

January 24, 2012

**XCG File No.: 1-336-22-03-01**

Lynn Kumita  
Environmental Services  
Public Works and Government Services Canada  
4900 Yonge Street, 11th Floor  
M2N 6A6

**Re: Results of Location-Specific Asbestos Survey within MHL and MHK  
Crawlspaces, Millhaven Federal Institution, Bath, Ontario**

### ***Introduction and Background***

Public Works and Government Services Canada (PWGSC), on behalf of Correctional Service Canada (CSC), is currently undertaking renovation activities of select showers located in the accommodation units at the Millhaven Maximum Security Institution located in Bath, Ontario. The shower units affected by the renovations are located in Control Unit J and consist of three (3) cell units (identified as cell units K, L and M). PWGSC has retained a contractor to carry out the building deconstruction/demolition under a separate contract.

For reference, PWGSC provided a Designated Substances and Hazardous Materials Survey (DSHMS) completed by Aqua Terre Solutions Inc. (ATSI) entitled "Final DSHMS Report Millhaven Institution, Ref: 06-811" dated October 12, 2006, which notes that:

"Insulation around pipe hangers was observed in the crawlspace (confined space 5). Similar insulation was sample in the MHL (MHL-As-1) and found to contain 70% chrysotile asbestos."

The report further estimates the quantity as "22 (4 inches) in diameter".

It is XCG's understanding from PWGSC that there was insufficient information concerning the type and location of the previously identified asbestos-containing materials within the crawlspaces in order to be able to confirm its presence or location.; therefore, XCG was retained to conduct a location-specific asbestos survey of suspected asbestos-containing materials (ACM) found in the proposed work areas of the MHL and MHK crawlspaces. The location-specific areas were identified by Mr. Duncan Parker (PWGSC) during a preliminary walkthrough with Mr. Dale White (XCG) on December 16, 2011. Based on the walkthrough and a review of the construction drawings by Mr. Parker, the asbestos survey area was limited to the first five (5) metres of the MHL crawlspace and the first eight (8) metres of the MHK crawlspace, as measured from the access door.



### ***Survey Methodology***

The survey included a thorough visual inspection of all accessible areas that will be affected by the forthcoming renovation activities within the crawlspaces of MHK and MHL, as described above. The location and identification of each sample was written on duct tape and placed over each sampling location for future identification. In addition, the limit of the inspection was also identified with duct tape on the floor of the crawlspace.

Bulk samples of materials suspected of containing asbestos were collected and submitted to the International Asbestos Testing Laboratory (IATL) in Mt. Laurel, New Jersey, USA, for PLM analysis of asbestos.

All fieldwork was conducted in accordance with XCG's standard field procedures, applicable health and safety legislation, and with applicable PWGSC and CSC safety policies and procedures, where they existed.

### ***Results, Findings and Recommendations***

On January 11, 2012, Mr. Greg Mallette of XCG conducted the location specific survey of the above-noted areas within the MHK and MHL crawlspaces with CSC representative Suzanna Ronan (Millhaven Institution Environmental Officer) present. Site photos of both MHK and MHL crawlspaces have been included in Appendix A. The crawlspace was approximately 1.2 metres in height and contained a large number of insulated pipes of different sizes and configurations. Suspected asbestos-containing materials sampled included fibrous canvas pipe jacketing including plaster, fibrous canvas supply air ducting jacketing including plaster, and suspect floor debris. All pipe and ductwork insulation was inspected and found to be fibreglass, a known non-asbestos-containing material; therefore, no insulation samples were collected.

A total of twenty-three (23) samples were collected and later submitted to IATL for PLM analyses. The summarized analytical results for the samples collected from the MHK and MHL crawlspaces are provided below in Tables 1 and 2, respectively. The laboratory certificates of analysis are included in Appendix B.



**Table 1**      **Summary of Asbestos Results for MHK Crawlspace, Millhaven Institution**

<b>Sample ID</b>	<b>Sample Location</b>	<b>Sample Description</b>	<b>Asbestos Content</b>
Asb-01A	MHK Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-01B	MHK Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-01C	MHK Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-01D	MHK Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-01E	MHK Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-02A	MHK Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-02B	MHK Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-02C	MHK Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-03A	MHK Crawl Space	Green Fibrous Canvas jacketing	None Detected
Asb-03B	MHK Crawl Space	Green Fibrous Canvas jacketing	None Detected
Asb-03C	MHK Crawl Space	Green Fibrous Canvas jacketing	None Detected
Asb-04A	MHK Crawl Space	Brownish Grey Floor Debris	None Detected
Asb-04B	MHK Crawl Space	Brownish Grey Floor Debris	None Detected
Asb-04C	MHK Crawl Space	Brownish Grey Floor Debris	None Detected
<b>Notes:</b>			
1. The location and identification of each sample was written on duct tape and placed over each sampling location for easy identification.			
2. The survey area includes only the first eight metres of the crawlspace.			



