



January 27, 2017

Pinchin File No. 01-03-02225

Strait Regional School Board  
16 Cemetery Road  
Port Hastings, Nova Scotia, B9A 1K6

Attention: Karen MacDonald

**Re: Limited Mould Assessment and Bulk Asbestos Sampling**  
Dr. John Hugh Gillis Regional High School – Antigonish, Nova Scotia

## 1.0 INTRODUCTION

The Strait Regional School Board (Client) retained Pinchin LeBlanc Environmental Limited (Pinchin) to conduct a limited mould assessment and bulk asbestos sampling at the Dr. John Hugh Gillis Regional High School located at 105 Braemore Avenue in Antigonish, Nova Scotia. The mould assessment was requested to address concerns related to a musty odour in Classroom 1010. The bulk asbestos sampling was conducted to determine the presence/absence of asbestos on the floor mastic remaining following the removal of floor tiles in Classroom 1010. Shawna McIntyre of Pinchin conducted the sampling on January 12, 2017. The assessment was limited to Classroom 1010.

The scope of work for this assessment involved the following activities:

- Visual assessment for signs of mould growth and/or water infiltration in Classroom 1010;
- Spot readings of moisture content of building materials in Classroom 1010;
- Collection of three (3) floor mastic samples in Classroom 1010 to determine the presence/absence of asbestos; and
- Collection of four (4) airborne mould samples (including an outdoor reference sample) to assess airborne mould levels in Classroom 1010 and adjacent locations.

## 2.0 SAMPLING METHODOLOGY

Bulk asbestos samples were collected in accordance with the National Institute for Occupational Safety and Health (NIOSH) method 9002. The asbestos samples were analysed at the Pinchin LeBlanc Environmental Ltd. Asbestos Bulk Laboratory, Dartmouth, Nova Scotia. The Dartmouth laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 201032-0) for the EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples and EPA 600/R-93/116: Method for the

## Determination of Asbestos in Bulk Building Materials.

Spore trap air samples were collected using Micro5 sampling cassettes and a calibrated pump. The pump was calibrated using a primary standard electronic meter at a flow rate of 5 litres per minute. Samples were collected for duration of 5 minutes for a total of 25 litres.

The analysis for mould was performed at the Pinchin Environmental Microbiology Laboratory, Mississauga, Ontario. The Pinchin laboratory is independently accredited to ISO/IEC 17025:2005 for mould and bacteria analysis, by the American Industrial Hygiene Association (AIHA)<sup>1</sup> and the Quebec Ministry of Sustainable Development, Environment and the Fight against Climate Change (MDDEP)<sup>2</sup>. The laboratory also participates in Escherichia coli, coliform bacteria and Heterotrophic Plate Count (HPC) proficiency testing program of the Canadian Association of Laboratory Accreditation (CALA) (Lab ID 3758).

A Tramex Moisture Encounter Plus moisture meter was used to measure the moisture content of accessible building materials where they were suspected of being wet. The moisture meter is useful for measuring elevated surface moisture, but may not detect moist conditions deep within a wall or ceiling cavity. The moisture meter is calibrated for moisture content of wood and drywall. Measurements made on other materials were compared to measurements made on the same materials in reference locations, known to be unaffected by water damage.

All sampling was performed in compliance with current professional practice<sup>3</sup>.

### 3.0 INTERVIEW

During the assessment, the following information was reported to Pinchin:

- A musty odour has been noted in Classroom 1010 for some time. The odour is sometimes noted in adjacent classrooms and the hallway but is the most prominent in Classroom 1010.
- Inspections have been conducted throughout Classroom 1010 to determine the source of the odour. Sources of the odour have not been determined.
- The floor tiles have been removed from Classroom 1010.

---

1 Accredited by the American Industrial Hygiene Association Laboratory Accreditation Program LLC (AIHA LAP LLC) under the Environmental Microbiology Laboratory Accreditation Program (EMLAP), for Bulk, Surface and Air testing for moulds, and for Legionella testing (Lab ID 158835).

2 Accredited by the Quebec Ministry of Sustainable Development, Environment and the Fight against Climate Change (MDDEP) and the (Quebec) Institut de recherche Robert-Sauvé en santé et sécurité au travail (IRSST), under the Programme d'accréditation des laboratoires d'analyse (PALA) for Air Microbiology for Airborne Heterotrophic Plate Count, Airborne Mould and Yeast (Viable), Airborne Mould (DME), and Legionella.

3 American Industrial Hygiene Association: Field Guide for the Determination of Biological Contaminants in Environmental Samples. H.K. Dillon, P.A. Heinsohn, and J.D. Miller, Eds. AIHA, Fairfax, VA (1996).

