
PWGSC
Atlantic Region
Renovations to AAFC Lab
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APPENDIX A

**PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
AGRICULTURE AND AGRI-FOODS CANADA BUILDING 25
ATLANTIC COOL CROP CLIMATE RESEARCH FACILITY
MOUNT PEARL, NEWFOUNDLAND AND LABRADOR**

ASBESTOS MANAGEMENT PLAN

FINAL REPORT

Submitted to:

Public Works and Government Services Canada
Environmental Services
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1.0 INTRODUCTION

AMEC Earth and Environmental, a division of AMEC Americas Limited (AMEC) was retained by Public Works and Government Services Canada (PWGSC) on behalf of Agriculture and Agri-Foods Canada (AAFC) to conduct an asbestos containing material (ACM) Survey and develop an Asbestos Management Plan (AMP) for the Atlantic Cool Crop Climate Research Facility (Building 25) located in Mount Pearl, Newfoundland and Labrador (the "Site Building"). The Site Building is currently occupied by a functioning agricultural research facility. The AMP for the Site Building was developed based on the most stringent requirements of the following documents:

- The Newfoundland and Labrador Asbestos Abatement Regulation 111/98.
- Treasury Board of Canada Secretariat Hazardous Substances Directive-II, Section 2.9 as it relates to asbestos management.
- Public Works and Government Services Canada (PWGSC) Departmental Policy (DP:057) – *Asbestos Management*, dated March 12, 1997.

The requirements of the AMP are as follows:

- Minimize any future asbestos fibre release by controlling access to asbestos containing materials (ACMs) and prevent uncontrolled disturbance of ACMs by establishing safe work procedures for activities that may disturb ACMs in Site Building;
- Monitor the condition of ACMs. Given the changing nature of the building's environment, the condition of ACM's may change. By monitoring the condition of the material, AMP-trained facility staff can ensure that ACM's are well maintained;
- Respond quickly and effectively to changes in the condition of the ACM's and properly repair and contain any damaged ACM's that may be encountered in the future;
- Workers must be able to recognize an asbestos emergency and respond accordingly; and
- Applicable regulations must be followed until all ACMs are removed from the building.

This AMP has been developed to assist facility staff to safely perform their job function when working near ACMs. All facility staff, at a minimum, must read this AMP and be familiar with the following basic elements:

- Asbestos Containing Materials (ACM) Survey;
- Background Information on Asbestos;
- Types of Asbestos Operations;
- Roles and Responsibilities;
- Work Procedures/Workers Protection;
- Periodic Surveillance;
- Labeling;
- Training;
- Notification of cleaning staff and outside contractors who may perform work at the facility; and
- Record Keeping.

This AMP was prepared based on the results of an ACM Survey that was performed at the Site Building by AMEC in December 2006. The ACM Survey is provided in **Appendix 1**.

2.0 BACKGROUND INFORMATION ON ASBESTOS

A discussion on asbestos, the development of regulations, and the need for an AMP is provided in the following sections. This discussion is warranted in order to provide an understanding of what asbestos is, what the concerns over asbestos in the work place are, and why an AMP is required.

2.1 Asbestos Characteristics

Asbestos is a family of naturally occurring fibrous silicates from two mineralogical groups:

- Serpentine, which include chrysotile (white asbestos). These spiral fibres are pliable, curly and made up of tiny individual fibrils; and
- Amphiboles, which include amosite (brown asbestos), crocidolite (blue asbestos), and tremolite. Amosite and crocidolite fibres are straight and needle like, whereas tremolite fibres are short and stubby.

The qualities of asbestos that promoted its use in construction are as follows:

- Fire resistance;
- Tensile strength;
- Durability;
- Flexibility; and
- Resistance to heat, wear, corrosion.

Asbestos has many building applications that include:

- Effective insulator against heat, cold, electricity and noise;
- Used as sprayed insulation and fireproofing materials in the period following the Second World War until about 1973;
- Used as a thermal insulator in pipes, boilers and incandescent light reflectors;
- Structural steelwork fireproofing of high-rise buildings;
- Acoustical and decorative purposes in ceiling tiles and building walls; and
- Durability in floor tiles, wall board, roof shingles and felts, gaskets, caulking, wall and ceiling plasters.

2.2 Potential Health Hazards

Asbestos is a health hazard only if it can enter into the body through:

- Inhalation;
- Ingestion; or

- Absorption.

The primary health-related concern of the above list is asbestos inhalation. Respiratory diseases such as asbestosis (lung scarring) and cancers have been clinically linked to prolonged and heavy occupational exposure to airborne asbestos.

Health-related concerns prompted the Ontario Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario (1981) to study and report on the health effects of asbestos in buildings in the early 1980's. The following is the conclusion of the Royal Commission report (Chapter 9) with bolding added to emphasize critical points:

"The exposure of building occupants to asbestos fibres during normal building use is insignificant, whether as compared to the exposure of insulation workers in the past or as compared to the much lower exposures permitted by the Ontario workplace control limits. Studies of asbestos concentrations in building air have shown that many buildings containing asbestos insulation do not exhibit fibre levels exceeding those in the outdoor air or in buildings not insulated with asbestos. Even when a building exhibits elevated asbestos fibre levels, these are still very low compared to current workplace control limits and are orders of magnitude below the levels to which workers were exposed in the past."

"We will conclude that it is rarely necessary to take corrective action in buildings containing asbestos insulation in order to protect the general occupants of the buildings. **On the other hand, construction, demolition, renovation, maintenance and custodial workers in asbestos containing buildings may be exposed to significant asbestos fibre levels and may, during their work, cause elevated fibre levels for nearby occupants. THE PROBLEM OF PROTECTING THESE WORKERS, AND OF PROTECTING OCCUPANTS FROM POSSIBLE FIBRE RELEASE AS A RESULT OF BUILDING WORK, IS THE REAL CHALLENGE THAT ASBESTOS INSULATION IN BUILDINGS PRESENTS.**"

2.3 Regulatory Requirements

The above conclusions resulted in the development of Occupational Health and Safety Regulations and guidelines in all Canadian provinces and territories for asbestos work. In Newfoundland, asbestos is regulated under the Newfoundland and Labrador *Asbestos Abatement Regulation* 111/98. In addition to the provincial requirements, a number of federal departmental policies and guidelines have been adopted for the protection of occupants from asbestos exposure. One of these documents is the Treasury Board of Canada Secretariat Hazardous Substances Directive – II, Section 2.9, as it relates to asbestos management. Another such policy is the Public Works and Government Services Canada Departmental Policy (DP:057) - *Asbestos Management* - respecting asbestos management in federally owned or leased building or facilities containing asbestos, March 12, 1997.

An Asbestos Managements Plan is a regulatory requirement in Newfoundland, under the Newfoundland Regulation 111/98, Section 11. An active AMP is an excellent means to ensure that all of the requirements of the Newfoundland Regulation and Treasury Board of Canada

Circular TB 774012 are met, and to prevent exposure of building occupants to asbestos fibres. For an Asbestos Management Plan to be effective, it is necessary that a quantitative asbestos survey be conducted, and that a process be in place to implement the Plan.

3.0 SUMMARY OF ASBESTOS CONTAINING MATERIAL SURVEY

The Atlantic Cool Crop Research Facility (Building 25) is located on the Brookfield Road, Mount Pearl, NL. The Building has been used as an agricultural research facility since its original construction in the mid 1960s. An asbestos containing material (ACM) survey was conducted by AMEC at the Site Building in December 2006.

As part of the ACM Survey, AMEC interviewed Mr. Frank Ralph, Facility Manager, 1980 - present (the "Site Representative") to gain information related to past activities at the Site Building. According to the Site Representative, three structures were attached to Building 25 at different time periods; namely a greenhouse (late 1960s), the Provincial Lab Building (1982) and Building 39 (1996). It is noted that the aforementioned attached structures are not included as part of this asbestos Survey. Also according to the Site representative, major renovations to Building 25 have included new boilers (1991), new roof and ventilation system (1992), replacement of ductwork above all fume hoods (1996), removal of interior wall between Room Nos. 1-18 and 1-19 (2001), removal of fume hood in Room No. 1-20 and installation of stainless steel lining in two other fume hoods (2001) and painting throughout the Building (2001 - 2003).

Building 25 is a three-story building, which occupies an approximate footprint area of 760 m². The Building is primarily of concrete construction and contains offices, laboratories, freezer rooms, washrooms, library, meeting room, boiler room, wet bench area and various mechanical rooms. The exterior walls of the Building consist of concrete block, poured concrete or brick. Interior walls consist of a mix of concrete block, poured concrete or plaster (over brick). Some office walls on the basement level contain gypsum board, which was reported by the Site representative to be installed over plaster approximately 5 years ago. Ceilings are a combination of suspended (lay-in) tiles, plaster or bare concrete. Floors were observed to be a mix of vinyl tiles, terrazzo or bare concrete. It was reported by the Site Representative that the entire roof, supported by steel girders, was totally striped and replaced with a layered roof and membrane approximately 15 years ago.

A total of fifty-two (52) bulk samples of suspect ACMs were sampled and submitted to the AMEC Analytical Laboratory in Mississauga, Ontario, for analysis using a combination of dispersion staining techniques and Polarized Light Microscopy (PLM) methodology as per the National Institute of Occupational Safety and Health Method 9002.

ACMs identified as a result of the Survey are summarized in Table 1. Locations of ACMs are provided on building floor plans contained in the ACM Survey (**Appendix 1**). Photographs of identified ACMs are provided in **Appendix 6**.

Table 1 - Summary of Asbestos Containing Materials

| Descriptions and Locations |
|---|
| <p><u>Walls and Ceilings</u></p> <p>Non-friable asbestos containing plaster. Four of nine samples of wall/ceiling plaster were found to contain ACM (2 - 5 % chrysotile). AMEC's review of the previous sampling work by Pinchin Leblanc Environmental Ltd. (PLEL) also showed that three of eight plaster samples were ACM. Plaster walls and ceilings are located in portions of all three floors of the Site Building. See ACM Survey in Appendix 1 for locations. Some plaster walls are located behind the gypsum board. Due to the non-homogeneous nature of this material, all ceiling and wall plaster within the building should be treated as ACM. It should be noted that even though, when in good condition, the wall and ceiling plaster are considered non-friable in-situ, these plasters become friable during demolition, cutting or abrasion.</p> <p>Note: Based on a review of the original construction drawing of the facility and observations made during the survey, the majority of gyproc walls in the building have plaster walls located behind them. Refer to the attached ACM survey for likely location of covered plaster walls.</p> <p><u>Flooring</u></p> <p>Non-friable asbestos containing vinyl floor tiles.</p> <ul style="list-style-type: none"> All 23 x 23 sq. cm (9 inch.) floor tile sampled within the building is ACM (3 - 12% chrysotile). The 23 x 23 sq. cm floor tiles are located in the following area: SB-7 (green and white tile); B-4 (white with black tile); 1-19 (light green with white and dark green); 1-18 (light green with white); 1-6 (red with white); B-2 (light brown with dark brown and white); 1-4 (brown with dark brown); 1-7 (beige with green); and 1-5 (white with brown). All 30 X 30 sq. cm (12 inch.) floor tile that was sampled (3 types) is non-ACM. <p><u>Wallboard</u></p> <p>Non-friable asbestos-containing "Transite" lined fume hoods. The "Transite" lined fume hoods have a grey, fibrous, cementitious appearance and have been painted grayish green. There are three fume hoods that are lined with "Transite" material. The "Transite" fume hoods contain 25% Chrysotile asbestos and are located in Laboratory Room Nos. 1-16, 1-17 and 1-18. It was reported that the "Transite" board for two of these fume hoods is located behind stainless steel sheeting (Room Nos. 1-16 and 1-18).</p> <p><u>Pipe Wrap</u></p> <p>The majority of insulating pipe wrap (4 samples) within the building is non-ACM and consists of a yellow mineral wool or brown wool-like material, with cellulose outer covering. This is the case throughout the building with two exceptions:</p> <ul style="list-style-type: none"> Insulating pipe wrap on 300 mm dia. steam header, overhead piping (grey/white fibrous material) in the boiler room (20 % Amosite); and Insulating pipe wrap (corrugated paper type) on water drain in sub-basement hall (10 % chrysotile). <p><u>Pipe Elbows/Joints</u></p> <p>Six of seven samples of insulating pipe elbows/joints were found to contain approx. 75 % chrysotile. It can be assumed that all insulating pipe elbows/joints/wrap ends within the building are ACM, with the exception of pipe elbows in Room No. B-26. An estimated total of 560 fittings (elbows and T joints) are located throughout the building. It should also be noted that ACM cement was sometimes used to seal the ends of non-ACM pipe wrap.</p> <p><u>Hot Water Tank Insulation</u></p> <p>Two hot water tanks in Room B-26 contain insulation comprised of 10 % chrysotile and 30 % amosite.</p> <p><u>Other Materials</u></p> <p>Other materials found to contain asbestos were:</p> <ul style="list-style-type: none"> One ceiling light fixture fabric located in the basement Dark Room (SB-7) (80 % chrysotile). Tar paper on ductwork located in the Wet Bench Room (8 - 10 % chrysotile). |

4.0 CLASSIFICATION OF ASBESTOS RELATED WORK

As the risk of exposure to asbestos fibres increases, more stringent work procedures are required for the remediation of the ACMs. Low-risk (Type I), moderate-risk (Type II) and high-risk (Type III) asbestos related work are governed by separate work procedures. Sections 4.1 to 4.3 define the types of asbestos related work as outlined in the PWGSC Departmental Policy (DP:057) and are included to provide an overview of each type of work. Section 4.4 defines a commonly used work procedure (Glove Bag) for Type II asbestos related work.

4.1 Type I or Low-Risk Asbestos Related Work

Asbestos related work classified as Type I or low-risk has minimal risk of releasing asbestos fibres. However, regulations require that precautions be adequate to protect workers from the release of asbestos fibres. Low-risk work procedures cover almost all the asbestos related work involving non-friable ACMs and some very limited activities associated with small quantities of friable ACMs including:

- Installation or removal of a non-friable ACM with a hand tool;
- Disturbance of a non-friable ACM with a power tool equipped with a HEPA dust collector;
- Removal of adhesive patches or dry wall materials where joint filling materials contain asbestos;
- Removal of square vinyl floor tiles;
- Removal or replacement of ten or less asbestos-containing compressed mineral fibre type ceiling tiles;
- Collecting samples of suspect friable ACMs; and
- Working close to friable sprayed asbestos, where the material may be affected by the work activities.

4.2 Type II or Moderate-Risk Asbestos Related Work

Type II or moderate-risk asbestos related work is described as any minor activity that may disturb or involve direct contact with small quantities of friable ACMs that may result in significant potential exposure to airborne asbestos fibres with some health risk. This asbestos related work might include:

- Removal or replacement of more than ten asbestos-containing compressed mineral fibre type ceiling tiles;
- Entry into ceiling spaces, crawl spaces, pipe tunnels, etc. where friable asbestos debris is present;
- The removal of a gables ceiling with the likelihood of a significant quantity of friable ACMs on its surface;
- Minor removal of friable ACMs (removal of not more than 1m² of surface area per work period);

- Minor disturbance of friable ACMs (i.e. to repair valves on piping, install hangers, fastening to a sprayed surface);
- Repair of asbestos mechanical insulation (no limit is imposed as to the amount of repair permitted under Type II conditions); and
- Application of tape, sealant or other covering to pipe or boiler insulation containing asbestos.

4.3 Type III or High-Risk Asbestos Related Work

Type III or high-risk asbestos related work is described, as any activity for which there is a potential for high exposure to airborne asbestos fibres with high health risk. This asbestos related work may include:

- The removal or disturbance of fibre ACMs, other than low or moderate risk asbestos related work;
- The spray application of an encapsulant or sealant to friable ACMs (i.e. encapsulating sprayed fireproofing);
- The use of power tools not equipped with HEPA filtered dust collection device on non-friable ACM;
- Disturbance of the ductwork or air handling equipment serving or passing through areas of buildings with sprayed asbestos-containing fireproofing or insulation; and
- Repair, alteration or demolition of a boiler, furnace, kiln, or similar equipment with asbestos-containing refractory.

4.4 Glove Bag Work Procedure

The removal or repair of asbestos-containing pipe insulation may be conducted using Type II (moderate-risk) procedures. Another option for the removal of asbestos-containing pipe insulation is the glove bag procedure, which is a polyethylene containment bag which fastens around the pipe insulation to be removed and is sealed onto the pipe system. The glove bags are equipped with sealed armholes and a pouch for tools inside the glove bag that allows removal of the insulation inside the glove bag. Once the asbestos-containing pipe insulation has been removed from the pipe and placed in the lower chamber of the glove bag, a small port is used to wet the inside of the glove bag and wash down the exposed pipe. The lower chamber is then re-sealed prior to removal of the glove bag.

5.0 ROLES & RESPONSIBILITIES

This section outlines the responsibilities of both the key personnel identified in the AMP and other building occupants. A Facility Asbestos Coordinator (FAC) should be established for the facility. The FAC should be someone in a senior position who is knowledgeable of the facility and on-site operations and activities, and should be one site on a full time basis (i.e. property manager or maintenance supervisor). The FAC should receive at a minimum, appropriate training in the area of asbestos management, including classification and identification of asbestos related work, from a qualified trainer.

Table 2 presents the key personnel identified in the AMP.

| Table 2 - Key Personnel Identified in the Asbestos Management Plan | |
|---|--|
| Title | Name, address, phone numbers and email addresses |
| Facility Asbestos Coordinator | Name: Address: Telephone: Cell Phone: Fax: Email: |
| Property Manager | Name: Address: Telephone: Fax: Email: |
| Facility Manager / Project Manager | Name: Address: Telephone: Fax: Email: |

The responsibility of the FAC include:

1. Coordinate the asbestos training program with the Property Manager for all personnel involved with the management and maintenance of the facility;
2. Maintain worker asbestos training records;
3. Ensure that relevant tasks and responsibilities of individuals identified in this AMP are being carried out and all documents and records are complete and maintained;
4. Coordinate with the Property Manager to engage an outside consultant or other trained and qualified personnel within Agriculture and Agri-Foods Canada (AAFC) to conduct ACM inspections every two years;
5. Receive and retain copies of Contractor Notification and Acknowledgement (CNA) forms and Asbestos Related Work Records (ARWRs) from Contractors and/or Consultants, or alternative AAFC forms, after the completion of an asbestos related project;
6. Maintain and update the AMP as needed and maintain the binder at a secure location in the facility this is accessible to all staff and outside contractors;
7. Inform the appropriate personnel and contractors (if applicable) regarding planned repair, renovation and maintenance or installation work involving ACMs to be performed in their occupied areas in writing and in advance of work to be performed;

8. Identify planned maintenance activity (Section 6.1.1) by facility staff and determine whether the planned maintenance work will disturb ACMs;
9. Ensure that recommended procedures and safety precautions provided in worker training courses and outlined in this AMP will be followed for planned maintenance work or emergencies involving ACMs;
10. Identify, report and document work related ACM emergencies to the Property Manager and Health Canada;
11. Maintain copies of Asbestos Related Work Records (ARWR) and Contractor Notification and Acknowledgement (CNA) forms, or alternative AAFC forms;
12. Handle asbestos emergencies as outlined in Section 6.3;
13. Assist the outside asbestos consultant or other trained and qualified personnel within AAFC during inspections;
14. Coordinate the labeling of ACMs identified in Section 8.0;
15. Handle questions or requests from facility staff for information regarding asbestos;
16. Prepare and distribute standard notification letters for cleaning contractors and landscaping staff; and
17. Ensure all contractors performing work under their control have completed CAN form.

The responsibilities of the **Property Manager** for the facility include:

1. Ensure facility staff receive the appropriate asbestos training and maintain training records;
2. Approve and initiate an asbestos related project; and
3. Coordinate with FAC to engage an outside consultant or other trained and qualified personnel within AAFC to conduct routine ACM inspections.

The responsibilities of the **Facility Manager / Project Manager** for the facility include;

1. Request information regarding the possible presence of asbestos in the areas of planned projects from the FAC;
2. Notify the FAC of all planned removals / repairs involving ACMs;

3. Ensure that the FAC has notified facility staff and cleaning contractors (if necessary) regarding planned Asbestos Related Work;
4. Ensure asbestos related work is overseen and conducted by qualified personnel;
5. Ensure that all contractors performing work under their control have completed a CNA form (**Appendix 2**); and
6. Submit copies of CNAs, ARWRs and asbestos consultant reports (if applicable) to the FAC upon completion of work.

Certain types of work will require the use of outside contractors and consultants and are best handled by outside contractors and / or consultants. Therefore, in these circumstances the contractor and consultant should be responsible for the following:

Asbestos Consultant:

1. Update the locations and approximate quantity of ACMs on building plans and forward the updated asbestos plans to the FAC. Updates will be completed after routine inspections (every two years) or an abatement project;
2. Classify asbestos removal or repair work, prepare scope of work or tender documents, hire asbestos contractors and coordinate asbestos related work with the Facility Manager / Project Manager or Property Manager;
3. Fill out the Asbestos Related Work Record (**Appendix 2**) upon completion of asbestos related work and submit it, along with Contractor Notification and Acknowledgement (CNA) from (**Appendix 2**), to the Facility Manager / Project Manager;
4. Provide inspection and air monitoring during asbestos abatement projects. This includes ensuring proper asbestos removal/repair work and safety procedures are followed (Type I, II, etc.) and the specified work outlined in the contract, scope of work or tender is completed; and
5. Provide a written report to the Facility Manager / Project Manager summarizing the asbestos-related work that has been completed during the abatement project and the results of air monitoring tests. The report is to include a copy of the waste manifest.

Asbestos Contractor:

1. Complete and submit to the Facility Manager / Project Manager or the Asbestos Consultant a contractor Notification and Acknowledgement (CNA) form (**Appendix 2**) prior to commencing any work;

2. Arrange the proper storage, transportation and disposal of any asbestos waste generated during asbestos related work activities;
3. Supply waste manifests upon disposal to the Asbestos Consultant; and
4. Conduct all asbestos abatement project work in accordance with applicable Federal and Provincial Regulations.

Non-Asbestos Contractor:

1. Complete and submit a Contractor Notification and Acknowledgement (CAN) form to the Facility Manager / Project Manager or FAC prior to conducting any work in areas where asbestos-containing materials have been identified; and
2. Stop or do not commence work and contact the FAC if materials are encountered or identified in the work areas that are suspected to contain asbestos.

Facility personnel including cleaning contractors and landscaping staff:

1. Contact the FAC prior to conducting any maintenance work or attaching or removing anything from interior walls/ceilings and exterior foundation walls or other surfaces; and
2. Report any damage to interior and exterior walls or other building components to the FAC.

6.0 ASBESTOS RELATED WORK PROCEDURES

It is understood that some AAFC staff are trained to conduct asbestos related work, however some of this work may also be performed by an outside consultant or contractor. Procedures for conducting asbestos related work activities, taken from excerpts of the PWGSC AMP document dated March 2000, are included in **Appendix 3**. The excerpts include details related to the following activities:

- Evaluation and Recommendation Criteria for Control of Asbestos Containing Material
 - Assessment of Condition
 - Evaluation of Accessibility
 - ACM Debris
 - Action Matrix and Definitions;
- Type 1 Work Procedures;
- Type 2 Work Procedures;
- Glove Bag Work Procedures; and
- Respirator Fitting, Inspection, Cleaning and Disinfection.

