Project #: 13916

ASBESTOS ASSESSMENT R. Gushue Hall Memorial University of Newfoundland St. John's, NL



Prepared for:

Sheila Miller Director, Department of Health and Safety Memorial University of Newfoundland 208 Elizabeth Avenue St. John's, NL A1B 1T5

Prepared by:



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August 2011

EXECUTIVE SUMMARY

ALL-TECH Environmental Services Limited conducted an Asbestos Assessment at R. Gushue Hall, located at Memorial University of Newfoundland (MUN), St. John's, NL. The objective of the assessment was to determine the presence of asbestos containing materials throughout the building. It was determined that:

- Eight (8) of the twenty-five (25) suspect asbestos samples collected contained asbestos greater than 1%. (*Newfoundland and Labrador Regulation 111/98, Asbestos Abatement Regulations, 1998 under the Occupational Health and Safety Act.*)
- Pipe fitting insulation was sampled and found to contain 40% Chrysotile asbestos.
- Tank insulation was sampled and found to contain 40% Chrysotile asbestos.
- 9" x 9" vinyl floor tiles sampled from various locations were found to contain between 3 8% Chrysotile asbestos.
- Transite panels were sampled and found to contain 45% Chrysotile asbestos.
- Light fixture heat shields were sampled and found to contain 25 35% Chrysotile asbestos.

This summary is not to be used alone. This report must be reviewed in its entirety.

Thank you,

Carla Nosewardy

Carla Noseworthy, C.E.T. Environmental Consultant ALL-TECH Environmental Services Limited

TABLE OF CONTENTS

1.0	INTF		1
2.0	ASB	ESTOS ASSESSMENT	1
	2.1 2.2 2.3 2.4 2.5	Scope of Work Methodology Applicable Standards Survey Findings Recommendations	2 2 3
3.0	DISC	LAIMER	9

LIST OF APPENDICES:

APPENDIX I	Photographs
APPENDIX II	Laboratory Asbestos Results
APPENDIX III	Asbestos Building Survey Report
APPENDIX IV	Floor Plans Showing Sampling Locations

1.0 INTRODUCTION

ALL-TECH Environmental Services Limited was contracted by Sheila Miller, Director – Department of Health and Safety, Memorial University of Newfoundland (MUN), to complete an Asbestos Assessment at R. Gushue Hall located at Memorial University of Newfoundland, St. John's, NL. The purpose of the assessment was to identify the presence of asbestos containing materials located throughout the building. The assessment was conducted in August 2011.

2.0 ASBESTOS ASSESSMENT

Asbestos is a general term which is used to describe a group of fibrous mineral silicates. The six major types of asbestos are; chrysotile (white asbestos), crocidolite (blue), amosite (brown), anthophyllite, tremolite and actinolite. Commercially, asbestos has been used widely in such applications as fireproofing, textiles, friction products, reinforcing materials (i.e. cement pipes, sheets) and insulation (both thermal and acoustic).

Asbestos materials can be found in one of two forms; friable or non-friable. Friable asbestos material refers to material that when dry, can be crumbled, pulverized or reduced to a powder by hand pressure thus releasing fibers into the air. This type of asbestos material is hazardous due to its potential to become airborne if damaged or disturbed. Friable asbestos building products used in the past were sprayed acoustic & fire protection insulations, ceiling/wall finishes, drywall joint compounds, mechanical insulations on pipes, tanks, boilers, vessels, etc. Non-friable building products used in the past were vinyl floor tiles, gaskets, transite panels, and transite shingles. Non-friable materials if handled improperly during removal or renovations, such as cutting transite panels with an electrical tool, can cause high fiber release. Also, non-friable asbestos products can become friable if damaged through years of aging (water damage, general deterioration of materials, etc.).

Asbestos containing materials (ACM) can be properly managed and left in place depending on their location, condition, and friability. Non-friable materials receive less attention than friable materials due to the fact that the asbestos fibers in the non-friable material are bound or held tightly together, reducing the chance of fibers becoming airborne. This makes the non-friable products safer and easier to manage.

The mere presence of asbestos in building materials is not necessarily a problem; however, inhaling asbestos fibers can cause associated health problems. The hazards of asbestos exposure are directly related to the degree to which fibers are released (become airborne). Intact and undisturbed asbestos do not pose a health risk.

2.1 Scope of Work

Representative suspect asbestos containing materials were sampled from wall finishes, various types of flooring, and exterior finishes located throughout the building.

The asbestos assessment involved a visual investigation of representative building structures, wall & ceiling finishes, and flooring for the presence of asbestos materials. If these materials were suspected to contain asbestos, a bulk sample was collected of the representative material.

It should be noted that asbestos containing materials such as piping straight runs & fittings may be present behind existing drywall walls, ceilings, columns, shafts, etc. Since no destructive testing was performed during this assessment, additional care should be taken during renovations/demolition to ensure that no asbestos containing materials are to be disturbed.

