Public Works and Government Services Canada

Pre-Demolition Hazardous Materials Survey and Plan

Agriculture and Agri-Food Canada

Building 6 - Potato Research Centre, 850 Lincoln Road, Fredericton, NB

Date: February 21, 2013
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Public Works and Government Services Canada

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Building 6 - Potato Research Centre, 850 Lincoln Road, Fredericton, NB

Final Report | 15954

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REVISION AND PUBLICATION REGISTER		
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00	2013-01-09	Draft Report
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02	2013-02-21	Final Report

EXECUTIVE SUMMARY

LVM / Maritime Testing Limited (LVM) was retained by Public Works and Government Services Canada (PWGSC) on behalf of Agriculture and Agri-Food Canada (AAFC) to conduct a hazardous building materials survey (HBMS) at Building 6 (Old School) of the AAFC Potato Research Centre in Fredericton, NB, in preparation for building demolition.

An asbestos survey was conducted at the AAFC Fredericton facility between 2006 and 2007 by Jacques Whitford Limited. The results of the survey, which included Building 6, were provided for review. It is our understanding that the subject building has been vacant since the 2006-07 survey and the purpose of the current assessment is to confirm the asbestos results of the previous work and document other potentially hazardous materials present in the building. This report will summarize previous findings along with results of the current assessment.

The hazardous building materials survey focused on the common hazardous materials investigated prior to building demolitions including asbestos, metals in paint, mould, mercury-containing thermostats, polychlorinated biphenyls (PCBs) containing light ballasts and radioactive smoke detectors.

The building survey was conducted between November 22 and 28, 2012. The following results were noted:

- Asbestos:
  - All plaster throughout the building is considered asbestos-containing.
  - Asbestos containing parging cement insulation is present in the basement on the boiler, mechanical equipment and pipe elbows.
  - Asbestos containing corrugated aircell is present on sections of the pipe runs in the basement.
  - A brown fibrous asbestos containing material is present on flange/gaskets of piping in the basement.
  - The chalkboard and overlying adhesive in the gym is asbestos-containing.
  - Asbestos is classified as a hazardous material under the Transportation of Dangerous Goods Act (TDGA) and under New Brunswick Occupational Health and Safety Act, Regulation 92-106. Asbestos waste must be manifested as a dangerous good during transport and must be disposed of at a Regional Sanitary landfill.
- Lead Paint:
  - The grey paint on the wooden plank substrate on the main stairwell and on the wall in Rm. 102 and the exterior black and white flaking paint on the window frames, door frames and

the underside of the roof soffits exceed provincial leachate disposal criterion (leachate toxic) and the federal TDGA regulations for lead. These materials must be manifested as dangerous goods during transport and disposed of with a licensed hazardous material contractor.

- The dark brown paint on plaster walls throughout (often underlying top coats), the light grey ceiling paint in Rm. 101 and the white paint on the gymnasium walls exceed the provincial disposal criterion for lead for a Construction and Demolition Debris (C&D) disposal site and must be disposed of at a Regional Sanitary Landfill.
- All other painted materials may be disposed of at a provincially approved C&D disposal site except for those materials that contain asbestos.
- All painted materials, with the exception of the white paint on the plaster walls in the stairwell leading to the attic, exceed the federal Surface Coating Materials Regulation for lead and therefore, proper safety precautions, including appropriate respirators, disposal suits and dust suppression, must be taken while handling these materials.

- Two suspected PCB-containing lamp ballasts are present in Room 106 and must be disposed of with an approved hazardous waste disposal contractor.
- Containers of potentially hazardous materials are stored in Rms. 101 and 104. The containers included paint cans, bottles of bleach and other cleaners, cans of spray paint and other aerosols, and pails of cutting oils. These are to be disposed of as hazardous waste materials.
- A significant amount of coal (approximately a truck load) is present in the basement of Building 6. The coal may be disposed of at any provincial Regional Sanitary Landfill with notification to the landfill prior to disposal. Proper safety precautions, such as particulate matter respirators, protective clothing, etc., should be taken when handling this material.
- Rodent nests and bird droppings were observed throughout the building. There are no special disposal requirements for these materials; however they do pose a potential health risk. Proper safety precautions, such as appropriate respirators, protective clothing, etc., should be taken when handling or working around these materials.

1 INTRODUCTION

LVM / Maritime Testing Limited (LVM) was retained by Public Works and Government Services Canada (PWGSC) on behalf of Agriculture and Agri-Food Canada (AAFC) to conduct a hazardous building materials survey (HBMS) at Building 6 (Old School)of the AAFC Potato Research Centre in Fredericton, NB, in preparation for building demolition.

An asbestos survey was conducted at the AAFC Fredericton facility between 2006 and 2007 by Jacques Whitford Limited. The results of the survey, which included Building 6, were provided for review. It is our understanding that the subject building has been vacant since the 2006-07 survey and the purpose of the current assessment is to confirm the asbestos results of the previous work and document other potentially hazardous materials present in the building. This report will summarize previous findings along with results of the current assessment.

The hazardous building materials survey focused on the common hazardous materials investigated prior to building demolitions including asbestos, metals in paint, mould, mercury-containing thermostats, polychlorinated biphenyls (PCBs) containing light ballasts and radioactive smoke detectors.

2 SURVEY METHODOLOGY

The hazardous building materials surveys consisted of a walkthrough of Building 6 between November 22 and 28, 2012. During the walkthrough, potentially hazardous materials were sampled, analyzed and quantified. During the building survey, LVM did not have access to roofing materials; however, AAFC confirmed that the roof had recently been replaced with standard asphalt shingles.

2.1 Asbestos

During the walkthrough, samples were taken of every material that could have been reasonably expected to contain asbestos, which were not previously identified by Jacques Whitford in 2006-07. These included ceiling, wall and floor materials and any kind of observed thermal insulation. In total, 9 samples (including a QA/QC duplicate) were collected.

All collected samples were submitted to EMSL Canada Inc. in Mississauga, Ontario, a National Voluntary Laboratory Accreditation Program (NVLAP) certified laboratory, for analysis by polarized light microscopy. The results of the current sampling program and a summary of previous results are presented in Section 3.1. Laboratory certificates are provided in Appendix 3.

Asbestos is classified as a hazardous material under the TDGA, and under New Brunswick Occupational Health and Safety Act, Regulation 92-106 and requires specific requirements for transfer (i.e. labels, placards, etc.) handling and disposal.

2.2 Paint Survey

Ten (including 1 QA/QC duplicate) paint samples were collected during the current survey to represent various colours for which lead and mercury content were unknown. Paint samples collected for analysis consisted of both paint and the underlying substrate, where possible.

Total and leachable metals content analysis was subcontracted to Maxxam Analytics Laboratories (Maxxam) in Bedford, Nova Scotia, a laboratory that is Standards Council of Canada (SCC) accredited for these analyses. Results of laboratory testing are presented in Section 3.2. Laboratory Certificates are provided in Appendix 3.

2.3 Polychlorinated Biphenyls (PCBs)

Fluorescent lamps ballasts where present, were inspected by LVM staff. Manufacturer's serial numbers and manufacturing date were noted and compared to Environment Canada's *Identification of Lamp Ballasts Containing PCBs*, *EPS 2/CC/* (August 1991), to determine whether ballasts were PCB-containing. Results of the lamp ballast survey are summarized in Section 3.3.

2.4 Microbial Growth

During the walkthrough an inspection for microbial growth was conducted and visual signs of mould growth were noted where present. No sampling or analysis was performed.

2.5 Mercury-Containing Devices

During the walkthrough, instruments that could contain mercury such as thermometers and thermostats were noted if present.

2.6 Smoke Detectors

During the walkthrough, smoke detectors containing radioactive elements were noted when encountered.

2.7 Other Hazardous Materials

A visual inspection for other hazardous materials that require special handling or disposal was also conducted. Other such materials include Ozone Depleting Substances (ODS), Lead/Lithium Containing Batteries, and Urea Formaldehyde Foam Insulation.

3 SURVEY RESULTS

During the building survey, LVM staff had access to all of areas of Building 6 except for the roof. LVM did not have access to roofing materials; however, AAFC confirmed that the roof had recently been replaced with standard asphalt shingles. Hazardous building materials identified during the survey are summarized below.

