

17. MHK - CELL UNIT

17.1 Building Description

The MHK building was constructed in 1969 and contains three floors and a basement (crawl space). The crawl space is classified as a Confined Space. Floor plans MHK-1 (basement), MHK-2 (first floor), MHK-3 (second floor) and MHK-4 (third floor) showing the approximate building layout, dimensions, sampling locations and locations and/or areas with ACMs or lead are provided in Appendix 17. The location of this building is shown on site plan Figure 1-2 in Section 1 of this report.

17.2 Survey Findings

The DSHMS in MHK was conducted by Aqua-Terre personnel on June 9 and 28, 2006. The results of the DSHMS are presented in the subsections of Section 17.2. Recommendations for mitigative measures and construction and removal procedures for the identified designated substances and hazardous materials in this building are presented in Section 40. Laboratory certificates of analysis for asbestos and lead samples are included in Appendix 17. Selected photographs showing areas of concern are also provided in Appendix 17.

17.2.1 Asbestos-Containing Materials (ACMs)

No samples were collected from the building for asbestos analysis. Information for ACMs observed and previously sampled (THEM, 1997) is summarized in Table 17.1. The room number (where observed), description of material, friability, condition, accessibility, recommended action, asbestos content and estimated quantity (only for ACMs) are also included in Table 17.1. Approximate sampling locations and areal or lateral extent of ACMs (if present) are shown on the floor plans in Appendix 17.

The following ACMs were identified:

- Insulated pipe elbows were observed in room 131 and 301. The insulation around these elbows was previously sampled by THEM (1997) and found to contain up to 60% chrysotile asbestos. A total of 25 ACM insulated elbows were observed.

- Parging material used on concrete equipment bases was previously sampled by THEM (1997) and found to contain 20 to 30% chrysotile asbestos. This parging material was observed by Aqua Terre on an equipment base in room 301. The parging material is approximately 5 cm wide around the edge of 1 concrete equipment base.
- Three incandescent light fixtures with ACM heat shields were observed in MHK (Rooms 131 and 231). Similar heat shields were previously sampled by THEM (1997) and found to contain 60% chrysotile asbestos.
- Insulation around pipe hangers was observed in the crawlspace (confined space 5). Similar insulation was sampled in MHL (MHL-As-1) and found to contain 70% chrysotile asbestos.

The fire doors within MHK should be assumed to have asbestos cores.

Table 17.1 Summary of Asbestos Survey, Building MHK

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
Not Sampled	Crawl Space (Confined Space 5)	Insulation around pipe hangers, as sampled by Aqua Terre (MHL-AS-1)	Friable	Good	C(concealed)	7	(C) 70%	22 (4 inch diameter)
Not Sampled	301	Insulation around pipe elbows, as sampled by THEM	Friable	Good	B	7	(C) 10-60% (THEM, 1997)	20 (3 to 6 inch diameter)
Not Sampled	131	Insulation around pipe elbows, as sampled by THEM	Friable	Poor	C (exposed)	4	(C) 10-60% (THEM, 1997)	5 (3 inch diameter)
Not Sampled	301	Parging material on concrete equipment bases, as sampled by THEM	Friable	Poor	B	3	(C) 20-30% (THEM, 1997)	0.6 m ²
Not Sampled	131 & 231	Light shield on incandescent light fixture, as sampled by THEM	Friable	fair	C (exposed)	5	(C) 60% (THEM, 1997)	3 fixtures

Notes:

- 1 Friability is assessed as friable or non-friable
 - 2 Condition is rated as good, fair or poor
 - 3 Accessibility is A, B, C(exposed), C(concealed) or D as defined in Section 2.3.1.
 - 4 Action is 1, 2, 3, 4, 5, 6, or 7 as defined in Section 2.3.1.
 - 5 Asbestos Content is Chrysotile (C), Amosite (A) or other Fibre (O) expressed as a percentage.
- ND None Detected (for PLM <0.1%; TEM <0.1%)

17.2.2 Lead-Containing Materials

Three samples of paint were collected from the building and submitted for laboratory analysis of lead. The results of the analysis for lead are summarized in Table 17.2. The sample identification numbers, room number (where sampled), description, condition, layers, lead content and approximate area (for paint containing greater than 600 ppm of lead) are also included in Table 17.2. Approximate sample locations and areal extent of paint containing greater than 600 ppm of lead are shown in the floor plans in Appendix 17.

Table 17.2 Summary of Lead Paint Survey, Building MHK

Sample ID	Room Number	Colour, Location and Description	Condition ¹	Layers Noted ²	Lead Content (ppm)	Estimated Quantity (m ²)
MHK-Pb-1	134	Salmon on cell doors	Good	No	37	-
MHK-Pb-2	202	White/off-white on walls	Good	No	112	-
MHK-Pb-3	232	Dark grey on access doors	Good	No	6020	33.6
Not Sampled	130, 132, 133, 134, 201, 202, 203 & 204	Light blue on walls, as sampled by Aqua Terre (MHH-Pb-3)	Good	No	1820	250
Not Sampled	201, 202, 203 & 204	Dark blue on trim and doors, as sampled by Aqua Terre (MHH-Pb-4)	Good	No	846	23
Not Sampled	all (except stairs, 301 and crawl space)	Grey floor paint, as sampled by Aqua Terre (MHC-Pb-6)	Good	No	3480	598.4

Notes:

¹ Condition is rated as good, fair or poor with peeling and/or flaking

² Layers of paint are noted visually and can only be observed if the layers are different colour

bold Exceeds the Surface Coating Materials Regulations limit of 0.06 % by weight (mg/g), or 600 ppm

Analytical results indicate that one of the paint samples contained a concentration of lead above 600 ppm. The dark grey paint on the access doors in room 232 (range K2) contains 6020 ppm of lead and was observed to be in good condition.

In addition, the light blue paint observed in rooms 130, 132, 133, 134, 201, 202, 203 & 204 is assumed to be the same as the light blue sampled in MHH (MHH-Pb-3) which contained 1820 ppm. The dark blue paint observed in 201, 202, 203 and 204 is assumed to be the same as the dark blue sampled in MHH (MHH-Pb-4) which contained 846 ppm. The grey paint observed on the floor of

most of MHK is assumed to be the same as the sample MHC-Pb-6 which contained 3480 ppm. One of the two cells (130) available for inspection in MHK had the same light blue and as such any light blue found in the cells in MHK should be assumed to be lead-based unless determined otherwise.

The solder on the water supply lines throughout the facility should be considered to contain lead.

Cast iron pipe flanges likely containing leaded packing material (as sampled in building MHH (sample # MHH-Pb-8) and found to contain 91.3% lead) were observed in the crawl space (confined space #5). A total of 50 pipe flanges were observed ranging in diameter from 3 to 6 inches.

17.2.3 Mercury

Fluorescent light bulbs were the only source of mercury observed during Aqua Terre's site inspection of MHK. The fluorescent light bulbs contain between 0.01 to 0.04 g of mercury vapour depending on manufacturer and age (Environment Canada, 2002). The number of fluorescent light fixtures observed during the site visit was approximately 41. Assuming two bulbs per fixture an estimated 82 fluorescent light bulbs are in-use, indicating that the total amount of mercury in the bulbs at MHK could range from an estimated 0.8 g to 3.3 g.

17.2.4 Silica

Silica is contained in the concrete and concrete blocks observed throughout the interior and exterior of MHK.

17.2.5 Other Designated Substances

During this survey, none of the following designated substances were observed in MHK: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates or vinyl chloride.