2.2 Methodology

A total of twenty-five (25) suspect asbestos bulk samples were collected from the building. Representative suspect asbestos bulk material samples from floors, wall and ceiling finishes, ceiling tiles, pipe fitting insulation, tank insulation, cement boards and light fixture heat shields were carefully collected and placed into labeled sealable plastic bags and transported to the EMSL Analytical Inc. in New Jersey, USA, for Polarized Light Microscopy/ Dispersion Staining (PLM/DS) analysis. The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2 that "the detection limit for visual estimation is a function of the quantity of the sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (< 0.25 μ m in diameter) so detection of those fibers by this method may not be possible."

2.3 Applicable Standards

The province defines Asbestos material as "material containing greater than 1% asbestos by dry weight." Materials identified as ACM must be managed, handled and disposed of as per the Newfoundland and Labrador Regulation 111/98, Asbestos Abatement Regulations, 1998 under the Occupational Health and Safety Act (O.C. 98-730).

Also, the Province of Newfoundland and Labrador have set standards for exposure to airborne asbestos fibres to as low as is reasonably achievable (ALARA) but in any case shall not exceed Threshold Limit Values (TLVs) as published by the American Conference of Governmental Industrial Hygienists (ACGIH) and are primarily used for the occupational exposure to employees and workers who from day to day come in contact with asbestos. ACGIH guidelines state the airborne asbestos limit as follows:

- Asbestos (all forms) 0.1 fibres per cubic centimetre (f/cc) as determined by air sampling following the NIOSH 7400 Asbestos and Other Fibres by Phase Contrast Microscopy.

The Newfoundland Asbestos Abatement Regulations 111/98 requires that all employers, building owners and principal contractors follow this Regulation when handling or using asbestos in their workplace. This Regulation applies to every workplace covered under the Occupational Health and Safety Legislation where asbestos or materials containing asbestos, is likely to be handled, dealt with, disturbed or removed and includes every project, project owner, contractor, employer and employee engaged in or on the project. An owner/contractor to whom this Regulation applies shall take every reasonable precaution to ensure that every worker who is not an employee of the owner/contractor and who works in the workplace of the owner/contractor is protected and every such worker shall comply with the requirements of this Regulation.

2.4 Survey Findings

Laboratory analysis confirmed that eight (8) of the twenty-five (25) bulk samples collected from the building contained asbestos greater than 1%. Table 1.0 below illustrates the results of this sampling. *See Appendix II - Laboratory Asbestos Results.*

Table 1.0 Summary of Suspect Asbestos Containing Materials Tested R. Gushue Hall Memorial University of Newfoundland St. John's, NL

Sample No.	Sample Description and Location	Asbestos Results
DH-1	1' x 1' Vinyl Floor Tile, cream mix Room DH1000	None Detected
	Mastic	None Detected
DH-2	1' x 1' Vinyl Floor Tile , brown mix Room DH1000	None Detected
	Mastic	None Detected
DH-3	Vinyl Sheet Flooring, grey/beige mix with sparkles Room DH1C03	None Detected
	Mastic	None Detected
DH-4	Vinyl Sheet Flooring, pink mix Room DH1001	None Detected
	Mastic	None Detected
DH-5	Vinyl Sheet Flooring, blue mix Room DH1001A	None Detected
	Mastic	None Detected

Sample No.	Sample Description and Location	Asbestos Results
DH-6	Plaster Room DH1001A	None Detected
DH-7	1' x 1' Vinyl Floor Tile, olive mix Room DH1000	None Detected
	Mastic (insufficient material)	
DH-8	1' x 1' Vinyl Floor Tile, white with black Room DH1012	None Detected
	Mastic	None Detected
DH-9	1' x 1' Ceiling Tile, fissures, Room DH1012	None Detected
DH-10	Transite panels DH1011	45% Chrysotile
DH-11	Plaster Skim Coat Room DH1006	None Detected
	Plaster Base Coat	None Detected
DH-12	Firestop Room DH1008	None Detected
DH-13	1' x 1' Vinyl Floor Tile, grey mix Elevator	None Detected
	Mastic	None Detected
DH-14	Plaster, Room DH2C02	None Detected
DH-15	Texture Coat Room DH2C01	None Detected
DH-16	9" x 9" Vinyl Floor Tile, brown with white Room DH2001	8% Chrysotile
	Mastic	None Detected
DH-17	Vinyl Sheet Flooring, Brown Room DH2002	None Detected
	Mastic	None Detected
DH-18	9" x 9" Vinyl Floor Tile, dark brown with white Room DH2006B	3% Chrysotile
	Mastic	None Detected
DH-19	Light Fixture Heat Shield, Thick Layer Room DH2006B	25% Chrysotile