It is noted that an outside contractor/consultant or Regional Asbestos Coordinator (if designated), on behalf of the FAC and Project Manager, will classify the disturbance of asbestos materials as Type 1, 2 or 3. It is noted that details related to Type 3 work procedures are not provided in **Appendix 3**. Type 3 work procedures include all work not permitted under the Type 1 and 2 classifications and the aforementioned individual is responsible to review or direct all maintenance work under this classification. It is further noted that all type 3 asbestos work in occupied buildings requires daily inspections and air monitoring and final clearance air testing.

In order to prevent or minimize the chances of asbestos fibre releases, facility staff will not conduct any renovations or disturbances that may damage building materials containing ACMs, unless the work is performed in accordance to the procedures outlined in **Appendix 3**. Activities that may disturb asbestos containing building materials include:

- removing or sanding plaster walls / ceilings;
- drilling, sanding or cutting into “transite” panels lining the hoods located in laboratories 1-17, 1-18, and 1-19 of the building;
- removing or disturbing pipe wraps on large diameter overhead piping located in the Boiler Room and pipe insulation on water drain located in the sub-basement wall;
- using high revolution floor polishers on 23 cm sq. (9” sq. tiles) ACM floor tiles;
- removing or disturbing pipe cement elbows (exception is Room B-26);
- removing or disturbing Hot Water Tank Insulation (Room B-26); and
- removing or disturbing tar paper on ductwork.

During the survey, a number of areas were noted that will require immediate action due to the damaged or deteriorated condition of ACMs. Table 3 provides a summary of these areas.

Table 3 - Summary of Damaged or Deteriorated ACMs Requiring Immediate Action

| Type of Damaged/Deteriorated ACM | Location | Recommendation |
|--|--|---|
| Small accumulation of dust and debris which contains trace amounts of actinolite located on the storage area floor below pipe lagging. | Room No. B-25 - Storage area located next to Hot Water Tank Room off Wet Bench area. | Until area is cleaned using a professional asbestos abatement contractor or trained and qualified personnel within AAFC, post signage to contact maintenance supervisor prior to entering the Storage Room immediately adjacent to the Hot Water Tank Room (Room B-26). |
| Deteriorated plaster ceiling. | Room No. 1-16 - From door entrance, left hand top corner area. | Temporarily cover areas with 6 mil polyethylene or plywood type material until area can be properly cleaned and stabilized by a professional abatement contractor or trained and qualified personnel within AAFC. |
| Deteriorated plaster ceiling. | Room No. B-21 (freezer room) - From door entrance, directly ahead. | Temporarily cover areas with 6 mil polyethylene or plywood type material until area can be properly cleaned and stabilized by a professional abatement contractor or trained and qualified personnel within AAFC. Note that although analysis of ceiling plaster in this room showed no asbestos was detected, this material should be treated as asbestos based on positive results of similar samples and non-homogeneous nature of material. |
| Deteriorated plaster wall. | Room No. SB-1(boiler room) - From door entrance, left hand far corner area. Wall height of approx. 2.0 to 5.0 m above floor. | Temporarily cover areas with 6 mil polyethylene or plywood type material until area can be properly cleaned and stabilized by a professional abatement contractor or trained and qualified personnel within AAFC. |
| Deteriorated plaster wall. | Room No. 1-20 - From door entrance, directly ahead on opposite wall near pencil sharpener. | Seal small area of damaged plaster with drywall joint compound until area can be properly cleaned and stabilized by a professional abatement contractor or trained and qualified personnel within AAFC. Note that although analysis of wall plaster in Room No. 1-20 showed no asbestos was detected, this material should be treated as asbestos based on positive results of similar samples and non-homogeneous nature of material. |
| Deteriorated 300 mm piping steam header containing amosite. | Located in ceiling area enclosed exit to the Boiler Room. | Temporarily cover over with 6 mil polyethylene or equivalent until asbestos material is removed by a professional abatement contractor or trained and qualified personnel within AAFC. |

6.1 Identification of Work That May Involve Asbestos

The first step in any asbestos abatement work is to identify the potential for work to disturb ACM. The following are the three processes by which work is initiated at the building and asbestos concerns are identified.

6.1.1 Planned Maintenance

Planned maintenance involves any maintenance activity carried out on a routine basis by the building staff. The Facility Asbestos Coordinator (FAC) will review all planned maintenance and determine if the planned maintenance activity will disturb any ACMs. If it is determined that ACM will be disturbed, the FAC will contact the Property Manager, who can approve and initiate an Asbestos Related Work Project.

6.1.2 Minor Repair

Minor repairs generally refer to maintenance work that can be engaged by the facility staff without the assistance of a Facility Manager / Project Manager. Prior to the initiation of minor repairs or work by facility staff that will require a modification to the infrastructure of a building, the FAC will be contacted and determine whether the work will potentially disturb any identified ACM. If it is determined that ACM will be disturbed, the FAC contacts the Facility Manager / Project Manager, who can approve and initiate an Asbestos Related Work Project.

6.1.3 Project Work

Project work typically involves a substantial change to the infrastructure of the building. These projects are initiated and managed by the Facility Manager / Project Manager. The facility Manager / Project Manager will identify the areas affected from the floor plan and submit them to the FAC. In reviewing the floor plan and the ACM Survey presented in **Appendix 1**, the FAC will determine if the project will disturb any identified ACM. If it is determined that ACM will be disturbed, the Property Manager can approve and initiate an Asbestos Related Work Project by the Facility Manager / Project Manager.

6.2 Asbestos Project

The initiation of an asbestos project involves the Property Manager ensuring that the Facility Manager / Project Manager undertakes the work in accordance with Federal policies. The Facility Manager / Project Manager will then notify the FAC. The FAC is responsible for notifying the building staff and cleaning staff, when appropriate. The Facility Manager / Project Manager will then engage either trained and qualified AAFC staff or an outside consultant and contractor. The Project Manager will ensure that only qualified personnel will be engaged to conduct and monitor asbestos projects. The Facility Manager / Project Manager will ensure the Contractor Notification and Acknowledgement Form (CNA), or alternative AAFC form, is received and confirm that all building and cleaning staff have been notified (if appropriate) before initiating the abatement. The outside consultant will be responsible for monitoring the

abatement as per the terms of their contract. The consultant will prepare and submit the Asbestos Related Work Record (ARWR) and an asbestos abatement report directly to the Facility Manager / Project Manager, who will forward a copy to the FAC. The FAC is responsible for ensuring a copy of this information is maintained in the facilities AMP records. The Consultant is also responsible for updating the ACM location plans presented in the ACM survey in **Appendix 1** and submitting it to the FAC. The FAC is responsible to update the AMP.

6.3 Asbestos Emergency Response Procedures

In the event of an emergency, such as the partial collapse of a ceiling with asbestos-containing plaster, special procedures are generally needed to minimize the spread of fibres throughout the building. These procedures are needed whether the ACM disturbance is intentional or unintentional. Therefore, in the event of an asbestos release episode, **the following procedures, in accordance with PWGSC's Department Policy (DP:057), will be followed:**

- Clear the area of all occupants;
- Isolate the area by closing doors and/or erecting barriers to restrict airflow as well as access to the site;
- If asbestos fibres could enter the HVAC system, the system should be modified to prevent fibre entry or be shut down and sealed off;
- Post warning signs; and
- Notify the Facility Asbestos Coordinator regarding the asbestos disturbance. The Facility Asbestos Coordinator will notify the Property Manager to arrange for removal, clean-up or repair of the asbestos material by qualified personnel. This may require asbestos consultants and/or contractors to develop a strategy for the cleanup operations.

Prior to restarting the HVAC system in the area, a careful visual inspection and final asbestos clearance air monitoring will be conducted to verify satisfactory cleanup.

7.0 PERIODIC INSPECTIONS

The Property Manager will coordinate the routine ACM inspections that will be completed by an outside asbestos consultant or other trained and qualified personnel within AAFC. The inspections involve identifying and recording changes in the condition of the ACMs including damage and deterioration, as well as changes in the use and activity of spaces containing ACMs. Inspection should be conducted every two years for ACMs located at this facility. During the inspections, changes in the condition of the ACM or use of space should be documented. The Property Manager will ensure that a procedure is in place to collect and maintain all routine inspection documentation and reports. The asbestos information will be maintained in the AMP at the facility.

In addition, facility staff will be trained to recognize damage and changes in the condition of ACMs and suspect ACMs. Facility staff who observe any changes to the condition of the ACMs will notify the Facility Asbestos Coordinator immediately.

A sample checklist for the inspection of Asbestos-Containing Materials is contained in **Appendix 4**.

8.0 LABELING

The Facility Asbestos Coordinator will coordinate labeling the ACM. While not a regulatory requirement, labeling of exposed ACM that can be easily disturbed and subsequently release asbestos fibres, is considered a best management practice. Labeling should be conducted by an asbestos consultant.

Typically, a label should be placed directly on the asbestos containing material or on a highly visible wall in the room with asbestos-containing wall/ceiling plaster or wallboard and note the following:

**DANGER
CONTAINS ASBESTOS
Do Not Disturb**

The labels will help remind facility staff and/or outside contractors of the presence of asbestos in the material.

9.0 ASBESTOS TRAINING

Under Section 7 of Newfoundland and Labrador Regulation 111/98, an owner of a building is required to institute and maintain a training program for workers and occupants in the building who are likely to work in close proximity to and may disturb the ACMs.

A training program designed to address the specific needs of the facility staff will be developed and conducted. The training requirements will consist of instruction in:

1. The hazards of asbestos exposure;
2. Identification of suspect ACMs;
3. Roles and responsibilities; and
4. Emergency procedures.

Instruction and training will be conducted by competent personnel who are fully qualified as a result of their knowledge and experience with the requirements of the asbestos regulations. They will be familiar with performance standards established by the asbestos regulations, and knowledgeable of potential or real danger to health or safety in the work place related to asbestos issues.

Typical awareness and management training requirements will consist of instruction in:

- Introduction to asbestos in general;
- Review and identification of ACM specific to each applicable building;
- Overview of asbestos inventory and assessment reports;
- Friable and non-friable asbestos products;
- Insulation used on mechanical systems;
- Health effects - occupational and non-occupational;
- Provincial and federal asbestos guidelines and regulations;
- Classification of asbestos work;
- Asbestos management;
- Worker protection; and
- Asbestos control options.

The Property Manager will ensure procedures are in place to maintain a list of trained workers with the date and type of training. An example form for maintaining a list of trained employees is provided in **Appendix 5**. New facility staff will be informed of the presence of ACMs and briefed on the AMP before they begin work, and at the earliest possible convenience they will attend a training program.

10.0 NOTIFICATION OF CONTRACTORS

The FAC will inform cleaning contractors, landscaping staff, and outside contractors (if applicable) about the location and physical condition of the ACMs that are located in close proximity, and stress the need to avoid disturbing the material. Facility staff will be notified about the presence of ACMs at the implementation of this AMP. Cleaning and landscaping staff and outside contractors will be notified for two reasons:

1. The law requires that owners inform building occupants of any potential hazard in their vicinity; and
2. Informed persons are less likely to unknowingly disturb the material and cause dust to be released into the air.

Outside contractors will be informed about the presence of ACMs in the work location by the FAC or the Facility Manager / Project Manager prior to commencement of their work. Contractors must sign a Contractor Notification and Acknowledgement form prior to conducting any work (**Appendix 2**).

The FAC will inform cleaning contractors and landscaping staff by sending them a letter notifying them of the presence and location of ACM that is in close proximity to their work areas. The information given all contractors doing work at the facility will contain at least the following points to reflect the building conditions:

- Asbestos has been found at the Atlantic Cool Crop Climate Research Facility (Building 25) and is located in the following areas:

- Most ACMs in the Atlantic Cool Crop Climate Research Facility (Building 25) are in good condition and do not pose a risk to human health, with the following exceptions:

- Asbestos only presents a health hazard when fibres become airborne and inhaled. The mere presence of ACMs does not represent a health hazard.
- Do not disturb the ACMs. Activities that may disturb ACMs include cutting, drilling, sanding, or removing the above mentioned building materials. Contact the Facility Asbestos Coordinator to make the necessary arrangements if you wish to undertake an activity that may disturb any ACM.
- Report any evidence of disturbance or damage of ACMs to:
Name:....., Facility Asbestos Coordinator
Telephone:
- Facility staff are taking special precautions during their work to guard against disturbing ACMs.
- Report any improper action (relative to ACMs) to the Facility Asbestos Coordinator.
- All ACMs and suspect ACMs are inspected periodically and additional measures will be taken if needed to protect the health of facility staff.

The Facility Asbestos Coordinator will inform facility staff and contractors (if applicable) at least one week in advance of all planned repair, renovation, maintenance or installation work to be completed in the relevant buildings that may disturb ACMs.

11.0 RECORD KEEPING

Documentation regarding any asbestos related activities must be retained. The FAC will ensure that procedures are in place and are followed to maintain the following documentation/records.

1. Work records documenting all asbestos-related activities, including, but not limited to, repair, enclosure and removal work done onsite must be retained indefinitely;
2. Training records shall be maintained for the duration of employment plus 1 year. Copies shall be placed in worker personnel files;

3. Notification of the presence of ACMs and other asbestos related documents and correspondence with facility staff, contactors and consultants shall be maintained indefinitely;
4. Notification letters sent to cleaning contractors (or other contractors) prior to asbestos related work in areas they may be working in shall be maintained indefinitely;
5. Asbestos survey reports, updates and addenda that reflect the changing condition and quantity of ACMs will be maintained indefinitely;
6. A completed asbestos waste manifest for disposed ACMs must be maintained indefinitely; and
7. The AMP shall be maintained on-site as long as the ACMs remain in the workplace.

12.0 CLOSURE

This report presents the methodology and findings of an asbestos containing material Survey and development of an asbestos management plan for Agriculture and Agri-Foods Canada Building 25, located in Mount Pearl, NL, reflecting AMEC's best judgment using information reasonably available at the Site at the time of AMEC's Site visit. AMEC has prepared this report using information understood to be factual and correct and shall not be responsible for conditions arising from information or facts that were concealed or not fully disclosed to AMEC at the time of the Site visit.

The limitations of the ACM Survey are specified in **Appendix 7**.

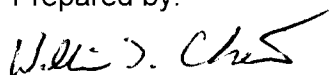
This report has been prepared for the exclusive use of Public Works and Government Services Canada. The work described herein was conducted in accordance with the generally accepted assessment practices, with the conclusions based on the Site information readily available at the time of completing the work. No other warranty, expressed or implied is made. AMEC will not be responsible for the use of this report by any third party, or reliance on or any decision to be made based on it without the prior written consent of AMEC. AMEC accepts no responsibility for damages, if any, by any third party as a result of decisions or actions based on this report.

We trust the above information is satisfactory. If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

AMEC Earth & Environmental

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APPENDIX 1

ASBESTOS CONTAINING MATERIAL SURVEY

1.0 INTRODUCTION

AMEC Earth and Environmental, a division of AMEC Americas Limited (AMEC) was retained by Public Works and Government Services Canada (PWGSC) on behalf of Agriculture and Agri-Foods Canada to conduct an asbestos containing material (ACM) Survey of the Atlantic Cool Crop Climate Research Facility (Building 25) located in Mount Pearl, Newfoundland and Labrador (the "Site Building"). The Site Building is currently occupied by a functioning agricultural research facility. The General Site Location is presented in Figure 1 (Appendix A).

The objective of the ACM Survey was to determine the type, presence, quantity and location of asbestos-containing materials (ACMs) at the Site Building.

The Project was carried out in accordance to the PWGSC Terms of Reference dated November 2006 and the scope of work detailed in the AMEC proposal dated 16 November 2006.

1.1 BACKGROUND INFORMATION

As part of the ACM Survey, AMEC interviewed Mr. Frank Ralph, Facility Manager, 1980 - present (the "Site Representative") to gain information related to past activities at the Site Building. It was reported by the Site Representative that the Building has been used as an agricultural research facility since its original construction in the mid 1960s.

According to the Site Representative, three structures were attached to Building 25 at different time periods; namely a greenhouse (late 1960s), the Provincial Lab Building (1982) and Building 39 (1996). It is noted that the aforementioned attached structures are not included as part of this asbestos Survey. Also according to the Site representative, major renovations to Building 25 have included new boilers (1991), new roof and ventilation system (1992), replacement of ductwork above all fume hoods (1996), removal of interior wall between Room Nos. 1-18 and 1-19 (2001), removal of fume hood in Room No. 1-20 and installation of stainless steel lining in two other fume hoods (2001) and painting throughout the Building (2001 - 2003).

Building 25 is a three-story building, which occupies an approximate footprint area of 760 m². The Building is primarily of concrete construction and contains offices, laboratories, freezer rooms, washrooms, library, meeting room, boiler room, wet bench area and various mechanical rooms. The exterior walls of the Building consist of concrete block, poured concrete or brick. Interior walls consist of a mix of concrete block, poured concrete or plaster (over brick). Some office walls on the basement level contain gypsum board, which was reported by the Site representative to be installed over plaster approximately 5 years ago. Ceilings are a combination of suspended (lay-in) tiles, plaster or bare concrete. Floors were observed to be a mix of vinyl tiles, terrazzo or bare concrete. It was reported by the Site Representative that the entire roof, supported by steel girders, was totally stripped and replaced with a layered roof and membrane approximately 15 years ago.

1.2 PREVIOUS ASBESTOS SAMPLING

As part of the ACM Survey, PWGSC provided AMEC with copies of previous asbestos sample results and construction drawings for review.

Between 1995 and 2004, Pinchin LeBlanc Environmental Ltd. (PLEL) collected 14 samples of bulk building materials within Building 25. Eight of these samples consisted of wall or ceiling plaster and three samples consisted of lab fume hood ductwork materials. The remaining samples consisted of pipe elbow cement, floor tile and dust.

A summary of the PLEL suspect ACM samples, compiled by AMEC, is provided in Table 1-1. Laboratory certificates for the PLEL samples are also included in Appendix B.

TABLE 1-1
Summary of PLEL Suspect ACM Sampling 1995 - 2004
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| PLEL Sample Date | PLEL Sample No. | Material Description | Location Room # | Asbestos Result Percent & Type |
|------------------|-----------------|---|-----------------|--|
| 7-Apr-95 | 02-151-001AC | Lab Fume Hood, elbow cement , homogeneous, grey, soft, cementitious material | NA | 50 - 75 % Chrysotile |
| 7-Apr-95 | 02-151-002AC | Lab Fume Hood, cement pipe, straight , homogeneous, grey, hard, cementitious material | NA | 10 - 25 % Chrysotile 5 - 10 % Crocidolite |
| 12-Mar-96 | 01-512-100 | 3 phases: Fume hood exhaust insulation a) homogeneous, black tar b) homogeneous, brown, fibrous material c) homogeneous, gold, fibrous material | NA | a) 5 - 10 % Chrysotile b) ND c) ND |
| 12-Jan-96 | 02-512-003 | Contents of vacuum bag , brown dust | NA | ND |
| 20-Dec-96 | Sample #1 | Plaster finish coat , homogeneous, white, hard, cementitious material | NA | ND |
| 21-Mar-97 | 02-832-001 | Heating line elbow cement , homogeneous, grey, soft, cementitious material | B-7 | 50 - 75 % Chrysotile |
| 21-Mar-97 | 02-832-002 | 9" x 9" floor tile , homogeneous, green, consolidated material | B-5 | 1 - 5 % Chrysotile |
| 21-Mar-97 | 02-832-003 | Wall finish , homogeneous, grey, hard, cementitious material | Kitchen | 1 - 5 % Chrysotile |
| 21-Mar-97 | 02-832-004 | 2 phases: Wall finish a) homogeneous, white, hard, cementitious material b) homogeneous, white, hard, cementitious material | B-7 | a) ND b) <0.1% Chrysotile |
| 21-Mar-97 | 02-832-005 | Wall finish , homogeneous, beige, hard, cementitious material | B-5 | <0.1% Chrysotile |
| 18-Mar-04 | 001 | 2 phases: Plaster on wall around column a) homogeneous, white, soft, cementitious material b) homogeneous, tan, granular, cementitious material | 1-18 | a) ND b) 1 - 5 % Chrysotile |
| 23-Mar-04 | 001 | 2 phases: Plaster ceiling a) homogeneous, white, soft, cementitious material b) homogeneous, tan, granular, cementitious material | 1-19 | a) ND b) 0.1 - 1.0 % Chrysotile |
| 23-Mar-04 | 002 | 2 phases: Plaster on ceiling a) homogeneous, white, soft, cementitious material b) homogeneous, tan, granular, cementitious material | 1-16 | a) ND b) 0.1 - 1.0 % Chrysotile |
| 23-Mar-04 | 003 | 2 phases: Plaster ceiling a) homogeneous, white, soft, cementitious material b) homogeneous, tan, granular, cementitious material | 1-20 | a) ND b) 1 - 5 % Chrysotile |

A review of the results revealed that three of the eight plaster samples were found to be asbestos containing material, while four others contained only trace amounts of asbestos.

The lab fume hood ductwork materials (tar, insulating cement and pipe), floor tile and insulating pipe cement were also found to be asbestos-containing. A dust sample collected from a vacuum bag was non-ACM.

Prior to commencement of the ACM Survey, AMEC identified data gaps and targeted specific building materials for sampling and analysis in order to obtain additional information. Also, during the Survey, AMEC investigated the status of previously identified asbestos containing materials and, in some cases, collected similar materials to corroborate the previous data. A discussion of the previous work has been incorporated into applicable sections of the Survey findings (Section 4.0).

2.0 SCOPE AND METHODOLOGY

2.1 REGULATORY FRAMEWORK

Asbestos-Containing Materials (ACMs) are fibrous hydrated silicates, and can be found in building materials as either “friable” or “non-friable” asbestos products. Friable asbestos refers to materials that can be readily crumbled using hand pressure, separating asbestos fibres from the binding materials with which they are associated. Non-friable material refers to asbestos that is associated with a binding agent (such as tar or cement), preventing ready release of airborne fibres. Friable asbestos is commonly found in boiler and pipe insulation. Non-friable or bound asbestos is typically found in roofing tars, floor and ceiling tiles, and precast asbestos cement products commonly referred to as “transite”.

ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings. Additional background information on asbestos is contained within Appendix D.

ACMs in the workplace are regulated under the following federal and provincial policies and regulations:

Federal:

- Treasury Board of Canada Secretariat Hazardous Substances Directive - II, Section 2.9 as it relates to asbestos management; and
- Public Works and Government Services Canada Departmental Policy (DM: 057) - *Asbestos Management*, dated March 12, 1997.

Provincial:

- Newfoundland and Labrador *Asbestos Abatement Regulations* (Nfld. Reg. 111/98).

Under these regulations, materials containing greater than 1% asbestos fibers are considered asbestos-containing and should be managed in accordance with the applicable regulations.

As Building 25 is located on a federal site, the building and employees are under federal, not provincial, jurisdiction. Typically, federal buildings and employees come under the Canada Labour Code, however, contractors would be under provincial jurisdiction.

2.2 SURVEY METHODOLOGY

AMEC performed an ACM Survey of Building 25 between December 6th and 8th, 2006. The Survey included a visual inspection and intrusive bulk sampling program of suspected ACMs and was performed by Mr. Bill Chew, B.Sc., CET and Mr. John Krilow, CET of AMEC. The assessment was as non-intrusive as possible with regard to building components. Suspect ACMs were visually inspected and sampled using industry standard protocols and procedures and the requirements of the above-noted federal and provincial policies and regulations.

AMEC was accompanied by the Facility Manager, Mr. Frank Ralph ("Site Representative") or a designate during the ACM Survey.