3.1 Asbestos

During the walkthrough, nine (including one QA/QC duplicate) bulk samples were collected for laboratory analysis. In addition, six bulk samples were collected by Jacques Whitford in 2006.

3.1.1 Handling Requirements

Asbestos containing materials must be handled in accordance with *A Code of Practice for Working with Asbestos Containing Materials in New Brunswick* and referenced in the New Brunswick Occupational Health and Safety Act (OHSA), Regulation 92-106.

Asbestos is considered a hazardous material under the federal TDGA and the New Brunswick OHSA and therefore must be properly packaged, labelled and placarded during transport.

3.1.2 Disposal Criteria

Asbestos waste is defined by NB Department of Environment *Asbestos Waste Disposal Guideline* (August 2005, Updated November 2010) as friable material containing asbestos fibre or asbestos dust in a concentration greater than 1%, by weight.

Asbestos waste must be disposed of at a Regional Sanitary Landfilll in New Brunswick, with notification to the landfill prior to disposal.

3.1.3 Asbestos Sampling Results

The sampling program indicates that two of six plaster samples analyzed (A-4 and A-9) contain asbestos fibres. Plaster is a non-homogenous product and sampling such products often leads to ambiguity in results. It is possible to collect various samples of the same non-homogenous material and receive varying results. Therefore, while not all samples were found to contain asbestos, it is our opinion that **all plaster** in the building is of the same composition and should be considered asbestos-containing.

Parging cement insulation in the basement was sampled in 2006 and found to contain 10% chrysotile asbestos and 20% amosite asbestos. The material was observed on the boiler (and floor around the boiler), several pipe elbows and disassembled mechanical equipment lying on the floor in the basement. The boiler and associated piping and equipment may be disposed of as non-asbestos waste so long as asbestos containing materials have been completely removed.

Corrugated aircell piping insulation was observed on pipe runs and on the floor beneath the pipe runs in the basement. This material was found to contain 70% chrysotile asbestos during the 2006 assessment. The material does not cover full lengths of piping: rather, it occurs in random sections. It is in poor condition and the missing sections of aircell have likely fallen off the piping. Some aircell was observed in piles of rubble beneath the pipe runs.

One sample of a brown fibrous gasket/flange material was collected during the current assessment from a segment pipe lying on top of the boiler. The material was found to contain 15% chrysotile and 5% crocidolite asbestos. Given the conditions in the basement (no power, limited access to piping locations, etc.) and the limited amount of material per gasket/flange, it is unclear how many piping connections contain the asbestos material. It is recommended that all piping connections (~10) in the basement be considered asbestos containing unless confirmed otherwise. It is possible that this asbestos containing material is present on other piping in inaccessible areas, such as wall cavities, though it was not observed anywhere other than the basement.

The two chalk boards located in the gymnasium were found to contain 2% chrysotile asbestos. The overlying adhesive on the chalk boards was found to contain 7% chrysotile asbestos.

A stored section of asbestos-containing transite pipe was observed in Room 103 during the 2006 sampling program. This material was not observed where it was previously identified, nor was it observed anywhere else in the building during the current assessment.

No other asbestos-containing materials were identified in Building 6.

Asbestos is classified as a hazardous material under the TDGA and the New Brunswick Occupational Health and Safety Act, Regulation 92-106, and has specific requirements for transfer (i.e. labels, placards, etc.) and handling. Disposal must be at a Regional Sanitary Landfill.

Asbestos sample locations are provided on Figures 1-4, Appendix 1. Current and past results are provided in Table 1. Laboratory certificates are provided in Appendix 3.

Table 1 Bulk Asbestos Results – Building 6 -AAFC Fredericton.

ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	ASBESTOS PRESENT	FRIABILITY
2006 – Bulk Asbestos Results – Jacques Whitford				
20	First Floor, Rm. 101, Staircase	Woven Textile	None Present	--
21	First Floor, Rm. 101	Wall Plaster	None Present	--
22	Basement, Rm. 001	Aircell Pipe Insulation	**70% Chrysotile Asbestos**	**High**

ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	ASBESTOS PRESENT	FRIABILITY
23	Basement, Rm. 001	Parging Cement	**10% Chrysotile Asbestos 20% Amosite Asbestos**	**High**
24	Basement, Rm. 001	Fireproofing 'plaster'	None Present	--
25	Second Floor, Rm. 202	Wire Jacketing	None Present	--
*	First Floor, Rm. 103	Transite Piping	**Not analyzed, but a known asbestos-containing product**	**Low**
2012- Bulk Asbestos Results- LVM				
A-1	Attic, Stairwell	Wall Plaster	None Detected	--
A-2	Attic	Mortar between Concrete Blocks	None Detected	--
A-3	Second Floor, Rm. 201	Ceiling Plaster	None Detected	--
A-4	Second Floor, Rm. 202	Wall Plaster	**1% Chrysotile Asbestos**	**Medium**
A-5	Second Floor, Gym	Adhesive on Chalk Board	**7% Chrysotile Asbestos**	**Low**
A-6	Second Floor, Gym	Chalk board	**2% Chrysotile Asbestos**	**Low**
A-7	Basement, Rm. 001	Gasket/Flange	**15% Chrysotile Asbestos 5% Crocidolite Asbestos**	**Medium**
A-8	Exterior Windows	Putty-like Caulking	None Detected	--
A-9 (Dup of A-1)	Attic, Stairwell	Wall Plaster	**< 1% Chrysotile Asbestos**	**Medium**

3.2 Paint Survey

Ten paint samples (including one QA/QC duplicate), labelled P1-P10 on Figures 1-4, were collected that represent the various coloured surfaces in and on the subject building. Samples of paint and substrate were collected where possible for analysis. All samples were initially submitted for a total lead and total mercury analysis. Protocol requires samples found to have a total lead content in excess of 1000 mg/kg and/or a total mercury content in excess of 10 mg/kg to be re-submitted for a leachable analysis.

The purpose of the sampling was to address both health and disposal concerns, with respect to heavy metal content, for painted materials that will require handling and disposal during the upcoming building demolition. Laboratory analysis conducted as part of the current assessment was performed by Maxxam in Bedford, NS.

3.2.1 Handling Requirements

The Surface Coating Materials Regulations under the Consumer Products Safety Act of Canada consider surfaces with a lead content greater than 90 mg/kg as lead containing and mercury content greater than 10 mg/kg as mercury containing. Any disturbance or removal of lead painted materials (peeling paint) that may generate lead dust or respirable aerosols will need to conform to the federal and provincial Occupational Health and Safety Act Regulations. All work should be carried out by individuals qualified to handle metals-containing materials and will require, as a minimum, workers to wear proper personal protection (respirators, disposable clothing).

Materials with leachable lead concentrations greater than 5 mg/L and leachable mercury concentrations greater than 0.1 mg/L must be manifested as dangerous goods during transport under the federal TDGA Regulations. If materials are to be disposed of out of province, transportation must comply with the Interprovincial Movement of Hazardous Waste Regulations under the Canadian Environmental Protection Act.

3.2.2 Disposal Criteria

Paints with total lead and mercury concentrations below 1000 mg/kg and 10 mg/kg, respectively, may be disposed of at any provincially approved C&D disposal site, as long as the paint is tightly bound to the substrate. No loose, flaking lead paint may be disposed of at a C&D site, regardless of laboratory results. If concentrations of total lead or mercury exceed the above-noted guidelines, their leachable concentrations must be determined.

Paints with total lead and mercury concentrations above 1000mg/kg and 10mg/kg, respectively, and leachable lead and mercury concentrations below 5 mg/L and 0.1 mg/L, respectively, may be disposed of at a Regional Sanitary Landfill.

Paints with leachable lead and mercury concentrations exceeding 5 mg/L and 0.1 mg/L respectively cannot be disposed of as regular solid waste and must be disposed with a licensed hazardous waste disposal contractor.

3.2.3 Paint Sampling Results

The total lead content in the ten submitted samples ranged from 8.4 mg/kg to 66,000 mg/kg. Six of the paint samples (P1, P4, P6, P7, P8 and P10) were found to contain a total lead concentration in excess of 1000 mg/kg. Total mercury content in the samples ranged from <1.0 mg/kg to 3.5 mg/kg. The results dictated that six samples exceeding total lead concentration of 1000mg/kg be re-submitted for leachable lead analysis; no samples required leachable mercury analysis. It should be noted that two of the six samples, P4 and P10, were duplicates of each other and therefore only one, P4, was re-submitted for leachable lead analysis.