**Table 2 Summary of Asbestos Results for MHL Crawlspace, Millhaven Institution**

Sample ID	Sample Location	Sample Description	Asbestos Content
Asb-05A	MHL Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-05B	MHL Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-05C	MHL Crawl Space	Off-White Fibrous Canvas Jacketing (Supply Air Ducting)	None Detected
Asb-06A	MHL Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-06B	MHL Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-06C	MHL Crawl Space	Yellow Fibrous Canvas Jacketing	None Detected
Asb-07A	MHL Crawl Space	Green Fibrous Canvas jacketing	None Detected
Asb-07B	MHL Crawl Space	Green Fibrous Canvas jacketing	None Detected
Asb-07C	MHL Crawl Space	Green Fibrous Canvas jacketing	None Detected
<b>Notes:</b>			
1. The location and identification of each sample was written on duct tape and placed over each sampling location for easy identification.			
2. The survey area includes only first five metres of the crawlspace.			

Under Occupational Health and Safety Act (OHSA) – R.R.O. 1990, Regulation 837 (as amended) and O. Reg. 278/05 respecting asbestos, ACM is defined as a material containing 0.5% or more of asbestos. Based on this criterion, none of the collected and analyzed samples were found to contain asbestos.

Although asbestos-containing insulation around pipe hangers was previously identified outside the surveyed area in the provided ATSI report, none were observed in the surveyed areas.

Precautions should be taken when working in the vicinity of any suspected asbestos-containing materials to ensure that the asbestos-containing materials are not disturbed. If during renovation activities, suspected asbestos-containing materials are uncovered as part of insulation removal around pipe hangers, it is recommended that those areas be repaired/abated using proper asbestos abatement procedures, such as glove bag. If abatement activities are required they should be conducted by contractors that are licensed and insured for this type of abatement work. Disposal of the ACM waste should be made by a licensed contractor at a facility that accepts such waste.

**Limitations**

The findings of this report are based upon samples collected by XCG Consultants Ltd. This report includes the analytical results for asbestos analysis of submitted samples only. It is possible that conditions between and beyond the sampling locations differ



from those identified based on the sampling conducted. As noted above, the asbestos survey was limited to the first (5) metres of MHL crawlspace and the first eight (8) metres of MHK crawlspace.

The scope of this report is limited to the matters expressly covered. This report is prepared for the sole benefit of Public Works and Government Services Canada (PWGSC), Correctional Service Canada (CSC), and PWGSC authorized contractors, and may not be relied upon by any other person or entity without the written authorization of XCG Consultants Ltd. Any use or reuse of this document (or the findings, conclusions or recommendations represented herein), by parties other than PWGSC or CSC, is at the sole risk of those parties.

**Closure**

Should you have any questions regarding the above, please do not hesitate to contact the undersigned.

Yours very truly,

XCG CONSULTANTS LTD.

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

Dale White  
Project Manager

A handwritten signature in blue ink, appearing to read 'Kevin Shipley', written in a cursive style.

Kevin Shipley, M.A.Sc., P.Eng., EP(CEA), CEAS, QP<sub>RA</sub>  
Partner/Kingston Office Manager

Appendices:   Appendix A   Site Photos  
                  Appendix B   Laboratory Certificates on Analysis

***APPENDIX A***  
***SITE PHOTOS OF MHL AND MHK CRAWLSPACES***



**Photo 1: MHK Crawlspace Yellow Canvas Jacketed Piping.**



**Photo 2 & 3: MHK Crawlspace Green Canvas Jacketed Piping**



**Photo 4: MHK Crawlspace White Canvas Jacketed Supply Air Ducting.**



**Photo 5 & 6: MHL Crawspace Yellow and Green Canvas Jacketed Piping.**  
Note joist hangers are free of plaster.



**Photo 7: MHL Crawspace.**



**Photo 8: MHL Crawspace White Canvas Jacketed Supply Air Ducting.**

***APPENDIX B***  
***LABORATORY CERTIFICATES OF ANALYSIS***

# CERTIFICATE OF ANALYSIS

**Client:** XCG Consultants Ltd.  
6 Cataraqui St; Woolen Mill  
Kingston Ontario K7K 1Z7

**Report Date:** 1/13/2012  
**Report No:** 261367  
**Project:** Millhaven MHK & MHL  
**Project No.:** 1-336-22-03-01

## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 4529410	<b>Description / Location:</b> Off-White Fibrous			
<b>Client No.:</b> Asb-01A	Canvas Jacketing-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	10	Cellulose	90

<b>Lab No.:</b> 4529411	<b>Description / Location:</b> Off-White Wrap			
<b>Client No.:</b> Asb-01B	Canvas Jacketing-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

<b>Lab No.:</b> 4529412	<b>Description / Location:</b> Off-White Wrap			
<b>Client No.:</b> Asb-01C	Canvas Jacketing-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

<b>Lab No.:</b> 4529413	<b>Description / Location:</b> Off-White Wrap			
<b>Client No.:</b> Asb-01D	Canvas Jacketing-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	90	Cellulose	10

**Accreditation**      **NIST-NVLAP No. 101165-0**      **NY-DOH No. 11021**      **AIHA-LAP, LLC No. 100188**

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**Analytical Method:** EPA 600/R-93/116

**Comments:** (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Quantification at <0.25% by volume is possible with this method. (PC-Trace) represents this limit of quantitation. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix.