- Currently Classroom 1010 is unoccupied and the room has been sealed. In addition a negative air unit is operating in the room to keep the odours from migrating to other locations within the school.
- An inspection was conducted on the exterior drainage system for the building. It was reported that the system was noted to be plugged. However, further inspection of the system could not be conducted due to the frozen ground.

#### 4.0 MOULD ASSESSMENT

A visual assessment for signs of visible mould growth and water damage was conducted in Classroom 1010. At the time of the assessment the floor tiles had been removed from the floor exposing the concrete sub floor. In addition various sections of drywall had been removed and some ceiling tiles had been removed.

A strong musty odour was noted in Classroom 1010 on the assessment day. Signs of visible mould growth were not noted in Classroom 1010. Efflorescence was noted on the concrete sub floor. The efflorescence was noted to be outlining the location of the seams of the recently removed floor tiles. Elevated moisture readings were measured on the concrete floor. Elevated moisture readings were not measured about one foot out from each of the exterior walls. This is likely due to the presence of a frost wall that was reported to extend approximately one foot past the exterior walls.

On the exterior of the building a hill was noted to be sloping towards the north exterior wall of Classroom 1010. The exterior slop of the land immediately adjacent to the building tends to slope northwest.

The following photographs depict the conditions noted on the assessment day:



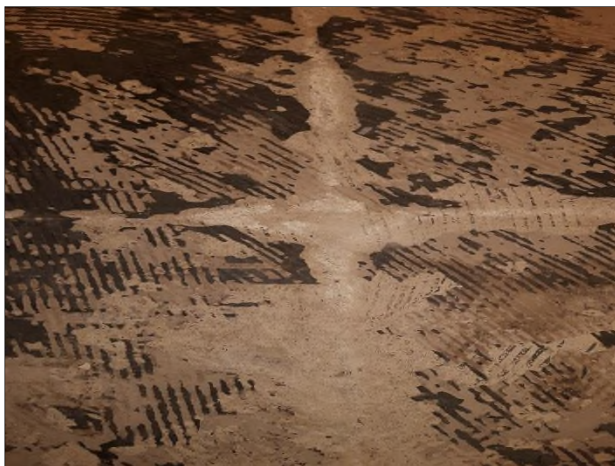
**Photo 1** – General view of Classroom 1010 on the assessment day.



**Photo 2** – View of exterior wall with a section of drywall removed.



**Photo 3** – View of interior wall with section of drywall removed.



**Photo 4** – View of efflorescence on the concrete subfloor.



**Photo 5** – View of slope of land on the north side of Classroom 1010.



**Photo 6** – View of slope of land looking north west.

## 5.0 AIRBORNE MOULD (SPORE TRAP) RESULTS

Generally, the composition and concentration of mould recovered from indoor samples should be similar to the composition and concentration of the mould recovered from the outdoor reference sample. Many elements inside a building can affect the concentration and composition of indoor mould samples. These elements include occupant activities, furnishings and the amount of air exchange.

On January 12, 2017, Pinchin collected three airborne mould samples in three indoor locations and one outdoor reference sample. The following table gives the results of the air testing conducted, detailing for each sample the total spore concentration measured, in spores per cubic metre of air (spore/m<sup>3</sup>) and the types of mould spores identified.



Fungal Spores Identified (spores/m <sup>3</sup> )	Classroom 1010 (2007273)	Classroom 1009 (2007271)	Hallway near Classroom 1012 (2007277)	Outdoor Reference (2007285)
<i>Aspergillus/Penicillium</i> - like	330	26	210	
Non-specified spores	33			
<i>Scopulariopsis</i>	33			
<b>Total Spores/m<sup>3</sup></b>	<b>400</b>	<b>26</b>	<b>210</b>	<b>&lt;26</b>

The concentration of the outdoor reference sample on the sampling day was less than the detection limit (< 26 spores/m<sup>3</sup>), which is typical during the winter season. The concentrations of the indoor samples ranged from 26 to 400 spores/m<sup>3</sup>. The concentrations of each of the indoor samples were greater than the concentration of the outdoor reference sample. However, the spores identified do not present a concern at the concentrations measured.

Sample results suggest that airborne mould levels were acceptable in each sample location on the sampling day.

A copy of the analytical certificate is attached.

## 6.0 BULK ASBESTOS SAMPLING RESULTS

Three bulk samples of the floor mastic remaining following the removal of the floor tiles in Classroom 1010 were collected to determine the absence/presence of asbestos. The following table details the results of the bulk asbestos sampling.