Sample No.	Sample Description and Location	Asbestos Results
DH-20	Light Fixture Heat Shield, Thin Layer Room DH2006B	30% Chrysotile
DH-21	Light Fixture Heat Shield Room DH0S01	35% Chrysotile
DH-22	1' x 1' Ceiling Tile, fissures Room DH0S01	None Detected
DH-23	1' x 1' Vinyl Floor Tile, light brown Room DH-004A	None Detected
	Mastic	None Detected
DH-24	Pipe Fitting Insulation Room DH-004A	40% Chrysotile
DH-25	Tank Insulation Room DH-004A	40% Chrysotile

Mechanical and Pipe Material

Pipe fitting insulation which could potentially contain asbestos was observed in select areas throughout the building during this assessment. Samples were collected and analyzed for asbestos content using the PLM method of detection and found to contain 40% Chrysotile asbestos (see sample DH-24 in Appendix II, Photograph 1, Appendix I)

Tank insulation which could potentially contain asbestos was observed in a mechanical room within the building during this assessment. A sample was collected and analyzed for asbestos content using the PLM method of detection and found to contain 40% Chrysotile asbestos (see sample DH-25 in Appendix II, Photograph 2, Appendix I)

During the assessment it was observed that linear pipe insulation was fiberglass material. However, linear pipe insulation in Room DH1011 was inaccessible for either sample collection or a visual inspection. Thus, it must be considered to be asbestos containing until proven otherwise. (see Photograph 3, Appendix I)

However, it should be noted that asbestos containing pipe insulation may be located behind fixed wall cavities and ceiling plenums that were inaccessible at the time of assessment. During demolition precautionary measures must be taken to avoid disturbing any potential ACM in these areas.

Acoustic and Thermal Insulating Products

Firestop material suspected to contain asbestos was sampled and analyzed for asbestos content using the PLM method of detection. This material was found to be non-asbestos containing. (see sample DH-12 in Appendix II)

Friable Acoustic Texture Coats and Plaster Finishes

Plaster finishes were observed throughout the building during the assessment. Three (3) samples of this material were sampled and analyzed for asbestos content using the PLM method of detection. All samples were identified as non-asbestos containing. (See samples DH-6, DH-11, DH-14, in Appendix II).

Texture coat finishes were observed in select locations within the building during the assessment. One (1) sample was collected and analyzed for asbestos content using the PLM method of detection. The sample was identified as non-asbestos containing. (See sample DH-15 in Appendix II).

Friable Acoustic and Thermal Fireproofing Products

Sprayed acoustic or sprayed fireproofing was not observed during the assessment.

Friable Ceiling Tiles / Ceiling Tile Adhesives

1' x 1' ceiling tiles were observed in select areas of the building during the assessment. Two (2) samples of these materials were collected and analyzed for asbestos content using the PLM method of detection. All samples were identified as non-asbestos containing. (see samples DH-9, DH-22 in Appendix II).

2' x 4' ceiling tiles were observed in select areas of the building during the assessment. These tiles were observed to have a date stamp located on the back of the tile, indicating the manufacturing date. Based on this date, they were not suspected to contain asbestos.

Vinyl Sheet/Linoleum Flooring

Vinyl sheet/linoleum flooring which could potentially contain asbestos was identified during the assessment. Four (4) samples of sheet flooring were sampled and analyzed for asbestos content using the PLM method of detection. All samples of the flooring were identified as non-asbestos containing. (see samples DH-3, DH-4, DH-7, DH-8 in Appendix II)

Non-Friable Vinyl Floor Tiles/ Floor Tile Adhesives

Vinyl floor tiles which could potentially contain asbestos were identified during the assessment. Six (6) samples of 1' x 1' vinyl floor tiles were sampled and analyzed for asbestos content using the PLM method of detection. All samples of the tiles were identified as non-asbestos containing. (see samples DH-1, DH-2, DH-5, DH-13, DH-17, DH-23 in Appendix II)

Two (2) samples of 9" x 9" vinyl floor tiles were sampled and analyzed for asbestos content using the PLM method of detection. Both of the samples were identified as containing between 3 and 8% Chrysotile asbestos. Their associated mastics were identified as non-asbestos containing. (see samples DH-16, DH-18, in Appendix II, Photographs 4, 5 in Appendix I)

Non-Friable Transite Panels, Sheeting and Shingles

Suspect asbestos containing transite paneling was observed as a portion of the drop ceiling in Room DH1011. Samples of this material were collected and analyzed for asbestos content using the PLM method of detection. The sample was identified as containing 45% Chrysotile asbestos. (see sample DH-10 in Appendix II, Photograph 6, in Appendix I)

Non-Friable Transite Piping

Transite piping was not observed during the assessment.

Electrical Wiring/Lighting

Three types of a light fixture heat shield were observed throughout the building. Samples were collected and analyzed for asbestos content using the PLM method of detection. These samples were found to contain between 25 – 35% Chrysotile asbestos (see samples DH-19, DH-20, DH-21 in Appendix II, see Photographs 7, 8 in Appendix I).

Roofing Materials

Access to the roof was not available at the time of the assessment.