Leachable lead results indicate that samples P4 (17mg/L), P7 (48 mg/L) and P8 (150mg/L) exceed the provincial disposal criteria for leachable lead.

Tabulated laboratory results along with sample description and location are provided in Table 2, below. Laboratory certificates are presented in Appendix 2.

Table 2 Metals in Paints –Building 6 - AAFC Fredericton

ID	DETAILS	TOTAL LEAD (MG/KG)	LEACHABLE LEAD (MG/L)	TOTAL MERCURY (MG/KG)	LEACHABLE MERCURY (MG/L)
P-1	Dark Brown on Plaster Substrate- Rm. 104	***1500***	1.5	< 1.0	--
P-2	Light Brown on Plaster Substrate- Rm. 202	*210*	--	< 1.0	--
P-3	Light Grey Paint Chips – Rm.101	*310*	--	3.5	--
P-4	Grey on Wood Planks and Stairwell – Rm. 102	***21000***	**17**	2.7	--
P-5	Light Green on Plywood Substrate – Rm.106	*140*	--	2.5	--
P-6	White Paint Chips - Gym	***1400***	0.38	< 1.0	--
P-7	Black Paint Chips- Exterior Window and Door Frames	***15000***	**48**	< 1.0	--
P-8	White Paint Chips – Exterior Window and Door Frames	***66000***	**150**	1.6	--
P-9	White on Plaster Substrate- Attic Stairwell	8.4	--	< 1.0	
P-10	Grey on Wood Planks and Stairwell – Rm. 102	***16000***	--	1.8	
New Brunswick- Disposal Criteria*		1000	5	10	0.1
Surface		90	-	10	-

ID	DETAILS	TOTAL LEAD (MG/KG)	LEACHABLE LEAD (MG/L)	TOTAL MERCURY (MG/KG)	LEACHABLE MERCURY (MG/L)
Coating Materials Regulation**					
TDG Act***			5		0.1

* Bold values exceed Provincial Disposal Guidelines

** *Italicized* values exceed Federal Surface Coating Materials Regulation

*** Underlined values exceed the Federal Transportation of Dangerous Good Act (TDGA) Regulations

Based on the above results, the grey paint on the wooden plank substrate on the main stairwell and on the wall in Rm. 102, and the exterior black and white flaking paint on the window frames, door frames and the underside of the roof soffits, exceeds provincial disposal criteria and federal TDGA regulations for lead. These materials must be manifested as dangerous goods during transport and disposed of with a licensed hazardous material contractor.

The dark brown on plaster walls throughout (often underlying top coats), the light grey ceiling paint in Rm. 101, and the white paint on the gymnasium walls exceed the provincial disposal criteria for lead for a C&D disposal site and therefore must be disposed of at a Regional Sanitary Landfill.

All other painted materials may be disposed of at a provincially approved C&D disposal site except for those materials that contain asbestos.

All painted materials, with the exception of the white paint on the plaster walls in the stairwell leading to the attic, exceed the federal Surface Coating Materials Regulation. Therefore, proper safety precautions for dealing with lead painted materials, including appropriate respirators, disposal suits and dust suppression, must be taken while handling these materials. It should be noted that while the white paint satisfies the Surface Coating Materials Regulation, the underlying plaster is asbestos-containing and must be handled accordingly.

Materials containing asbestos *and* paints above 1000mg/kg total lead but below 0.5mg/L leachable lead (dark brown and light grey paints on plaster) may be disposed of at a Regional Sanitary Landfill, with notification to the landfill prior to arrival.

No leachate toxic paints (> 0.5mg/L leachable lead) are found on asbestos-containing substrates.

3.3 Polychlorinated Biphenyls (PCBs)

Four fluorescent lamp ballasts were observed in two locations during the walkthrough. Ballasts were observed on stored lighting fixtures in Rm. 104 and on installed fixtures in Rm. 106. The two ballasts in Rm. 104 were Advance ballasts and labelled as non-PCB containing.

The two ballasts in Rm. 106 are Canadian General Electric Gold Label ballasts with a manufacturer's code of 17A240N, which indicate that they are suspected of containing PCBs.

PCB containing lamp ballasts should be disposed with a licensed hazardous waste disposal contractor.

3.4 Microbial Growth

No signs of significant microbial growth were observed during the walkthrough of Building 6.

3.5 Mercury Containing Devices

No mercury-containing devices were observed during the walkthrough.

3.6 Smoke Detectors

No smoke detectors containing radioactive materials were encountered during the building walkthrough.

3.7 Other Hazardous Material

Containers of potentially hazardous materials are stored in Rms. 101 and 104. The containers included paint cans, bottles of bleach and other cleaners, cans of spray paint and other aerosols and pails of cutting oils. These are to be disposed of as hazardous waste materials.

A significant amount of coal (approximately a truckload) is present in the basement of Building 6. The coal may be disposed of at any provincial Regional Sanitary Landfill with notification to the landfill prior to disposal. Proper safety precautions, such as particulate matter respirators, protective clothing, etc., should be taken when handling this material

Rodent nests and bird droppings were observed throughout the building. These materials pose a potential health risk. Proper safety precautions, such as appropriate respirators, protective clothing, etc., should be taken when handling or working around these materials.

No other hazardous building materials were identified in Building 6.

4 SUMMARY OF HAZARDOUS MATERIALS

A summary of the hazardous building materials encountered in Building 6 is provided below, in Table 3. It is important to note that removal/handling procedures vary depending on a variety of factors including the manner in which they are removed, types of tools used during removal, amount of materials to be disturbed, etc.

Table 3 Summary of Hazardous Materials in Buildings 6 – AAFC Fredericton

HAZARDOUS MATERIAL	DESCRIPTION	LOCATION	ESTIMATED QUANTITY	CONDITION (REMOVAL PROCEDURE)	DISPOSAL CRITERIA
Asbestos	Plaster	Walls and Ceilings- Throughout	All Plaster Throughout Building	Friable Type 3 Removal	Material should be properly packaged, labelled and placarded during transport. Material requires disposal at a Regional Sanitary Landfill licensed to accept such wastes.
	Aircell Pipe Insulation	Pipe Runs, Floor - Basement	~10 m	Friable Type 2 or 3 Removal	
	Parging Cement	Boiler, Mechanical Equipment, Pipe Elbows - Basement	~ 20 m^2	Friable Type 2 or 3 Removal	
	Chalkboard and overlying adhesive	Gymnasium	~ 6 m^2	Non Friable Type 1 Removal	
	Gasket/Flange	Pipe lying on Boiler – Basement	~ 10 pipe connections	Friable Type 2 or 3 Removal	
Lead Paint	Grey on Wooden Substrate	Walls in Rm. 102 and Main Staircase	~100 m^2	Leachate Toxic	Material should be manifested as a Dangerous Good during transport. Material requires disposal with an approved hazardous waste disposal contractor.
	Black Peeling Paint	Exterior Door and Window Frames	~120 m^2	Leachate Toxic	
	White Peeling Paint	Exterior Door and Window Frames and Underside of Soffits		Leachate Toxic	