17.2.6 Polychlorinated Biphenyls (PCBs)

During the environmental audit conducted in 2006 (Aqua Terre, 2006) CSC staff informed Aqua Terre that, although a number of the PCB-containing fluorescent light ballasts had been removed from the facility, an estimated 800 to 1000 light fixtures that are likely PCB-containing still remain throughout the facility. There are an estimated 41 fluorescent light fixtures in MHK. Fixtures in

this area could not be inspected since they could not be accessed (due to presence of secure fittings in areas accessible to inmates).

No other sources of PCBs were observed in this building during this survey. During the previous environmental audit (Aqua Terre, 2006), CSC staff informed Aqua Terre that all PCB-containing “wet” transformers had been replaced with non-PCB containing “dry” transformers.

17.2.7 Ozone Depleting Substances (ODSs)

An updated Halocarbon Inventory for the entire institution is provided in Appendix 40. A summary of ODS containing equipment observed in MHK is provided in Table 17.3.

Table 17.3 Halocarbon Inventory, Building MHK.

Room Number	Equipment Type	Manufacturer	Model #	Serial #	Refrigerant	Amount ¹ (kg)
132	Milk Cooler	Silver King	SK2RS	SRB37443M	R401a	5.5oz
132	Refrigerator	LG	GR382R	503MRKU00237	R134a	4.94oz
204	Bar Fridge	GE	GMR02BANACW	illegible	R134a	1.59oz
206	Milk Cooler	Gaylord Regethemic	EPF-2	2-1499	R12	4.75oz
206	Refrigerator	Camco	LW12JYRRW	FH255382	R12	4oz

Notes:

- 1 Amount of refrigerant recorded in Kg unless specified otherwise.

17.2.8 Urea Formaldehyde Foam Insulation (UFFI)

No UFFI was identified in MHK.

17.2.9 Fuel, Oil and/or Waste Oil Storage

No issues with fuel, oil and/or waste oil storage were identified in MHK.

17.2.10 Chemical Storage

A limited amount of chemicals were observed in MHK. Five plastic jugs without proper WHMIS labels were observed in Room 133. The jugs were labelled “floor” and “shower”.

17.2.11 Radioactive Materials

No radioactive materials were observed in MHK.

17.2.12 Mould

No mould or water damage was observed in MHK.

18. MHL - CELL UNIT

18.1 Building Description

The MHL building was constructed in 1969 and contains three floors and a basement (crawl space). The crawl space is classified as a Confined Space. Floor plans MHL-1 (basement), MHL-2 (first floor), MHL-3 (second floor) and MHL-4 (third floor) showing the approximate building layout, dimensions, sampling locations and locations and/or areas with ACMs or lead are provided in Appendix 18. The location of this building is shown on site plan Figure 1-2 in Section 1 of this report.

18.2 Survey Findings

The DSHMS in MHL was conducted by Aqua Terre personnel on June 9 and 29, 2006. The results of the DSHMS are presented in the subsections of Section 18.2. Recommendations for mitigative measures and construction and removal procedures for the identified designated substances and hazardous materials in this building are presented in Section 40. Laboratory certificates of analysis for asbestos and lead samples are included in Appendix 18.

18.2.1 Asbestos-Containing Materials (ACMs)

One sample was collected from the building for asbestos analysis. The results are presented in Table 18.1 along with information for ACMs observed and previously sampled (THEM, 1997). The room number (where observed), description of material, friability, condition, accessibility, recommended action, asbestos content and estimated quantity (only for ACMs) are also included in Table 18.1. Approximate sampling locations and areal or lateral extent of ACMs (if present) are shown on the floor plans in Appendix 18.

The following ACMs were identified:

- Pipe hangers with ACM insulation were observed in the crawl space. Similar insulation was sampled in MHL (MHL-AS-1) and was found to contain 70 % chrysotile asbestos. A total of 22 pipe hangers with ACM insulation were observed.

- Insulated pipe elbows were observed in room 231 and 301. The insulation around these elbows was previously sampled by THEM (1997) and found to contain up to 60% chrysotile asbestos. A total of 12 ACM insulated elbows were observed.
 - An insulated pea trap was observed in room 301. The insulation was previously sampled by THEM (1997) and found to contain up to 60% chrysotile asbestos.
 - Parging material used on concrete equipment bases was previously sampled by THEM (1997) and found to contain 20 to 30% chrysotile asbestos. This parging material was observed by Aqua Terre on an equipment base in room 301. The parging material is approximately 5 cm wide around the edge of 1 concrete equipment base.
 - One incandescent light fixture with an ACM heat shield was observed in MHL (Room 231). The light heat shield was previously sampled by THEM (1997) and was found to contain 60% chrysotile asbestos.
-

The fire doors within MHL should be assumed to have asbestos cores.

Table 18.1 Summary of Asbestos Survey, Building MHL

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
MHL-AS-1	Crawl Space (Confined Space 6)	Insulation around pipe hangers.	Friable	Good (3 inch) Poor (6 inch)	C (exposed)	7 4	(C) 70%	11 (3 inch) 11 (6 inch)
Not Sampled	231	Insulation around pipe elbows, as sampled by THEM	Friable	Good	C (exposed)	7	(C) 10-60% (THEM, 1997)	2 (3 inch diameter)
Not Sampled	301	Insulation around pipe elbows, as sampled by THEM	Friable	Good	B	7	(C) 10-60% (THEM, 1997)	8 (3 to 6 inch diameter)
Not Sampled	301	Insulation around pea trap, as sampled by THEM	Friable	Good	B	7	(C) 10-60% (THEM, 1997)	1 (6 inch diameter)
Not Sampled	301	Parging material on concrete equipment bases, as sampled by THEM	Friable	Poor	B	3	(C) 20-30% (THEM, 1997)	0.6 m ²
Not Sampled	231	Light shield on incandescent light fixture, as sampled by THEM	Friable	fair	C (exposed)	5	(C) 60% (THEM, 1997)	1 fixtures

Notes:

- 1 Friability is assessed as friable or non-friable
- 2 Condition is rated as good, fair or poor
- 3 Accessibility is A, B, C(exposed), C(concealed) or D as defined in Section 2.3.1.
- 4 Action is 1, 2, 3, 4, 5, 6, or 7 as defined in Section 2.3.1.

5 ND Asbestos Content is Chrysotile (C), Amosite (A) or other Fibre (O) expressed as a percentage.
None Detected (for PLM <0.1%; TEM <0.1%)

18.2.2 Lead-Containing Materials

Two samples of paint were collected from the building and submitted for laboratory analysis of lead. The results of the analysis for lead are summarized in Table 18.2. The sample identification numbers, room number (where sampled), description, condition, layers, lead content and approximate area (for paint containing greater than 600 ppm of lead) are also included in Table 18.2. Approximate sample locations and areal extent of paint containing greater than 600 ppm of lead are shown in the floor plans in Appendix 18.