Other Materials

A fire-rated door manufactured by Weststeel Products Ltd. was observed in Room DH1004. Such doors have been known to contain asbestos within the door. The door could not be sampled for asbestos content, thus it must be considered to be asbestos containing until proven otherwise. (see Photograph 9, Appendix I)

Window caulking, interior or exterior, was not sampled during this assessment.

2.5 Recommendations

The assessment identified that numerous materials contained a concentration of asbestos equal to or greater than 1% by dry weight. According to regulations, the owner of any building/ residence is required to implement and maintain specific health and safety measures, therefore the following recommendations are provided:

- All materials listed in fair and/or poor condition are to be repaired or removed immediately. See APPENDIX III – Asbestos Building Survey Information for materials condition and locations.
- Ensure that prior to and during any major renovations/demolition extreme caution is implemented to make certain that asbestos containing materials are not disturbed. It should be noted that asbestos containing materials may be concealed behind fixed walls/ceiling plenums and under existing sub-floors.
- Ensure that when disturbing asbestos materials, the asbestos removal contractor follows all federal and provincial regulations in accordance to the Newfoundland and Labrador Regulation 111/98.
- Retain a copy of this report on-site for future reference of friable and nonfriable asbestos products.
- Provide asbestos air monitoring and inspection during the removal of asbestos to ensure that all government guidelines and regulations are followed throughout the removal process.

3.0 DISCLAIMER

This report was prepared by ALL-TECH Environmental Services Limited for the sole benefit of our client Ms. Sheila Miller. The information in the report is based on information provided or obtained by ALL-TECH. The report is based on ALL-TECH's best judgment with the information provided at the time of the assessment. Any use and/or conclusions used by any third party, is the responsibility of that third party. ALL-TECH accepts no liability and/or damages occurred by any third party that uses information obtained in this report.

If you have any questions regarding this report, please do not hesitate to call me at (709) 754-4146.

Thank You,

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Carla Noseworthy, CET Environmental Consultant ALL-TECH Environmental Services Limited

Reviewed by:

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Orven Newhook, B.Sc. Project Manager ALL-TECH Environmental Services Limited

APPENDIX I PHOTOGRAPHS OF ASBESTOS CONTAINING MATERIALS



Photograph 1: Pipe fitting insulation in DH1010, above the ceiling tile, in poor condition.



Photograph 2: Tank insulation in Room DH004A/004, in fair condition.

Consultant:	Building:	Date:
Carla Noseworthy, CET	R. Gushue Hall	
ALL-TECH Environmental	Memorial University of Newfoundland	August 22, 2011
	St. John's, NL	



Photograph 3: Suspect linear pipe insulation in Room HD1011. The piping was too high to access for sample collection or visual inspection.



Photograph 4: Asbestos containing 9" x 9" vinyl floor tile, in fair condition (sample DH-16).

Consultant:	Building:	Date:
Carla Noseworthy, CET	R. Gushue Hall	
ALL-TECH Environmental	Memorial University of Newfoundland	August 22, 2011
	St. John's, NL	-



Photograph 5: Asbestos containing 9" x 9" vinyl floor tile, in fair condition (sample DH-18).



Photograph 6: Transite panels as the ceiling in Room DH1011, in poor condition (sample DH-10)

Consultant:	Building:	Date:
Carla Noseworthy, CET	R. Gushue Hall	
ALL-TECH Environmental	Memorial University of Newfoundland	August 22, 2011
	St. John's, NL	

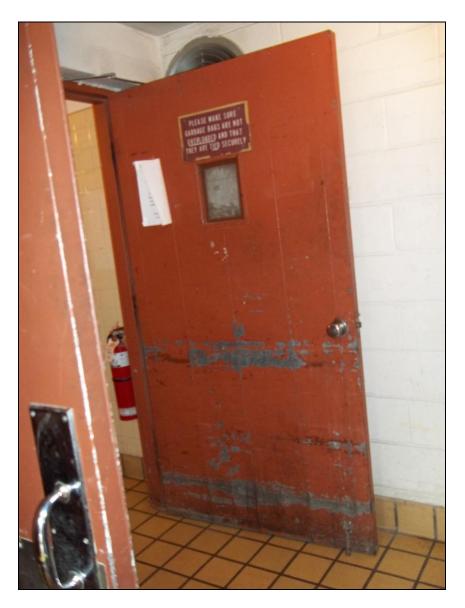


Photograph 7: Samples DH-19 and DH-20 as found in Room DH2006. The shield contained two layers, both were found to be asbestos containing.



Photograph 8: Sample DH-21, of an exposed light fixture heat shield, in poor condition.

Consultant:	Building:	Date:
Carla Noseworthy, CET	R. Gushue Hall	
ALL-TECH Environmental	Memorial University of Newfoundland	August 22, 2011
	St. John's, NL	



Photograph 9: Fire rated door, suspected to have asbestos material within the door. Considered to be asbestos containing until proven otherwise.