**Analysis Performed By:** E. Smith

**Approved By:** 

**Date:** 1/13/2012

Frank E. Ehrenfeld, III  
Laboratory Director



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 6 Cataraqui St; Woolen Mill  
 Kingston Ontario K7K 1Z7

**Report Date:** 1/13/2012  
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## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 4529414	<b>Description / Location:</b> Off-White Wrap			
<b>Client No.:</b> Asb-01E	Canvas Jacketing-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

<b>Lab No.:</b> 4529415	<b>Description / Location:</b> Lt. Tan Wrap			
<b>Client No.:</b> Asb-02A	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	17
		3	Fibrous Glass	

<b>Lab No.:</b> 4529416	<b>Description / Location:</b> Lt. Tan Wrap			
<b>Client No.:</b> Asb-02B	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	17
		3	Fibrous Glass	

<b>Lab No.:</b> 4529417	<b>Description / Location:</b> Lt. Tan Wrap			
<b>Client No.:</b> Asb-02C	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	10
		10	Fibrous Glass	

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## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 4529418	<b>Description / Location:</b> Black/Green/Off-White Wrap			
<b>Client No.:</b> Asb-03A	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	10	Fibrous Glass	90

<b>Lab No.:</b> 4529419	<b>Description / Location:</b> Off-White/Green Wrap			
<b>Client No.:</b> Asb-03B	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	90	Cellulose	7
		3	Fibrous Glass	

<b>Lab No.:</b> 4529420	<b>Description / Location:</b> Off-White/Green Wrap			
<b>Client No.:</b> Asb-03C	Pipe Canvas-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	20

<b>Lab No.:</b> 4529421	<b>Description / Location:</b> Tan Pipe Insulation			
<b>Client No.:</b> Asb-04A	Debris On Floor-K Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	10	Cellulose	90

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## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b>	4529422	<b>Description / Location:</b>	Grey Pipe Insulation	
<b>Client No.:</b>	Asb-04B		Debris On Floor-K Crawl Space	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	95	Cellulose	5

<b>Lab No.:</b>	4529423	<b>Description / Location:</b>	Grey Pipe Insulation	
<b>Client No.:</b>	Asb-04C		Debris On Floor-K Crawl Space	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	97	Cellulose	3

<b>Lab No.:</b>	4529424	<b>Description / Location:</b>	Lt. Tan/Silver Wrap	
<b>Client No.:</b>	Asb-05A		Canvas Jacketing-L Crawl Space	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	70	Cellulose	20
		10	Fibrous Glass	

<b>Lab No.:</b>	4529425	<b>Description / Location:</b>	Off-White/Silver Wrap	
<b>Client No.:</b>	Asb-05B		Canvas Jacketing-L Crawl Space	
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	17
		3	Fibrous Glass	

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**Analysis Performed By:**           E. Smith          

**Date:**           1/13/2012



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## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 4529426	<b>Description / Location:</b> Lt. Tan Fibrous			
<b>Client No.:</b> Asb-05C	Canvas Jacketing-L Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	2	Cellulose	98

<b>Lab No.:</b> 4529427	<b>Description / Location:</b> Lt. Tan Wrap			
<b>Client No.:</b> Asb-06A	Pipe Canvas-L Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	90	Cellulose	7
		3	Fibrous Glass	

<b>Lab No.:</b> 4529428	<b>Description / Location:</b> Lt. Tan Wrap			
<b>Client No.:</b> Asb-06B	Pipe Canvas-L Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	80	Cellulose	18
		2	Fibrous Glass	

<b>Lab No.:</b> 4529429	<b>Description / Location:</b> Tan Fibrous			
<b>Client No.:</b> Asb-06C	Pipe Canvas-L Crawl Space			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	5	Fibrous Glass	95

**Accreditation**      **NIST-NVLAP No. 101165-0**      **NY-DOH No. 11021**      **AIHA-LAP, LLC No. 100188**

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## BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 4529430	<b>Description / Location:</b> Green/Off-White Wrap		
<b>Client No.:</b> Asb-07A	Pipe Canvas-K Crawl Space		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	90	Cellulose
			10

<b>Lab No.:</b> 4529431	<b>Description / Location:</b> Green/Off-White Fibrous		
<b>Client No.:</b> Asb-07B	Pipe Canvas-K Crawl Space		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	3	Fibrous Glass
			97

<b>Lab No.:</b> 4529432	<b>Description / Location:</b> Green/Lt.Tan Wrap		
<b>Client No.:</b> Asb-07C	Pipe Canvas-K Crawl Space		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	65	Cellulose
		10	Fibrous Glass
			25

**Accreditation**      **NIST-NVLAP No. 101165-0**      **NY-DOH No. 11021**      **AIHA-LAP, LLC No. 100188**

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**Analytical Method:** EPA 600/R-93/116

**Comments:** (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Quantification at <0.25% by volume is possible with this method. (PC-Trace) represents this limit of quantitation. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix.

**Analysis Performed By:**           E. Smith          

**Date:**           1/13/2012