Sample Number	Location/Description	Asbestos Content
S001	Classroom 1010 – Black Floor Mastic	None Detected
S002	Classroom 1010 – Black Floor Mastic	None Detected
S003	Classroom 1010 – Brown Floor Mastic	None Detected

Note: Results presented in bold are asbestos containing.

Analysis of the black and brown floor mastic samples submitted did not identify the presence of asbestos.

The analytical asbestos results for the materials sampled are provided as an attachment.

## **7.0 CONCLUSIONS/RECOMMENDATIONS**

A musty odour is present in Classroom 1010. Airborne mould samples collected on the assessment day were acceptable.

Pinchin recommends that thorough inspections be conducted of the building envelope surrounding Classroom 1010 including the exterior drainage system of the building for potential pathways for water and/or odours.

## **8.0 LIMITATIONS**

Work performed by Pinchin was conducted in accordance with generally accepted engineering or scientific practices current in this geographical area at the time the work was performed. No warranty is either expressed or implied, or intended by the agreement executed with the Client, or by furnishing oral or written reports or findings. The Client acknowledges that subsurface and concealed conditions may vary from those encountered inspected. Pinchin could only comment on the conditions observed on the date(s) the assessment was performed. The work was limited to those areas of concern identified by the Client or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this assignment. Any budget estimates provided are preliminary and subject to verification unless otherwise agreed.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings or as to other legal matters mentioned in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretations and these interpretations may change over time and we undertake no, and expressly disclaim, obligation to advise the Client of such change. Pinchin accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The liability of Pinchin or our officers, directors, shareholders or staff will be limited to the lesser of the fees paid or actual damages incurred by the Client. Pinchin will not be responsible for any consequential or indirect damages. Pinchin will only be liable for damages resulting from the negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered (Claim Period), to commence legal proceedings against Pinchin to recover such losses or damage unless the laws of the jurisdiction which governs the Claim Period which is applicable to such claim provides that the applicable Claim Period is greater than two years and cannot be abridged by the contract between the Client and Pinchin, in which case the

Claim Period shall be deemed to be extended by the shortest additional period which results in this provision being legally enforceable.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party other than the Client, unless the Client, in writing, requests information to be provided to a third party or unless disclosure by Pinchin is required by law. Unless consented to by Pinchin, which consent may be reasonably and/or arbitrarily withheld, any use by a third party, or reports or documents authored by Pinchin, or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted by any party.

The information provided in this report is based upon analysis of available documents, analytical results, records and drawings, and personal contacts and interviews. In performing the assessment, Pinchin has relied in good faith on information provided by other individuals noted in this report. Pinchin has assumed that the documents, analytical results, records and drawings, and information provided by other individuals noted in this report, including information provided in contacts and personal interviews is factual and accurate. Pinchin accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of negligence, omissions, misinterpretations or fraudulent acts of persons interviewed or contacted, or contained in reports that were reviewed, and makes no representation or warranty as to the qualifications of any such persons or the reliability of information or reports provided by them, whether or not such persons were introduced to the Client by Pinchin.

Pinchin did not attempt to identify locations of deposition of mould spores or particles, or minor mould growth that would not exhibit any signs of spotting/staining on building materials. Pinchin would not be able to identify locations of concealed mould growth within wall cavities and other hidden locations without performing intrusive inspections. The degree of mould growth noted in the report may change with time if water or humidity issues continue or develop after the assessment date(s).





**Limited Mould Assessment & Bulk Asbestos Sampling**

Dr. John Hugh Gillis Regional High School – Antigonish, NS  
Strait Regional School Board

January 27, 2017

Pinchin File: 01-03-02225

Any sources of water infiltration or high humidity must be corrected to prevent the continuation or occurrence of mould growth. Air sampling results (if any) will apply only to the time and conditions of the testing and may not be used to reliably predict conditions on other days.