Table 18.2 Summary of Lead Paint Survey, Building MHL

Sample ID	Room Number	Colour, Location and Description	Condition ¹	Layers Noted ²	Lead Content (ppm)	Estimated Quantity (m ²)
MHL-Pb-1	132, 133, & 134,	Off-white on ceiling and walls	Good	No	15	-
MHL-Pb-2	131, 231, 232, 233, 234 & 301	White on ceilings and walls	Poor with peeling in 231	No	4	-
Not Sampled	134 & 234	Light blue on access doors, as sampled by Aqua Terre in MHH (MHH-Pb-3)	Good	No	1820	36
Not Sampled	131 & 231	Dark blue doors, as sampled by Aqua Terre in MHH (MHH-Pb-4)	Good	No	846	84
Not Sampled	all (except stairs, 301 and crawl space)	Grey floor paint, as sampled by Aqua Terre in MHC (MHC-Pb-6)	Good	No	3480	510

Notes:

¹ Condition is rated as good, fair or poor with peeling and/or flaking

² Layers of paint are noted visually and can only be observed if the layers are different colour

bold Exceeds the Surface Coating Materials Regulations limit of 0.06 % by weight (mg/g), or 600 ppm

None of the paint samples collected in MHL had analytical results that indicate the paint samples contain a concentration of lead above 600 ppm. However, the dark blue paint observed in 131 and 231 is assumed to be the same as the dark blue sampled in MHH (MHH-Pb-4) which contained 846 ppm. In addition, the light blue paint observed in 134 and 234 is assumed to be the same as the light blue sampled in MHH (MHH-Pb-3) which contained 1820 ppm. The grey paint observed on the floor of most of MHL is assumed to be the same as sample MHC-Pb-6 which contained 3480 ppm of lead.

The solder on the water supply lines throughout the facility should be considered to contain lead.

Cast iron pipe flanges likely containing leaded packing material (as sampled in building MHH (sample # MHH-Pb-8) and found to contain 91.3% lead) were observed in the crawl space (confined space #6). A total of 50 pipe flanges were observed ranging in diameter from 3 to 6 inches.

18.2.3 Mercury

Fluorescent light bulbs were the only source of mercury observed during Aqua Terre's site inspection of MHL. The fluorescent light bulbs contain between 0.01 to 0.04 g of mercury vapour depending on manufacturer and age (Environment Canada, 2002). The number of fluorescent light fixtures observed during the site visit was approximately 35. Assuming two bulbs per fixture an estimated 70 fluorescent light bulbs are in-use, indicating that the total amount of mercury in the bulbs at MHL could range from an estimated 0.7 g to 2.8 g.

18.2.4 Silica

Silica is contained in the concrete and concrete blocks observed throughout the interior and exterior of MHL.

18.2.5 Other Designated Substances

During this survey, none of the following designated substances were observed in MHL: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates or vinyl chloride.

18.2.6 Polychlorinated Biphenyls (PCBs)

During the environmental audit conducted in 2006 (Aqua Terre, 2006) CSC staff informed Aqua Terre that, although a number of the PCB-containing fluorescent light ballasts had been removed from the facility, an estimated 800 to 1000 light fixtures that are likely PCB-containing still remain at the facility. There are an estimated 35 fluorescent light fixtures in MHL. Aqua Terre inspected one ballast in MHL and results are provided in Table 18.3.

Table 18.3 Summary of Inspected Fluorescent Light Ballasts, MHL

Room Number	Manufacturer	Condition	PCB containing
132	Advance	Good	No

No other sources of PCBs were observed in this building during this survey. During the previous environmental audit (Aqua Terre, 2006), CSC staff informed Aqua Terre that all PCB-containing “wet” transformers had been replaced with non-PCB containing “dry” transformers.

18.2.7 Ozone Depleting Substances (ODSs)

An updated Halocarbon Inventory for the entire institution is provided in Appendix 40. A summary of ODS containing equipment observed in MHL is provided in Table 18.4.

Table 18.4 Halocarbon Inventory, Building MHL

Room Number	Equipment Type	Manufacturer	Model #	Serial #	Refrigerant	Amount ¹ (kg)
232	Refrigerator	LG	GR-382R	503MRXX00218	R134a	4.94oz

Notes:

1 Amount of refrigerant recorded in Kg unless specified otherwise.

18.2.8 Urea Formaldehyde Foam Insulation (UFFI)

No UFFI was identified in MHL.

18.2.9 Fuel, Oil and/or Waste Oil Storage

No issues with fuel, oil and/or waste oil storage were identified in MHL.

18.2.10 Chemical Storage

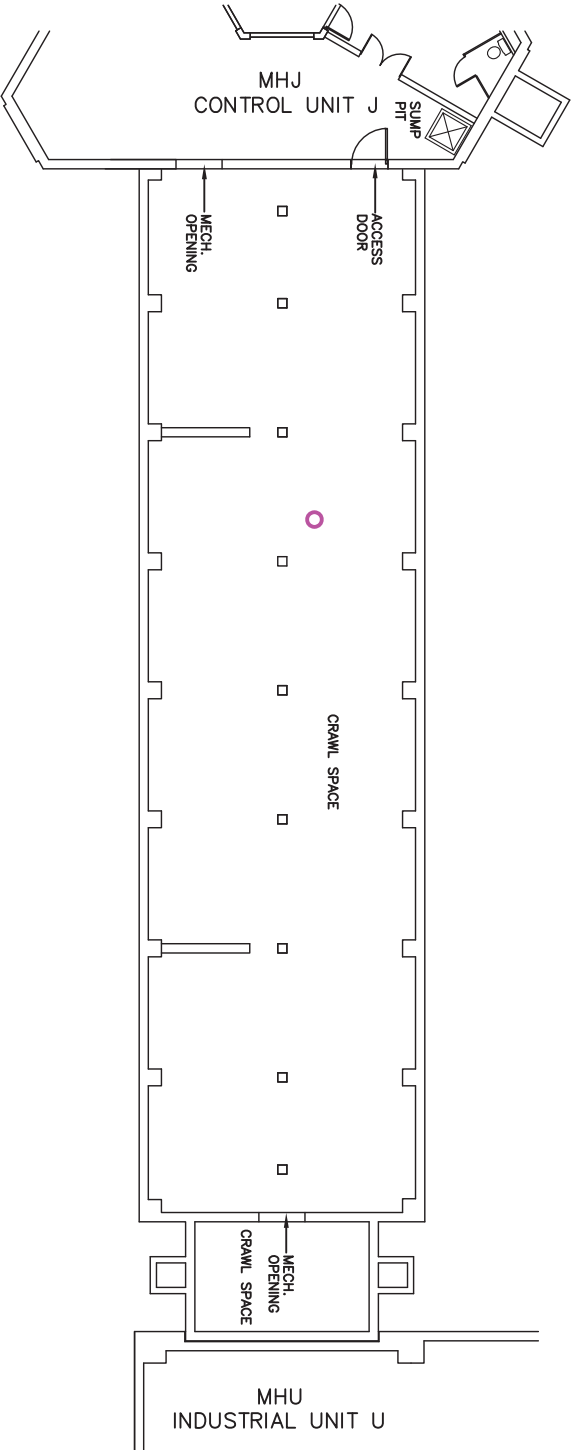
No chemicals were observed to be stored in MHL.

18.2.11 Radioactive Materials

No radioactive materials were observed in MHL.

18.2.12 Mould

No mould or water damage was observed in MHL.