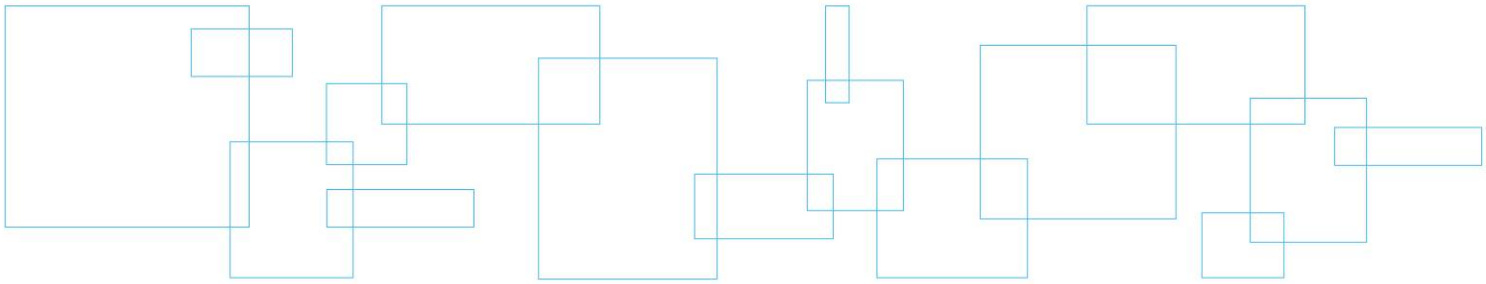
HAZARDOUS MATERIAL	DESCRIPTION	LOCATION	ESTIMATED QUANTITY	CONDITION (REMOVAL PROCEDURE)	DISPOSAL CRITERIA
	Dark Brown on Plaster	Throughout	~150m^2	Not Leachate Toxic	Material requires disposal at an approved Regional Sanitary Landfill
	Light Grey	Ceilings (where peeling)	~50m^2	Not Leachate Toxic	
	White Peeling Paint	Gym	~275m^2	Not Leachate Toxic	
	Light Brown on Plaster and Concrete Block	Throughout	N/A	Not Leachate Toxic	Material may be disposed of at any approved C&D disposal site.
	Light Green on Wood and Concrete Block	Room 106 and 107	N/A	Not Leachate Toxic	
	White on Plaster	Attic Stairwell	N/A	Not Leachate Toxic	*While paint is within lead disposal guidelines, plaster is asbestos containing. Material should be properly packaged, labelled and placarded as asbestos-containing during transport. Material requires disposal at a Regional Sanitary Landfill licensed to accept such wastes
PCBs	Fluorescent Lamp Ballasts	Room 106	~2	Material should be manifested as a Dangerous Good Material requires disposal with an approved hazardous waste disposal contractor	

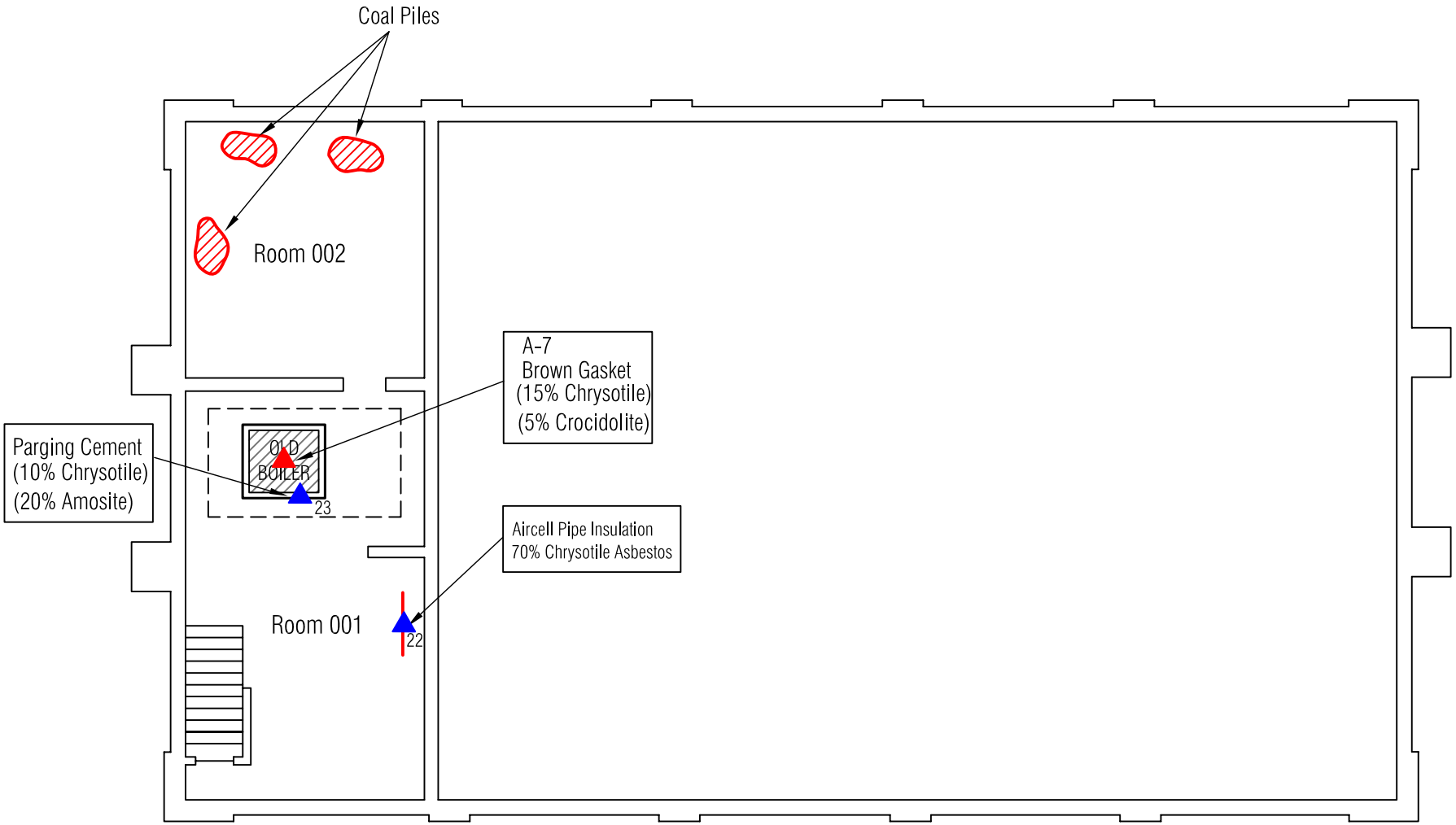
HAZARDOUS MATERIAL	DESCRIPTION	LOCATION	ESTIMATED QUANTITY	CONDITION (REMOVAL PROCEDURE)	DISPOSAL CRITERIA
Other	Containers of paints, cleaners, cutting oils, etc.	Room 101 and 104	Several boxes and containers of various sizes.	Material requires disposal with an approved hazardous waste disposal contractor	
	Coal	Basement	~ one truck load	Material must be disposed of at an approved Regional Sanitary Landfill	

5 REFERENCES

1. **Department of Justice Canada -** Canadian Environmental Protection Act, 1999 (CEPA) - *Interprovincial Movement of Hazardous Waste Regulations.*
2. **Department of Justice Canada -** Canada Consumer Safety Products Act*, 2010-Surface Coating Materials Regulations, SOR/2005-109*
3. **Health Canada-** Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).
4. **Human Resources and Social Development Canada (HRSDC)-** Canada Labour Code Part II, - SOR 86-304 - *Occupational Health and Safety Regulations.*
5. **Transport Canada (TC) -**Transportation of Dangerous Goods Act, 1992 (TDGA).
6. **NB Department of Environment and Local Government -** Disposal of Lead Paint and Lead Painted Materials Guideline
7. **NB Department of Environment and Local Government -** Asbestos Waste Disposal Guideline, 2005 (updated 2010).
8. **New Brunswick Occupational Health and Safety Act –** New Brunswick Occupational Health and Safety Regulation 92-106.
9. **Public Works and Government Services Canada** - Deputy Minister Directive (DIR:057) – *Respecting Asbestos Management in Federal Owned or Leased Buildings or Facilities Containing Asbestos.* March 12, 1997
10. **Agriculture and Agri-Food Canada Fredericton Potato Research Centre**– Asbestos Management Plan, March 2007

Appendix 1 Figures





Ref. Jacques Whitford Building #6 Basement Floor Plan,
Job#1016514.04, Dated 2007-01-04