Consultant:	Building:	Date:
Carla Noseworthy, CET	R. Gushue Hall	
ALL-TECH Environmental	Memorial University of Newfoundland	August 22, 2011
	St. John's, NL	-

APPENDIX II LABORATORY ASBESTOS RESULTS

	Phone: (890) 22	0-3675 Pax: (856) 786-	5974	Email: cinnasblab@E	MSL.com	
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Fax:		hone: (709) 754-4146				
Project: 13916	Dining Hall			EMSL Proj: Analysis Date:	8/26/2011	
Test Repo	rt: Asbestos A	-		erials via EPA t Microscopy Non-Asbestor	600/R-93/116 Metho	d using
ample	Description	Appearance	%	Fibrous	% Non-Fibrous	% Type
DH 1-Floor Tile 041123128-0001	DH1000 - 1X1 VT- CREAM MIX	Cream Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected
DH 1-Mastic 041123128-0001A	DH1000 - 1X1 VT- CREAM MIX	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected
DH 2-Floor Tile 041123125-0002	DH1000 - 1X1 VT- BROWN MIX	Brown Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected
DH 2-Mastic 041123128-0002A	DH1000 - 1X1 VT- BROWN MIX	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected
DH 3-VSF 041125128-0003	DH1C03 - VSF- GREY-BEIGE MIX W/SPARKLES	Gray/Beige Fibrous Heterogeneous	15%	Cellulose	85% Non-fibrous (other)	None Detected
DH 3-Mastic 041123128-0003A	DH1C03 - VSF- GREY-BEIGE MIX W/SPARKLES	Clear Fibrous Heterogeneous		Cellulose Synthetic	90% Non-fibrous (other)	None Detected
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EMSL	EMSL Analytical, Inc. 200 Route 130 North, Cinnaminson, N. Phone: (890) 220-3675 Pax: (856) 766-5974	J08077 Emal: cinnasblab@EM	SL.com	
151 Crosb Suite 402	nvironmental Services Limited	Customer ID: Customer PO: Received: EMSL Order:	ATES44D 06/25/11 9:10 AM 041123126	
Fax: Project: 13916 Dinin	Phone: (709) 754-4146 g Hall	EMSL Proj: Analysis Date:	8/26/2011	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

				Non-Ast	estos	Asbestos		
ample	Description	Appearance	%	Fibrous	% Non-Fibrous	% Type		
DH 4-VSF 041123128-0004	DH1001 - VSF- PINK MIX	Pink Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected		
DH 4-Mastic 041123128-0004A	DH1001 - VSF- PINK MIX	Yellow Non-Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other)	None Detected		
DH 5-VSF 041123128-0005	DH1001A - VSF- BLUE MIX	Blue Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected		
DH 5-Mastic 041123128-0005A	DH1001A - VSF- BLUE MIX	Yellow Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected		
DH 6 041123128-0006	DH1001A - PLASTER	Gray Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected		
DH 7-Floor Tile 041123126-0007	DH1000 SERVING AREA - 1X1 VT-OLIVE MIX	Olive Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected		
tial report from 08/2 Analyst(s) Nancy Statter (37)	26/2011 09:38:42				Stople_ Siege Stephen Siegel, Clif, Laborator	-		
EMSL EMSL bears not must not be used by the report meet the requirem available upon request.	responsibility for sample collec client to claim product certifics sents of NELAC unless othereit	tion activities or analytical r dion, approval or endorsem se specified. Samples rece	method limits ent by NVLA elved in good	ations. Interpretation a P, NIST or any agency condition unless other	or other approved signal ay not be reproduced, except in full, without written nd use of least results are the responsibility of the of the federal government. The least results contain writee noted. Eatimated accuracy, precision and un to 100194, NYS ELAP 108172, NJ DEP 03036	approval by ant. This report and within this		

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Test Repor	t: Asbestos A	-		erials via EPA t Microscopy <u>Non-Asbestos</u> Fibrous	600/R-93/116 Metho	d using Asbestos % Type
DH 7-Mastic	DH1000					Insufficient Material
041123126-0007A	SERVING AREA - 1X1 VT-OLIVE MIX					
DH 8-Floor Tile	DH1012 - 1X1 VT- WHITE W/BLACK	White Non-Fibrous			100% Non-fibrous (other)	None Detected
		Heterogeneous				
DH 8-Mastic H1123128-0008A	DH1012 - 1X1 VT- WHITE W/BLACK	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected
DH 9 041123128-0009	DH1012 - 1X1 CT- FISSURES	White Fibrous Heterogeneous	70%	Min. Wool	30% Non-fibrous (other)	None Detected
	DH1011 - TRANSITE	Gray/White Fibrous Heterogeneous			55% Non-fibrous (other)	45% Chrysotile
	DH1005 - PLASTER	White Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected
DH 10 0+1123128-0010 DH 11-Skim Coat 0+1123128-0011	TRANSITE DH1006 - PLASTER	Fibrous Heterogeneous White Non-Fibrous				
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Project: 13916 C	Ining Hall			Analysis Date:	8/26/2011	
Test Repo	rt: Asbestos A	Polarized Li		icroscopy Non-Asbestos	600/R-93/116 Metho	d using Asbestos % Type
DH 11-Base Coat	DH1006 -	Tan			100% Non-fibrous (other)	None Detected
041123126-0011A	PLASTER	Non-Fibrous Heterogeneous				
DH 12 041123128-0012	DH1005 - FIRESTOP	Gray Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected
DH 13-Floor Tile 041123128-0013	ELEVATOR - 1X1 VT-GREY MIX	Gray Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected
DH 13-Mastic 041123126-0013A	ELEVATOR - 1X1 VT-GREY MIX	Yellow Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected
DH 14 041123128-0014	DH2C02 - PLASTER	Cream Non-Fibrous Heterogeneous			100% Non-fibrous (other)	None Detected
DH 15 041123126-0015	DH2C01 - TEXTURE COAT	White Non-Fibrous			100% Non-fibrous (other)	None Detected