During the Survey, all accessible areas of the Site Building were examined for the presence of suspected friable and non-friable ACMs. Materials suspected of containing asbestos (floor tiles, wall board, insulation, pipe wrap, wall plaster, etc.) were sampled by removing a small section of material (650 mm²) using a utility knife and placing the material in a plastic ziplock bag. Where friable materials were sampled, a piece of duct tape was later placed over the sampling location.

Bulk samples were collected from materials that appeared visually distinct and therefore repetitive testing was generally not performed. The presence, location, condition and approximate quantities of each suspect ACM were recorded. Each material sampled was assigned a sample number and location recorded on building floor plans.

A total of fifty-two (52) bulk samples of building materials suspected of containing asbestos were collected and submitted to AMEC's laboratory in Mississauga, ON for analysis of asbestos content using a combination of dispersion staining techniques and Polarized Light Microscopy (PLM) methodology. In addition, four random duplicate samples were submitted to the laboratory as part of the quality control (QC) program.

Sampling locations are identified on Building floor plans, provided on Figure Nos. 2, 3 & 4 (Appendix A). Photographs of some sampling locations are provided in Appendix 6. A summary of suspected ACM samples is provided in Table C-1 (Appendix C). Laboratory certificates are also included in Appendix C.

3.0 SURVEY LIMITATIONS

This ACM Survey was conducted between December 6th and 8th, 2006. This report reflects the observations, findings, and analysis of materials sampled during this time. The observations are based on the specific areas inspected. The scope of the ACM Survey included mechanical equipment, structures, and finishes located in accessible areas of the Building. Analytical results were used to quantify the sampled materials at the specific sample locations. Materials found to be visually similar to those analyzed, where possible were referenced to specific analyzed samples collected elsewhere. Repetitive testing of similar materials was not performed.

The findings within this report do not reflect potential ACMs in areas not accessed, such as remote space areas, wall cavities and ceilings spaces. It is possible that materials may exist which could not be reasonably identified within the scope of this investigation or which were not apparent or accessible during the Survey. An area above a suspended tile ceiling, behind a closed door, or behind an access hatch is considered accessible. An area enclosed by gypsum board, plaster, or panelling, roofing materials, boiler refractory, etc., where minor demolition is required to gain entry, is considered non-accessible and was not included as part of this investigation. During future renovations or demolition activities and subsequent removal of interior wall and ceiling materials, the actual quantities of asbestos containing materials can be verified. Also at this time, analysis of suspect ACM materials may be required if the appearance differs from that of materials previously confirmed to contain asbestos in adjacent rooms.

It is noted that AMEC gained access to all but one room within the Building during the course of the ACM Survey; namely the locked vault (Room No. B-12). The Site Representative did not possess the lock combination to this room at the time of the Survey.

Roofing materials such as sealers on flat roofs may contain asbestos. These items are typically not sampled as it may damage the integrity of the roof, resulting in leaks. In addition, it was reported by the Site Representative that the entire roof was totally striped and replaced with a layered roof and membrane approximately 15 years ago.

4.0 SURVEY FINDINGS

Findings of the ACM Survey are based on visual inspection, sampling of suspect materials and laboratory analyses. The analytical results are summarized in Table C-1 in Appendix C. Laboratory certificates of analysis are also provided in Appendix C. Building floor plans, identifying sampling locations, are provided on Figure Nos. 2, 3 & 4 (Appendix A). Photographs of materials confirmed by the analytical laboratory to be asbestos-containing are contained in Appendix 6.

Results indicate that twenty-five (25) of the fifty-two (52) samples collected contained more than 1 % asbestos fibres. Below is a discussion of the types of materials confirmed to be asbestos-containing.

4.1 MECHANICAL INSULATION

4.1.1 Piping

The majority of insulating pipe wrap observed and sampled (4 samples) within the Building was found to be non-ACM and consists of a yellow mineral wool or brown wool-like material, with cellulose outer covering. This is the case throughout the Building with two exceptions:

- Insulating pipe wrap on 300 mm diameter, steam header piping (white fibrous material) in Room No SB-1 (boiler room) was found to be 20 % amosite asbestos. Based on analytical results and visual observations, 40 linear metres of this pipe wrap was noted to be present in the boiler room (see Photo 6, Appendix 6); and
- Insulating pipe wrap (corrugated paper type) on water drain in sub-basement hall (10 % chrysotile asbestos). Based on analytical results and visual observations, 15 linear metres of this pipe wrap was noted to be located in the sub-basement halls room (see Photo 3).

However, it is noted that asbestos-containing pipe insulation or other mechanical insulation may be present in areas of the Building that are inaccessible, such as within pipe chases, above inaccessible ceilings or inside wall cavities.

4.1.2 Pipe Fittings

Insulating pipe cement was observed on pipe fittings throughout the Building. AMEC collected seven samples of this material as part of the ACM Survey. Six of seven samples of insulating cement located on pipe elbows, joints and pipe wrap ends were found to typically contain approximately 75 % chrysotile asbestos (see Photos 4, 5, 8, 9, 11 & 17).

It can be assumed that all insulating pipe elbows/joints/wrap ends within the Building are ACM, with the exception of pipe elbows in Room No. B-26.

AMEC visually quantified pipe fittings containing insulating pipe cement in accessible areas of the Building, mainly in Room Nos. SB-1 (boiler room), B-25 (wet bench area) and the sub-basement hallways. In order to estimate the total number of pipe fittings containing insulating ACM cement, AMEC removed metal covers on two office heating units to observe the piping configuration. This inspection revealed two fittings containing insulating ACM cement for each heater (See Photos 8 & 9). Therefore, AMEC has assumed that there are two fittings containing insulating ACM cement for every individual heating unit in the Building. This, combined with fittings directly observed, as well as an added 20 % as a margin of error, AMEC has estimated that there are 560 insulating ACM cement pipe elbows, joints and pipe wrap ends in the Building.

It is noted that the previous sampling work, performed by PLEL, showed that a sample of insulating pipe cement collected in Room No. B-7 contained 50 - 75 % chrysotile asbestos. Laboratory certificates for the previous PLEL samples are also included in Appendix B.

Note that the estimated quantity referenced above is based in part on visual observations made on a room-by-room basis, analytical results and discussions with the Site Representative or designate. Repetitive testing of similar materials was not performed.

4.1.3 Heating System

The four boilers and nearby associated piping located in Room No. SB-1 were reported by the Site Representative to have been installed in the early 1990s. However, some piping within this room was also reported to be original.

4.1.4 Hot Water Tanks

Two hot water tanks in Room B-26 contain insulation comprised of 10 % chrysotile asbestos and 30 % amosite asbestos (see Photo 7).

Insulation on the condensate return tank in Room N. SB-1 was sampled and found to be non-ACM.

4.2 THERMAL FIREPROOFING / INSULATION

No blown-in insulation was observed in the ceiling space or exterior walls of the Building. AMEC accessed the ceiling space above Room No. 1-4, through a ceiling hatch, and observed fiberglass insulation. Forty (40) mm styrofoam was observed on the inside of the exterior concrete walls of Room Nos. 1-4 and 1-10, upon removal of the metal heating covers.

4.3 DECORATIVE MATERIALS

No decorative materials, suspected of containing asbestos, were observed in the Building.

4.4 FLOORING

Nine different colours of 23 x 23 sq. cm (9 inch) floor tiles were observed throughout the Building and all were sampled. Analysis showed that all 23 x 23 sq. cm floor tiles sampled within the Building are ACM (3 - 12 % chrysotile asbestos). Photo 1 shows a typical ACM floor tile (photos of other ACM floor tiles having different colours are not provided). The locations of these floor tiles are shown on the Figures in Appendix A. The total quantity of 23 x 23 sq. cm ACM floor tiles within the Building has been estimated at 570 m².

It is noted that the previous sampling work, performed by PLEL, showed that 23 x 23 sq. cm floor tiles in Room No. B-5 contained 1 - 5 % chrysotile asbestos.

All 30 x 30 sq. cm (12 inch) floor tile that was sampled by AMEC (3 types) was found to be non-ACM.

Terrazzo flooring in the hallways and corridors was sampled and found to contain only a trace (< 1 %) of asbestos fibres.

4.5 CEILING TILES

Three types of 0.6 m x 1.2 m, suspended ceiling tiles were observed in the Building. Two of these types were reported by the Site Representative to be installed within the past 10 years. A sample of the third, older type of ceiling tile was analyzed and found to contain no asbestos fibres.

4.6 PLASTER FINISHES

Plaster walls and ceilings were observed in the majority of the Building and were also reported by the Site Representative to be located behind recently installed gypsum board (within the past 10 years). Nine samples of wall and ceiling plaster were collected by AMEC throughout the Building. Four of nine samples of wall/ceiling plaster were found to contain 2 - 5 % chrysotile asbestos (see Photos 12, 13, 14 & 19).

AMEC's review of the previous sampling work, performed by PLEL, showed that three of eight plaster samples, collected from Room Nos. 1-18, 1-20 and a former kitchen (believed to be Room No. B-4), were ACM.

Due to the non-homogeneous nature of this material, all ceiling and wall plaster within the Building should be treated as ACM. Based on the quantity of plaster walls and ceilings directly observed, with an added 20 % as a margin of error, AMEC has estimated that there is 4000 m² of ACM wall and ceiling plaster within the Building.

Some areas of wall/ceiling plaster, located in Room Nos. 1-16, 1-20, B-21 and SB-1, were also observed to be damaged. Note that although analysis of ceiling plaster in Room No. B-21 (freezer room) and wall plaster in Room No. 1-20 showed no asbestos was detected, this material should be treated as asbestos based on positive results of similar samples and non-homogeneous nature of material.

It is noted that both the AMEC and previous PLEL plaster samples showed that the thin (3 - 4 mm thick) white, topcoat layer of plaster was, in all seven cases, found to be non-ACM. The underlying 25 mm thick layer of hard, grey, granular plaster was, in most cases, found to be asbestos-containing (see Photo 13). As it would be impractical to separate these two layers in a major renovation or demolition, the entire thickness of both plaster layers should be treated as an asbestos containing material.

4.7 ASBESTOS CEMENT PRODUCTS

A wallboard material was observed on the interior surfaces of a laboratory fume hood located in Room No. 1-17 (see Photo 16). A sample of this wallboard was analyzed and found to contain 25 % chrysotile asbestos. This type of wall board was also reported to exist below stainless steel sheeting in two other fume hoods. A fourth fume hood was reported by the Site Representative to be constructed only of stainless steel. The total quantity of ACM wallboard (3 fume hoods) has been estimated at 15 m².

It is noted that asbestos-containing, fume hood ductwork materials (i.e. tar, insulating cement and pipe), previously sampled by PLEL (1995 and 1996), was reported by the Site Representative to be removed from all fume hoods in 1996 and replaced with steel.

4.8 OTHER ASBESTOS CONTAINING MATERIALS

A sample of fabric located (0.03 m²) on a ceiling light fixture in Room No. SB-7 (former photography dark room) was analyzed and found to contain 80 % chrysotile asbestos (see Photo 2).

A sample of tar paper located below insulation on a duct in Room No. B-25 was analyzed and found to contain 8 - 10 % chrysotile asbestos (see Photo 10). There are two such ducts in this room (total quantity estimated at 6.25 m²).

4.9 QUALITY CONTROL DISCUSSION

As part of the quality control (QC) program for this Survey, four random duplicate samples of bulk building materials were collected and submitted to the laboratory for the purpose of data comparison as a measure of gauging the quality of the data set. Table 1-2 provides a summary of the duplicate sample results.

TABLE 1-2
Comparison of Asbestos Duplicate Sample Results
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| Sample # | Material Description | Location Room # | Asbestos Result (% & Type) | Relative Percent Difference (RPD) |
|----------|---|-----------------|----------------------------|-----------------------------------|
| ACM 9 | Floor tile, 23x23 cm, light brown with dark brown and white | B-2 | 5 % Chrysotile | 50 % |
| ACM D1 | | | 3 % Chrysotile | |
| ACM 37 | Tar paper, duct | B-25 | 8 % Chrysotile | 22 % |
| ACM D2 | | | 10 % Chrysotile | |
| ACM 39 | Ceiling plaster, grey granular, with wire mesh | 1-16 | 2 % Chrysotile | NE |
| ACM D3 | | | Trace Chrysotile | |
| ACM 40 | Ceiling plaster, white cementitious (thin top coat) | 1-16 | ND | NE |
| ACM D4 | | | ND | |

Notes:

ND denotes "Not detected".

NE denotes "Not Evaluated".

Upon review of the duplicate results, two of the four duplicate sample results were found to be equal to or within 50% relative percent difference (RPD), which is considered acceptable precision criteria for the bulk samples. These evaluations are only applicable when both results are at least three to five times the reporting limit. The other duplicate sample results were either non-detectable or slightly above detection limits, therefore these have not been evaluated. Data quality for this ACM Survey is therefore considered valid and results may be used with confidence for decision making purposes.

5.0 SUMMARY OF FINDINGS

Conclusions regarding ACMs at Agriculture and Agri-Foods Canada Building 25 in Mount Pearl, NL, correspond to the professional judgment of AMEC, which is based on results from the Survey as described in this report.

Based upon the results of fifty-two (52) samples of bulk materials and visual comparison of similar materials, ACMs were identified in the subject Building. A summary of all suspected ACM samples is provided in Table C-1 (Appendix C). Table 1-3 lists the estimated quantities of confirmed ACMs found within the Building.

TABLE 1-3
Estimated Quantities of ACMs
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| Material Description | Friable Y/N | Asbestos Result Percent & Type | Estimated Quantity | Comment |
|--|-------------|--------------------------------|---------------------------|---|
| Piping | | | | |
| Pipe wrap insulation, white, fibrous | Y | 20 % Amosite | 40 linear meters | Room No. SB-1 - Located on overhead, 300 mm dia. steam header pipe. Small damaged portion. |
| Pipe wrap insulation, corrugated, paper-type | Y | 10 % Chrysotile | 15 linear metres | Room No. SB-7 and sub-basement hallways - 10 cm dia. drain water pipe. |
| Pipe Fittings | | | | |
| Insulating pipe cement, elbows, joints, pipe wrap ends white, cementitious | Y | 70 - 80 % Chrysotile | 560 total | Located throughout building (except Room No. B-26). Room No. SB-1 - 240 fittings. Room No. B-25 - 110 fittings. Sub-basement Halls - 60 fittings. Various locations, i.e. behind metal heater covers, below stairwells, in hallways - 150 fittings. |
| Hot Water Tanks | | | | |
| Tank insulation, white, cementitious | Y | 10 % Chrysotile, 30 % Amosite | 13.6 m ² total | Room No. B-26 - Two tanks (same material) measuring 2.2 m x 0.8 m dia. |
| Flooring | | | | |
| Floor tile, 23x23 cm, various colours | N | 3 - 12 % Chrysotile | 570 m ² total | Located throughout building (See figures in appendix A). Nine colours include: green with white, white with black, light green with white and dark green, light green with white, red with white, light brown with dark brown and white, brown with dark brown, beige with green, and white with brown. |
| Plaster | | | | |
| Ceiling and wall plaster, grey granular. | Y (1) | 2 - 5 % Chrysotile | 4000 m ² total | Located throughout building (See figures in appendix A). Some plaster locations contain a wire mesh backing. |
| Wallboard | | | | |
| Wallboard, interior of fume hood | N | 25 % Chrysotile | 15 m ² total | Room Nos. 1-16, 1-17 & 1-18 each contain an ACM wallboard-lined fume hood - 5 m ² each. |
| Other Asbestos materials | | | | |
| Fabric, ceiling light fixture | N | 80 % Chrysotile | 0.03 m ² | Room No. SB-7 - 20 cm dia. |
| Tar paper, duct | N | 8 - 10 % Chrysotile | 6.25 m ² total | Room No. B-25. Two ducts 3.12 m ² each. |

NOTES:

- Although wall and ceiling plaster are considered non-friable in-situ, these plasters become friable during demolition, cutting or abrasion. As a result, wall and ceiling plasters should be treated as friable materials.

The Survey has confirmed that asbestos-containing materials exist at the subject property. The PWGSC DP:057 *Asbestos Management*, requires damaged ACMs be repaired or removed using specific procedures. It also requires the removal of all ACMs that have a potential of being disturbed during planned renovations, and that an Asbestos Management Plan be implemented and kept in place until such time that all ACMs have been removed from the buildings. A certified contractor must complete asbestos repairs or removals.

6.0 CLOSURE

This report presents the methodology and findings of an ACM Survey of Agriculture and Agri-Foods Canada Building 25, located in Mount Pearl, NL, reflecting AMEC's best judgment using information reasonably available at the Site at the time of AMEC's Site visit. AMEC has prepared this report using information understood to be factual and correct and shall not be responsible for conditions arising from information or facts that were concealed or not fully disclosed to AMEC at the time of the Site visit.

The limitations of the ACM Survey are specified in Appendix 7.

This report has been prepared for the exclusive use of Public Works and Government Services Canada. The work described herein was conducted in accordance with the generally accepted assessment practices, with the conclusions based on the Site information readily available at the time of completing the work. No other warranty, expressed or implied is made. AMEC will not be responsible for the use of this report by any third party, or reliance on or any decision to be made based on it without the prior written consent of AMEC. AMEC accepts no responsibility for damages, if any, by any third party as a result of decisions or actions based on this report.

We trust the above information is satisfactory. If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

AMEC Earth & Environmental

Prepared by:

A handwritten signature in black ink, appearing to read "John Krilow".

John Krilow, CET
Senior Environmental Technologist

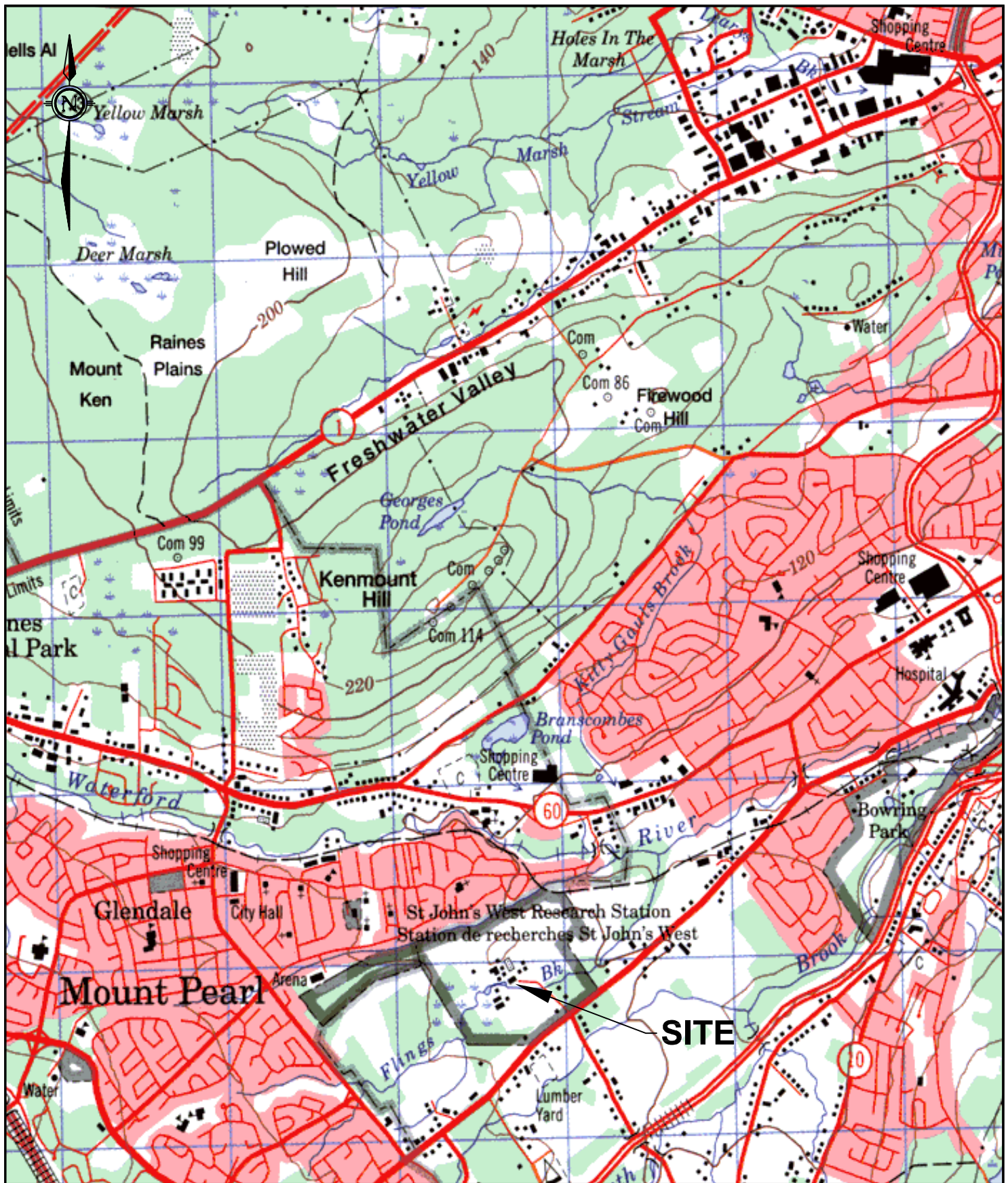
Reviewed by:



A handwritten signature in black ink, appearing to read "Rod Winsor".

Rod Winsor, MSc., P.Eng
Manager Newfoundland & Labrador

APPENDIX A

FIGURES



| | | | | | |
|---|---------------------------|--|--|----------------------------|------------------|
|  | Date: January 16, 2007 | | Project: GENERAL SITE LOCATION | | |
| | Drawn by: K. Curtis | | AGRICULTURE AND AGRI-FOODS CANADA BUILDING 25 | | |
|  Public Works and Government Services Canada Travaux publics et Services gouvernementaux Canada | Approved by: J. Krilow | | Scale: NTS | Project No.: TF61076144 | Figure No.: 1 |
| | | | | | |

NOTE: ALL WALLS ON BASEMENT LEVEL
CONSIST OF PLASTER CONTAINING
ASBESTOS.