LEGEND

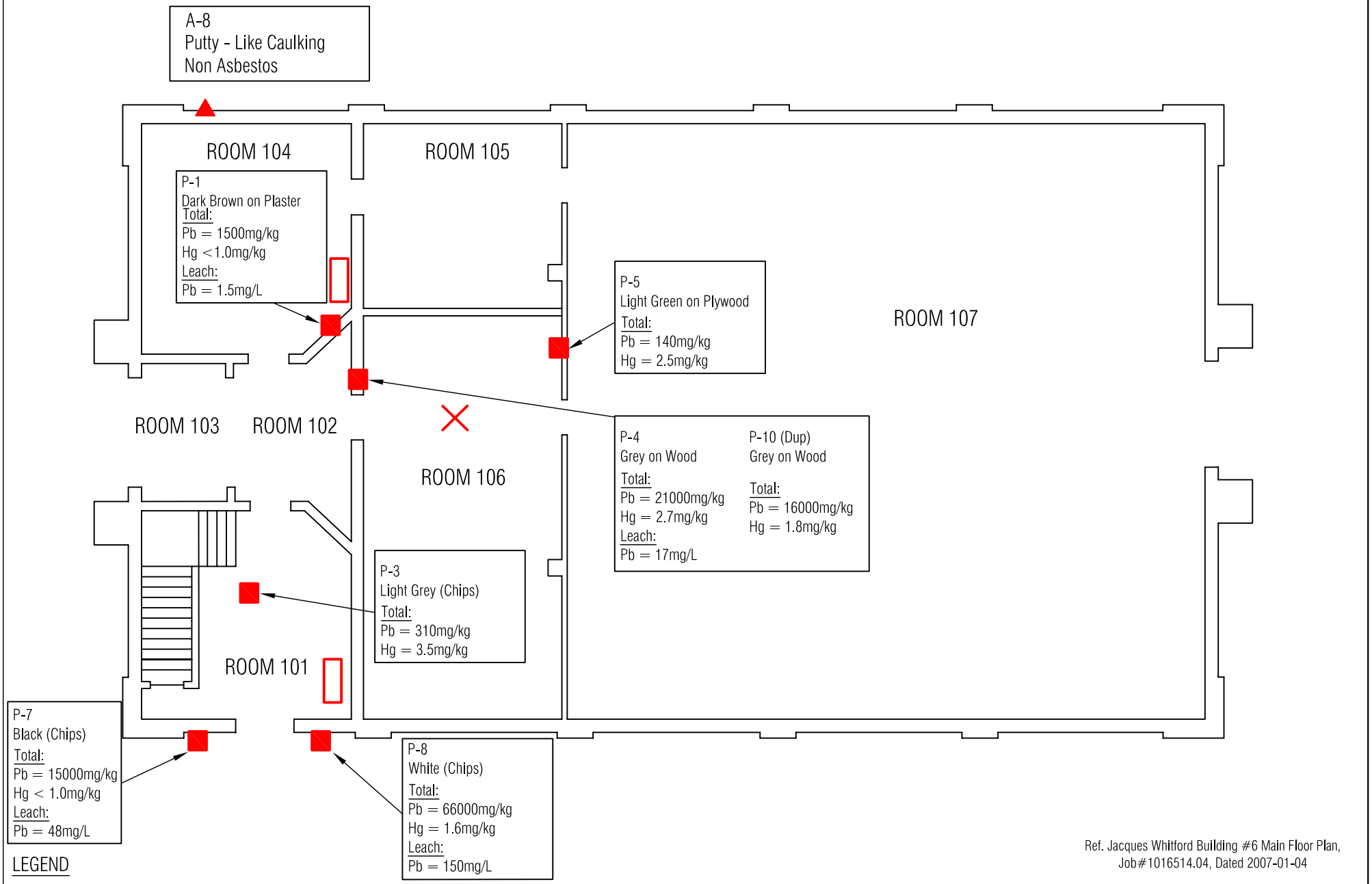
▲ A-7 - Asbestos Sample Location, LVM Maritime, 2012

▲ - Sample Location, Jacques Whitford, 2006

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Building #6, Basement Floor Plan
Potato Research Center
AAFC Fredericton, NB.

DATE: February 2013	SCALE: NTS	DRAWN BY: MM	CKD BY: SF	JOB No. 15954	FIGURE 1



Ref. Jacques Whitford Building #6 Main Floor Plan, Job#1016514.04, Dated 2007-01-04

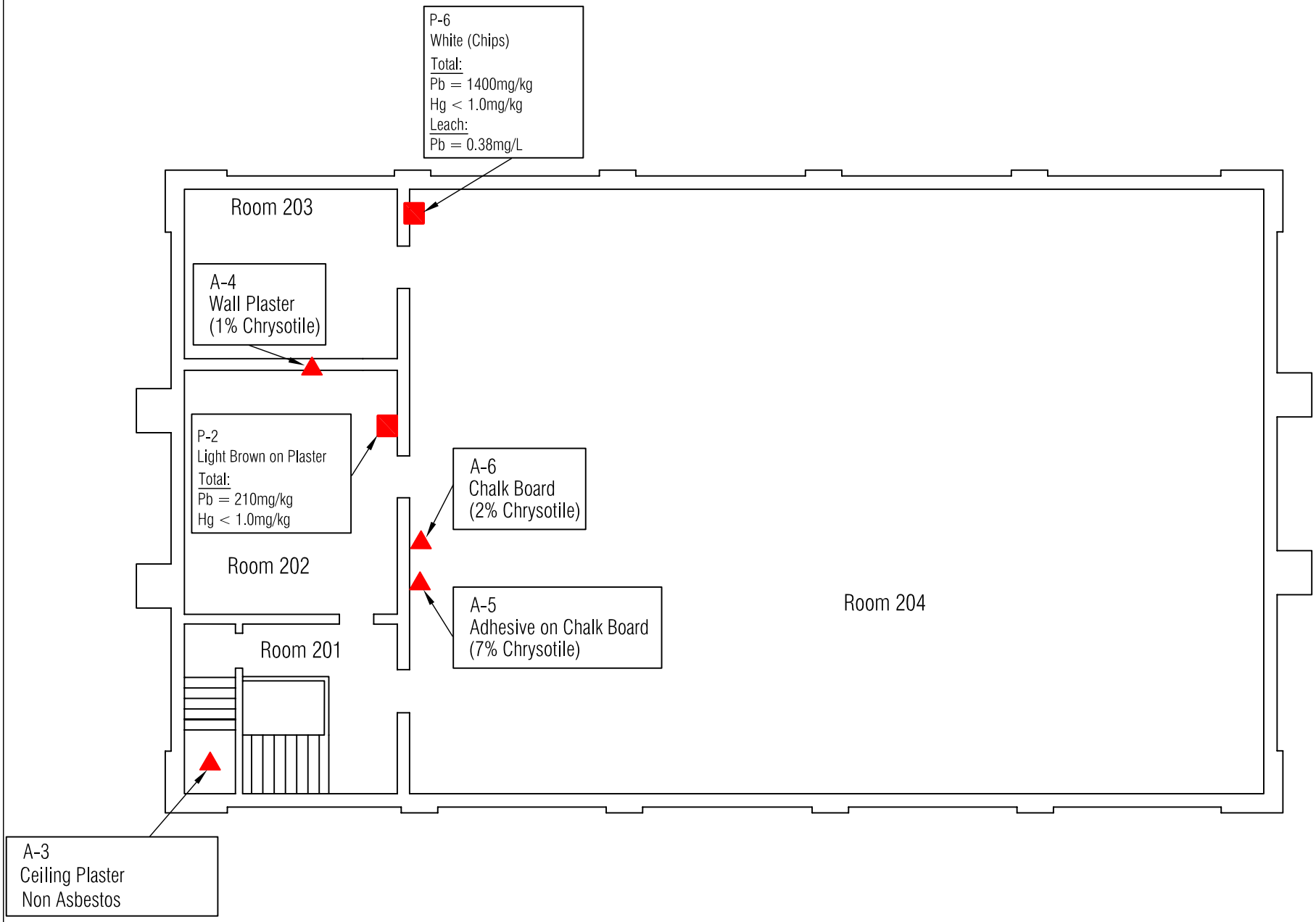
LEGEND

- A-8 - Asbestos Sample Location, LVM Maritime, 2012
- P-1 - Paint Sample Location, LVM Maritime, 2012
- Paint Cans, Bleach, Cutting Oils, etc.
- PCB Containing Lamp Ballasts

LVM | MARITIME TESTING

Building #6, Main Floor Plan
Potato Research Center
AAFC Fredericton, NB.