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	h Environmenta	I Services Limited	Customer ID: Customer PO:	ATES44D	
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Suite 4			EMSL Order:	041123126	
St. Joh	n's, NL A1B 4B4	ł			
Fax		hone: (709) 754-4146	EMSL Proj:		
Project: 13916 Dining Hall			Analysis Date:	8/26/2011	
		Polarized Light	Microscopy	600/R-93/116 Metho	-
	Description	Polarized Light	Microscopy Non-Asbestos	600/R-93/116 Metho % Non-Fibrous	Asbestos % Type
	Description DH2001 - 9X9 VT-	Polarized Light Appearance % Brown	Microscopy Non-Asbestos		Asbestos
Sample	Description	Polarized Light	Microscopy Non-Asbestos	% Non-Fibrous	Asbestos % Type
Sample DH 16-Floor Tile	Description DH2001 - SX9 VT- BROWN W/WHITE DH2001 - SX9 VT-	Polarized Light Appearance % Brown Fibrous Heterogeneous	Microscopy Non-Asbestos	% Non-Fibrous	Asbestos % Type
Sample DH 16-Floor Tile 041123126-0016	Description DH2001 - SX9 VT- BROWN W/WHTE	Polarized Light Appearance % Brown Fibrous Heterogeneous	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other)	Asbestos % Type 8% Chrysotile
Bample DH 16-Floor Tile over123124-0016 DH 16-Mastic	Description DH2001 - 9X9 VT- BROWN W/WHITE DH2001 - 9X9 VT- BROWN W/WHITE DH2002 - VSF-	Polarized Light Appearance % Brown Fibrous Heterogeneous Black Non-Fibrous	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other)	Asbestos % Type 8% Chrysotile
ample DH 16-Floor Tile ori123126-0016 DH 16-Mastic ori1123126-00164 DH 17-VSF	Description DH2001 - 9X9 VT- BROWN W/WHITE DH2001 - 9X9 VT- BROWN W/WHITE	Polarized Light Appearance % Brown Florous Heterogeneous Black Non-Florous Homogeneous	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other) 100% Non-fibrous (other)	Asbestos % Type 8% Chrysotlle None Detected
Sample DH 16-Floor Tile orf123126-0016 DH 16-Mastic orf123126-00164	Description DH2001 - 9X9 VT- BROWN W/WHITE DH2001 - 9X9 VT- BROWN W/WHITE DH2002 - VSF- BROWN DH2002 - VSF-	Polarized Light Appearance % Brown Fibrous Heterogeneous Black Non-Fibrous Homogeneous Brown Non-Fibrous Heterogeneous Cream	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other) 100% Non-fibrous (other)	Asbestos % Type 8% Chrysotlle None Detected
Sample DH 16-Floor Tile 041123125-0016 DH 16-Mastic 041123125-0016A DH 17-VSF 041123125-0017	Description DH2001 - 9X9 VT- BROWN W/WHITE DH2001 - 9X9 VT- BROWN W/WHITE DH2002 - VSF- BROWN	Polarized Light Appearance % Brown Fibrous Heterogeneous Black Non-Fibrous Horrogeneous Brown Non-Fibrous Heterogeneous	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other) 100% Non-fibrous (other) 100% Non-fibrous (other)	Asbestos % Type 8% Chrysotile None Detected None Detected
Sample DH 16-Floor Tile off123128-0016 DH 16-Mastic off123128-0016A DH 17-VSF off123128-0017 DH 17-Mastic	Description DH2001 - 9X9 VT- BROWN W/WHITE DH2001 - 9X9 VT- BROWN W/WHITE DH2002 - VSF- BROWN DH2002 - VSF-	Polarized Light Appearance % Brown Fibrous Heterogeneous Brown Non-Fibrous Heterogeneous Cream Non-Fibrous	Microscopy Non-Asbestos	% Non-Fibrous 92% Non-fibrous (other) 100% Non-fibrous (other) 100% Non-fibrous (other)	Asbestos % Type 8% Chrysotlle None Detected