BASEMENT PLAN

- NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. 'ppm': PARTS PER MILLION
 4. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHK CELL UNIT K, BASEMENT FIRE PLAN, JUNE 14, 2001

LEGEND

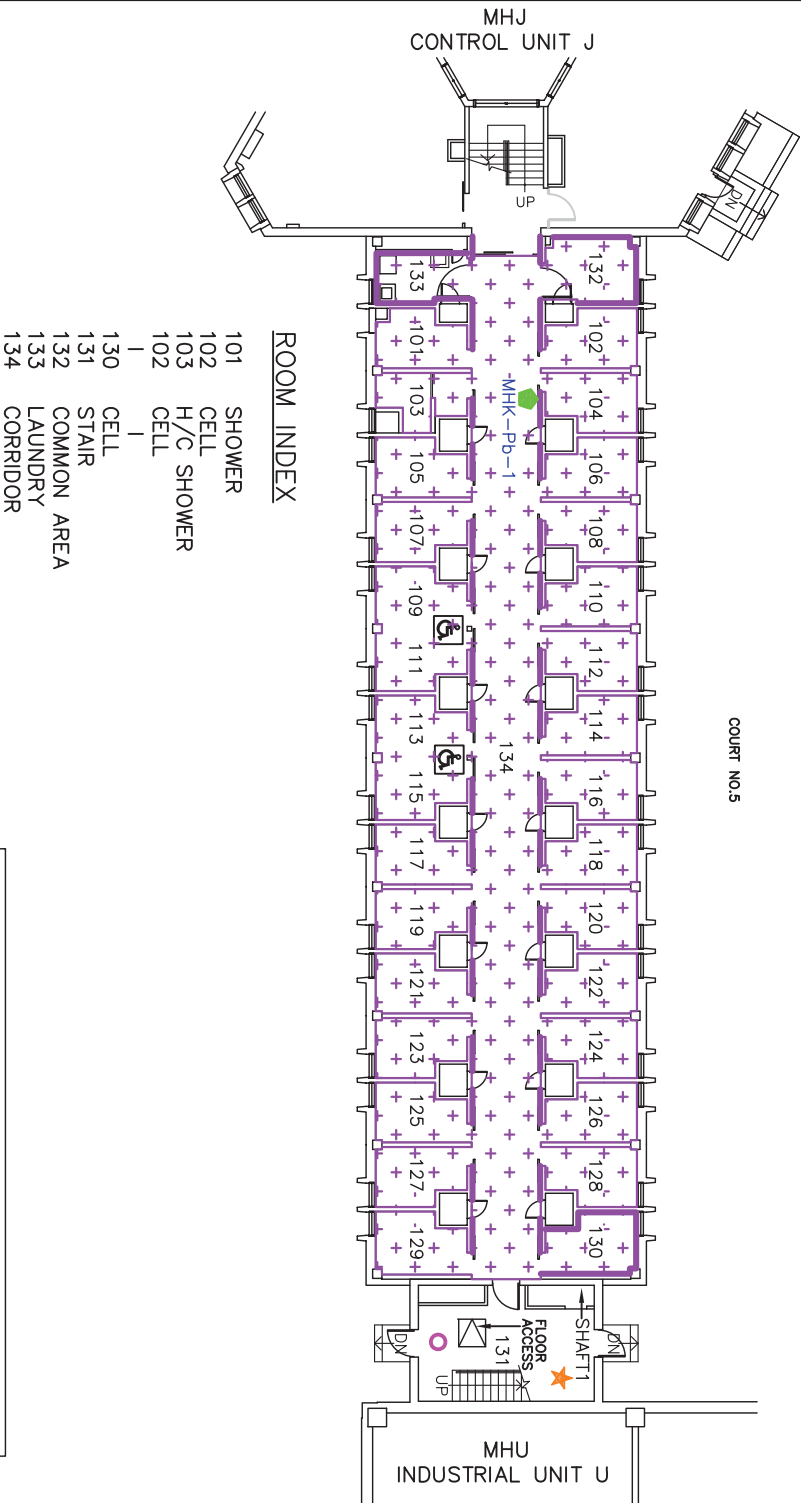
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- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)



Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHK CELL UNIT K (BASEMENT)	
Project No:	06811	Filename:	06811-MHK-BSMT.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
14-JUL-2006		MRF	
Dwg No:		FIGURE MHK-1	

MHK CELL UNIT K



FIRST FLOOR PLAN

- NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. 'ppm': PARTS PER MILLION
 4. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHK CELL UNIT K, FIRST FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

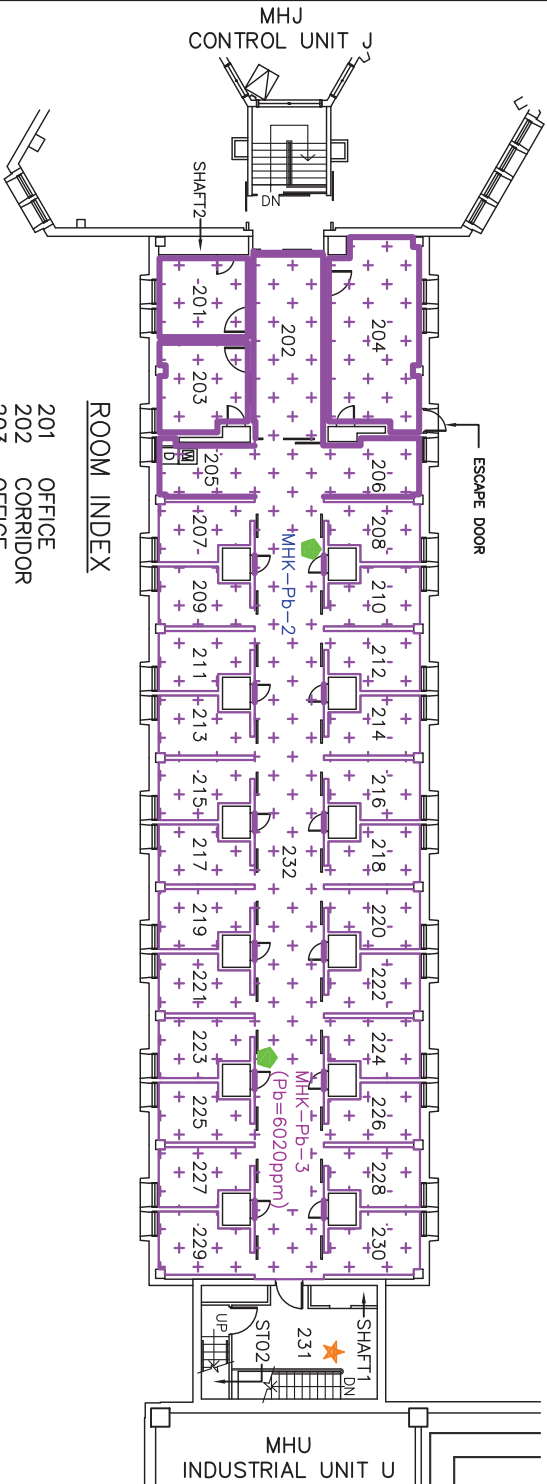
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- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)



Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHK CELL UNIT K (FIRST FLOOR)	
Project No:	06811	Filename:	06811-MHK-1FLR.DWG
Drawn:	EM	Verified:	MH
Date:		Dwg No:	
28-JUL-2006		FIGURE MHK-2	
Project Manager:		MRF	

MHK CELL UNIT K



ROOM INDEX

- 201 OFFICE
- 202 CORRIDOR
- 203 OFFICE
- 204 OFFICE
- 205 LAUNDRY
- 206 COMMON AREA
- 207 CELL
- 230 CELL
- 231 STAIR
- 232 CORRIDOR
- ST02 STAIR NO.2

SECOND FLOOR PLAN

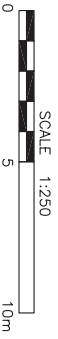
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 - INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 - 'ppm': PARTS PER MILLION
 - 'Pb': LEAD

- SOURCE(S):
- PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHK CELL UNIT K,
 - SECOND FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)