DATE: February 2013	SCALE: NTS	DRAWN BY: MM	CKD BY: SF	JOB No. 15954	FIGURE 2



Ref. Jacques Whitford Building #6 Second Floor Plan, Job#1016514.04, Dated 2007-01-04

LEGEND

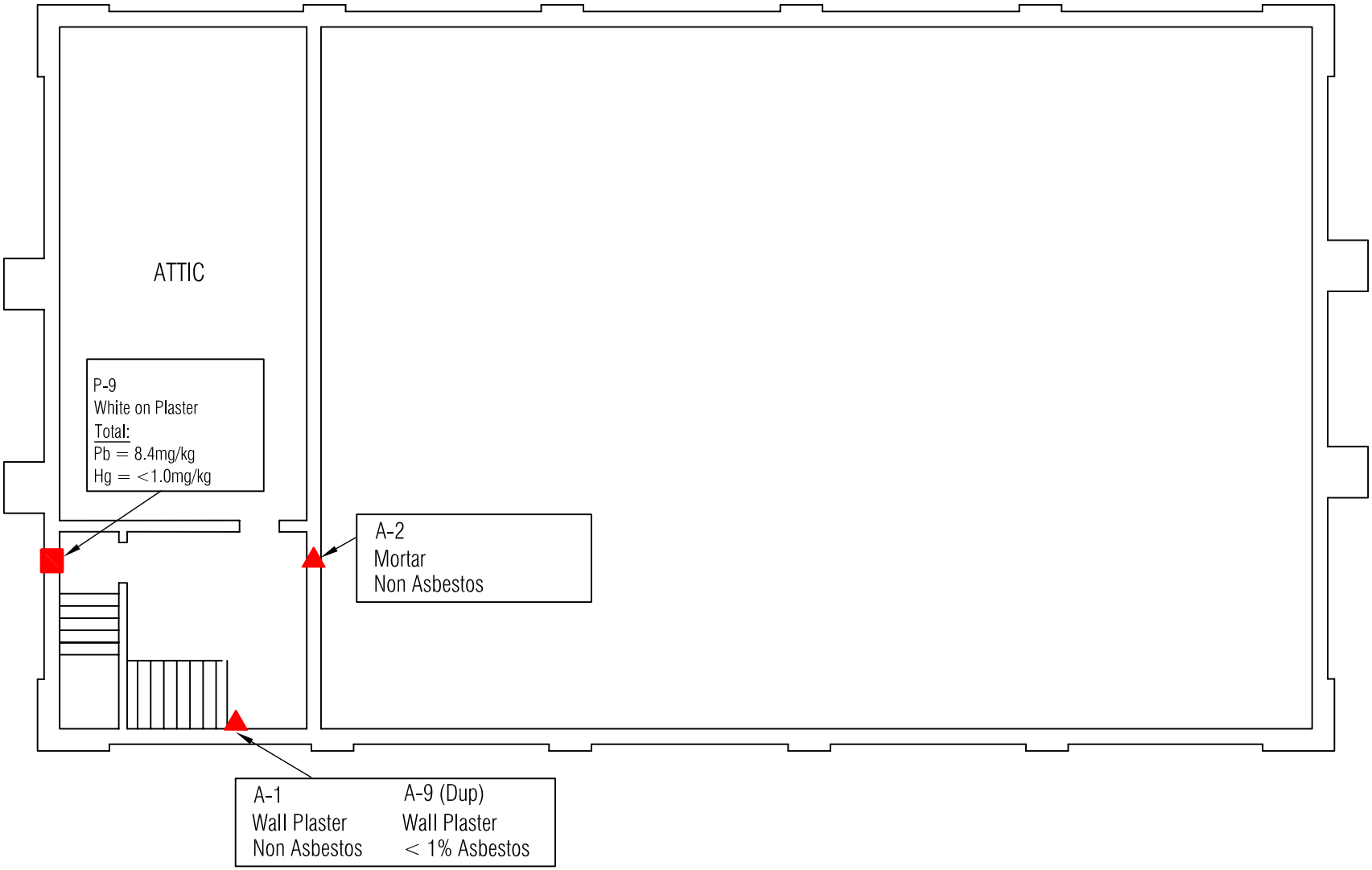
▲ A-3 - Asbestos Sample Location, LVM Maritime, 2012

■ P-6 - Paint Sample Location, LVM Maritime, 2012

LVM | MARITIME TESTING

Building #6, Second Floor Plan
Potato Research Center
AAFC Fredericton, NB.

DATE: February 2013	SCALE: NTS	DRAWN BY: MM	CKD BY: SF	JOB No. 15954	FIGURE 3



Ref. Jacques Whitford Building #6 Attic Floor Plan,
Job#1016514.04, Dated 2007-01-04

LEGEND

▲ A-1 - Asbestos Sample Location, LVM Maritime, 2012

■ P-9 - Paint Sample Location, LVM Maritime, 2012

LVM | MARITIME TESTING

Building #6, Attic Floor Plan
Potato Research Center
AAFC Fredericton, NB.

DATE: February 2013	SCALE: NTS	DRAWN BY: MM	CKD BY: SF	JOB No. 15954	FIGURE 4

Appendix 2 Site Photographs

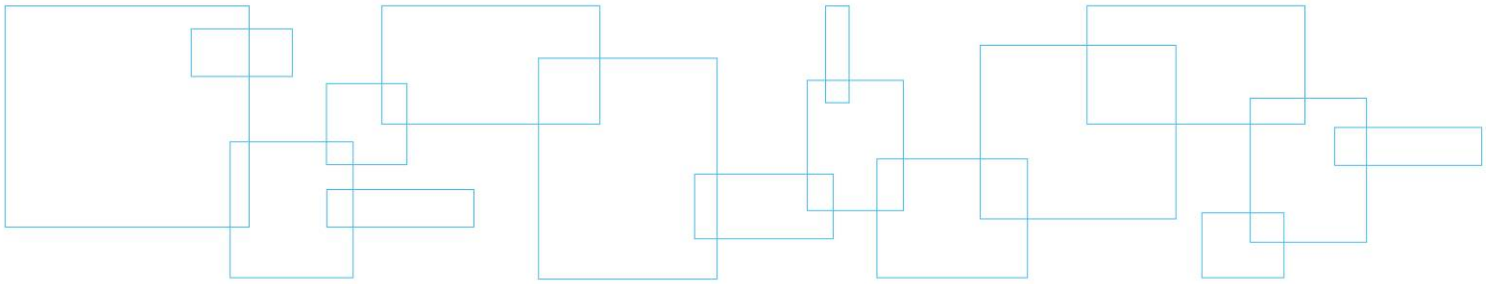




Photo 1: Exterior of Building 6 (Old School). The exterior window frames, doors and soffits are coated with black and white paint, which was found to be leachate toxic. No other hazardous materials were encountered on the exterior of the building. Access to the roof was not provided; however, AAFC confirmed that the roof had recently been replaced.



Photo 2: The grey paint on the wall in Rm. 102 (shown above) and on the stairwell is considered leachate toxic and must be disposed accordingly.



Photo 3: Photo taken in the gym in Building 6 (Old School). The peeling white paint is not leachate toxic, but must be disposed of a Regional Sanitary Landfill. The light brown paint on walls (in the gym and throughout the building) may be disposed at an approved C&D disposal site. The chalkboards and overlying adhesives are asbestos-containing.

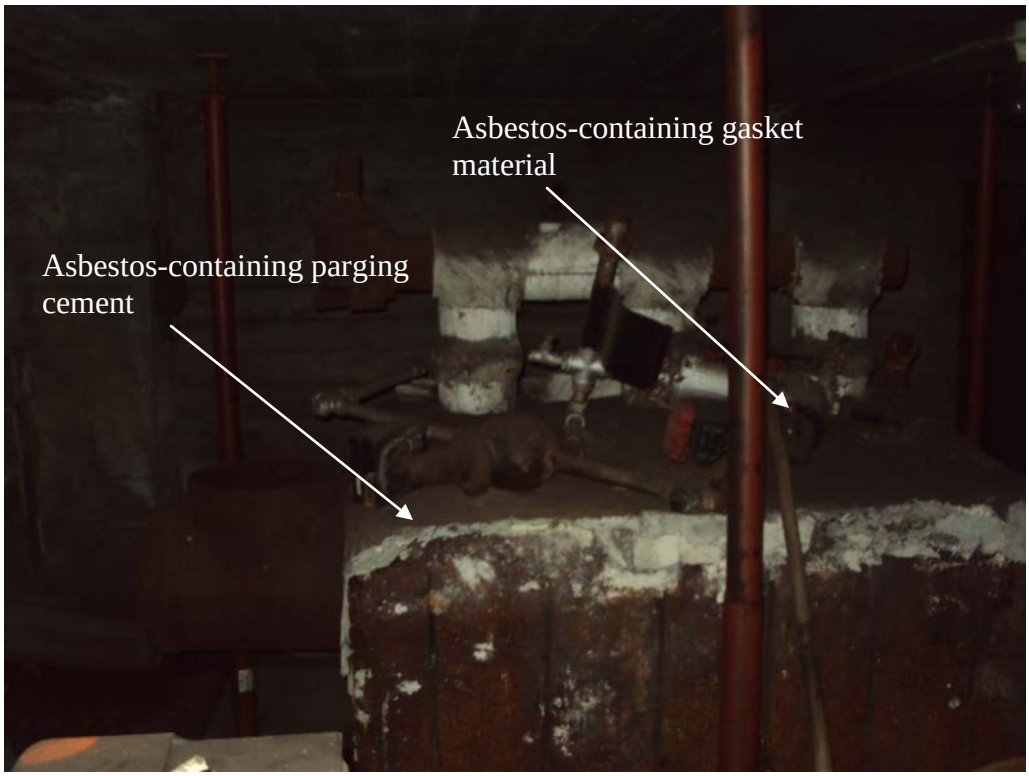


Photo 4: Photo of the boiler in the basement of Building 6. The boiler is clad in asbestos-containing parging cement, much of which has fallen to the ground surrounding it. A pipe lying on the boiler was found to have gasket material which is also asbestos containing.