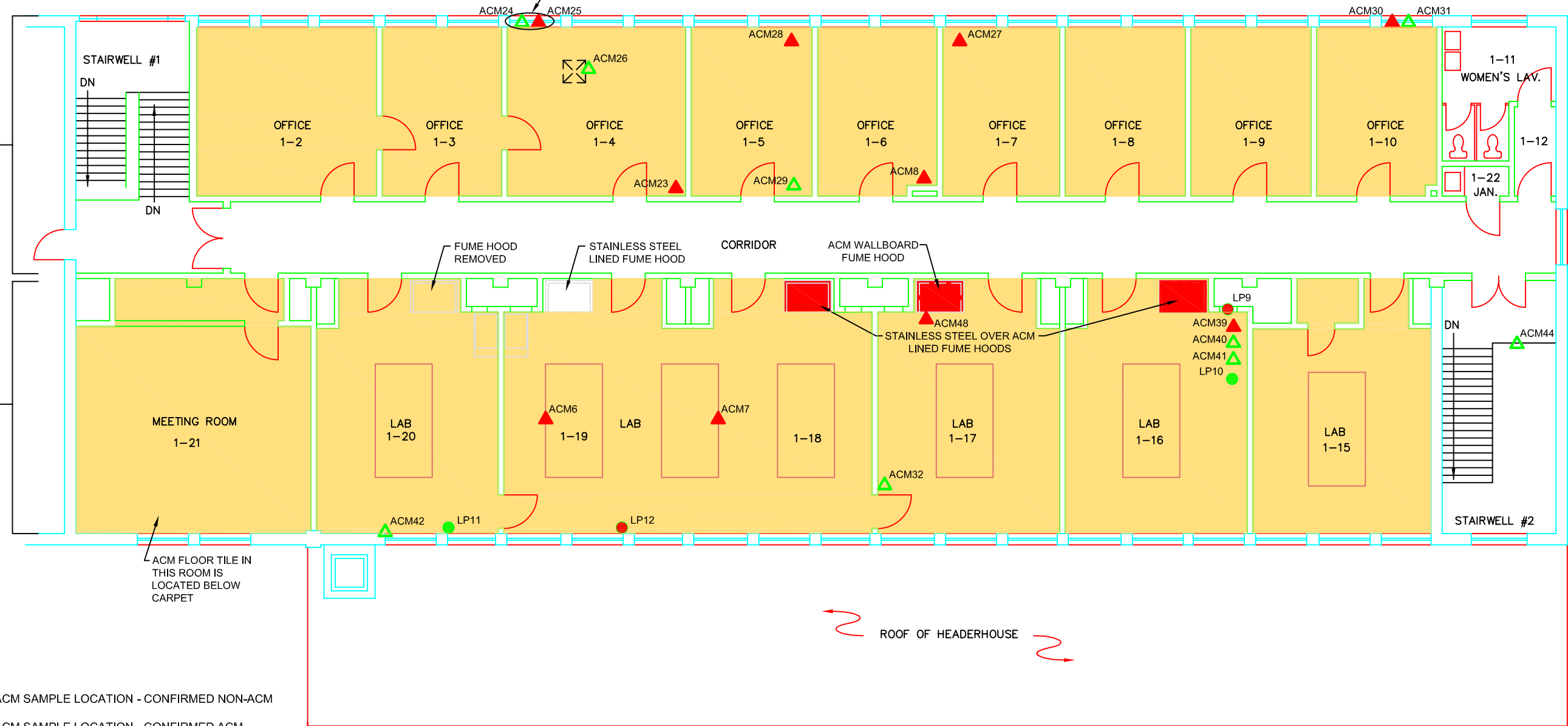
NOTE: CEILINGS IN THIS
HALF OF FIRST FLOOR
CONSIST OF SUSPENDED
(LAY-IN) TILES EXCEPT
STAIRWELLS & ROOM Nos.
1-11 & 1-22 ARE
PLASTER CONTAINING
ASBESTOS AND ROOM No.
1-4 IS GYPSUM BOARD

NOTE: CEILINGS IN THIS
HALF OF FIRST FLOOR
CONSIST OF PLASTER
CONTAINING ASBESTOS
EXCEPT ROOM No. 1-21 IS
SUSPENDED (LAY-IN) TILES

LEGEND

- ACM1 ▲ SUSPECTED ACM SAMPLE LOCATION - CONFIRMED NON-ACM
ACM1 ▲ SUSPECTED ACM SAMPLE LOCATION - CONFIRMED ACM
LP1 ● PAINT CHIP SAMPLING LOCATION - CONFIRMED NON-LBP
LP1 ● PAINT CHIP SAMPLING LOCATION - CONFIRMED LBP
■ DENOTES AREA OF CONFIRMED ACM FLOOR TILE
■ DENOTES ACM WALBOARD - LINED FUME HOOD
ACM - DENOTES ASBESTOS CONTAINING MATERIAL
LBP - DENOTES LEAD BASED PAINT
MBP - DENOTES MERCURY BASED PAINT

SEE PHOTO No.8 (APPENDIX 5) ASSUME 2 INSULATION ACM PIPE
FITTINGS FOR EACH HEATER ON EXTERIOR BUILDING WALLS.



FIRST FLOOR PLAN

SCALE: 1:125



FIGURE 2
SUSPECTED ACM AND LBP/MBP
SAMPLING LOCATIONS

FIRST FLOOR PLAN
AGRICULTURE AND AGRI-FOODS CANADA BUILDING 25
MOUNT PEARL, NL

NOTE: DIGITAL DRAWINGS PROVIDED BY PWGSC.
ORIGINAL DRAWINGS WERE EDITED FOR PURPOSES
OF BUILDING SURVEY AND ARE FOR REFERENCE ONLY

NOTE: ALL WALLS ON BASEMENT LEVEL
CONSIST OF PLASTER CONTAINING
ASBESTOS. MOST OFFICE WALLS CONTAIN
GYPSUM BOARD OVER PLASTER

NOTE: CEILINGS AND
OUTER WALLS ARE
CONCRETE, EXCEPT ROOMS
NO.s B-26 & GL-FARM
MANAGER ARE PLASTER

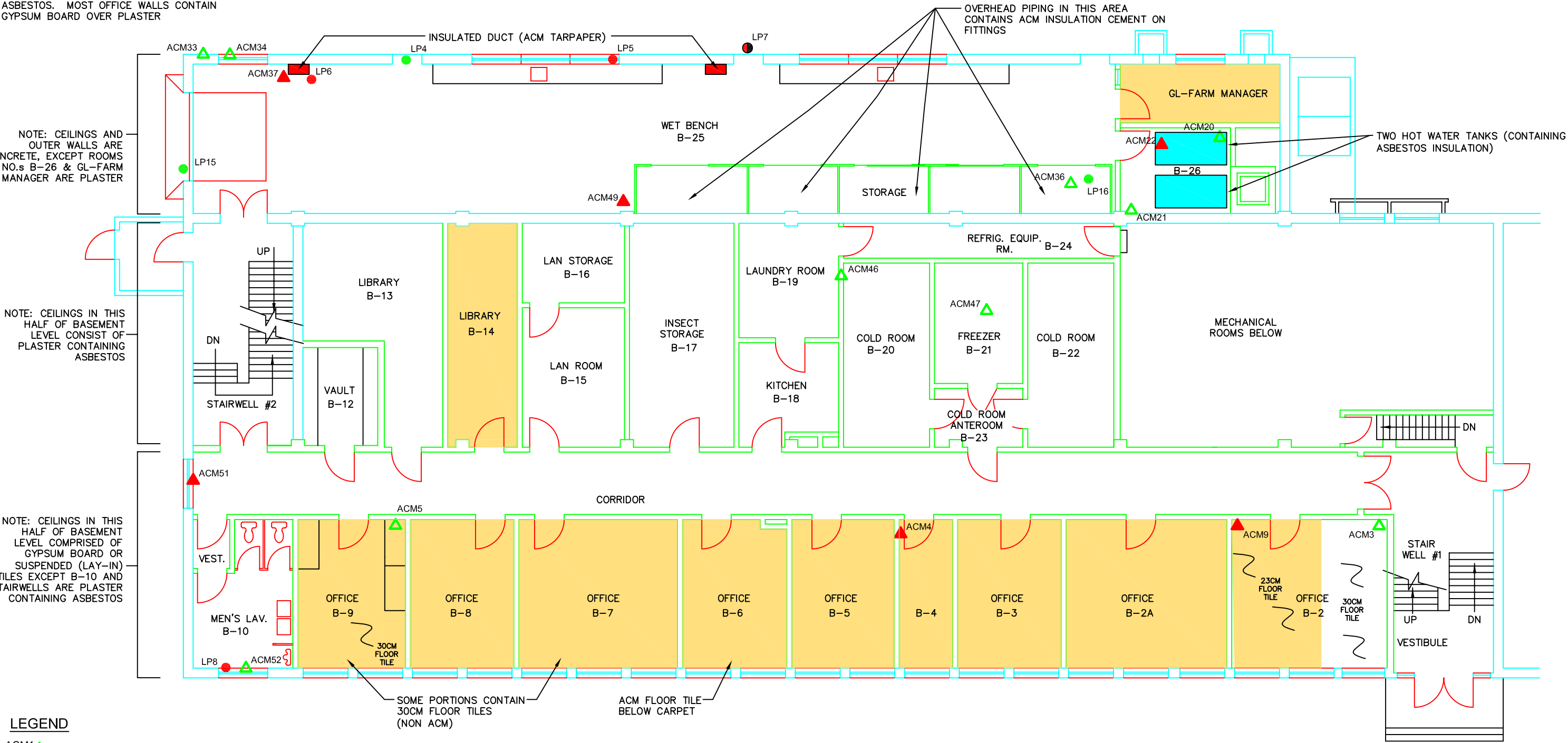
NOTE: CEILINGS IN THIS
HALF OF BASEMENT
LEVEL CONSIST OF
PLASTER CONTAINING
ASBESTOS

NOTE: CEILINGS IN THIS
HALF OF BASEMENT
LEVEL COMPRISED OF
GYPSUM BOARD OR
SUSPENDED (LAY-IN)
TILES EXCEPT B-10 AND
STAIRWELLS ARE PLASTER
CONTAINING ASBESTOS

LEGEND

- ACM1 ▲ SUSPECTED ACM SAMPLE LOCATION - CONFIRMED NON-ACM
ACM1 ▲ SUSPECTED ACM SAMPLE LOCATION - CONFIRMED ACM
LP1 ● PAINT CHIP SAMPLING LOCATION - CONFIRMED NON-LBP
LP1 ● PAINT CHIP SAMPLING LOCATION - CONFIRMED LBP
LP1 ● PAINT CHIP SAMPLING LOCATION - CONFIRMED LPB/MBP
■ DENOTES AREA OF CONFIRMED ACM FLOOR TILE
■ DENOTES ACM TAR PAPER OVER DUCT
■ DENOTES ACM TANK INSULATION

- ACM - DENOTES ASBESTOS CONTAINING MATERIAL
LBP - DENOTES LEAD BASED PAINT
MBP - DENOTES MERCURY BASED PAINT



BASEMENT PLAN

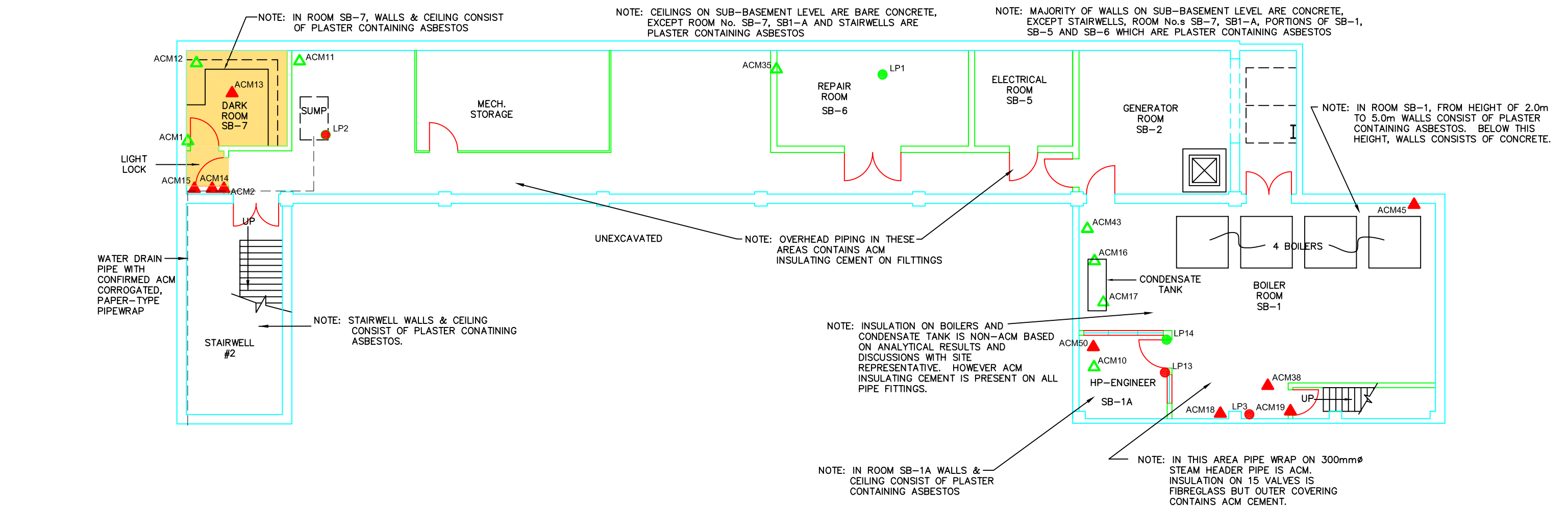
SCALE: 1:125



FIGURE 3
SUSPECTED ACM AND LBP/MBP
SAMPLING LOCATIONS

BASEMENT PLAN
AGRICULTURE AND AGRI-FOODS CANADA BUILDING 25
MOUNT PEARL, NL

NOTE: DIGITAL DRAWINGS PROVIDED BY PWGSC.
ORIGINAL DRAWINGS WERE EDITED FOR PURPOSES
OF BUILDING SURVEY AND ARE FOR REFERENCE ONLY



LEGEND

- ACM1 SUSPECTED ACM SAMPLE LOCATION - CONFIRMED NON-ACM
- ACM1 SUSPECTED ACM SAMPLE LOCATION - CONFIRMED ACM
- LP1 PAINT CHIP SAMPLING LOCATION - CONFIRMED NON-LBP
- LP1 PAINT CHIP SAMPLING LOCATION - CONFIRMED LBP
- DENOTES AREA OF CONFIRMED ACM FLOOR TILE

SUB-BASEMENT PLAN

SCALE: 1:125



FIGURE 4
SUSPECTED ACM AND LBP/MBP
SAMPLING LOCATIONS
 SUB-BASEMENT PLAN
 AGRICULTURE AND AGRI-FOODS CANADA BUILDING 25
 MOUNT PEARL, NL

NOTE: DIGITAL DRAWINGS PROVIDED BY PWGSC.
 ORIGINAL DRAWINGS WERE EDITED FOR PURPOSES
 OF BUILDING SURVEY AND ARE FOR REFERENCE ONLY

APPENDIX B

**LABORATORY CERTIFICATES
FOR PREVIOUS PLEL
ASBESTOS SAMPLING 1995 - 2004**

Pinchin LeBlanc
ENVIRONMENTAL LTD.

682 9812
Paul St. Laurent
754 4490

**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Agriculture Canada

PROJECT NO.: 02-151

LAB REFERENCE NO.: Db0574-1995

DATE: April 7, 1995

Two bulk samples were submitted for determination of their asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of two analyses were performed.

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

Pinchin LeBlanc Environmental Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for the identification of asbestos in bulk samples.

This test report relates only to the items tested.

The results are presented in the attached table.

lkc

**PINCHIN LEBLANC
ENVIRONMENTAL LTD.**

PARADISE COVE
500 PRINCE ALBERT ROAD
SUITE 100
DARTMOUTH, N.S.
B2Y 4P2

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada

LAB REFERENCE NO: Db0574-1895

PREPARED FOR: Frank Ralph

DATE: April 7, 1995

Agriculture Canada

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|---|--|--|--------------------------------|----------|
| | | ASBESTOS | OTHER | |
| 02-151-001AC Lab Fume Hood, Elbow Cement | Homogeneous, grey, soft cementitious material. | Chrysotile 50-75% | Non-fibrous Material 25-50% | |
| 02-151-002AC Lab Fume Hood, Cement Pipe, Straight | Homogeneous, grey, hard, cementitious material. | Chrysotile Crocidolite 10-25% 5-10% | Non-fibrous Material 50-75% | |

ANALYST: *Harry Campbell*

Pinchin LeBlanc
ENVIRONMENTAL LTD.

**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Agriculture Canada Building
Brookfield Road, St. John's, Newfoundland

PROJECT NO.: 02-512

LAB REFERENCE NO.: Db0764-1996

DATE: January 12, 1996

One bulk sample was submitted for determination of asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 800/R-93/118 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of one analysis was performed.

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

Pinchin LeBlanc Environmental Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for the identification of asbestos in bulk samples.

This test report relates only to the items tested.

The results are presented in the attached table.

NOTE:

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PINCHIN LEBLANC
ENVIRONMENTAL LTD.

PARADISE DRIVE
480 PRINCE ALBERT ROAD
SUITE 100
EDMONTON, AL.
T6B 2M6

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada Building 02-512
Brookfield Road, St. John's, NF.
PREPARED FOR: P. Staddon
Pinchin LeBlanc Environmental Ltd.

LAB REFERENCE NO: D60754-1998
DATE: January 12, 1998
PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|--------------------------------------|--------------------|---------------------------------|---|----------|
| | | ASBESTOS | OTHER | |
| 02-512-003 Contents of Vacuum Bag | Brown Dust | None Detected | Cellulose 25-50% Hair 5-10% Synthetic Fibres 1-5% Glass Fibres 0.1-1% Non-fibrous Material 50-75% | |

ANALYST: *Sperry Campbell*

**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Agriculture Canada Building
Brookfield Road

PROJECT NO.: 02-812

LAB REFERENCE NO.: Db0780-1996

DATE: March 12, 1996

One bulk sample was submitted for determination of asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of three analyses were performed.

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

Pinchin LeBlanc Environmental Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for the identification of asbestos in bulk samples.

This test report relates only to the items tested.

The results are presented in the attached table.

NOTE:

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**PINCHIN LEBLANC
ENVIRONMENTAL LTD.**

PARISSE COURT
280 FIVE ALBERT ROAD
BAYVIEW
DARTMOUTH, N.S.
B2H 1P

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada Building 02-512
Brookfield Road
PREPARED FOR: P. Staeben
Pinchin LeBlanc Environmental Ltd.

LAB REFERENCE NO: DR0780-1986

DATE: March 12, 1986

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|--|--|---|---|--|
| | | ASBESTOS | OTHER | |
| 02612-100 Fine Hood Exhaust Insulation, Exterior of Building | 3 Phases: a) Homogeneous, black tar. b) Homogeneous, brown, fibrous material. c) Homogeneous, gold, fibrous material. | Chrysotile 5-10% None Detected None Detected | Tar and Other Non- fibrous Material >75% Fibreglass >75% Non-fibrous Material 1-5% Glass Fibres >75% | This sample also contains a layer of cellulose fabric reinforcement. |

ANALYST: *Spakey*

Pinchin LeBlanc

ENVIRONMENTAL LTD.

ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING

PROJECT NAME: Agriculture and Agri Food Canada

PROJECT NO.: 02-630

LAB REFERENCE NO.: Db0970-1996

DATE: December 20, 1996

One bulk sample was submitted for determination of asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of one analysis was performed.

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

Pinchin LeBlanc Environmental Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for the identification of asbestos in bulk samples.

This test report relates only to the items tested.

The results are presented in the attached table.

NOTE:

This report may not be reproduced, except in full, without the written approval of the laboratory. The client may not use this report to claim product endorsement by NVLAP.

PINCHIN LEBLANC
ENVIRONMENTAL LTD.

PADDLER'S COVE
300 PRINCE ALBERT ROAD
SUITE 120
DAKIMOUTH, N.S.
B3B 1M2

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture and Agri Food Canada 02-630

LAB REFERENCE NO: Db0970-1996

PREPARED FOR: Frank Ralph
Agriculture and Agri Food Canada

DATE: December 20, 1996

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|----------------------------------|--|---------------------------------|-------------------------------|----------|
| | | ASBESTOS | OTHER | |
| Sample #1 Plaster Finish Coat | Homogeneous, white, hard, cementitious material. | None Detected | Non-fibrous Material > 75% | |

ANALYST: Heather Conaghan

PINCHIN LEBLANC
ENVIRONMENTAL LTD.
PARKER'S COVE
340 PRINCE ALBERT ROAD
SUITE 128
BARTMOUTH, N.S.
B3B 5M2

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture and Agri Food Canada 02-630

LAB REFERENCE NO: D60970-1996

PREPARED FOR: Frank Ralph
Agriculture and Agri Food Canada

DATE: December 20, 1996

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|----------------------------------|--|---------------------------------|-------------------------------|----------|
| | | ASBESTOS | OTHER | |
| Sample #1 Plaster Finish Coat | Homogeneous, white, hard, cementitious material. | None Detected | Non-fibrous Material > 75% | |

ANALYST: *Harvey Coupland*

PINCHIN LEBLANC
ENVIRONMENTAL LTD.

PADJER'S COY.
240 PRINCE ALBERT ROAD
SUITE 124
DARTMOUTH, N.S.
B3B 1M1

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada 02-832

LAB REFERENCE NO: Db1040-1997

PREPARED FOR: P. Staeben

DATE: March 21, 1997

Pinchin LeBlanc Environmental Ltd.

PAGE: 1 of 2

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|---|--|---------------------------------|-----------------------------|--|
| | | ASBESTOS | OTHER | |
| 02-832-001 Heating Line Elbow Cement, Room B7 | Homogeneous, grey, soft, cementitious material. | Chrysotile 50-75% | Non-fibrous Material 25-50% | Vinyl floor tiles may contain very fine asbestos fibres which are not visible using the PLM method, therefore the estimated percentage of asbestos in this sample should be treated as a minimum value only. A more reliable estimate of asbestos content may be obtained by analysis by Transmission Electron Microscopy (TEM). |
| 02-832-002 9"x9", Floor Tile, Room B5 | Homogeneous, green, consolidated material. | Chrysotile 1-5% | Non-fibrous Material >75% | |
| 02-832-003 Wall Finish, Kitchen | Homogeneous, grey, hard, cementitious material. | Chrysotile 1-5% | Non-fibrous Material >75% | |

ANALYST: *Harry Long*

PINCHIN LEBLANC
ENVIRONMENTAL LTD.

7 ADDLER'S COW
390 PRINCE ALBERT ROAD
SUITE 129
DARTMOUTH, N.S.
B3B 1X3

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada 02-832

LAB REFERENCE NO: Db1040-1997

PREPARED FOR: P. Staeben
Pinchin LeBlanc Environmental Ltd.

DATE: March 21, 1997

PAGE: 2 of 2

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|------------------------------------|---|---------------------------------|----------------------------|----------|
| | | ASBESTOS | OTHER | |
| 02-832-004 Wall Finish, Room B7 | 2 Phases: | | | |
| | a) Homogeneous, white, hard, cementitious material. | None Detected | Non-fibrous Material > 75% | |
| | b) Homogeneous, light beige, hard, cementitious material. | Chrysotile < 0.1% | Non-fibrous Material > 75% | |
| 02-832-005 Wall Finish, Room B5 | Homogeneous, beige, hard, cementitious material. | Chrysotile < 0.1% | Non-fibrous Material > 75% | |

ANALYST: *Patrick Carver*



**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Agriculture Canada
Bulk Asbestos

PROJECT NO.: 02-4230

LAB REFERENCE NO.: Db3612 - 2004

DATE: March 18, 2004

One sample was submitted for determination of its asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of two analyses were performed.

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.

This test relates only to the items tested. The results are presented in the attached table.

BULK SAMPLE ANALYSIS

PROJECT NAME:

Agriculture Canada
Bulk Asbestos

02-4230

PREPARED FOR:

Quentin Cribb
Pinchin LeBlanc Env.

LAB REFERENCE No: Db3612 - 2004

DATE: March 18, 2004

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|---|--|---------------------------------|------------------------------|----------|
| | | ASBESTOS | OTHER | |
| 001 Lab 1-18, plaster on wall around column | 2 phases: a) Homogenous, white, soft, cementitious material | None detected | Non-fibrous material >75% | |
| | b) Homogenous, tan, granular, cementitious material | Chrysotile 1-5% | Non-fibrous material >75% | |



**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Agriculture Canada
Bulk Asbestos

PROJECT NO.: 02-4230

LAB REFERENCE NO.: Db3591 - 2004

DATE: March 23, 2004

Three samples were submitted for determination of their asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. 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 volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of six analyses were performed.

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.

This test relates only to the items tested. The results are presented in the attached table.