Initial report from 08/26/2011 09:38:42 Analyst(s)

Yellow

Non-Fibrous Homogeneous

DH2006B - 9X9 VT-DK BROWN W/WHITE

DH 18-Mastic

041123126-0018A

Nancy Stater (37)

State Sigel

100% Non-fibrous (other)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

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Test Report PLM-7.23.0 Printed: 6/26/2011 9:38:42 AM

5

None Detected

EMSL Analytical, Inc. 200 Route 130 North, Cinnaminson, NJ 08077 EMSI Ph one: (800) 220-3675 Pax: (856) 786-5974 Email: cinnablab@EMSL.com _ Attn: Carla Noseworthy Customer ID: Customer PO: ATES44D All-Tech Environmental Services Limited 151 Crosbie Road Received: 08/25/11 9:10 AM Suite 402 EMSL Order: 041123126 St. John's, NL A1B 4B4 Fax Phone: (709) 754-4146 EMSL Proj: Project: 13916 Dining Hall Analysis Date: 8/26/2011

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

				Non-Asl	bestos	Asbestos		
ample	Description	Appearance	%	Fibrous	% Non-Fibrous	% Type		
DH 19 041123128-0019	DH2006B - LIGHT FIXTURE HEAT SHIELD-THICK	Gray/Silver Fibrous Heterogeneous	45%	Cellulose	30% Non-fibrous (other)	25% Chrysotlle		
DH 20 041123128-0020	DH2006B - LIGHT FIXTURE HEAT SHIELD-THIN	Gray/Silver Fibrous Heterogeneous	25%	Cellulose	45% Non-fibrous (other)	30% Chrysotlle		
DH 21 041123128-0021	DH0501 - LIGHT FIXTURE HEAT SHIELD	Gray/Silver Fibrous Heterogeneous			65% Non-fibrous (other)	35% Chrysotlle		
DH 22 041123128-0022	DH0501 - 1X1 CT- FISSURES	White Fibrous Heterogeneous	80%	Min. Wool	20% Non-fibrous (other)	None Detected		
DH 23-Floor Tile 041123126-0023	MECHANICAL ROOM - 1X1 VT- LIGHT BROWN	White Non-Fibrous Heterogeneous	Suggest 18	5M	100% Non-fibrous (other)	None Detected		
DH 23-Mastic 041123128-0023A	MECHANICAL ROOM - 1X1 VT- LIGHT BROWN	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected		
tial report from 06/2 Analyst(s) Nancy Staller (37)	26/2011 09:38:42				Stephen Siegel, CiH, Laborato or other approved signa	ry Manager		
EMSL. EMSL bears no must not be used by the report meet the requirem available upon request. Samples analyzed by EX	responsibility for sample colle client to claim product certific sents of NELAC unless otherw	ction activities or analytics ation, approval or endorse tas specified. Samples re ion, NJ NVLAP Lab Code	al method limit ment by NVL/ icelved in good	ations, interpretation a VP, NIST or any agenc I condition unless other	ray not be reproduced, escept in full, without written not case of teat results are the responsibility of the ci y of the behaving government. The test results contain writes notified. Extended accuracy, precision and or ab 100104, NYS ELAP 105172, NJ DEP 03030	lent. This report ined within this		

EMSL		nalytical, Inc. 130 North, Cinnaminso	n, NJ 08077		
	Phone: (800)	220-3675 Pax: (856) 786-50	974 Email: <u>cinnasblab@</u> E	MSL.com	
	Noseworthy ch Environment	al Services Limited	Customer ID: Customer PO:	ATES44D	
	rosbie Road		Received:	06/25/11 9:10 AM	
Suite 4 St. Jol	402 hn's, NL A1B 4E	14	EMSL Order:	041123126	
Fax		Phone: (709) 754-4146	EMSL Proj:		
Project: 13916	Dining Hall		Analysis Date:	8/26/2011	
Test Rep	ort: Asbestos	Analysis of Bulk N	Materials via EPA	600/R-93/116 Metho	od using
		Polarized Lig	ght Microscopy		Ashering
Sample	Description	Appearance	Non-Asbestos % Fibrous	% Non-Fibrous	Asbestos % Type
DH 24	MECHANICAL	Gray		60% Non-fibrous (other)	40% Chrysotlle
041123126-0024	ROOM - PIPE FITTING INSULATION	Fibrous Heterogeneous			
DH 25	MECHANICAL			60% Non-fibrous (other)	40% Chrysotile
	ROOM - TANK	Fibrous			
		Fibrous Heterogeneous			
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
	ROOM - TANK				
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041123128-0025	ROOM - TANK				
041123128-0025	ROOM TANK			Strole Sig	d
641125128-0025 Bial report from 00 knalyst(s)	ROOM - TANK INSULATION			Stephen Siegel, CIH, Laborat or other approved sign	ory Manager
tial report from Of Analyst(s) Vancy Stater (37 EMSI: mathains ladi EMSI: mathains ladi EMSI: mathains ladi	ROOM - TANK INSULATION 8/26/2011 09:38:42 7	Heterogeneous	Imitations. Interpretation and use o VVLAP, NIST or any apency of the fit	Stephen Siegel, CIH, Laborati or other approved sign exproduced, except in full, without writh freat results are the responsibility of the desired government. The leaf results cont	ary Manager atory n approval by clant. This report tired within this
tial report from Qi Analyst(s) Viancy Stater (37 EMS: markatin ladi EMS: markatin ladi EMS: markatin ladi EMS: markatin ladi	ROOM - TANK INSULATION 8/26/2011 09:38:42 7 7 Ry Institut to the cost of analy or response of NELAC unless offs d.	Heterogeneous	Imitations. Interpretation and use o VVLAP, NIST or any agency of the N good condition unless otherwise no	Stephen Siegel, CIH, Laborati or other approved sign enproducet, except in full, without write first results are the responsibility of the deal of government. The test results for test. Estimated accuracy, precision and is	ary Manager atory n approval by clant. This report aired within this