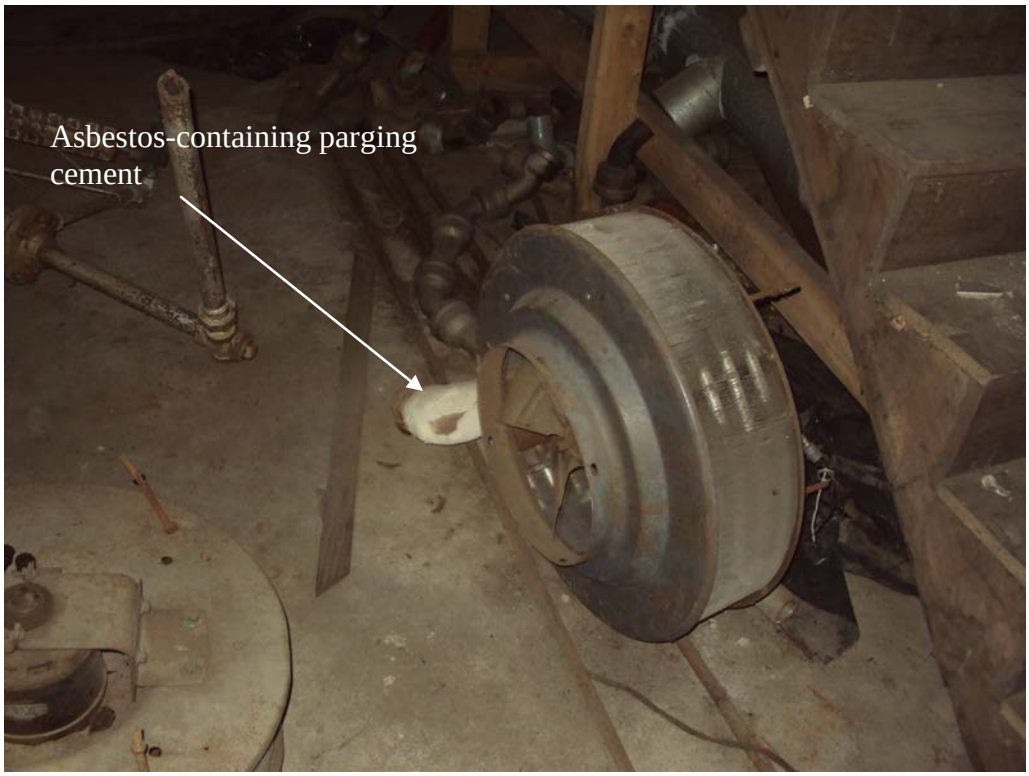


Photo 5: Asbestos containing parging cement was observed on piping and mechanical equipment throughout the basement, including dismantled equipment.



Photo 6: Asbestos-containing corrugated Aircell insulation was observed on random sections of piping and on the floor beneath the piping in the basement of Building 6.

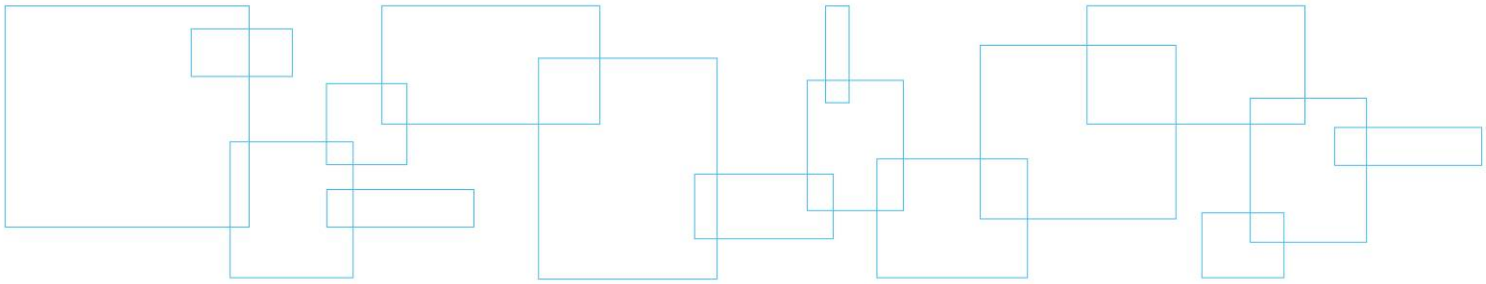


Photo 7: Three piles (all approximately the same size as the pile in the photo above) of unused coal were observed at the bottom of former coal chutes. The coal may be disposed of at a regional sanitary landfill, with notification to the landfill. Proper safety precautions, when handling this material should be considered.



Photo 8: A variety containers of potentially hazardous materials were stored in Rms. 101 and 104. The containers included paints, bleaches, cutting oils, aerosols, etc.

Appendix 3 Laboratory Certificates



LVM | MARITIME TESTING

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.emsl.com torontolab@emsl.com

EMSL Canada Or 551205835
CustomerID: 55MARI77A
CustomerPO:
ProjectID:

Attn: **Scott Fisher**
LVM Maritime Testing
1067 Champlain Street
Dieppe, NB E1A 1P9

Phone: (506) 384-5555
Fax:
Received: 12/04/12 8:57 AM
Analysis Date: 12/11/2012
Collected:

Project: **15954**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-1 *551205835-0001*	ATTIC STAIRWELL - WALL PLASTER	Gray/White Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-2 *551205835-0002*	B/W CONCRETE BLOCK - MORTAR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-3 *551205835-0003*	ROOM 201 - CEILING PLASTER	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-4 *551205835-0004*	ROOM 202 - WALL PLASTER	Gray Non-Fibrous Heterogeneous		99% Non-fibrous (other)	**1% Chrysotile**
A-5 *551205835-0005*	FIYM - ADHESIVE ON CHALK BOARD	Black Non-Fibrous Heterogeneous		93% Non-fibrous (other)	**7% Chrysotile**
A-6 *551205835-0006*	FIYM - CHALK BOARD	Gray Non-Fibrous Heterogeneous		98% Non-fibrous (other)	**2% Chrysotile**
A-7 *551205835-0007*	- GASKET	Brown Fibrous Heterogeneous		80% Non-fibrous (other)	**15% Chrysotile** **5% Crocidolite**
A-8 *551205835-0008*	EXTERIOR - WINDOW CAULKING	Gray/White Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**

Analyst(s)

Alice Feng (9)

Kevin Pang
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from 12/11/2012 12:13:45

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.emsl.com torontolab@emsl.com

EMSL Canada Or	551205835
CustomerID:	55MARI77A
CustomerPO:	
ProjectID:	

Attn: **Scott Fisher**
LVM Maritime Testing
1067 Champlain Street
Dieppe, NB E1A 1P9

Phone:	(506) 384-5555
Fax:	
Received:	12/04/12 8:57 AM
Analysis Date:	12/11/2012
Collected:	

Project: **15954**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-9	- WALL PLASTER	Gray/White		100% Non-fibrous (other)	**<1% Chrysotile**
551205835-0009		Non-Fibrous Heterogeneous			

Analyst(s)

Alice Feng (9)

Kevin Pang
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from 12/11/2012 12:13:45