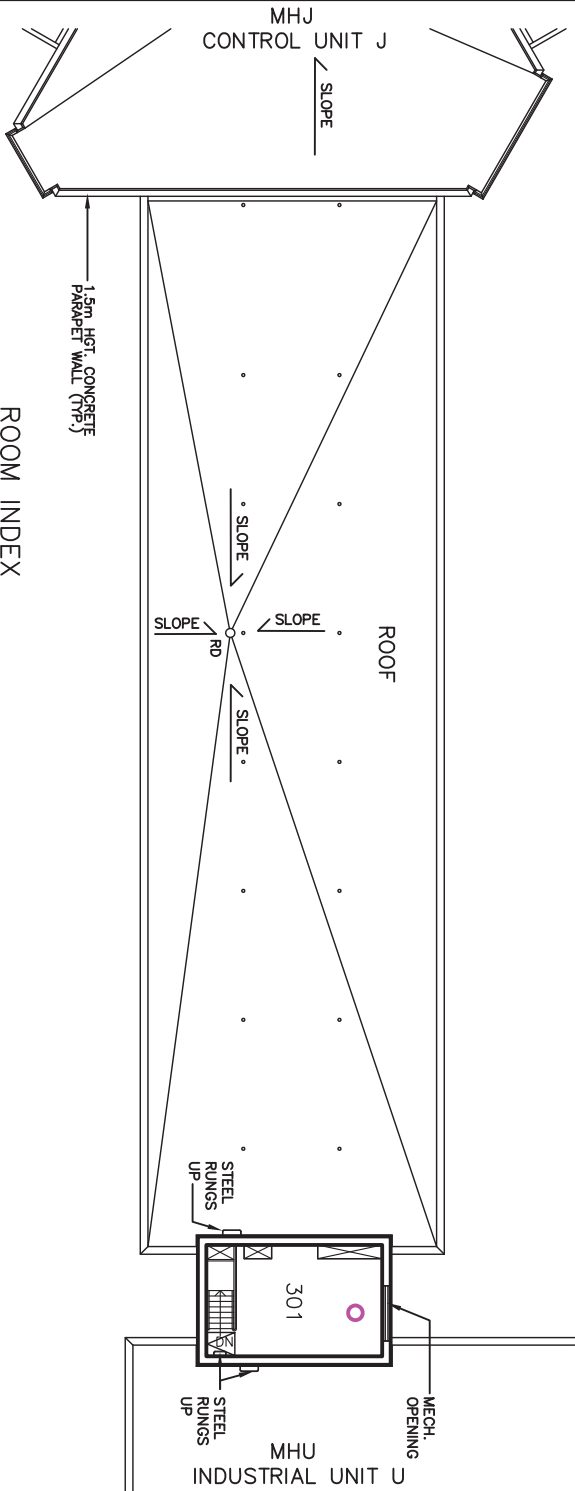


Public Works
Government Services Canada
Architectural and Engineering Services
Ontario Region
Travaux publics
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario



Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHK CELL UNIT K (SECOND FLOOR)	
Project No:	06811	Filename:	06811-MHK-2FLR.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
28-JUL-2006		MRF	
Dwg No.:		FIGURE MHK-3	

MHK CELL UNIT K



ROOM INDEX

301 MECHANICAL ROOM

THIRD FLOOR PLAN

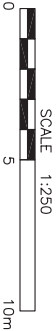
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 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. 'ppm': PARTS PER MILLION
 4. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHK CELL UNIT K, THIRD FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)



Public Works
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario



Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHK CELL UNIT K (THIRD FLOOR)	
Project No:	06811	Filename:	06811-MHK-3FLR.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
14-JUL-2006		MRF	
Dwg No:		FIGURE MHK-4	

designated sbstances.pdf (SECURED) - Adobe Reader

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Comment



ACCUTEST LABORATORIES LTD.

Report of Analysis

Client: Aqua Terre Solutions Inc.

2 Gurdwara Rd., Suite 200
Nepean, ON
K2E 1A2

Attention: Mr. Mark Foerster

Report Number: 2612157

Date Reported: 2006-06-16

Date Submitted: 2006-06-12

Project: 06-811

P.O. Number: 260233

Matrix: Paint Chips

METHOD: Analysis was performed on an Aqua-Regia digest of the sample material.

RESULTS:

<u>LAB ID</u>	<u>Sample ID</u>	<u>Description</u>	<u>MDL</u>	<u>Lead (Pb)</u> <u>ug/g</u>
469386	MHK-Pb-1		3	37
469387	MHK-Pb-2		3	112
469388	MHK-Pb-3		3	6020

COMMENT:

start

4 Microsoft Office... Physical Plant Surv... designated sbstanc... Document1 - Micro... EN

9:45 AM

designated sbstances.pdf (SECURED) - Adobe Reader

File Edit View Window Help



420 / 561



102%





Comment





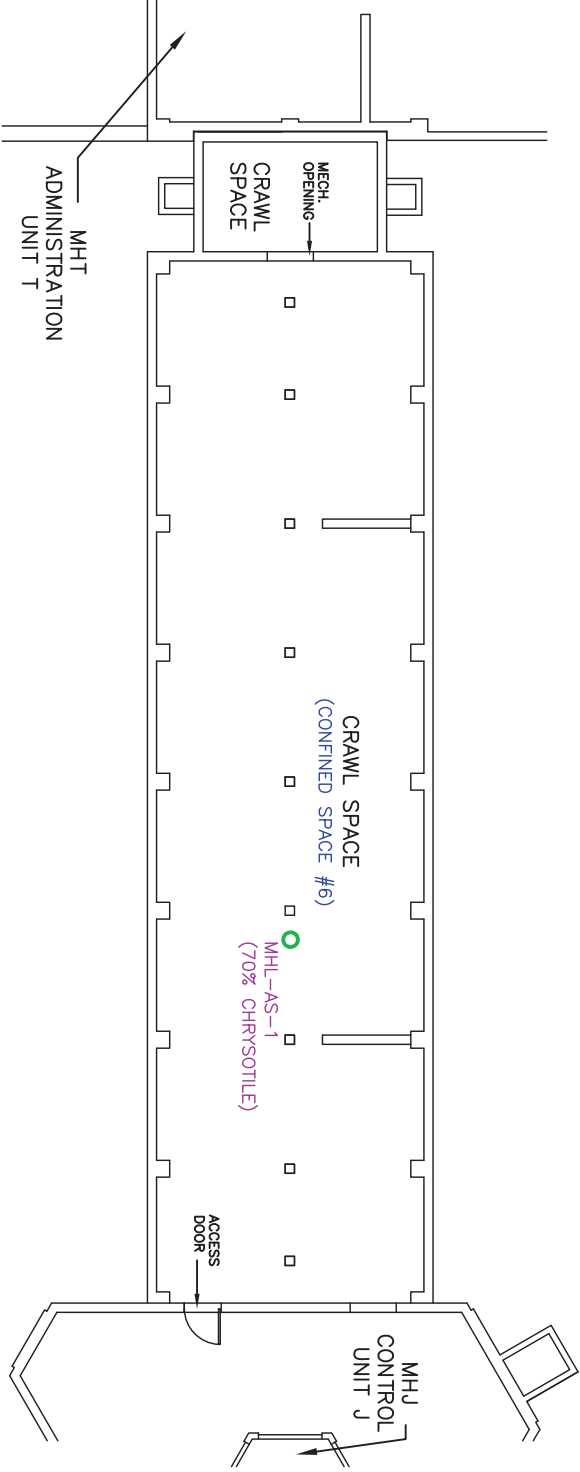
PHOTO 1: ASBESTOS CONTAINING MATERIAL INSULATION AT A PIPE HANGER,
OBSERVED IN CRAWL SPACE #5 (MHK)



EN



9:45 AM



BASEMENT PLAN

NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
3. 'ppm': PARTS PER MILLION
4. 'Pb': LEAD

SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHL CELL UNIT L, BASEMENT FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)