BULK SAMPLE ANALYSIS

PROJECT NAME: Agriculture Canada
Bulk Asbestos

02-4230

PREPARED FOR: Quentin Cribb
Pinchin LeBlanc Env.

LAB REFERENCE No: Db3591 - 2004

DATE: March 23, 2004

PAGE: 1 of 1

| SAMPLE IDENTIFICATION | SAMPLE DESCRIPTION | % COMPOSITION (VISUAL ESTIMATE) | | COMMENTS |
|--|---|---------------------------------|----------------------|----------|
| | | ASBESTOS | OTHER | |
| 001 Agriculture Canada soils lab 119, plaster ceiling | 2 phases: | | | |
| | a) Homogenous, white, soft, cementitious material | None detected | Non-fibrous material | >75% |
| | b) Homogenous, tan, granular, cementitious material | Chrysotile 0.1-1% | Non-fibrous material | >75% |
| 002 Agriculture Canada lab 116, plaster on ceiling | 2 phases: | | | |
| | a) Homogenous, white, soft, cementitious material | None detected | Non-fibrous material | >75% |
| | b) Homogenous, tan, granular, cementitious material | Chrysotile 0.1-1% | Non-fibrous material | >75% |
| 003 Agriculture Canada analytical lab 1-20, plaster ceiling | 2 phases: | | | |
| | a) Homogenous, white, soft, cementitious material | None detected | Non-fibrous material | >75% |
| | b) Homogenous, tan, granular, cementitious material | Chrysotile 1-5% | Non-fibrous material | >75% |



APPENDIX C

RESULT TABLES
AND
LABORATORY CERTIFICATES

TABLE C-1
Summary of ACM Survey
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| Sample # | Material Description | Location Room # | Photo # | Friable Y/N | Condition Good/Fair/poor/damaged | Asbestos Result Percent & Type | Estimated Quantity | Comment |
|----------|---|-----------------|---------|-------------|----------------------------------|--|---------------------------|--|
| ACM1 | Cement, rubber baseboard molding | SB-7 | -- | N | Fair | ND | -- | |
| ACM 2 | Floor tile, 23x23 cm, green with white | SB-7 | 1 | N | Good | 5 % Chrysotile | See note (2) | |
| ACM 3 | Floor tile, 30x30 cm, beige | B-2 | -- | N | Good | Trace Chrysotile | -- | Present only in a portion of room. |
| ACM 4 | Floor tile, 23x23 cm, white with black | B-4 | -- | N | Good | 8 % Chrysotile | See note (2) | |
| ACM 5 | Floor tile, 30x30 cm, green with white | B-9 | -- | N | Good | ND | -- | Present only in a portion of room. |
| ACM 6 | Floor tile, 23x23 cm, light green with white and dark green | 1-19 | -- | N | Good | 3 % Chrysotile | See note (2) | |
| ACM 7 | Floor tile, 23x23 cm, light green with white | 1-18 | -- | N | Good | 8 % Chrysotile | See note (2) | |
| ACM 8 | Floor tile, 23x23 cm, red with white | 1-6 | -- | N | Good | 12 % Chrysotile | See note (2) | |
| ACM 9 | Floor tile, 23x23 cm, light brown with dark brown and white | B-2 | -- | N | Good | 5 % Chrysotile 3 % Chrysotile (Duplicate) | See note (2) | Present only in a portion of room. Duplicate D1 collected. |
| ACM 10 | Floor tile, 30x30 cm, green | SB-1A | -- | N | Good | ND | -- | |
| ACM 11 | Pipe insulation, brown, wool-like | SB Hall | -- | Y | Damaged | ND | -- | Similar material observed at numerous wall cavities throughout building. |
| ACM 12 | Ceiling plaster, white, cementitious, thin topcoat only | SB-7 | -- | Y | Damaged | ND | -- | Small damaged area. |
| ACM 13 | Fabric, ceiling light fixture | SB-7 | 2 | N | Good | 80 % Chrysotile | 0.03 m ² | 20 cm dia. |
| ACM 14 | Pipe wrap insulation, corrugated, paper-type | SB-7 | 3 | Y | Good | 10 % Chrysotile | 15 linear metres | 10 cm dia. drain water pipe. |
| ACM 15 | Insulating pipe cement, joint, white, cementitious | SB-7 | 4 | Y | Good | 70 % Chrysotile | See note (3) | |
| ACM 16 | Tank insulation, white cementitious | SB-1 | -- | Y | Damaged | ND | -- | Condensate tank. Measures 1.8 m x 0.9 m dia. |
| ACM 17 | Pipe wrap insulation | SB-1 | -- | Y | Good | ND | -- | |
| ACM 18 | Insulating pipe cement elbow, white, cementitious | SB-1 | 5 | Y | Good | 75 % Chrysotile | See note (3) | |
| ACM 19 | Pipe wrap insulation, white, fibrous | SB-1 | 6 | Y | Poor | 20 % Amosite | 40 linear meters | Located on overhead, 300 mm dia. steam header pipe. Small damaged portion. |
| ACM 20 | Pipe wrap insulation | B-26 | -- | Y | Good | ND | -- | |
| ACM 21 | Insulating pipe cement elbow, white cementitious | B-26 | -- | Y | Good | ND | -- | |
| ACM 22 | Tank insulation, white, cementitious | B-26 | 7 | Y | Good | 10 % Chrysotile, 30 % Amosite | 13.6 m ² total | Two tanks (same material) measuring 2.2 m x 0.8 m dia. |
| ACM 23 | Floor tile, 23x23 cm, brown with dark brown | 1-4 | -- | N | Good | 12 % Chrysotile | See note (2) | |
| ACM 24 | Insulating pipe wrap | 1-4 | -- | Y | Good | ND | -- | Located behind metal heater cover |
| ACM 25 | Insulating pipe cement elbow, white cementitious | 1-4 | 8 | Y | Good | 75 % Chrysotile | See note (3) | Qty: 2 per heater |

TABLE C-1 Cont'd
Summary of ACM Survey
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| Sample # | Material Description | Location Room # | Photo # | Friable Y/N | Condition Good/Fair/poor/damaged | Asbestos Result Percent & Type | Estimated Quantity | Comment |
|----------|---|-----------------|---------|-------------|----------------------------------|--|---------------------------|--|
| ACM 26 | Concrete, underside of roof | 1-4 | -- | N | Poor | ND | -- | Somewhat damaged and chipped. |
| ACM 27 | Floor tile, 23x23 cm, beige with green | 1-7 | -- | N | Good | 8 % Chrysotile | See note (2) | |
| ACM 28 | Floor tile, 23x23 cm, white with brown | 1-5 | -- | N | Good | 3 % Chrysotile | See note (2) | |
| ACM 29 | Ceiling tile, suspended, grey | 1-5 | -- | Y | Good | ND | -- | |
| ACM 30 | Insulating pipe cement, paste on ends of wrap | 1-10 | 9 | Y | Good | 80 % Chrysotile | See note (3) | Located behind metal heater cover. Elbow cement was removed here. |
| ACM 31 | Tarry material, black | 1-10 | -- | N | Good | ND | -- | Located around piping and styrofoam of exterior wall. |
| ACM 32 | Wall plaster, 2 layers white cementitious and grey granular | 1-17 | -- | Y | Good | Trace Chrysotile | -- | 30 cm thick. Red brick behind plaster. |
| ACM 33 | Brick mortar, exterior | Exterior | -- | N | Good | ND | -- | |
| ACM 34 | Concrete, exterior, with white aggregate | Exterior | -- | N | Good | ND | -- | Exterior window sills and columns. |
| ACM 35 | Concrete, wall | SB-6 | -- | N | Poor | ND | -- | Small damaged portion |
| ACM 36 | Dust, white, storage room floor | B-25 | -- | Y | Poor | Trace Actinolite | -- | Likely originated from overhead pipe insulation |
| ACM 37 | Tar paper, duct | B-25 | 10 | N | Good | 8 % Chrysotile 10 % Chrysotile (Duplicate) | 6.25 m ² total | Two similar ducts Duplicate D-2 collected. |
| ACM 38 | Insulating pipe cement, paste on ends of wrap | SB-1 | 11 | Y | Good | 75 % Chrysotile | See note (3) | Cement paste on ends of valve insulation which appears to be fiberglass. |
| ACM 39 | Ceiling plaster, grey granular, with wire mesh | 1-16 | 12,13 | Y (1) | Damaged | 2 % Chrysotile Trace Chrysotile (duplicate) | See note (4) | Duplicate D-3 collected. |
| ACM 40 | Ceiling plaster, white cementitious (thin top coat) | 1-16 | -- | Y | Damaged | ND ND (Duplicate) | -- | Duplicate D-4 collected. |
| ACM 41 | Gypsum board, white | 1-16 | -- | N | Damaged | ND | -- | |
| ACM 42 | Wall plaster, white cementitious and grey granular | 1-20 | -- | Y | Poor | ND | -- | Small damaged area near pencil sharpener. |
| ACM 43 | Insulation on overhead duct work | SB-1 | -- | Y | Good | ND | -- | |
| ACM 44 | Terrazzo flooring | Stairwell #2 | -- | N | Good | Trace Chrysotile | -- | |
| ACM 45 | Wall plaster, with wire mesh | SB-1 | 14 | Y (1) | Damaged | 2 % Chrysotile | See note (4) | |
| ACM 46 | Cement, ceramic wall tile | B-19 | -- | N | Good | ND | -- | |
| ACM 47 | Ceiling plaster, walk-in freezer, with wire mesh | B-21 | 15 | Y | Damaged | ND | -- | |

TABLE C-1 Cont'd
Summary of ACM Survey
Agriculture and Agri-Foods Canada Building 25, Mount Pearl, NL

| Sample # | Material Description | Location Room # | Photo # | Friable Y/N | Condition Good/Fair/poor/damaged | Asbestos Result Percent & Type | Estimated Quantity | Comment |
|----------|--|-----------------|---------|-------------|----------------------------------|--------------------------------|-------------------------|---|
| ACM 48 | Wallboard, interior of fume hood | 1-17 | 16 | N | Good | 25 % Chrysotile | 15 m ² total | Three fume hoods on first floor contain asbestos wallboard. |
| ACM 49 | Insulating pipe cement elbow, white cementitious | B-25 | 17 | Y | Good | 75 % Chrysotile | See note (3) | |
| ACM 50 | Wall plaster, grey granular | SB-1A | 18 | Y (1) | Good | 3 % Chrysotile | See note (4) | |
| ACM 51 | Wall plaster, white cementitious and grey granular | B Level Hall | 19 | Y (1) | Fair | 5 % Chrysotile | See note (4) | |
| ACM 52 | Window caulking, white | B-10 | -- | N | Good | ND | -- | |

NOTES:

2. Although wall and ceiling plaster are considered non-friable in-situ, these plasters become friable during demolition, cutting or abrasion. As a result, wall and ceiling plasters should be treated as friable materials.
3. Total estimated quantity of 23 x 23 cm ACM floor tile throughout building is 570 m² (See Figures 2, 3 & 4 in Appendix A for locations).
4. Total number of insulating ACM cement pipe fittings (elbows, joints, pipe wrap ends) throughout building has been estimated at 560 (See Figures 2, 3 & 4 in Appendix A for general locations).
5. Total estimated quantity of ACM plaster walls and ceilings throughout building is 4000 m² (See Figures 2, 3 & 4 in Appendix A for general locations).

"ND" denotes no asbestos fibres detected.

"Trace" denotes asbestos fibre(s) detected, however below 1%.

Shaded cells denote "asbestos containing material".



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W.O.#: TF61076144
Project: AC Bldg 25 Hazmat
Fax #: 709-722-7353
Page: 1 of 10

Re: Polarized Light Microscopy Results

| | Lab Sample Number/Type | Client Sample Number/Description | Sample Location | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | | % |
|-----------------------|------------------------------|--|--------------------|-------------------|---------|-----------------------------|--|-----------------------|-----------------|------------------|------------------------|-------|----|
| | | | | Chrysotile | Amosite | Other Asbestos Fibres | | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | |
| 2006B- Homogeneous | 01127 | ACM-01 | | --- | --- | --- | | 2 | --- | --- | 1 | | 97 |
| 2006B- Homogeneous | 01128 | ACM-02 | | 5 | --- | --- | | 1 | --- | --- | 3 | | 91 |
| 2006B- Homogeneous | 01129 | ACM-03 | | trace | --- | --- | | 2 | --- | --- | 3 | | 95 |
| 2006B- Homogeneous | 01130 | ACM-04 | | 8 | --- | --- | | 1 | --- | --- | 2 | | 89 |
| 2006B- Homogeneous | 01131 | ACM-05 | | --- | --- | --- | | 2 | --- | --- | 3 | | 95 |

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Re: Polarized Light Microscopy Results

| Lab Sample Number/Type | Client Sample Number/Description | Sample Location | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | % |
|------------------------------|--|--------------------|-------------------|---------|-----------------------------|--|-----------------------|-----------------|------------------|---------------------------------|------------------------|
| | | | Chrysotile | Amosite | Other Asbestos Fibres | | Cellulose | Mineral Wool | Fibrous Glass | Other Non-Asbestos Fibres | Nonfibrous Material |
| 2006B- Homogeneous | 01132 | ACM-06 | 3 | --- | --- | | 2 | --- | --- | 5 | 90 |
| 2006B- Homogeneous | 01133 | ACM-07 | 8 | --- | --- | | 1 | --- | --- | 5 | 86 |
| 2006B- Homogeneous | 01134 | ACM-08 | 12 | --- | --- | | 1 | --- | --- | 2 | 85 |
| 2006B- Homogeneous | 01135 | ACM-09 | 5 | --- | --- | | 2 | --- | --- | 2 | 91 |
| 2006B- Homogeneous | 01136 | ACM-10 | --- | --- | --- | | 1 | --- | --- | 3 | 96 |

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Re: Polarized Light Microscopy Results

| | | | | | | | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | | % |
|----------------------------|----------------------------------|-----------------|--|--|--|--|-------------------|---------|-----------------------|-----------|-----------------------|---------------|---------------------|-------|---------------------|---|
| | | | | | | | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | Nonfibrous Material | |
| Lab Sample Number/Type | Client Sample Number/Description | Sample Location | | | | | | | | | | | | | | |
| 2006B-01137 Homogeneous | ACM-11 | | | | | | --- | --- | --- | 8 | --- | --- | 90 | | 2 | |
| 2006B-01138 Homogeneous | ACM-12 | | | | | | --- | --- | --- | 1 | --- | --- | 1 | | 98 | |
| 2006B-01139 2 Layer | ACM-13 | | | | | | 80 | --- | --- | 5 | --- | --- | --- | | 15 | |
| 2006B-01140 M Layer | ACM-14 | | | | | | 10 | --- | --- | 75 | --- | --- | 10 | | 5 | |
| 2006B-01141 2 Layer | ACM-15 | | | | | | 70 | --- | --- | 5 | --- | --- | 15 | | 10 | |

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Re: Polarized Light Microscopy Results

| Lab | | | | | Client | | Sample | | Sample | | ASBESTOS FIBRES | | | | | | | | | | NON-ASBESTOS FIBRES | | | | | % |
|-------------|-------|--------------------|--|--|--------|--|--------|--|----------|--|-----------------|---------|-----------------------|--|-----------|--------------|---------------|---------------------|-------|--|---------------------|--|----|--|--|---|
| Number/Type | | Number/Description | | | Sample | | Sample | | Location | | Chrysotile | Amosite | Other Asbestos Fibres | | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | | | | | | | |
| 2006B- | 01142 | ACM-16 | | | | | | | | | --- | --- | --- | | 15 | 25 | --- | --- | 5 | | | | 55 | | | |
| Homogeneous | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2006B- | 01143 | ACM-17 | | | | | | | | | --- | --- | --- | | 10 | 75 | --- | --- | 10 | | | | 5 | | | |
| 3 Layer | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2006B- | 01144 | ACM-18 | | | | | | | | | 75 | --- | --- | | 5 | --- | --- | --- | 10 | | | | 10 | | | |
| 2 Layer | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2006B- | 01145 | ACM-19 | | | | | | | | | --- | 20 | --- | | 30 | --- | --- | --- | 10 | | | | 40 | | | |
| 3 Layer | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2006B- | 01146 | ACM-20 | | | | | | | | | --- | --- | --- | | 10 | 70 | --- | --- | 15 | | | | 5 | | | |
| 3 Layer | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Lab | | | Client | | ASBESTOS FIBRES % | | | | | NON-ASBESTOS FIBRES % | | | | | % |
|----------------------------|---------------------------|-----------------|------------|---------|-----------------------|-----------|--------------|---------------|---------------------|-----------------------|---------------------|--|--|--|---|
| Sample Number/Type | Sample Number/Description | Sample Location | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | Nonfibrous Material | | | | |
| 2006B-01147 Homogeneous | ACM-21 | | --- | --- | --- | 15 | 25 | --- | | 5 | 55 | | | | |
| 2006B-01148 2 Layer | ACM-22 | | 10 | 30 | --- | 25 | 5 | --- | | 5 | 25 | | | | |
| 2006B-01149 Homogeneous | ACM-23 | | 12 | --- | --- | 1 | --- | --- | | 1 | 86 | | | | |
| 2006B-01150 3 Layer | ACM-24 | | --- | --- | --- | 5 | 75 | --- | | 15 | 5 | | | | |
| 2006B-01151 2 Layer | ACM-25 | | 75 | --- | --- | 3 | --- | --- | | 10 | 12 | | | | |

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| Lab | | | | Client | | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | % |
|-------------------|-------|--------------------|--|-----------------|--|-------------------|---------|-----------------------|-----------|-----------------------|---------------|---------------------|-------|---------------------|
| Sample | | Number/Description | | Sample Location | | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | Nonfibrous Material |
| 2006B-Homogeneous | 01152 | ACM-26 | | | | --- | --- | --- | 1 | --- | --- | 2 | | 97 |
| 2006B-Homogeneous | 01153 | ACM-27 | | | | 8 | --- | --- | 1 | --- | --- | 1 | | 90 |
| 2006B-Homogeneous | 01154 | ACM-28 | | | | 3 | --- | --- | 1 | --- | --- | 1 | | 95 |
| 2006B-Homogeneous | 01155 | ACM-29 | | | | --- | --- | --- | --- | 95 | --- | --- | | 5 |
| 2006B-Homogeneous | 01156 | ACM-30 | | | | 80 | --- | --- | 3 | 2 | --- | --- | | 15 |

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Re: Polarized Light Microscopy Results

| Lab | | | | Client | | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | % |
|----------------------------|---------------------------|-----------------|--|------------|---------|-----------------------|-----------|--------------|---------------|-----------------------|-------|--|---------------------|---|
| Sample Number/Type | Sample Number/Description | Sample Location | | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | | Nonfibrous Material | |
| | | | | | | | | | | | | | | |
| 2006B-01157 Homogeneous | ACM-31 | | | --- | --- | --- | --- | --- | --- | 1 | 1 | | 99 | |
| 2006B-01158 Homogeneous | ACM-32 | | | trace | --- | --- | 1 | --- | --- | 2 | | | 97 | |
| 2006B-01159 Homogeneous | ACM-33 | | | --- | --- | --- | 2 | --- | --- | 3 | | | 95 | |
| 2006B-01160 Homogeneous | ACM-34 | | | --- | --- | --- | 1 | --- | --- | 2 | | | 97 | |
| 2006B-01161 Homogeneous | ACM-35 | | | --- | --- | --- | 1 | --- | --- | 1 | 1 | | 98 | |

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Re: Polarized Light Microscopy Results

| Lab | | | Client | | ASBESTOS FIBRES | | | | | | | | | | NON-ASBESTOS FIBRES | | | | | | | | | | % | | |
|-------------------|-------|-------------|--------|--|--------------------|--------|--|----------|--|------------|-----|------------------|--|-----------------------|---------------------|-----------|-----|--------------|--|---------------|-----|---------------------|--|-------|---------------------|--|----|
| Sample | | Number/Type | Sample | | Number/Description | Sample | | Location | | Chrysotile | | Amosite | | Other Asbestos Fibres | | Cellulose | | Mineral Wool | | Fibrous Glass | | Non-Asbestos Fibres | | Other | Nonfibrous Material | | % |
| 2006B-Homogeneous | 01162 | | ACM-36 | | | | | | | --- | --- | actinolite trace | | | | 25 | 5 | --- | | | --- | 5 | | | | | 65 |
| 2006B-Homogeneous | 01163 | | ACM-37 | | | | | | | 8 | --- | --- | | | | 10 | --- | | | 25 | | 5 | | | | | 52 |
| 2006B-Homogeneous | 01164 | | ACM-38 | | | | | | | 75 | --- | --- | | | | 5 | --- | | | --- | | 10 | | | | | 10 |
| 2006B-Homogeneous | 01165 | | ACM-39 | | | | | | | 2 | --- | --- | | | | 1 | --- | | | --- | | 2 | | | | | 95 |
| 2006B-Homogeneous | 01166 | | ACM-40 | | | | | | | --- | --- | --- | | | | --- | --- | | | --- | | 1 | | | | | 99 |

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 St. John's NL.
 A1B 4A5
 Attn.: John Krilow

Date: December 15, 2006
 File#: JB06-205
 W.O.#: TF61076144
 Project: AC Bldg 25 Hazmat
 Fax #: 709-722-7353
 Page: 9 of 10

Re: Polarized Light Microscopy Results

| Lab | | | | | | Client | | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | | % | | | |
|-------------------|-------|-------------|--|--------|--|--------------------|--|-------------------|--|----------|--|-----------------------|---------|-----------------------|-----------|--------------|---------------|---------------------|-------|---------------------|
| Sample | | Number/Type | | Sample | | Number/Description | | Sample | | Location | | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | Nonfibrous Material |
| 2006B-Homogeneous | 01167 | | | ACM-41 | | | | | | | | --- | --- | --- | 25 | --- | --- | 5 | | 70 |
| 2006B-Homogeneous | 01168 | | | ACM-42 | | | | | | | | --- | --- | --- | 20 | --- | --- | 8 | | 72 |
| 2006B-Homogeneous | 01169 | | | ACM-D1 | | | | | | | | 3 | --- | --- | 1 | --- | --- | 1 | | 95 |
| 2006B-Homogeneous | 01170 | | | ACM-D2 | | | | | | | | 10 | --- | --- | 5 | --- | 25 | 5 | | 55 |
| 2006B-Homogeneous | 01171 | | | ACM-D3 | | | | | | | | trace | --- | --- | 3 | 1 | --- | 2 | | 94 |
| 2006B-Homogeneous | 01172 | | | ACM-D4 | | | | | | | | --- | --- | --- | 1 | --- | --- | 2 | | 97 |

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Re: Polarized Light Microscopy Results:

Bulk samples were analyzed using Polarized Light Microscopy and dispersion staining techniques. The analytical procedures are in accordance with NIOSH Method 9002.

The % composition of the asbestos forms and other materials identified are the subjective visual judgement of the analyst based on specialized training, experience and comparison to standard area projections. The limit of detection is <1% asbestos and the sample range is from 1 to 100% asbestos.

Due to the subjectivity of the Method, the quoted % of asbestos detected is an estimate and no responsibility is assumed to the manner in which the results are used or interpreted.

Separate components (eg. layers) are described separately and are combined in proportion to their abundance with a single analysis provided for the sample.