Yours Truly,

**Pinchin LeBlanc Environmental Limited**

Prepared by:

Shawna McIntyre, B.Sc., P. Eng.  
*Group Manager (NS), Indoor Air Quality & Occupational Hygiene*  
902.461.9999  
[smcintyre@pinchinleblanc.com](mailto:smcintyre@pinchinleblanc.com)

Reviewed by:

David Muise, OHST  
*Senior Occupational Hygienist*  
902.461.9999  
[dmuise@pinchinleblanc.com](mailto:dmuise@pinchinleblanc.com)

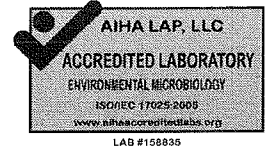
Attached: Analytical Results (4 pages)



2470 Milltower Court  
Mississauga, ON L5N 7W5  
Tel: (905) 363-0678  
Fax: (905) 363-0681

## Certificate of Analysis

**Pinchin Environmental Microbiology Laboratory**



**CUSTOMER:** Shawna McIntyre  
**COMPANY:** Pinchin LeBlanc Environmental Ltd.  
**ADDRESS:** 42 Dorey Avenue  
Dartmouth, NS B3B 0B1

**PROJECT NAME:**  
**TYPE OF SAMPLES:** AllergencoD  
**NO. OF SAMPLES:** 4  
**DATE COLLECTED:** January 12, 2017  
**DATE RECEIVED:** January 16, 2017  
**DATE ANALYSED:** January 19, 2017  
**DATE REPORTED:** January 19, 2017

**PROJECT NO:** 01-03-02225  
**LAB REFERENCE NO:** m163903  
**ANALYST:** Jaybeeramy Naiken, B.Sc.  
Environmental Microbiologist  
**REVIEWER:** Partinder Puri, B.Sc.  
Environmental Microbiologist

*JP*  
*Law*

**CONDITION OF SAMPLES ON RECEIPT:** Acceptable

**Method of Analysis (SOP: DME-SPT-009, Rev 9, January 12, 2015)**

This SOP is based on the method described in the AIHA's "Field Guide for the Determination of Biological Contaminants in the Environmental Samples" and also partially on the ASTM method D7391-09. The cassette slide with the trace (area impacted with air) facing upwards is fixed on a clean microscope slide. It is stained with lactophenol cotton blue or lactofuscin, and then scanned under low power magnification to locate the trace and to give the analyst an idea of the diversity of the spores. The final analysis is performed at X630/X600 magnification by counting the different spores along a number of traverses or fields of view to cover at least 25% of the sample. A lower percentage of the sample is counted if it is overloaded. Raw counts are converted to spores/m<sup>3</sup> of air. Counts of fungal fragments and pollens are not computed in the total. Spores lacking unique characteristics for identification are reported as "Unidentified spores". Spores showing features of specific groups are recorded under the respective groups such as "Unidentified Basidiospores or Unidentified Ascospores". Spores occurring in chains are counted individually. Spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are indistinguishable.

A scale of 0 to 5 is used to rate abundance of non-fungal material, with 5 indicating the largest amount. Large amounts of non-fungal material may obscure small spores. Therefore, counts from samples with 4-5 non-fungal material may be treated as undercounts. Except for blanks, samples with no detected spores are recorded as "less than the detection limit" (DL). Results are not corrected for blanks. Estimation of the measurement of uncertainty is available upon request.

**Comments/Observations (if any):**

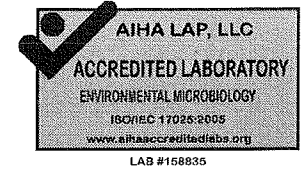
- Notes:**
1. The result(s) relate only to the sample(s) tested.
  2. This test report shall not be reproduced except in full, without written approval of the laboratory.
  3. Services are subject to Pinchin Ltd. Standard Terms and Conditions for Laboratory Services.