Your Project #: 15954
Site Location: AAFC-FREDERICTON
Your C.O.C. #: ET254012

Attention: Scott Fisher
LVM Maritime Testing
97 Troop Ave
Dartmouth, NS
B3B 2A7

Report Date: 2012/12/20
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2J0873
Received: 2012/12/04, 10:13

Sample Matrix: Paint
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Metals Leach. Tot. MS - N-per	4	2012/12/18	2012/12/18	ATL SOP 00059	Based on EPA6020A
Metals Leach. Tot. MS - N-per	1	2012/12/18	2012/12/19	ATL SOP 00059	Based on EPA6020A
Metals Paint Acid Extr. ICPMS (1)	9	2012/12/07	2012/12/07	ATL SOP 00024	Based on EPA6020A
Metals Paint Acid Extr. ICPMS (1)	1	2012/12/07	2012/12/10	ATL SOP 00024	Based on EPA6020A
TCLP Inorganic extraction - pH	5	N/A	2012/12/18	ATL SOP-00035	Based on EPA1311
TCLP Inorganic extraction - Weight	5	N/A	2012/12/18	ATL SOP-00035	Based on EPA1311

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: Metals naming convention has been changed from "Available" to "Acid Extractable" as part of a national harmonization initiative. Contact your project manager for additional details.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Mari Kenny, Project Manager
Email: MKenny@maxxam.ca
Phone# (902) 420-0203 Ext:291

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B2J0873
Report Date: 2012/12/20

LVM Maritime Testing
Client Project #: 15954
Site Location: AAFC-FREDERICTON
Sampler Initials: SF

ATLANTIC TCLP LEACHATE (PAINT)

Maxxam ID		PV7722	PV7725	PV7727	PV7728	PV7729	
Sampling Date		2012/11/28	2012/11/28	2012/11/28	2012/11/28	2012/11/28	
	Units	**P1**	**P4**	**P6**	**P7**	**P8**	**QC Batch**
Inorganics							
Sample Weight (as received)	g	50	2.5	2.5	2.5	2.5	3072302
Initial pH	N/A	11	4.5	7.3	6.0	6.0	3072305
Final pH	N/A	6.5	4.9	5.8	5.0	5.1	3072305

QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel:902-420-0203 Toll-free:800-565-7227 Fax:902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B2J0873
Report Date: 2012/12/20

LVM Maritime Testing
Client Project #: 15954
Site Location: AAFC-FREDERICTON
Sampler Initials: SF

ELEMENTS BY ICP/MS (PAINT)

Maxxam ID		PV7722	PV7725	PV7727	PV7728		PV7729		
Sampling Date		2012/11/28	2012/11/28	2012/11/28	2012/11/28		2012/11/28		
	Units	**P1**	**P4**	**P6**	**P7**	**RDL**	**P8**	**RDL**	**QC Batch**
Metals									
Leachable Lead (Pb)	ug/L	1500	17000	380	48000	5.0	150000	50	3073270

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B2J0873
Report Date: 2012/12/20

LVM Maritime Testing
Client Project #: 15954
Site Location: AAFC-FREDERICTON
Sampler Initials: SF

ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		PV7722	PV7723	PV7724	PV7725	PV7726	PV7727		
Sampling Date		2012/11/28	2012/11/28	2012/11/28	2012/11/28	2012/11/28	2012/11/28		
	Units	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**RDL**	**QC Batch**
Metals									
Acid Extractable Lead (Pb)	mg/kg	1500	210	310	21000	140	1400	5.0	3061791
Acid Extractable Mercury (Hg)	mg/kg	ND	ND	3.5	2.7	2.5	ND	1.0	3061791

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		PV7727	PV7727	PV7728	PV7729	PV7730	PV7731		
Sampling Date		2012/11/28	2012/11/28	2012/11/28	2012/11/28	2012/11/28	2012/11/28		
	Units	**P6 Lab-Dup**	**P6 Lab-Dup 2**	**P7**	**P8**	**P9**	**P10**	**RDL**	**QC Batch**
Metals									
Acid Extractable Lead (Pb)	mg/kg	1600	1600	15000	66000	8.4	16000	5.0	3061791
Acid Extractable Mercury (Hg)	mg/kg	ND	ND	ND	1.6	ND	1.8	1.0	3061791

ND = Not detected
RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel:902-420-0203 Toll-free:800-565-7227 Fax:902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B2J0873
Report Date: 2012/12/20

LVM Maritime Testing
Client Project #: 15954
Site Location: AAFC-FREDERICTON
Sampler Initials: SF

GENERAL COMMENTS

Report re-issued to include leachate + lead on P1, P4, P6, P7, and P8 as requested by S. Fisher - 2012/12/12

Sample PV7725-01: Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample PV7727-01: Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample PV7728-01: Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample PV7729-01: Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel:902-420-0203 Toll-free:800-565-7227 Fax:902-420-8612 www.maxxamanalytics.com

LVM Maritime Testing
Attention: Scott Fisher
Client Project #: 15954
P.O. #:
Site Location: AAFC-FREDERICTON

Quality Assurance Report

Maxxam Job Number: DB2J0873

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3061791	DLB	Matrix Spike						
		[PV7727-01]	Acid Extractable Lead (Pb)	2012/12/07		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2012/12/07		104	%	75 - 125
		Spiked Blank	Acid Extractable Lead (Pb)	2012/12/07		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2012/12/07		104	%	75 - 125
		Method Blank	Acid Extractable Lead (Pb)	2012/12/07	ND, RDL=5.0		mg/kg	
			Acid Extractable Mercury (Hg)	2012/12/07	ND, RDL=1.0		mg/kg	
		RPD [PV7727-01]	Acid Extractable Lead (Pb)	2012/12/07	13.1		%	35
			Acid Extractable Mercury (Hg)	2012/12/07	NC		%	35
3072302	KCA	Method Blank	Sample Weight (as received)	2012/12/18	NA		g	
		RPD	Sample Weight (as received)	2012/12/18	0		%	N/A
3073270	DLB	Spiked Blank	Leachable Lead (Pb)	2012/12/18		106	%	80 - 120
		Method Blank	Leachable Lead (Pb)	2012/12/18	ND, RDL=5.0		ug/L	
		RPD	Leachable Lead (Pb)	2012/12/18	NC		%	35

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Maxxam

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90 Esplanade, Sydney, NS B1P 1A1 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
www.maxxamanalytics.com E-mail: Clientservicesbedford@maxxamanalytics.com

MAXXAM Chain of Custody Record

COC#: ET254012 Page 1 of 1

This column for lab use only:
Client Code: 41009
Maxxam Job#: B2J0873

Cooler Id	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp

Integrity: YES (NO) Integrity/Checklist by: KW
Labelled by: Location/Bin#

INVOICE INFORMATION:
Company Name: LVM
Contact Name: Scott Fisher
Address: Postal Code
Email: scott.fisher@lvm.ca
Ph: Fax:

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address: Postal Code
Email:
Ph: Fax:

PO#
Project # / Phase#: 15954
ProjectName/Site Location: AAFC - FREDERICTON
Quote
Site #
Task Order#
Sampled by: SF

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted

Guideline Requirements/ Detection Limits/ Special Instructions

Please save samples for potential leachate analysis .

* Specify Matrix; Surface/Salt/Ground/Tapwater/Sewage/Effluent/ Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

	Field Sample Identification	Matrix *	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose Total or Diss Metals	RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest(Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest-for Ocean sediments (HNO3/HF/HCL,C4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Reqd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX ,C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine,Quinoline	Total Lead	Total Mercury			
1	P1	Paint	Nov 28	1- bag																			X	X			
2	P2	"	"	"																			X	X			
3	P3	"	"	"																			X	X			
4	P4	"	"	"																			X	X			
5	P5	"	"	"																			X	X			
6	P6	"	"	"																			X	X			
7	P7	"	"	"																			X	X			
8	P8	"	"	"																			X	X			
9	P9	"	"	"																			X	X			
10	P10	"	"	"																			X	X			

RELINQUISHED BY: (Signature/Print) Date Time
SF Nov 29/12 5:00pm

RECEIVED BY: (Signature/Print) Date Time
Marc Woodman

2012 DEC 4 AM 9:13

White : Maxxam Yellow : Mail Pink : Client

ATL FCD 00149 / Revision 11