Analyst 
Authorized Signature 

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Re: Polarized Light Microscopy Results

| Lab | | | | Client | | ASBESTOS FIBRES % | | | | NON-ASBESTOS FIBRES % | | | | | Nonfibrous Material |
|--------------------|-------|---------------------------|--|-----------------|--|-------------------|---------|-----------------------|-----------|-----------------------|---------------|---------------------|-------|----|---------------------|
| Sample Number/Type | | Sample Number/Description | | Sample Location | | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | % | |
| 2006B-2 Layer | 01174 | ACM 43 | | | | --- | --- | --- | 85 | --- | --- | 10 | | 5 | |
| 2006B-Homogeneous | 01175 | ACM 44 | | | | trace | --- | --- | 3 | --- | --- | 2 | | 95 | |
| 2006B-2 Layer | 01176 | ACM 45 | | | | 2 | --- | --- | 1 | --- | --- | 2 | | 95 | |
| 2006B-2 Layer | 01177 | ACM 46 | | | | --- | --- | --- | 2 | --- | --- | 8 | | 90 | |
| 2006B-Homogeneous | 01178 | ACM 47 | | | | --- | --- | --- | 2 | --- | --- | 3 | | 95 | |

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Re: Polarized Light Microscopy Results

| Lab | | | Client | | Sample | | ASBESTOS FIBRES % | | NON-ASBESTOS FIBRES % | | | | | % |
|--------------------|---------------------------|-----------------|------------|---------|-----------------------|-----------|-------------------|---------------|-----------------------|-------|---------------------|--|--|---|
| Sample Number/Type | Sample Number/Description | Sample Location | Chrysotile | Amosite | Other Asbestos Fibres | Cellulose | Mineral Wool | Fibrous Glass | Non-Asbestos Fibres | Other | Nonfibrous Material | | | |
| | | | | | | | | | | | | | | |
| 2006B-Homogeneous | 01179 | ACM 48 | 25 | --- | --- | 1 | --- | --- | 1 | --- | 73 | | | |
| 2006B-Homogeneous | 01180 | ACM 49 | 75 | --- | --- | 3 | --- | --- | 15 | --- | 7 | | | |
| 2006B-Homogeneous | 01181 | ACM 50 | 3 | --- | --- | 1 | --- | --- | 1 | --- | 95 | | | |
| 2006B-Homogeneous | 01182 | ACM 51 | 5 | --- | --- | 2 | --- | --- | 3 | --- | 90 | | | |
| 2006B-Homogeneous | 01183 | ACM 52 | --- | --- | --- | 2 | --- | --- | 1 | --- | 97 | | | |

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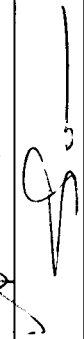
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APPENDIX D

ASBESTOS BACKGROUND INFORMATION

Asbestos

The disturbance of ACMs is governed by guidelines and codes of practice contained in the Newfoundland and Labrador *Asbestos Abatement Regulations* (Nfld. Reg. 111/98) and the federal Public Works and Government Services Canada (PWGSC) Departmental Policy (i.e. DP:057). ACMs must be removed prior to any demolition or renovation that may potentially disturb the asbestos materials.

Asbestos is a family of naturally occurring fibrous silicates from two mineralogical groups:

- Serpentine, which include chrysotile (white asbestos). These fibres are pliable, curly and made of tiny individual fibrils. They are spiral in shape.
- Amphiboles, which include amosite (brown asbestos) and crocidolite (blue asbestos). These fibres are straight and needle like.

The qualities of asbestos that promoted its use in construction are as follows:

- Fire
- Tensile strength
- Durability
- Flexibility
- Resistance to heat, wear, corrosion

Asbestos is typically found in plaster, mechanical insulation, gaskets, thermal insulation on pipes, refractory material, roofing felts, floor tiles, ceiling tiles and partitioning, heat resistant panels, incandescent light fixture reflector plates, and any other material requiring a high degree of durability or thermal resistance. The common use of potential friable (breakable by hand) ACMs in construction ceased voluntarily in the mid 1970s; however, the spray application of asbestos-containing fireproofing was not prohibited until 1986.

Asbestos has many building applications, which include:

- Effective insulator against heat, cold, electricity and noise.
- Used as sprayed insulation and fireproofing materials in the period following the Second World War until the mid 1970s.
- Used as a thermal insulator in pipes, boilers and incandescent light reflectors.
- Structural steelwork fireproofing of high-rise buildings.
- Acoustical and decorative purposes in ceiling tiles and building walls.
- Durability in floor tiles, wall board, roof shingles and felts, gaskets, caulking, wall and ceiling plasters.

Asbestos is a health hazard only if it can get into the body through:

- Inhalation.
- Ingestion.
- Absorption.

The primary health related concern of the above list is asbestos inhalation. Respiratory diseases such as asbestosis (lung scarring) and cancers have been clinically linked to prolonged and heavy occupational exposure to airborne asbestos.

Health related concerns prompted the Ontario Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario (1981) to study and report on health effects of asbestos in buildings in the early 1980's. The conclusions of the Royal Commission report (Chapter 9) were that (Bold added to section to emphasize critical conclusions of the Royal Commission Report):

"The exposure of building occupants to asbestos fibres during normal building use is insignificant, whether as compared to the exposure of insulation workers in the past or as compared to the much lower exposures permitted by the Ontario workplace control limits. Studies of asbestos concentrations in building air have shown that many buildings containing asbestos insulation do not exhibit fibre levels exceeding those in the outdoor air or in buildings not insulated with asbestos. Even when building exhibits elevated asbestos fibre levels, these are still very low compared to current workplace control limits and are orders of magnitude below the levels to which workers were exposed in the past."

"We will conclude that it is rarely necessary to take corrective action in buildings containing asbestos insulation in order to protect the general occupants of the buildings. **On the other hand, construction, demolition, renovation, maintenance and custodial workers in asbestos-containing buildings may be exposed to significant asbestos fibre levels and may, during their work, cause elevated fibre levels for nearby occupants. THE PROBLEM OF PROTECTING THESE WORKERS, AND OF PROTECTING OCCUPANTS FROM POSSIBLE FIBRE RELEASE AS A RESULT OF BUILDING WORK, IS THE REAL CHALLENGE THAT ASBESTOS INSULATION IN BUILDING PRESENTS.**"

Asbestos waste should be disposed of in a double sealed container, properly labeled and free of cuts, tears or punctures. The waste must be disposed of in a licensed waste facility, which has been properly notified of the presence of asbestos waste.

The transport of asbestos waste to the disposal site is covered by the federal "Transportation of Dangerous Goods Act". Asbestos waste is to be handled by a licensed waste hauler.

APPENDIX 2

CONTRACTOR NOTIFICATION, ACKNOWLEDGEMENT FORM AND ASBESTOS WORK RECORD



CONTRACTOR NOTIFICATION AND ACKNOWLEDGEMENT NOTIFICATION ET CONSENTEMENT DE L'ENTREPRENEUR

Working with asbestos can be dangerous unless appropriate work practices and personal protective equipment are utilized. Inhaling asbestos fibres can cause various types of lung disease including cancer. Smoking increases the risk of lung cancer from asbestos exposure.

Le travail de l'amiante présente des dangers pour la santé des travailleurs, à moins que ceux-ci utilisent des méthodes de travail et un équipement de protection individuelle appropriés. L'inhalation de fibres d'amiante peut causer diverses maladies pulmonaires, dont le cancer du poumon. Le tabagisme aggrave le risque d'être atteint d'un cancer du poumon par suite d'une exposition à l'amiante.

PWGSC has identified the presence of various friable and nonfriable asbestos containing materials at:

TPSGC a décelé la présence de divers matériaux friables et non friables contenant de l'amiante à l'endroit suivant :

Address - Adresse

An asbestos inventory report showing the locations and amounts of these materials is available for viewing from:

On peut prendre connaissance d'un relevé indiquant les emplacements et les quantités de matériaux contenant de l'amiante auprès de :

| Name - Nom | Location - Lieu | Telephone no. N° du téléphone |
|------------|-----------------|----------------------------------|
| | | |

The PWGSC Asbestos Management Code of Practice applies to all maintenance and renovation work that may disturb asbestos materials. The disturbance of asbestos building materials may only be undertaken by contractors who have received training in asbestos-related precautions.

Le code de pratique de gestion de l'amiante de TPSGC s'applique à tous les travaux d'entretien ou de rénovation susceptibles d'exposer les travailleurs à des matériaux contenant de l'amiante. Seuls les entrepreneurs qui ont reçu une formation sur les précautions à prendre face à l'amiante peuvent être autorisés à entreprendre des travaux comportant une exposition à des matériaux contenant de l'amiante.

As a condition of our contract to provide services and materials to PWGSC, this company will not disturb asbestos-containing materials without prior notification to:

Aux termes du contrat de fourniture de services et de matériaux conclu entre TPSGC et l'entreprise soussignée, cette dernière s'est engagée à ne pas entreprendre de travaux entraînant une exposition à l'amiante sans en informer d'abord :

| Name - Nom | Location - Lieu | Telephone no. N° du téléphone |
|------------|-----------------|----------------------------------|
| | | |

This firm and the employees of this firm will follow all procedures as specified by the PWGSC Asbestos Management Code of Practice, while working in:

L'entreprise et son personnel sont tenus de respecter toutes les procédures prescrites par le Code de pratique de gestion de l'amiante de TPSGC, pendant toute la durée des travaux effectués à l'endroit suivant :

Address - Adresse

| | |
|------------------------------------|---------------|
| Company name - Nom de la compagnie | |
| Name - Nom | Title - Titre |
| Signature | Date |



ASBESTOS-RELATED WORK RECORD FICHE DE TRAVAIL - TRAVAUX COMPORTANT UNE EXPOSITION À L'AMIANTE

| | | | | | | | | |
|---|---|--|--|---|---|--|---|--|
| Room - Pièce | Description of work - Description du travail | | | | | | | |
| Date work requested Date de la demande d'exécution des travaux | | | | | | | | |
| Manager in Charge of Worksite or Supervisor Chef de chantier ou surveillant | | | | | | | | |
| Classification of work - Type de travaux | | | | | | | | |
| <table border="0"><tr><td><input type="checkbox"/> Type 2 Ceiling Entry Type 2 - Accès au vide de plafond</td><td><input type="checkbox"/> Type 2 Asbestos Clean-up Type 2 - Nettoyage d'amiante</td></tr><tr><td><input type="checkbox"/> Type 2 Repair Type 2 - Réparation</td><td></td></tr><tr><td><input type="checkbox"/> Type 2 Insulation Removal Type 2 - Enlèvement de matériaux isolants</td><td><input type="checkbox"/> Type 3 Removal Type 3 - Enlèvement d'amiante</td></tr></table> | | | <input type="checkbox"/> Type 2 Ceiling Entry Type 2 - Accès au vide de plafond | <input type="checkbox"/> Type 2 Asbestos Clean-up Type 2 - Nettoyage d'amiante | <input type="checkbox"/> Type 2 Repair Type 2 - Réparation | | <input type="checkbox"/> Type 2 Insulation Removal Type 2 - Enlèvement de matériaux isolants | <input type="checkbox"/> Type 3 Removal Type 3 - Enlèvement d'amiante |
| <input type="checkbox"/> Type 2 Ceiling Entry Type 2 - Accès au vide de plafond | <input type="checkbox"/> Type 2 Asbestos Clean-up Type 2 - Nettoyage d'amiante | | | | | | | |
| <input type="checkbox"/> Type 2 Repair Type 2 - Réparation | | | | | | | | |
| <input type="checkbox"/> Type 2 Insulation Removal Type 2 - Enlèvement de matériaux isolants | <input type="checkbox"/> Type 3 Removal Type 3 - Enlèvement d'amiante | | | | | | | |
| Start (date and time) - Début (date et heure) | | Completion (date and time) - Fin (date et heure) | | | | | | |
| Department (indicate PWGSC or if a Contractor indicate Company Name) Ministère (TPSGC ou, dans le cas de travaux confiés à un entrepreneur, raison sociale de l'entreprise) | | Person in Charge - Personne responsable | | | | | | |
| Asbestos workers (Indicate all names in full. Please print) Travailleurs affectés au travail de l'amiante (inscrire leur nom au long en lettres moulées) | | | | | | | | |

Asbestos work record to be initiated by Manager in Charge of the Worksite or Supervisor.

Il incombe au chef du chantier ou au surveillant de voir à faire remplir la fiche de travail concernant des travaux comportant une exposition à l'amiante.

To be completed by the Person in Charge and submitted to the Manager in Charge of the Worksite or Supervisor, upon completion of the work.

Le contremaître remplit la fiche de travail et la remet au chef de chantier ou au surveillant à la fin des travaux.

A copy of this record shall be placed on each employee's employment file and a copy shall be forwarded to the Regional Asbestos Co-ordinator.

Un exemplaire de la fiche est versé au dossier de chaque employé et un exemplaire est transmis au coordonnateur régional des travaux d'amiante.

A separate record must be prepared for each Type 2 or Type 3 Work Order or Project.

Une fiche distincte doit être établie pour chaque demande d'exécution de travaux ou chaque projet de type 2 et de type 3.

APPENDIX 3

EXCERPTS FROM PWGSC AMP

**NOTE: Excerpts taken from the Public Works Government Services Canada document
DP 057 - Asbestos Management, 1997-12-03**

Annex C - Appendix 1 - Evaluation of Asbestos Containing Materials (ACM) and Recommendations for Control

1. Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes, the following criteria apply:

| | |
|-------------|--|
| GOOD | Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred. |
| POOR | Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray. |

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition will be recorded on the survey or reassessment form.

NOTE: FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

In evaluating the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

| | |
|-------------|--|
| GOOD | Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated. |
| FAIR | Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none. |
| POOR | Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. |

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

2. Evaluation of Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

| | |
|---------------------------------|--|
| ACCESS (A) | Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level. |
| ACCESS (B) | Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines. |
| ACCESS (C) EXPOSED | Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building. |
| ACCESS (C) CONCEALED | Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points. |
| ACCESS (D) | Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials in Access D. |

3. ACM Debris

Debris from Friable ACM

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as DEBRIS.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM, that has become friable, is reported as DEBRIS.

The identification of the exact location or presence of DEBRIS on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of DEBRIS prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with ACM, regardless of the reported presence or absence of DEBRIS.

4. Action Matrix and Action Descriptions

The Asbestos Management Program requires the following responses:

- Immediate clean-up of DEBRIS that is likely to be disturbed;
- The removal, repair or enclosure of friable ACM in POOR or FAIR condition where continued deterioration will result in DEBRIS that is likely to be disturbed.

The following factors shall be considered in making site-specific recommendations for compliance with the regulation, and for the practical implementation of asbestos management:

3. ACM in POOR condition is not routinely repairable.

If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).

4. Mechanical insulation in FAIR condition will be repaired or removed based on the following general recommendations, applied on a case by case basis.

Repair ACM mechanical insulation found in FAIR condition in ACCESS (B) or ACCESS (C) EXPOSED areas.

Remove ACM mechanical insulation found in FAIR condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur.

5. ACM in GOOD condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by ongoing occupant activity (accidental or intentional).
6. Non-friable or manufactured products are considered in the action matrix as follows:
 - Non-friable and manufactured products reported in POOR condition, or friable DEBRIS resulting from the deterioration of non-friable ACM, are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACM.
 - For non-friable or manufactured products reported in GOOD condition, Action 7 (surveillance) is recommended regardless of Accessibility.
7. Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Management Program in that area.

The Action Matrix provided below establishes the recommended asbestos control action. The ACTIONS are described in full following the matrix.

| ACTION MATRIX TABLE | | | | |
|---------------------|-------------------------|-------------------------|----------|----------|
| FRIABLE ACM | | | | |
| ACCESS | CONDITION | | | DEBRIS |
| | GOOD | FAIR | POOR | |
| (A) | ACTION 5/7 ¹ | ACTION 5/6 ² | ACTION 3 | ACTION 1 |
| (B) | ACTION 7 | ACTION 6/5 ³ | ACTION 3 | ACTION 1 |
| (C) exposed | ACTION 7 | ACTION 6 | ACTION 4 | ACTION 2 |
| (C) concealed | ACTION 7 | ACTION 7 | ACTION 4 | ACTION 2 |
| (D) | ACTION 7 | ACTION 7 | ACTION 7 | ACTION 7 |

¹If material in **ACCESS (A)/GOOD** condition is not removed **ACTION 7** is required.

²If material in **ACCESS (A)/FAIR** condition is not removed **ACTION 6** is required.

³Remove **ACM** in **ACCESS (B)/FAIR** condition if **ACM** is likely to be disturbed.

ACTION 1 Immediate Clean-up of Debris That is Likely to be Disturbed

Restrict access that is likely to cause a disturbance of the ACM DEBRIS and clean up ACM DEBRIS immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Regional Asbestos Coordinator of this condition.

ACTION 2 Entry Into Areas With ACM Debris - Type 2 Precautions

At locations where ACM DEBRIS can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos-work precautions. The precautions will be required until the ACM DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed.

ACTION 3 ACM Removal Required for Compliance

Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 Access into Areas Where ACM is Present and Likely to be Disturbed by Access - Type 2 Precautions

Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if DEBRIS is present).

ACTION 5 Proactive ACM Removal

Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable.

ACTION 6 ACM Repair

Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement ACTION 5.

ACTION 7 Routine Surveillance

Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

5. Assessment of Condition

Spray Applied Fireproofing, Insulation and Texture Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes, the following criteria apply:

GOOD Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition will be recorded on the survey or reassessment form.

NOTE: FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

Mechanical Insulation

In evaluating the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

| | |
|-------------|--|
| GOOD | Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated. |
| FAIR | Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none. |
| POOR | Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. |

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

6. Evaluation of Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

| | |
|---------------------------------|--|
| ACCESS (A) | Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level. |
| ACCESS (B) | Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines. |
| ACCESS (C) EXPOSED | Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building. |
| ACCESS (C) CONCEALED | Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points. |

ACCESS (D)

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials in Access D.

7. ACM Debris

Debris from Friable ACM

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as DEBRIS.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM, that has become friable, is reported as DEBRIS.

The identification of the exact location or presence of DEBRIS on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of DEBRIS prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with ACM, regardless of the reported presence or absence of DEBRIS.

8. Action Matrix and Action Descriptions

The Asbestos Management Program requires the following responses:

- Immediate clean-up of DEBRIS that is likely to be disturbed;
- The removal, repair or enclosure of friable ACM in POOR or FAIR condition where continued deterioration will result in DEBRIS that is likely to be disturbed.

The following factors shall be considered in making site-specific recommendations for compliance with the regulation, and for the practical implementation of asbestos management:

3. ACM in POOR condition is not routinely repairable.

If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).

4. Mechanical insulation in FAIR condition will be repaired or removed based on the following general recommendations, applied on a case by case basis.

Repair ACM mechanical insulation found in FAIR condition in ACCESS (B) or ACCESS (C) EXPOSED areas.

Remove ACM mechanical insulation found in FAIR condition in ACCESS (B) and

ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur.

5. ACM in GOOD condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by ongoing occupant activity (accidental or intentional).
6. Non-friable or manufactured products are considered in the action matrix as follows:
 - Non-friable and manufactured products reported in POOR condition, or friable DEBRIS resulting from the deterioration of non-friable ACM, are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACM.
 - For non-friable or manufactured products reported in GOOD condition, Action 7 (surveillance) is recommended regardless of Accessibility.
7. Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Management Program in that area.

The Action Matrix provided below establishes the recommended asbestos control action. The ACTIONS are described in full following the matrix.

| ACTION MATRIX TABLE | | | | |
|---------------------|-------------------------|-------------------------|----------|----------|
| FRIABLE ACM | | | | |
| ACCESS | CONDITION | | | DEBRIS |
| | GOOD | FAIR | POOR | |
| (A) | ACTION 5/7 ¹ | ACTION 5/6 ² | ACTION 3 | ACTION 1 |
| (B) | ACTION 7 | ACTION 6/5 ³ | ACTION 3 | ACTION 1 |
| (C) exposed | ACTION 7 | ACTION 6 | ACTION 4 | ACTION 2 |
| (C) concealed | ACTION 7 | ACTION 7 | ACTION 4 | ACTION 2 |
| (D) | ACTION 7 | ACTION 7 | ACTION 7 | ACTION 7 |

¹If material in **ACCESS (A)/GOOD** condition is not removed **ACTION 7** is required.

²If material in **ACCESS (A)/FAIR** condition is not removed **ACTION 6** is required.

³Remove **ACM** in **ACCESS (B)/FAIR** condition if **ACM** is likely to be disturbed.

ACTION 1 Immediate Clean-up of Debris That is Likely to be Disturbed

Restrict access that is likely to cause a disturbance of the ACM DEBRIS and clean up ACM DEBRIS immediately. Utilize correct asbestos

| | |
|-----------------|--|
| | procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Regional Asbestos Coordinator of this condition. |
| ACTION 2 | Entry Into Areas With ACM Debris - Type 2 Precautions At locations where ACM DEBRIS can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos-work precautions. The precautions will be required until the ACM DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed. |
| ACTION 3 | ACM Removal Required for Compliance Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work. |
| ACTION 4 | Access into Areas Where ACM is Present and Likely to be Disturbed by Access - Type 2 Precautions Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if DEBRIS is present). |
| ACTION 5 | Proactive ACM Removal Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable. |
| ACTION 6 | ACM Repair Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement ACTION 5. |
| ACTION 7 | Routine Surveillance Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM. |

9. Detection Limit of Bulk Analysis

Asbestos containing material, (ACM), is defined as any material found to contain asbestos at or above the limit for an asbestos containing material, (ACM), set provincially, as determined by the standard Polarized Light Microscopy method for the analysis of bulk samples. The provincially regulated limits, or generally accepted guidelines, to consider a material as an asbestos containing material, (ACM), subject to asbestos in buildings regulation, is provided as follows:

| MINIMUM CONCENTRATION TO CONSIDER AS AN ASBESTOS CONTAINING MATERIAL (BY PROVINCE) | |
|--|------|
| PROVINCE/REGION | |
| NEWFOUNDLAND | 1.0% |
| NOVA SCOTIA | |
| PRINCE EDWARD ISLAND | |
| NEW BRUNSWICK | |
| ALBERTA | |
| BRITISH COLUMBIA | |
| ONTARIO (includes part of National Capital Region) | 0.5% |
| SASKATCHEWAN (no published concentration) | |
| QUEBEC (includes part of National Capital Region) | 0.1% |
| MANITOBA | |

Annex C - Appendix 5 - Classification of Asbestos-Related Work

The following criteria shall be utilized in determining the classification of asbestos work.

TYPE 1 WORK

- Installation or removal of a non-friable ACM with a hand tool.
- Disturbance of a non-friable ACM with a powered tool equipped with a HEPA dust collection device.
- Removal of drywall materials where joint filling materials contain asbestos.
- Removal or replacement of ten or less asbestos-containing compressed mineral fibre type ceiling tiles.
- Collecting samples of asbestos-suspect friable materials.
- Working close to friable sprayed asbestos, where the material may be affected by the work activities.

TYPE 2 WORK

- Removal or replacement of more than ten asbestos-containing compressed mineral fibre type ceiling tiles.
- Entry into ceiling spaces, crawlspaces, pipe tunnels, etc., where friable asbestos debris is present.
- In British Columbia, removal of drywall installed before 1980.
- Minor removal of friable ACM. Type 2 removal is limited to a maximum per work period of:
 - In British Columbia - 0.1 m² surface area, or 3 lineal metres of pipe insulation;
 - In Quebec - 0.03 m² of Debris;
 - All Others - 1 m² of surface area.
- Repair of asbestos mechanical insulation. (No limit is imposed as to the amount of repair permitted under Type 2 conditions.)

TYPE 3 WORK

- More than minor removal or disturbance of friable ACM.
- Use of a power tool on non-friable ACM without HEPA exhausted dust collection.
- The spray application of an encapsulant or sealer to friable asbestos surfacing materials.