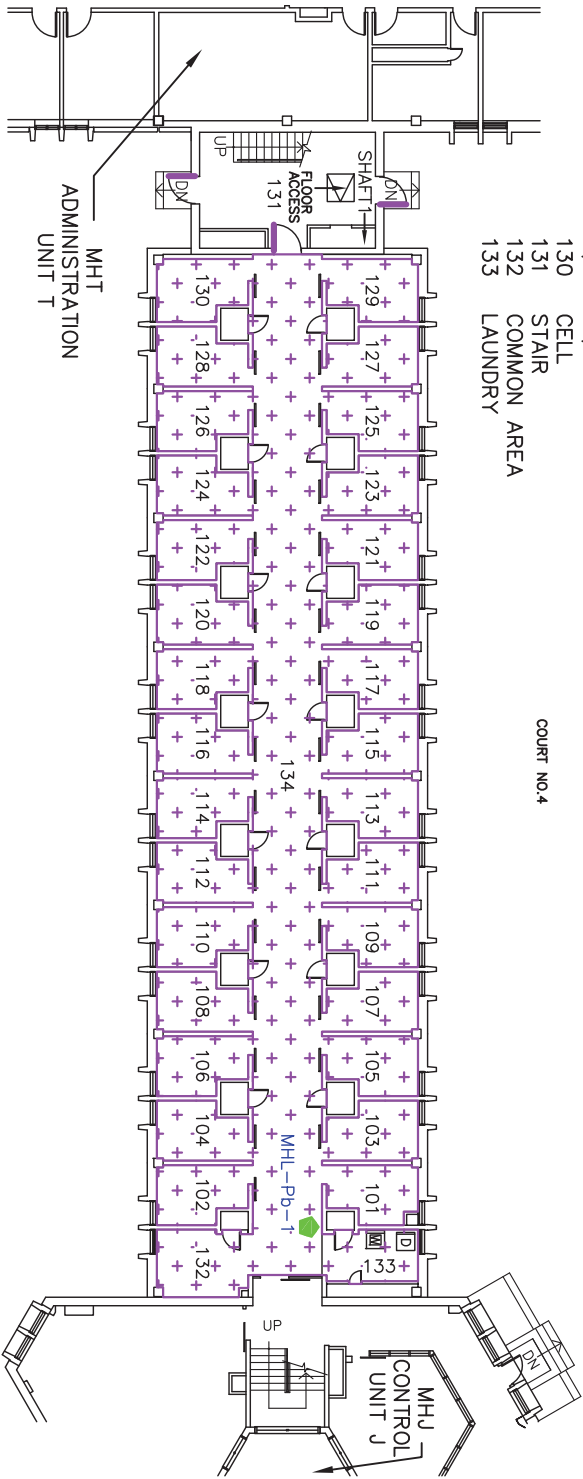


Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHL CELL UNIT L (BASEMENT)	
Project No:	06811	Filename:	06811-MHL-BSMT.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
16-AUG-2006		MRF	
Dwg No:		FIGURE MHL-1	

MHL CELL UNIT L

ROOM INDEX

- 101 SHOWER
102 CELL
130 CELL
131 STAIR
132 COMMON AREA
133 LAUNDRY



FIRST FLOOR PLAN

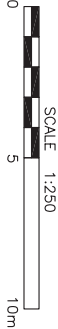
- NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. 'ppm': PARTS PER MILLION
 4. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHL CELL UNIT L, FIRST FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)

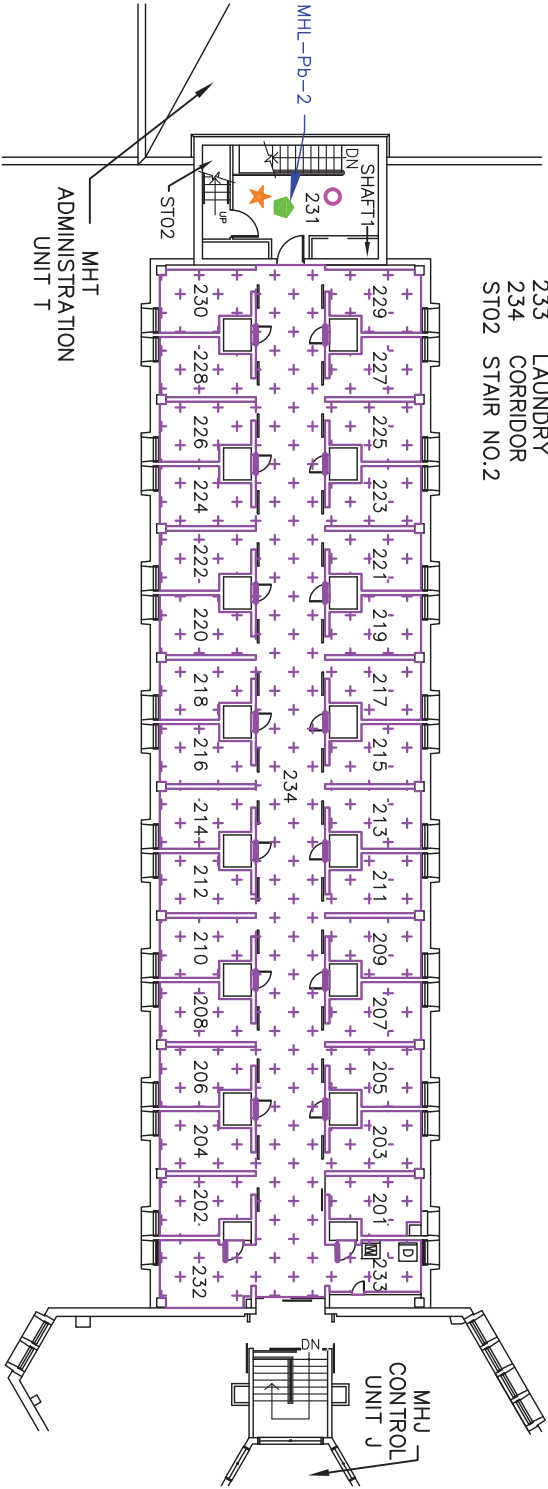


Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHL CELL UNIT L (FIRST FLOOR)	
Project No:	06811	Filename:	06811-MHL-1FLR.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
11-JUL-2006		MRF	
Dwg No:		FIGURE MHL-2	

MHL CELL UNIT L

ROOM INDEX

- 201 SHOWER
202 CELL
230 CELL
231 STAIR
232 COMMON AREA
233 LAUNDRY
234 CORRIDOR
ST02 STAIR NO.2



SECOND FLOOR PLAN

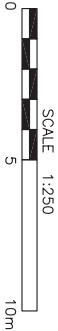
- NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR
3. FAXED
4. 'ppm': PARTS PER MILLION
5. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHL CELL UNIT L,
SECOND FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)



Public Works
Government Services Canada
Architectural and Engineering Services
Ontario Region
Travaux publics
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario



Client/Location:		Title:	
PWGSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHL CELL UNIT L (SECOND FLOOR)	
Project No:	06811	Filename:	06811-MHL-2FLR.DWG
Drawn:	EM	Verified:	MH
Date:		Project Manager:	
11-JUL-2006		MRF	
Dwg No:		FIGURE MHL-3	

