SAMPLING FOR ASBESTOS

The air samples were collected using an air-sampling pump calibrated to a known flow rate. The samples were collected using 0.8 µm pore size, 25 mm diameter mixed cellulose ester (MCE) membrane filter, held by black, anti-static, 2-inch open-faced filter holder.

Samples were analyzed for total fibre content by the phase contrast microscopy (PCM) method of detection in accordance with U.S. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400, Issue 2 Asbestos and other Fibres by PCM (August 15, 1994). The Limit of Detection (LOD) for PCM analysis depends on sample volume and quantity of interfering dust, and is < 0.01 fibre/cc for atmospheres free of interferences. The method gives an index of airborne fibres. Fibres less than approximately 0.25 µm in diameter will not be detected by this method.

Possible interferences are any other airborne fibres and particles that meet the counting criteria. Chain-like particles may appear fibrous. High levels of non-fibrous dust particles may obscure fibres in the field of view and increase the detection limit.

Blank filters were also submitted for analysis to ensure that no contamination of the filters occurred during sampling or analytical procedures. Analytical results, as reported in result tables within this report, have been corrected for any background fibre counts recorded for the blank filters.

As outlined in Ontario Regulation 278/05, most Type III asbestos abatement activities require air clearance sampling post abatement activities. Every PCM air clearance sample must have a minimum of 2,400 Litres of air drawn through it and, all PCM air clearance samples must be below 0.01 fibres/cc. Based on the size of an asbestos abatement enclosure, a minimum amount of air samples must be collected as outlined in Table 3 of Ontario Regulation 278/05. A summary of the minimum amount of clearance air samples to be collected can be found in Table

TABLE I
SUMMARY OF MINIMUM NUMBER OF CLEARANCE AIR SAMPLES

Minimum number of air samples to be taken from each enclosure	Area of enclosure
2	10 square metres or less
3	More than 10 but less than 500 square metres
5	500 square metres or more



Clearance sampling collection was conducted following aggressive air sampling procedures outlined in Section M.1.5, Appendix M, of the “Guidance for Controlling Asbestos-Containing Materials in Buildings”, Publication number EPA 560/5-85-24, Published in June 1985 by the US Environmental Protection Agency as per the Ontario Regulation 278/05. The aggressive air sampling procedures include, but were not limited to, the following:

- 1) Directing exhaust from forced air equipment (i.e. leaf blower) against all surfaces within the abatement enclosure (i.e. walls, floors, ledges). The length of time spent conducting this work was based on the ratio: 5 minutes : 1,000 square feet of abatement work area.
- 2) 20 inch fan(s) were installed in the centre of the abatement enclosure pointing toward the ceiling. The number of fans installed was based on the ratio: 1 fan : 10,000 cubic feet of abatement enclosure.
- 3) The sampling pumps were started after the forced air equipment was used; however, the fans were in operation during the sampling period. After completion of the air sampling (minimum of 2,400 litres of air collected), the fans were turned off.

5.0 SUMMARY OF INSPECTIONS AND RESULTS OF AIR SAMPLING

5.1 May 5th, 2007 Air Sampling

THEM personnel were onsite to conduct air clearance sampling for the Type 3 asbestos abatement enclosure located within the basement selected mechanical room. Prior to conducting the air sampling, a visual inspection of the abatement enclosure for cleanliness and to ensure the area was dry as outlined in Ontario Regulation 278/05. The enclosure was observed to be dry and intact with all proper seals in place. However, debris was observed within various areas of the enclosure and open ended fiberglass piping was observed within the enclosure (see enclosed photographs) (the fiberglass may potentially affect the air clearance samples results). The contractor was informed of the debris found within the enclosure and the open ends of the fiberglass insulation. The contractor quickly cleaned the debris and sealed the open ends of the fiberglass pipes. THEM re-inspected the enclosure and deemed it suitable for air clearance sampling. The air samples were collected following aggressive sampling techniques and analyzed onsite, via PCM analysis. The samples were found to be above the air clearance criteria of 0.01 f/cc (sample A-01). Results of the air samples can be found in Table II. Thus the contractor was notified to re-clean the enclosure and re-apply a slow drying sealant. A second set of air clearance samples were scheduled for Sunday (May 6th, 2007 8:00 AM).



5.2 May 6th, 2007

THEM personnel were onsite to conduct air clearance sampling for the Type 3 asbestos abatement enclosure located at the above noted location. A visual inspection of the enclosure revealed that it to be dry and clean. The samples were collected as per Ontario 278/05 regulation and were analyzed onsite, via PCM analysis method. The results of the air samples collected can be found in section 5.0 Table II.

Table II, shown below, summarizes the results of air samples collected.

TABLE II
Results of PCM Analysis
York University
Health, Nursing and Environmental Studies Building
May 2007

Sample #	Location	Date	Time	Duration	Volume (L)	Fibre Conc. (f/cc)
A-01	Basement, Selected Mechanical Room	May 5 th 2007	12:35	165 min	2,592	0.02
A-02	Basement, Selected Mechanical Room	May 5 th 2007	12:35	165 min	-	NR
A-03	Basement, Selected Mechanical Room	May 5 th 2007	12:35	165 min	-	NR
A-04	Basement, Selected Mechanical Room	May 6 th 2007	08:40	195 min	3,075	< 0.01
A-05	Basement, Selected Mechanical Room	May 6 th 2007	08:40	195 min	3,086	< 0.01
A-06	Basement, Selected Mechanical Room	May 6 th 2007	08:40	195 min	3,063	< 0.01

NR – Sample not read due to failure of previously read sample

Note: Two (2) field blanks were collected onsite and contained < 7 fibres/100 Fields



6.0 CONCLUSIONS AND RECOMMENDATIONS

Results of the PCM analysis of the air clearance samples collected on May 6th, 2007 were below <0.01 fibres/cc, criteria as outlined in Ontario Regulation 278/05 - “*Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations*,” made under the Occupational Health and Safety Act.

Based on applicable laws, the air sample results deemed the selected basement level mechanical room located within the Health, Nursing and Environmental Studies building to be clean at this time. The environmental contractor was given permission to take down the enclosure and demobilize from site.

Should you require additional information or have any queries regarding this project, please contact our office.

Yours truly,

T. HARRIS ENVIRONMENTAL MANAGEMENT INC.

Timur Muginov
Environmental OH&S Technician

Chesley Way C.E.T, AMRT
Senior Project Manager

Attached: Site Photographs