- Disturbance of the ductwork and air handling equipment serving or passing through areas of buildings with sprayed asbestos fireproofing or insulation.
- Repair, alteration or demolition of a boiler, furnace, kiln, or similar equipment with asbestos-containing refractory.



Annex C - Appendix 6 - Work Procedures

TYPE 1 - Work Procedures

For locations of non-friable ACM, refer to the current version of the Asbestos Inventory and Assessment Report.

NOTE: These Type 1 procedures assume the non-friable material can be removed with relatively little loose dry dust released. Generation of debris is permissible as long as the debris can be well wetted before being removed. If the work will release more than a trivial amount of dry loose dust, do not proceed. The Regional Asbestos Coordinator will determine which of Type 1, 2 or 3 procedures are appropriate.

1. Equipment

All equipment must be on site before proceeding.

1. *Vacuum*

Use of a vacuum is optional. Wet cleaning methods may be used in place of a vacuum. If a vacuum is used it must be equipped with a high efficiency particulate (HEPA) filter and all brushes, fittings, etc. The vacuum must only be opened in an enclosure, following Type 2 procedures, or in a laboratory exhaust hood. The vacuum exterior should be carefully wet cleaned after emptying. A HEPA filter is at least 99.97% efficient in collecting a 0.3 micrometre particle.

2. *Respirators*

Use of a respirator is optional for Type 1 work. However, a respirator is strongly advised for work on sheet flooring, any type of ceiling tile, any other work performed overhead. Respirators shall be supplied by the employer upon request. The type of respirator supplied shall be a half-face respirator with HEPA filter. Training in the proper use of the respirator and qualitative fit testing shall also be provided. Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirators shall be used according to the written procedures for use, provided to the worker during training sessions. Filters must be changed after 24 hours of wear, or sooner if breathing resistance increases.

NOTE: Employees are required to undertake a medical evaluation as specified by DP 059 - Health Evaluations - Safety and Health, PWGSC prior to being trained in the proper use of respirators.

3. *Protective Clothing*

Reusable or disposable clothing may be used. Non-disposable clothing with visible asbestos contamination shall be cleaned with a HEPA vacuum and laundered as asbestos contaminated. Disposable clothing and respirator filters will be disposed of as asbestos

waste.

4. *Other Equipment*

- plastic sheet (0.15 mm (6 mil) polyethylene) - to serve as a drop sheet;
- pump sprayer with mister nozzle, or alternate method to wet material;
- labelled, yellow asbestos waste bags, 0.15 mm (6 mil) - for all asbestos waste, disposable equipment, plastic, etc.;
- small tools and cleaning supplies - e.g., scouring pads, sponges, brushes, buckets, etc.

2. **Other Protective Measures**

1. Do not eat, drink or smoke in the work area.
2. On leaving work area, proceed to washroom and wash all exposed skin on hands and face.

3. **Preparation**

1. Before disturbing non-friable asbestos materials, (wherever practical) cover floor and surfaces below work with polyethylene sheeting to catch debris.
2. Wherever dust on a surface is likely to be disturbed, remove with HEPA vacuum or damp cloth.

4. **Execution**

1. Removal of Vinyl Asbestos Floor Tile

1. Do not use electric powered scrapers.
2. Start removal by wedging a heavy duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor. Do not break off pieces of tile, but continue to force balance of tile up.
3. Continue removal of tiles using hand tools, removing tiles intact wherever possible. When adhesive is spread heavily or is quite hard, it may prove easier to force scraper through tightly adhered areas by striking scraper handle with a hammer using blows of moderate force while maintaining scraper at 25° to 30° angle to floor. When this technique does not loosen tile, removal can be simplified by heating tile thoroughly with a hot air gun until heat penetrates through tile and softens the adhesive.
4. As each tile is removed, place into asbestos waste receptor. Do not break into smaller pieces.
5. After removal of a small area, scrape up adhesive remaining on floor with a hand scraper until only a thin smooth film remains. Where deposits are heavy or difficult to scrape, a hot air gun may be used. Deposit scrapings in the asbestos waste disposal bag. Do not dry scrape surface pieces of tile that remain adhered. Do not use powered electric scrapers.
6. On completion of the area, vacuum clean floor with HEPA vacuum or wet mop. Dispose of the mop head as contaminated waste.

2. Removal of Asbestos-Containing Sheet Flooring

1. Remove binding strips or other restrictive mouldings. Workers shall wear air purifying respirator fitted with high efficiency filter, and coveralls, at all times.
2. Make series of cuts 100 mm to 200 mm (4" to 8") apart through top layers and

about halfway through felt backing, parallel to wall.

3. Start at end of room furthest from door and pry up corner of strip, separating top sheet from backing layer. Pull top layer back upon itself slowly and evenly, and half backing and top layers should pull free. After it is removed, roll up strip face out into tight roll, tape or tie securely, and place into asbestos waste receptor. Wet the asbestos felt underlay remaining on floor as soon as exposed.
4. Continue with successive strips. Avoid walking on exposed asbestos felt. Seal asbestos waste receptors when filled. Remove maximum of three strips before wet scraping exposed felt underlay.
5. Remove remaining adhered underlay by wet scraping. Soak area with water applied by sprayer. Allow water to penetrate felt. Scrape off remaining material. Maintain material wet by applying more water. Place scrapings in asbestos waste receptor.
6. Continue this procedure alternately removing top sheets and then wet scraping felt, three strips at a time. Be careful not to walk on stripped floor.
7. When whole floor has been cleaned of asbestos felt, allow it to dry and vacuum up any dirt with a HEPA vacuum or wet mop. Do *not* dry sweep. Dispose of the mop head as contaminated waste.
8. Thoroughly clean tools and equipment with a damp cloth before returning to regular service. Dispose of cloth as contaminated waste.

3. Installing, Cutting or Drilling Non-Friable Asbestos Materials

1. Work using power tools not fitted with HEPA filter dust collectors, must not be performed as Type 1 work.
2. Where possible wet all materials to be disturbed.
3. Immediately place waste in asbestos waste receptor. Clean area frequently during work with HEPA vacuum or by wet methods.
4. At completion of work, drop sheets that will be reused must be cleaned with HEPA vacuum or by wet methods.
5. Drop sheets that will not be reused must be disposed of as asbestos waste.

4. Removal of Other Non-Friable Asbestos Materials

1. Type 1 procedures apply only to materials which can be removed intact, or in sections, without producing a pulverized or powdered waste. This method is most applicable to asbestos-cement board products, acoustic ceiling tiles, gaskets, etc.
2. Where possible wet all material to be disturbed.
3. Undo fasteners necessary to remove material. Whenever possible remove asbestos cement panels intact. Break only if unavoidable. If broken, wet freshly exposed edges.
4. Where sections are adhered to the substrate, wet material and use hand scraping to remove adhering material.
5. Place removed material into asbestos waste receptor. Clean surrounding surfaces and asbestos work area frequently with HEPA vacuum or with wet methods (i.e., damp cloth that is disposed of as asbestos waste after cleaning).
6. Drop sheets shall be disposed of as asbestos waste.

5. Waste Transport and Disposal

1. Place waste into asbestos labelled disposal bag, seal with tape, clean the exterior of the bag with a clean cloth, and place into a second clean bag, also to be sealed with tape. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the outer container.

2. Place waste containers in storage area for holding asbestos waste. Containers shall be labelled and assigned exclusively for asbestos waste.
3. Prepare waste for disposal in compliance with provincial regulations. The Property Manager will arrange for disposal.

TYPE 2 - Work Procedures

For locations of asbestos materials, refer to the current version of the Asbestos Inventory and Assessment Report.

1. Equipment

Equipment required for the work must be on-site before proceeding.

1. Vacuum

An asbestos-approved vacuum (HEPA filtered), equipped with brushes, fittings, etc. Vacuum must not be opened except by a fully protected worker within a Type 2 enclosure. The vacuum exterior shall be carefully wet cleaned after emptying. A HEPA filter is at least 99.97% efficient in collecting a 0.3 micrometre particle.

2. Respirators

Workers within the work area shall wear approved respirator. Respirators and filters will be provided by the employer, and individually assigned to workers. Respirator shall be a half-facepiece respirator with high efficiency filters. Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirators shall be kept in position throughout the entire time the worker is in the area of the work, from first disturbance of a ceiling tile or asbestos material, until the final cleaning of the area and bagging of waste is complete. Change filters after 24 hours of wear or sooner if breathing resistance increases.

3. Protective Clothing

All workers shall wear disposable coveralls with attached elasticized hood. Coveralls should be worn with the hood in place at all times. Coveralls may be vacuumed or wet wiped clean for reuse, for a maximum of 8 hours cumulative wear. Suit and head cover shall remain in place until worker leaves work area or the enclosure is dismantled. Boot covers or dedicated boots are recommended.

4. Other Equipment

- plastic sheet (0.15 mm (6 mil) polyethylene) - to erect a total enclosure or to serve as drop sheet;
- wood framing or clips to support polyethylene sheeting, as appropriate to work area;
- tape - to fasten plastic enclosure to ceiling or to tape drop sheet to floor; ¾" double-sided tape recommended for attaching polyethylene to T-bar ceiling;
- labelled asbestos waste bag 0.15 mm (6 mil) - for all asbestos waste, disposable suit, plastic for disposal, etc.;
- pump sprayer containing water with wetting agent to wet asbestos as necessary (dilute wetting agent as per manufacturer's recommendations);
- asbestos warning signs;
- cleaning supplies - e.g., scouring pads, sponges, brushes, buckets, etc.;
- insulation repair supplies (lagging compound, cloth, PVC covers);
- encapsulating sealer, for brush or airless spray application.

2. Other Protective Measures

1. Do not eat, drink or smoke in the work area.
2. On leaving work area, proceed to washroom and wash all exposed skin on hands and face.

3. Scheduling of Work

1. Schedule work when occupants are absent. If persons are present, do not start work.
2. If work above ceiling is required on an emergency basis, and the area is occupied, ensure that client department(s) advise occupants to vacate area until work is complete and clearance is given to return.

4. Preparation

1. Shut down ventilation systems to and from the work area. Seal over all ventilation openings, diffusers, grilles, etc., with plastic and tape.
2. Where practical, clear areas of movable furnishings or equipment. This should include anything that occupants may wish to use during work period. Any furnishings or equipment not removed shall be adequately covered and sealed using 0.15 mm (6 mil) polyethylene and tape. The intent of the protection is to provide an airtight envelope to protect the articles from airborne dust or splashed debris.
3. Post signs or barrier tape, appropriate to the work area, to indicate asbestos hazard and requirement for protective clothing for anyone entering the space.
4. For small rooms, cover walls with plastic such that the complete room becomes the work area. For larger rooms, erect enclosure of 0.15 mm (6 mil) polyethylene, of suitable dimensions to enclose the work area, and scaffolds and ladders required to gain access. If a suspended ceiling is present, the enclosure shall extend to the ceiling line. The enclosure shall be as airtight as conditions permit, and will include the provision of a double overlapping flap at the entrance. The floor of the work area shall be a layer of 0.15 mm (6 mil) polyethylene sealed to the plastic walls of the enclosure.
5. Don protective clothing and respirator prior to removing ceiling tile or disturbing pipe jacketing or sprayed fireproofing.

5. Execution

1. To remove fireproofing or texture plaster, saturate with amended water solution, using a pump sprayer. Do not remove the asbestos material until the material is thoroughly wetted to the substrate. Do not use water where electrical hazard exists.
2. To remove pipe insulation, first wet any area of damage, then carefully cut jacket. Keep insulation surface wetted by mist of water with wetting agent. Remove insulation in large sections and place immediately in disposal bag. After large pieces have been removed, saturate debris on mechanical equipment and clean all exposed surfaces with abrasive pads, sponges, cloths, etc.
3. To repair pipe insulation, use drop sheet under area of work to aid clean-up of any dislodged material. Plastic enclosure is not required. Mist any exposed insulation to wet surface and apply lagging paint and canvas or PVC jacketing as required.
4. For removal of suspended ceiling tiles (where asbestos debris is present on top of tiles or equipment to be accessed), remove the first tile carefully and vacuum all surfaces. Vacuum the upper surface of each subsequent tile prior to removal. Store tiles in the work area.
5. Remove dust and loose friable material likely to be disturbed in the process of doing the work, with a HEPA vacuum or by damp wiping.
6. When asbestos material is removed, all pieces should be placed directly into 0.15 mm (6 mil) polyethylene bags as they are removed. Avoid dropping material to floor wherever

- possible. After bulk removal is complete, wet wash the exposed surface.
7. Frequently, and at regular intervals during the work, clean up dust and waste in the work area by wet mopping, placing in disposal bags, or by HEPA vacuuming.
 8. After completion of removal, seal exposed ends of fireproofing, texture plaster, or mechanical insulation with heavy layer of encapsulating sealer. Apply sealer coat to surfaces from which asbestos material was removed.
 9. At completion of work, decontaminate equipment, tools and materials used in the work area by wet cleaning or HEPA vacuum.
 10. Dispose of drop sheets and enclosures by wetting the polyethylene, then folding into disposal bags. Do not reuse drop sheets or enclosures.
 11. Before leaving work area, decontaminate shoes and protective clothing by using HEPA vacuum or damp wiping. When protective clothing is to be disposed of, it shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit and respirator, and proceed to nearest washroom to wash hands and face.

6. Waste Transport and Disposal

1. Place waste into asbestos labelled disposal bag, seal with tape, clean the bag, and place into a second clean bag, also to be sealed with tape. Use a barrel, fibre drum, or cardboard or wooden box in place of the second bag when the asbestos waste material is likely to tear the inner bag. Seal the rigid outer container.
2. Place waste containers in storage area for holding asbestos waste. Containers shall be labelled and assigned exclusively for asbestos waste.
3. Prepare for waste disposal in compliance with provincial regulations. The Property Manager will arrange for disposal.

TYPE 3 - Work Procedures

Type 3 procedures are not included in the standard work procedures due to the requirement for the development of specific procedures for the site and for the particular circumstances.

Glove Bag Work Procedures

1. Equipment

All equipment must be on site before proceeding with the work. Note that these procedures are primarily based on the use of Safe-T-Strip polyvinyl chloride movable glove bags. (Only the Safe-T-Strip glove bag is permitted for use in Ontario.) If the single use polyethylene glove bags permitted in some other jurisdictions are used, it should be understood that they are for use at one location only, and cannot be moved or used elsewhere.

NOTE: If single use polyethelene glove bag is used Section 5 - Execution, shall be replaced by manufacturer's recommended procedures.

1. *Glove Bag*

Prefabricated, 0.25 mm (10 mil) minimum thickness polyvinyl-chloride bag with integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elasticized port. Bag shall be equipped with reversible double-pull double throw zipper on top. Bag must incorporate internal closure strip if it is to be removed from pipe for reuse elsewhere. Provide size and configuration appropriate for insulation to be removed. The bag must be disposed of once filled. Bag shall not be emptied and reused.

2. *Securing Straps*

Reusable nylon straps at least 25 mm (1") wide with metal buckle for sealing ends of bags

around pipe and/or insulation.

3. *Water Sprayer*

Garden reservoir type, low velocity, capable of producing mist or fine spray with water-containing wetting agent. Wetting agent shall be diluted as per manufacturer's recommendations.

4. *Respirators*

Workers using glove bag must wear approved respiratory protection. Respirators and filters must be provided by the employer, and individually assigned to workers. Respiratory protection must be equal to, or exceed, protection of half-face respirator with high efficiency filters. Respirators must be NIOSH approved and acceptable to the Provincial Authorities having jurisdiction. Respirators shall be kept in position from the time the worker is attaching bag to pipe until final cleaning of the pipe and bagging of waste is completed. Filters shall be changed after 24 hours of wear or sooner if breathing resistance increases.

5. *Protective Clothing*

Workers shall wear disposable coveralls with attached elasticized hood. Coveralls and hood shall remain in place until worker completes cleaning of pipe. Suit may be cleaned for reuse or disposed of as asbestos waste.

6. *Other Equipment*

- labelled asbestos waste bags 0.15 mm (6 mil) - for all asbestos waste in glove bag, disposable suit, cleaning materials, etc.;
- asbestos warning signs;
- wire saw - saw with flexible serrated wire blade and handles to allow use inside glove bag;
- knife with fully retractable blade for use inside glove bag;
- plastic sheet (4 mil polyethylene) to cover exposed or damaged section of pipe prior to attaching glove bag;
- tape-to fasten plastic to pipe if required;
- cleaning supplies e.g., scouring pads, sponges, brushes, buckets, etc.;
- HEPA vacuum, for evacuating air from bag prior to removing bag from pipe. A HEPA filter is at least 99.97% efficient in collecting a 0.3 micrometre particle.

2. **Other Protective Measures**

1. Do not eat, drink or smoke in the work area.
2. On completing clean-up of work area, use HEPA vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom to wash all exposed skin on hands and face.

3. **Scheduling of Work**

1. Schedule work when occupants are absent. If persons are present, do not start work.

4. **Preparation**

1. Where practical, clear area below pipe of moveable furnishings or equipment. Provide scaffold as required to reach pipe.
2. Post an asbestos warning sign at all entrances to room in which the procedure is being used. If necessary use rope or tape barriers to separate work area.
3. Segregate the area of asbestos work, from other parts of the building required to remain in use by using polyethylene walls or barrier tape.
4. Shut off and seal all diffusers, vents and other openings to ventilation and exhaust systems in the room with polyethylene secured with tape.
5. Cover all items or equipment located in the designated work area with polyethylene when items or equipment cannot be cleaned in the case of a spill. Tape the polyethylene in place. The polyethylene should cover a width equal to the height of the pipe from the floor, with a minimum width of 3.6 m (12 feet), where required.
6. Seal all openings and voids in the vicinity of the glove bag operation with one layer of polyethylene secured with tape.
7. Check condition of pipe insulation where work will be performed. If the pipe insulation has minor isolated damage, mist surface and patch with tape. If damage is more extensive, wrap pipe with plastic and "candy stripe" it with duct tape first. If pipe insulation is severely damaged and cannot be simply repaired, glove bag is not appropriate. (Use Type 2 Procedures.)
8. Pre-clean with HEPA vacuum or wet methods any loose material on surface of pipe or any material on the floor. If significant amount of material is on floor, Type 2 procedures may be required for clean-up. (See Type 2 Procedures.)
9. Place necessary tools in bottom of glove bag.

5. Execution

1. Zip the bag onto the pipe and seal each end to the pipe with the securing straps. Do not pull the bag tightly to the ends - a small amount of slack allows better room to work within the bag. If a vertical bag is in use, ensure lower strap passes through plastic grommet and cloth tab on zipper.
2. Place hands into gloves and use necessary tools (wire saw, utility knife, wire cutters) to remove insulation from pipe. Arrange insulation in bottom of bag to obtain full capacity of bag. Roll metal jacketing carefully to minimize ripping or puncturing of the bag.
3. Insert nozzle of spray pump into bag through valve and wash pipe and interior of upper section of bag thoroughly. Use one hand to aid washing process. Wet surface of insulation in lower section of bag and any exposed ends of asbestos insulation remaining on pipe.
4. Prior to removing bag from the pipe, wash the top section of the bag and tools thoroughly. Insert nozzle of HEPA filtered vacuum into bag through the elasticized valve and evacuate air from bag. Seal the closure strip, remove the vacuum nozzle and straps, and remove the bag. Re-install and seal in new location before reopening closure.
5. If bag is to be moved along the same pipe, loosen securing straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat insulation removal operation.
6. If during use the glove bag is ripped, cut or opened in any way, cease work and repair opening before continuing work. All spilled material must be cleaned up and removed with a HEPA vacuum or wet cleaning.
7. To remove bag after completion of insulation removal, thoroughly wash top section of bag and tools and seal internal zip-lock closure. Place tools in one glove, pull hand out inverted, twist to create a separate pouch, tape inside-out glove at two separate locations 1" apart to seal pouch. Remove inside-out glove and tools by cutting between the tape seals.
8. Place glove pouch and tools into the next clean glove bag to be used. Alternately, place the tool pouch into water bucket, open pouch underwater and clean tools, then allow to dry.
9. Prior to disposal of bag, evacuate the bag with a HEPA vacuum. Pull a 0.15 mm (6 mil) polyethylene bag over glove bag before removing from pipe. Remove securing straps. Unfasten zipper. Seal glove bag and seal 0.15 mm (6 mil) polyethylene bag.
10. After removal of bag ensure pipe is clean of all residue. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA filtered vacuum equipment,

- or wipe with wet cloth.
11. Seal all surfaces of freshly-exposed pipe with encapsulating sealer to tack-down any residual dust. Cover exposed ends of any remaining asbestos insulation with lagging cloth or tape.
 12. Before leaving work area, a worker shall decontaminate shoes and protective clothing by using HEPA vacuum or damp wiping. When protective clothing is to be disposed of, it shall be decontaminated as above and placed in labelled disposal bags. Workers shall vacuum all exposed skin, suit, respirator and hair (after removing hood) and proceed to nearest washroom to wash hands and face.

6. Waste Transport and Disposal

1. **Place waste containers in storage area for holding asbestos waste. Containers shall be labelled and assigned exclusively for asbestos waste.**
2. **Prepare waste for disposal in compliance with provincial regulations. The Property Manager will arrange for disposal.**

Asbestos Work Procedures

Emergency Asbestos Work Procedures

Emergency asbestos procedures shall be implemented when required in order to protect those undertaking the work, as well as to protect all others from, or limit exposure to, airborne asbestos. Procedures indicated shall be followed as closely as possible, in the event of an emergency situation. Procedures for asbestos work, required as an immediate response to floods, pipe breaks, ceiling collapses, or other emergencies that affect asbestos materials, are as follows:

1. Clear area of all occupants.
2. Construct enclosure around area if time permits.
3. Shut down ventilation system serving area.
4. Worker performing repair shall wear protective respirator and disposable suit. If normal work clothes are worn they must be disposed of if visibly contaminated.
5. Use drop sheet under work, if possible, to minimize clean-up.
6. Perform emergency repair with minimum disturbance of asbestos.
7. Obtain asbestos equipment and perform clean-up of visible material. Use HEPA filtered vacuum or wet cleaning. Dispose of all cleaning supplies as contaminated waste.
8. The worker should wipe off or vacuum disposable clothing and footwear. Proceed to washroom to wash face and hands.
9. Notify the Property Manager regarding the asbestos disturbance, before allowing unprotected persons to enter the area. The Property Manager will contact the Regional Asbestos Coordinator to determine if additional precautionary measures are to be implemented. The Regional Asbestos Coordinator will arrange for removal, clean-up or repair of the asbestos material.
10. The Regional Asbestos Coordinator shall investigate the extent of asbestos disturbance, will determine additional actions to be undertaken and will determine if a hazard investigation under the *Canada Occupational Safety and Health Regulation* is appropriate.

Bulk Sample Collection Procedures

1. Sample the material when the area is not in use. Only those persons needed for sampling should be present in the immediate area.
2. Spray the material with a light mist of water to prevent fibre release during sampling. Do not disturb the material any more than necessary.
3. Materials of different appearance should be sampled separately. Mechanical insulation must be sampled separately on all systems, tanks, vessels, etc. Sample both the straight sections of pre-formed insulation and the insulating cement typically present at elbows, fittings, etc. (unless

visually identified as fibreglass).