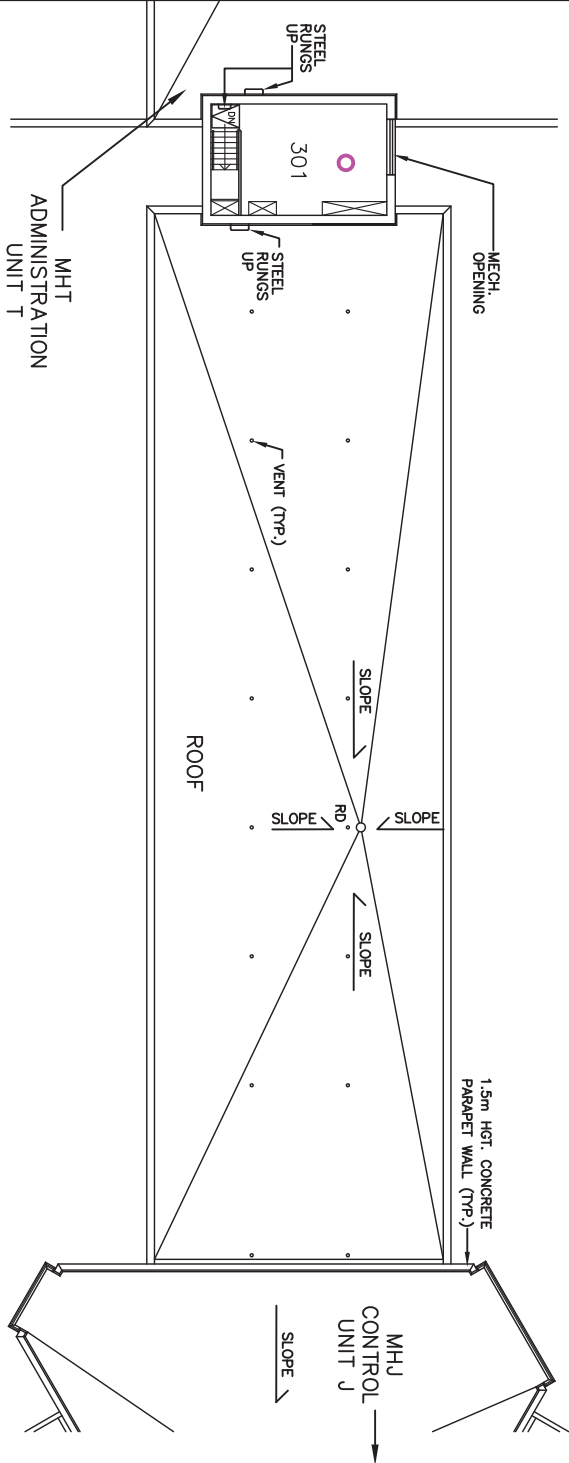
MHL CELL UNIT L



ROOM INDEX

MECHANICAL ROOM

301



THIRD FLOOR PLAN

- NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. 'ppm': PARTS PER MILLION
 4. 'Pb': LEAD

- SOURCE(S):
1. PUBLIC WORKS AND GOVERNMENT SERVICES CANADA, MHL CELL UNIT L, THIRD FLOOR FIRE PLAN, JUNE 14, 2001

LEGEND

- FLOOR TILE SAMPLE LOCATION
- CEILING TILE SAMPLE LOCATION
- PAINT SAMPLE LOCATION
- WALL OR CEILING SURFACING MATERIAL SAMPLE
- PIPE INSULATION LOCATION [ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQUA TERRE]
- PIPE INSULATION SAMPLE LOCATION
- LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD
- LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
- LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
- ASBESTOS CONTAINING FLOOR TILES
- ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)





1

Jason Cooper, B.Sc.
Analyst



Page 2 of 2

Other Materials Content %
0
10
20
30
40
50
60
70
80
90
100

Yes

Cellulose: None Detected

MMVF: None Detected

OtherFibers: None Detected

Non Fibers: 30

Comments:

24. MHR - PASSAGE

24.1 Building Description

The MHR building was constructed in 1969 and contains one floor and a crawl space. The crawl space is classified as a Confined Space. Floor plans MHR-1 (crawl space), and MHR-2 (first floor) showing the approximate building layout, dimensions, sampling locations and locations and/or areas with ACMs or lead are provided in Appendix 24. The location of this building is shown on site plan Figure 1-2 in Section 1 of this report.

24.2 Survey Findings

The DSHMS in MHR was conducted by Aqua Terre personnel on June 28, 2006. The results of the DSHMS are presented in the subsections of Section 24.2. Recommendations for mitigative measures and construction and removal procedures for the identified designated substances and hazardous materials in this building are presented in Section 40. Laboratory certificates of analysis for asbestos and lead samples are included in Appendix 24.

24.2.1 Asbestos-Containing Materials (ACMs)

One sample was collected from the building for asbestos analysis. The sample (pipe insulation) was submitted for bulk asbestos analysis using the PLM method. Results are presented in Table 24.1. Information for ACMs (if any) observed and previously sampled (THEM, 1997) are also presented in Table 24.1. The room number (where observed), description of material, friability, condition, accessibility, recommended action, asbestos content and estimated quantity (only for ACMs) are also included in Table 24.1. Approximate sampling locations and areal or lateral extent of ACMs (if present) are shown on the floor plans in Appendix 24.

The following ACMs were identified:

- The insulation around pipe elbows in MHR crawlspace contained up to 20 % chrysotile asbestos. A total of 2 ACM containing pipe elbows were observed in the MHR crawlspace.

Table 24.1 Summary of Asbestos Survey, Building MHR

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
MHR-AS-1	Crawlspcace (Confined Space 2)	Insulation on pipe elbows	Yes	Good	C(concealed)	7	(C) 20%	2 (6 inch diameter)

Notes:

- 1 Friability is assessed as friable or non-friable
 - 2 Condition is rated as good, fair or poor
 - 3 Accessibility is A, B, C(exposed), C(concealed) or D as defined in Section 2.3.1.
 - 4 Action is 1, 2, 3, 4, 5, 6, or 7 as defined in Section 2.3.1.
 - 5 Asbestos Content is Chrysotile (C), Amosite (A) or other Fibre (O) expressed as a percentage.
- ND None Detected (for PLM <0.1%; TEM <0.1%)

24.2.2 Lead-Containing Materials

One sample of paint was collected from the building and submitted for laboratory analysis of lead. The results of the analysis for lead are summarized in Table 24.2. The sample identification numbers, room number (where sampled), description, condition, layers, lead content and approximate area (for paint containing greater than 600 ppm of lead) are also included in Table 24.2. Approximate sample locations and areal extent of paint containing greater than 600 ppm of lead are shown in the floor plans in Appendix 24.

Table 24.2 Summary of Lead Paint Survey, Building MHR

Sample ID	Room Number	Colour, Location and Description	Condition ¹	Layers Noted ²	Lead Content (ppm)	Estimated Quantity (m ²)
MHR-Pb-1	Crawl Space (Confined Space 2)	Red paint on sprinkler pipe	Fair with flaking	No	3430	11

Notes:

¹ Condition is rated as good, fair or poor with peeling and/or flaking

² Layers of paint are noted visually and can only be observed if the layers are different colour

bold Exceeds the Surface Coating Materials Regulations limit of 0.06 % by weight (mg/g), or 600 ppm

The sample of red paint collected from the sprinkler pipes in the crawlspace (MHR-Pb-1) contained 3430 ppm of lead.

The solder on the water supply lines throughout the facility should be considered to contain lead.

Cast iron pipe flanges likely containing leaded packing material (as sampled in building MHH (sample # MHH-Pb-8) and found to contain 91.3% lead) were observed in the crawl space. A total of 10 pipe flanges were observed with a diameter of 4 inches.

24.2.3 Mercury

Fluorescent light bulbs were the only source of mercury observed during Aqua Terre's site inspection of MHR. The fluorescent light bulbs contain between 0.01 to 0.04 g of mercury vapour depending on manufacturer and age (Environment Canada, 2002). The number of fluorescent light fixtures observed during the site visit was approximately 12. Assuming two bulbs per fixture an

estimated 24 fluorescent light bulbs are in-use, indicating that the total amount of mercury in the bulbs at MHR could range from an estimated 0.24 g to 0.96 g.