APPENDIX III ASBESTOS BUILDING SURVEY INFORMATION

Asbestos Bldg Survey Information

Room #	Bldg. System	Component	Material Type	Access		Cor	ditions		Quantity	Sample No.	Sample	Sample	Result
KOOM #	Blug. System	component		Access	Good	Fair	Poor	Sprayed	Quantity	Sample No.	Location	Description	Result
DH-0S01			Light Fixture Heat Shield	А			x		1	DH21	Room 0S01, Ceiling	Grey Insulation	35% Chrysotile
DH-004, 004A			Pipe Fitting Insulation	А, В, С	x				~20	DH24	Room 004, Floor	Grey Insulation	40% Chrysotile
DH-004, 004A			Tank Insulation	А		x			~ 500 gal	Dh25	Room 004, Floor	Grey Insulation	40% Chrysotile
DH-1001			Pipe Fitting Insulation	С			х		1	DH24		Grey Insulation	40% Chrysotile
DH-1001A			Pipe Fitting Insulation	С			x		1	DH24		Grey Insulation	40% Chrysotile
DH-1002			Pipe Fitting Insulation	А	x				2	DH24		Grey Insulation	40% Chrysotile
DH-1011			Transite	А			x		~ 10 ft ²	DH10	Room 1011, Ceiling	Grey Cement-like Board	45% Chrysotile
DH-1011			Pipe Fitting Insulation	А		x			2	DH24		Grey Insulation	40% Chrysotile
DH-1011			¹ Linear Pipe Insulation	А	x				~ 20 ft				
DH-1C02			Pipe Fitting Insulation	А			x		3, below ceiling tile	DH24		Grey Insulation	40% Chrysotile
DH-1C02			Pipe Fitting Insulation	С	x				11, above ceiling tile	DH24		Grey Insulation	40% Chrysotile
DH-1009			Pipe Fitting Insulation	А	х				3	DH24		Grey Insulation	40% Chrysotile
DH-1010			Pipe Fitting Insulation	С	x				3	DH24		Grey Insulation	40% Chrysotile
DH-1010			Pipe Fitting Insulation	С			x		4	DH24		Grey Insulation	40% Chrysotile
DH-1008			² Fire Rated Door	А	x								
DH-1002A			Pipe Fitting Insulation	С	x				2	DH24		Grey Insulation	40% Chrysotile
DH-2001			Vinyl Floor Tile	A	x				~ 110 ft ²	DH16	Room 2001, Floor	9" x 9" Vinyl Floor Tile, brown with white	8% Chrysotile
DH-2006B			Vinyl Floor Tile	A		x			~ 50 ft ²	DH18	Room 2006B, Floor	9" x 9" Vinyl Floor Tile, dark brown with white	3% Chrysotile
DH-2006B			Light Fixture Heat Shield, thick layer	А	x				2	DH19	Room 2006B, Ceiling	Grey Insulation	25% Chrysotile
DH-2006B			Light Fixture Heat Shield, thin layer	А	x				2	DH20	Room 2006B, Ceiling	Grey Insulation	30% Chrysotile

No Access was available to the following rooms: DH-0002, DH-0003, DH-1000A, DH-1000B, DH-2002A, DH-2005

Access: A - Areas within reach from the floor. B - Frequently entered maintenance areas floor level. C - exposed / concealed above 8 ft, crawl space, etc. D - Inaccessible

¹ Unable to access due to height. Suspect asbestos containing until proven otherwise.
 ²Fire Rated Door manufactured by Weststeel Products Ltd. Must be considered to be asbestos containing until proven otherwise.

APPENDIX IV FLOOR PLANS SHOWING SAMPLING LOCATIONS