2470 Milltower Court  
Mississauga, ON L5N 7W5  
Tel: (905) 363-0678  
Fax: (905) 363-0681

# Certificate of Analysis

Pinchin Environmental Microbiology Laboratory



PROJECT NO: 01-03-02225

DATE ANALYSED: January 19, 2017

ANALYST: Jaybeeramy Naiken, B.Sc. *JN*

LAB REFERENCE NO: m163903

Customer Sample No:	2007273			2007271			2007277			2007285								
Lab Sample ID:	m163903-1			m163903-2			m163903-3			m163903-4								
Description	Classroom 1010			Classroom 1009			Hallway near classroom 1012			Outdoors								
Total Air Volume (L)	120			150			150			150								
% of Sample Counted	25.4			25.4			25.4			25.4								
Fungal spores identified	raw ct.	%	ct./m <sup>3</sup>	raw ct.	%	ct./m <sup>3</sup>	raw ct.	%	ct./m <sup>3</sup>	raw ct.	%	ct./m <sup>3</sup>	raw ct.	%	ct./m <sup>3</sup>	raw ct.	%	ct./m <sup>3</sup>
<i>Alternaria</i>																		
Ascospores non- specified																		
Aspergillus/ Penicillium-like	10	83	330	1	100	26	8	100	210									
Basidiospores non- specified																		
<i>Botrytis</i>																		
<i>Chaetomium</i>																		
<i>Cladosporium</i>																		
<i>Coprinus</i>																		
Drechslera/Bipolaris Group																		
<i>Epicoccum</i>																		
<i>Fusarium</i>																		
<i>Ganoderma</i>																		
Non-specified spores	1	8	33															
<i>Oidium</i>																		
<i>Periconia/ Myxomycetes</i>																		
<i>Pithomyces</i>																		
<i>Polythrincium</i>																		
Rusts																		
<i>Scopulariopsis</i>	1	8	33															
<i>Stachybotrys</i>																		
<i>Ulocladium</i>																		
Pollens																		
Fungal fragments				1		26	1		26									
Non-fungal material	3			2			3			1								
Spores/sample	12			1			8											
<b>TOTAL SPORES/M<sup>3</sup></b>			400			26			210			< D.L.						
<b>D.L. (SPORES/M<sup>3</sup>)</b>			33			26			26			26						

Note: 1. Samples analysed at 630X or 600X magnification. 2. D.L. = Detection Limit  
3. Total spores/m<sup>3</sup> and counts/m<sup>3</sup> reported to two significant figures where applicable



# Pinchin LeBlanc Environmental Asbestos Laboratory

## Certificate of Analysis

January 16, 2017

**Pinchin LeBlanc Environmental**  
42 Dorey Ave, Dartmouth, NS, B3B 0B1

<b>Attention:</b>	<b>Shawna McIntyre</b>		
<b>Lab Reference No.:</b>	<b>NLb2540-2017</b>		
<b>Project Name:</b>	<b>Mould Inspection &amp; Sampling</b>		
<b>Project No.:</b>	<b>01-03-02225</b>		
<b>Date Received:</b>	<b>January 16, 2017</b>		
<b>Date Analyzed:</b>	<b>January 16, 2017</b>		
<b>Analyst(s):</b>	<b>Matt Sweeney</b>		
<b># Samples submitted:</b>	<b>3</b>	<b># Samples analyzed:</b>	<b>3</b>
<b># Phases analyzed:</b>	<b>3</b>		

**Method of Analysis:**

**EPA 600/R-93/116 - Method for the Determination of Asbestos in Bulk Building Materials dated July, 1993**

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared with representative portions of material and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence, and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold (see chart below) indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with all provincial regulatory requirements (NIOSH 9002, I.R.S.S.T. 244-3). Multiple phases within a sample are analyzed and reported separately.

Provincial Jurisdiction	Regulatory Threshold	Provincial Jurisdiction	Regulatory Threshold
Nova Scotia	0.5%, presence/absence in vermiculite	Newfoundland and Labrador, PEI, New Brunswick, NWT, Alberta, Yukon, Nunavut	1%
Quebec	0.1%	Saskatchewan, Manitoba	0.1% friable, 1% non-friable
Ontario, British Columbia	0.5%		

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

Pinchin LeBlanc Environmental Limited adheres to the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials' for sample analysis.

This report relates only to the items tested. If you have any questions, please feel free to contact me.

Yours truly,

Digital Signed by Matthew Sweeney  
[msweeney@pinchinleblanc.com](mailto:msweeney@pinchinleblanc.com)  
Environmental Asbestos Services  
Pinchin LeBlanc Environmental Limited

Note: This test report may not be reproduced, except in full, without the written approval of the laboratory. Vinyl floor tiles may contain very fine fibres of asbestos and may be missed by some laboratories using the PLM method. Internal verification studies performed by Pinchin indicate that the chance of missing asbestos in floor tiles is no higher than about 2%. The analysis of dust samples by PLM cannot be used as an indicator of past or present airborne asbestos fibre levels.



## Pinchin LeBlanc Environmental Asbestos Laboratory Certificate of Analysis

**Project Name:** Mould Inspection & Sampling

**Project No.:** 01-03-02225  
**Prepared For:** Shawna McIntyre

**Lab Reference No.:** NLb2540-2017  
**Date Analyzed:** January 16, 2017

### BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S001 Classroom 1010 - Black Floor Mastic (Sample Mastic Only not tile)	Homogeneous, black tar	None detected	Cellulose 1-5% Non-fibrous material >75%
S002 Classroom 1010 - Black Floor Mastic	Homogeneous, black tar	None detected	Cellulose 1-5% Non-fibrous material >75%
S003 Classroom 1010 - Brown Floor Mastic	Homogeneous, black tar	None detected	Cellulose 1-5% Non-fibrous material >75%

**ANALYST**

*Matt Sweeney*