4. Collect the sample by penetrating the entire depth of the material, as the insulation may have been applied in more than one layer or covered with paint or other protective coating.
5. The use of a respirator is recommended for all sampling. Depending on the condition of the material, significant amounts of airborne fibres can be generated during sampling.
6. If pieces of material break off during sampling, the contaminated area must be cleaned up with a HEPA vacuum cleaner or by wet cleaning. Any debris generated must be placed in plastic bags, labelled, sealed and disposed of as asbestos waste.
7. Place samples in labelled plastic bags with a zip-lock closure or in sealed plastic vials. Samples shall be identified with the following information:
 - Sample Number;
 - Building;
 - Room Number;
 - Date of Sampling;
 - Name of Sampler;
 - Source of sample, e.g., Cold Water Pipe, Cold Water Fitting, etc.
8. Temporarily seal any openings created to collect the sample, (for example, with tape, paint or metal foil tape wrapped completely around the pipe). Advise the Property Manager or Regional Asbestos Coordinator.
9. Analysis must be performed by the Health Canada Laboratory or by a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Contact the Regional Asbestos Coordinator for a list of acceptable laboratories.

Respirator Fitting, Inspection, Cleaning and Disinfecting

Notes for Air Purifying Half-Facepiece Respirators

WARNING: This respirator does not supply oxygen. It must not be used in or for: oxygen deficient atmospheres (less than 19.5%); poorly ventilated areas or enclosed spaces such as tanks or small rooms; abrasive blasting or firefighting; or for protection against contaminants excluded or not covered by the applicable Approval Label.

Respirators must be approved for protection against asbestos. Check for NIOSH certification.

1. Respirator Fitting

Persons required to wear respirators must first pass a qualitative fit-test administered according to the current version of CSA standard Z-94.4. The fit-test should be repeated yearly.

2. Inspection Items Prior to Each Use

1. Examine facepiece for:
 - dirt;
 - cracks, tears or holes;
 - distortion and inflexibility;
 - cracks or breaks in filter holders, worn threads and missing gaskets.
2. Examine head straps for:
 - breaks or tears;
 - loss of elasticity;
 - broken or malfunctioning buckles and attachments.

3. Examine valves for:
 - detergent residue, dust or other material on valves or valve seats;
 - cracks, tears or distortion in the valve material;
 - missing or defective valves or valve covers.
4. Examine filter for:
 - proper filter for protection against asbestos (High Efficiency Particulate);
 - incorrect installation, loose connections, missing or worn gaskets or cross threading;
 - cracks or dents in filter housing.
5. Leak-checks:

Perform the following tests on each donning:

- *negative pressure test*: cover inlets to filters, breathe in and hold breath; respirator should be drawn to face for minimum of ten seconds (if not, check exhalation valve and fit);
- *positive pressure test*: cover exhalation valve cover and puff out slightly and hold breath; respirator should slightly pressurize and still hold seal (if not, check inhalation valves and fit).

3. Respirator Cleaning and Disinfecting

1. Remove filters and disassemble facepiece. Discard or repair defective parts.
2. Wash components in warm water (50°C - 60°C) with mild detergent, using a brush. Cleaning and disinfectant solutions are available from respirator manufacturers.
3. Thoroughly rinse components in clean, warm water.
4. Air dry or hand dry components with a clean, lint-free cloth.
5. Reassemble respirator and test to ensure that all components are working properly (see above). Be careful to check that valves are not lost in the cleaning.

4. Filter Cartridge Handling and Replacement

1. Filters can be reused until an increase in breathing resistance is noted. Under typical Type 2 conditions, filter cartridges should last a minimum of 24 hours. Inlet side of filter cartridge to be reused shall be sealed on the inlet side with tape for storage.
2. When no longer usable, filter cartridges will be sealed on the inlet side with tape, and disposed of as contaminated waste.

APPENDIX 4

ASBESTOS CONTAINING MATERIAL INSPECTION CHECKLIST

**ASBESTOS CONTAINING MATERIAL
INSPECTION CHECKLIST
AGRICULTURE and AGRI-FOODS CANADA BUILDING 25**

| Date | Asbestos Contractor or Consultant, if retained (include name & address) | Facility Representative in Attendance | Location of ACMs | Friable or Non-Friable | Recommended Action |
|------|---|---------------------------------------|------------------|------------------------|--------------------|
| | | | | | |
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This table must be maintained on site.

APPENDIX 5

EXAMPLE FORMS FOR MAINTAINING LIST OF TRAINED EMPLOYEES

LIST OF TRAINED EMPLOYEES
Asbestos Awareness

AGRICULTURE and AGRI-FOODS CANADA BUILDING 25

| Employee Name | Date of Training |
|------------------|---------------------|
| | |
| | |
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| | |
| | |
| | |

APPENDIX 6

SITE PHOTOGRAPHS



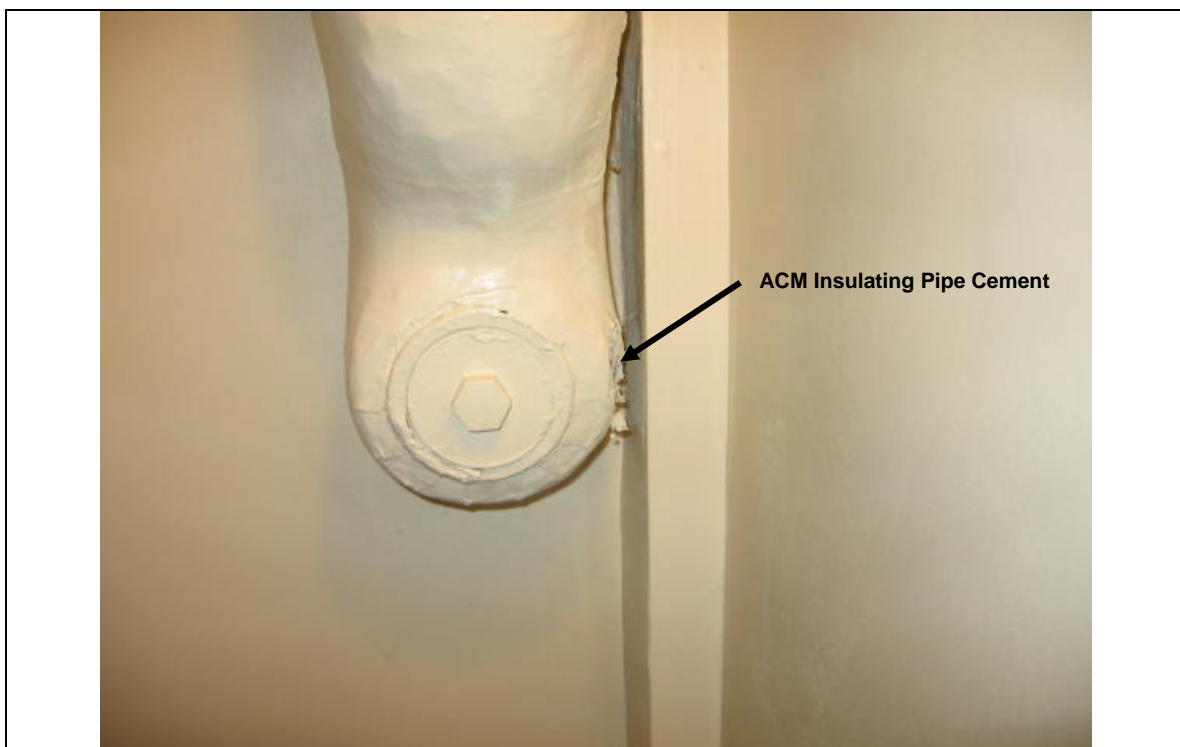
Photograph 1: Asbestos containing material (ACM), 23 x 23 cm, vinyl floor tile, Room No. SB-7 (Sample No. ACM 2). Note that eight other colours of ACM floor tile are also present in the building (no photos provided).



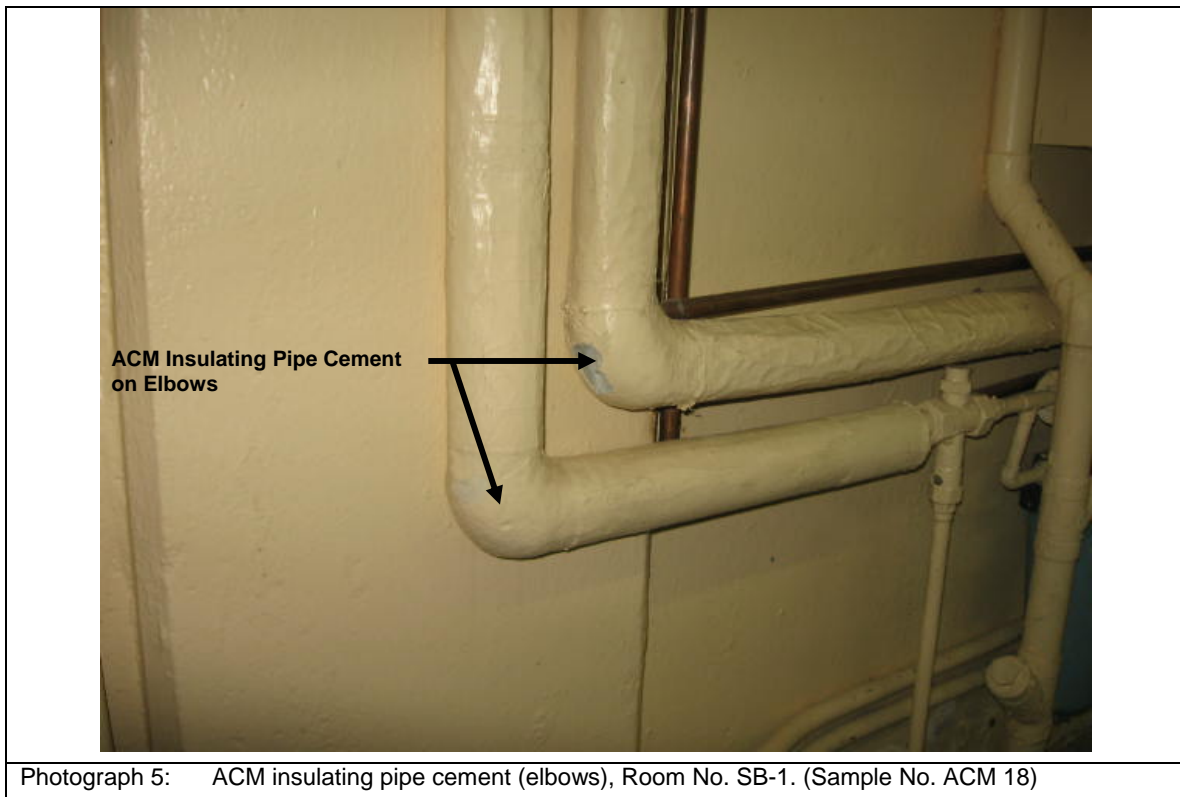
Photograph 2: ACM fabric on ceiling light fixture, Room No. SB-7. (Sample No. ACM 13)



Photograph 3: ACM pipe wrap insulation, corrugated paper-type, Room No. SB-7. (Sample No. ACM 14)



Photograph 4: ACM insulating pipe cement, Room No. SB-7. (Sample No. ACM 15)





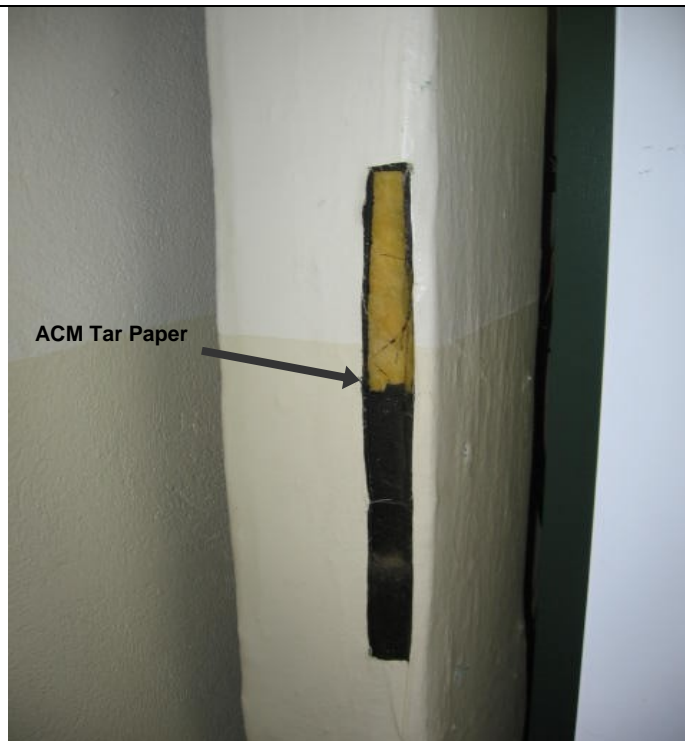
Photograph 7: ACM hot water tank insulation (2 tanks), Room No. B-2 (Sample No. ACM 22).



Photograph 8: ACM insulating pipe cement (elbow), located behind metal heater cover in Room No. 1-4. (Sample No. ACM 25).



Photograph 9: ACM cement on end of fiberglass pipe wrap in Room No. 1-10 (Sample No. ACM 30).



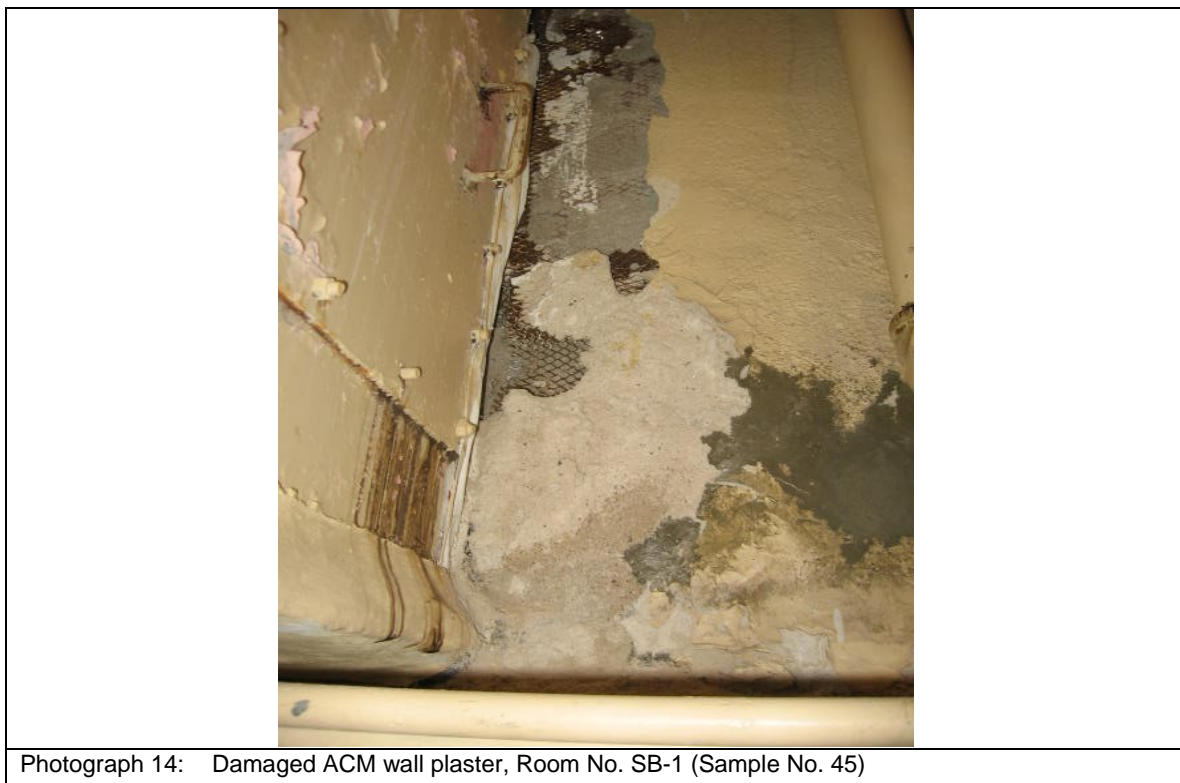
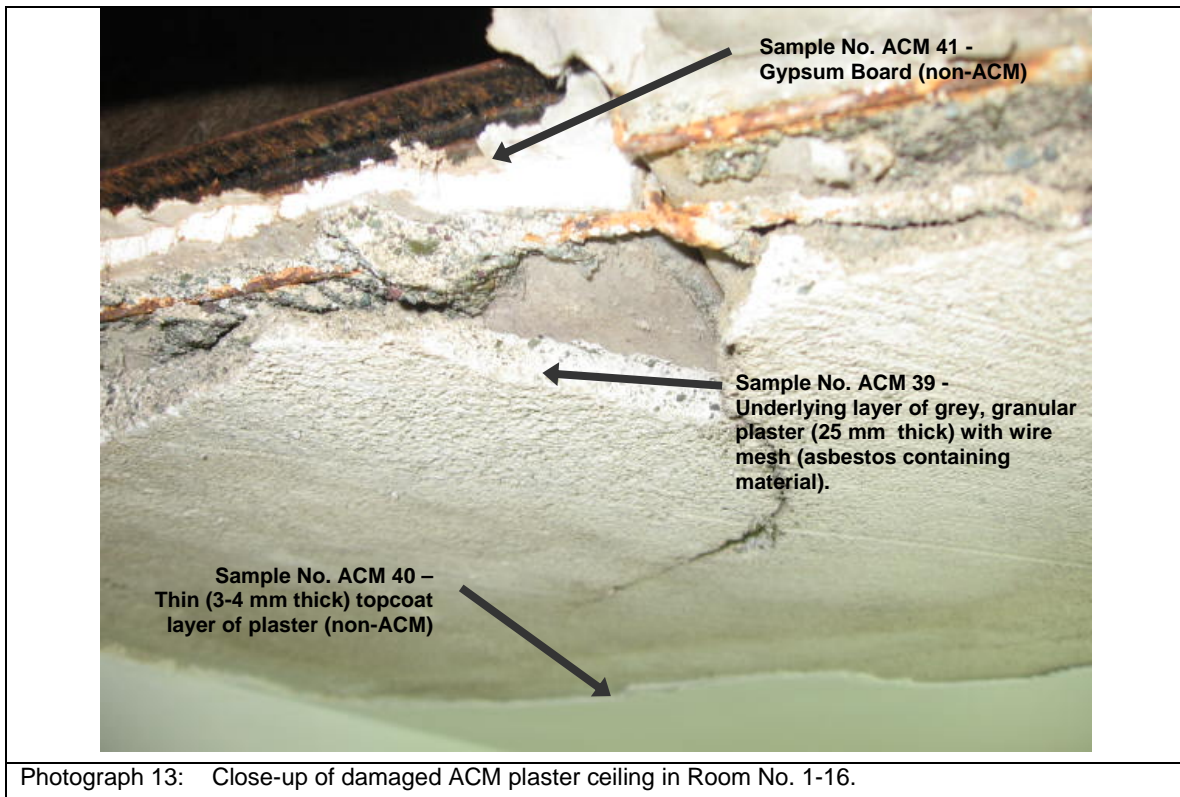
Photograph 10: ACM tar paper on duct (two) located in Room No. B-25. (Sample No. ACM 37)



Photograph 11: ACM cement on end of fiberglass-insulated pipe valve. Room No. SB-1 (Sample No. ACM 38)

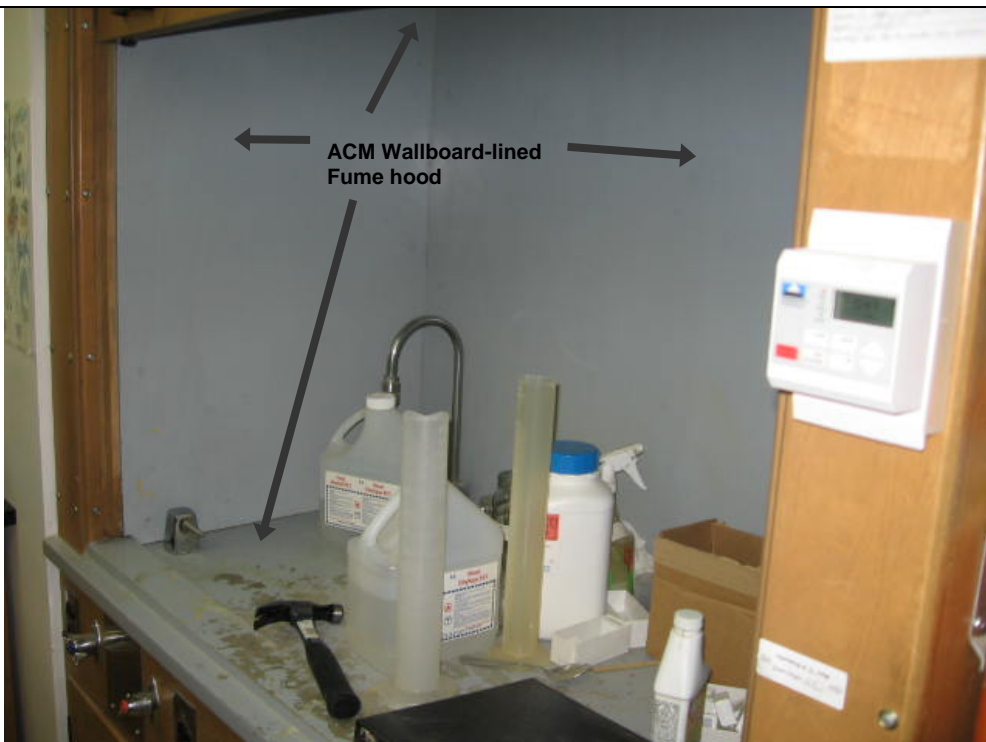


Photograph 12: Damaged ACM plaster ceiling, Room No. 1-16.





Photograph 15: Damaged plaster ceiling in Room No. B-21 (Freezer Room). (Sample No. ACM 47). Note that although analysis of this material showed no asbestos was detected, material should be treated as asbestos based on positive results of similar samples and non-homogeneous nature of material.



Photograph 16: ACM wallboard-lined fume hood in Room No. 1-17. (Sample No. ACM 48). Note it was reported that there are two other fume hoods containing this wallboard material, however they are covered with stainless steel sheeting.



Photograph 17: ACM insulating pipe cement (elbow). Room No. B-25 (sample No. ACM 49)



Photograph 18: ACM wall plaster, Room No. SB-1A (Sample No. ACM 50).



Photograph 19: ACM wall plaster, end of B-level hall (Sample No. ACM 51)

APPENDIX 7

LIMITATIONS

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
 - (a) The Standard Terms and Conditions which form a part of our Contract;
 - (b) The Scope of Services;
 - (c) Time and Budgetary limitations as described in our Contract; and,
 - (d) The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures which were not reasonably available, in AMEC's opinion, for direct observation.
4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.
5. Where testing was performed it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, might be present on site and be revealed by different or other testing not provided for in our contract.
6. It should be noted that AMEC did not gain access to one room within the Building during the course of the Survey; namely, Room No. B-12 (locked vault).
7. The findings within this report do not reflect potential ACMs in areas not accessed, such as remote space areas, wall cavities and ceilings spaces. During future renovations or demolition activities and subsequent removal of interior wall and ceiling materials, the actual quantities of asbestos containing materials can be verified. Also at this time, analysis of suspect ACM materials may be required if the appearance differs from that of materials previously confirmed to contain asbestos in adjacent rooms.
8. Because of the limitations referred to above, different environmental conditions from those stated in our report might exist. Should such different conditions be encountered, AMEC must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
9. The utilization of AMEC's services during the implementation of any remedial measures will allow AMEC to observe compliance with the conclusions and recommendations contained in the report. AMEC's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.

10. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. AMEC accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
11. This report is not to be given over to any third party for any purpose whatsoever without the written permission of AMEC.