24.2.4 Silica

Silica is contained in the concrete and concrete blocks observed throughout the interior and exterior of MHR.

24.2.5 Other Designated Substances

During this survey, none of the following designated substances were observed in MHR: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates or vinyl chloride.

24.2.6 Polychlorinated Biphenyls (PCBs)

During the environmental audit conducted in 2006 (Aqua Terre, 2006) CSC staff informed Aqua Terre that, although a number of the PCB-containing fluorescent light ballasts had been removed from the facility, an estimated 800 to 1000 light fixtures that are likely PCB-containing still remain throughout the facility. There are an estimated 24 fluorescent light fixtures in MHR. Fixtures in this area could not be inspected since they could not be accessed (due to presence of secure fittings in areas accessible to inmates).

No other sources of PCBs were observed in this building during this survey. During the previous environmental audit (Aqua Terre, 2006), CSC staff informed Aqua Terre that all PCB-containing “wet” transformers had been replaced with non-PCB containing “dry” transformers.

24.2.7 Ozone Depleting Substances (ODSs)

An updated Halocarbon Inventory for the entire institution is provided in Appendix 40. No ODS containing equipment was identified in MHR.

24.2.8 Urea Formaldehyde Foam Insulation (UFFI)

No UFFI was identified in MHR.

24.2.9 Fuel, Oil and/or Waste Oil Storage

No fuel, oil and/or waste oil storage was identified in MHR.

24.2.10 Chemical Storage

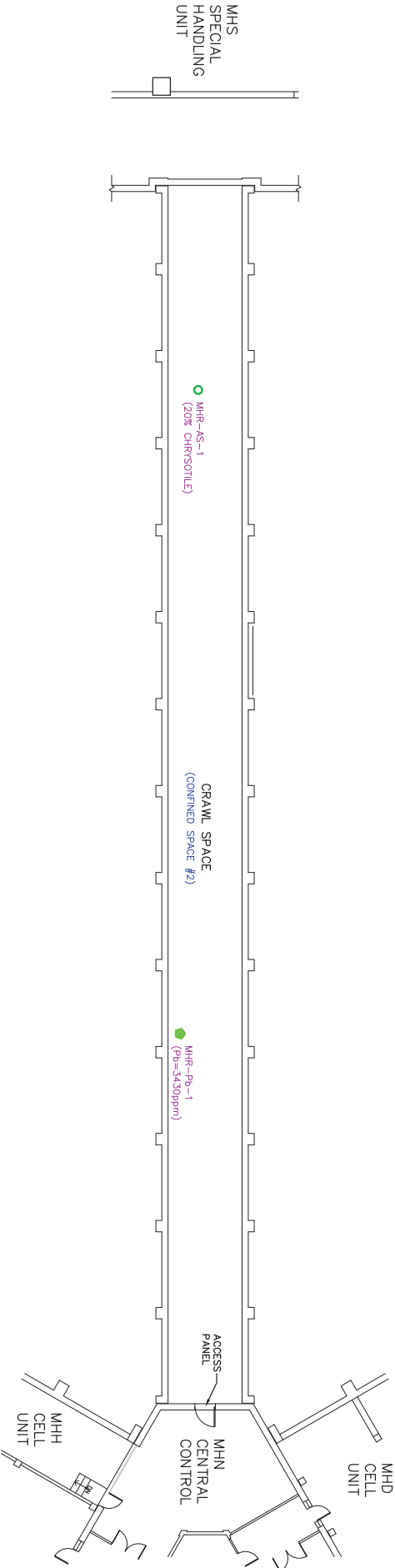
No chemicals were observed to be stored in MHR.

24.2.11 Radioactive Materials

No radioactive materials were observed in MHR.

24.2.12 Mould

No water and/or mould was observed in MHR.



BASEMENT PLAN

 Public Works
Government Services Canada
Travaux publics
Services gouvernementaux Canada
Ontario Region
Région de l'Ontario














NOTE(S):
1. SCALE AND SITE INSTRUMENTATION LOCATIONS ARE APPROXIMATE.
2. INFORMATION ON THIS PLAN MAY BE USED IF IT IS PHOTOGRAPHED OR FAXED.
3. 1cm = 1m; PARTS PER MILLION
4. Pb: LEAD

SOURCE(S):
1. WORKS AND GOVERNMENT SERVICES CANADA, MHR PASSAGE R, BASEMENT
FLOOR PLAN, JUNE 14, 2001

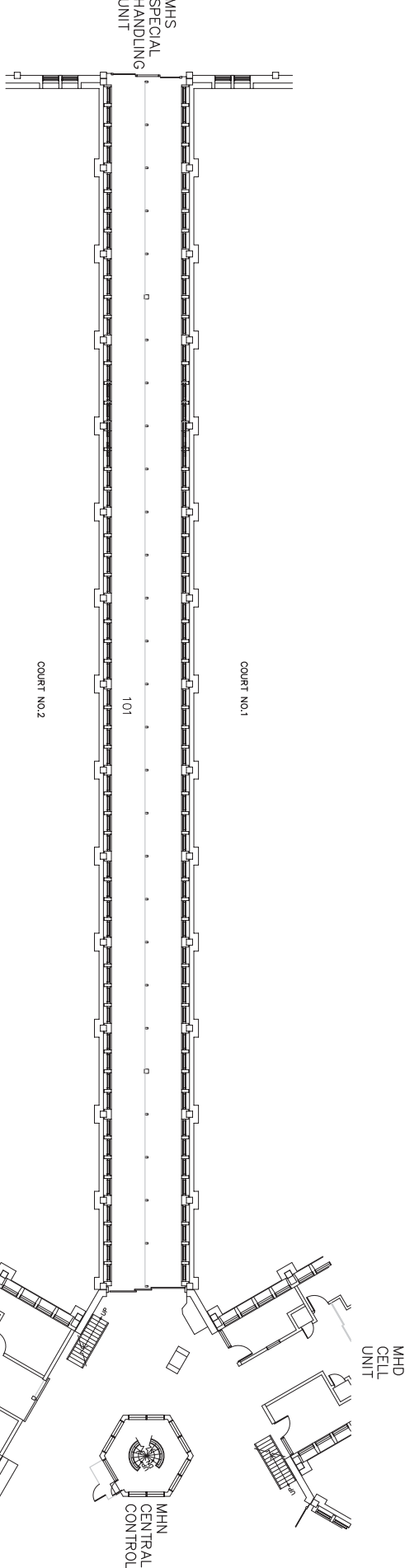


Client/Location:		Title:	
PWSC MILLHAVEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHR PASSAGE R (BASEMENT)	
Project No:	06811	Date:	20-JUL-2006
Drawn:	EM	Verified:	KE
Project Manager:		MHR	
Figure:		MHR-1	

LEGEND

 FLOOR TILE SAMPLE LOCATION	 LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
 CEILING TILE SAMPLE LOCATION	 LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
 PAINT SAMPLE LOCATION	 LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
 WALL OR CEILING SURFACING MATERIAL SAMPLE	 FLOOR TILES
 ASBESTOS CONTAINING MATERIAL AS OBSERVED BY AQUA TERRA (2006)	 ASBESTOS CONTAINING CEILING TILES OR SURFACE
 PIPE INSULATION SAMPLE LOCATION	 EXCEEDANCE IN ANALYSED SAMPLE
 LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD	

SCALE: 1:200
0 4 8m



ROOM INDEX

101 DIVIDED CORRIDOR

FIRST FLOOR PLAN

NOTE(3): AND SITE INSTRUMENTATION LOCATIONS ARE APPROPRIATE
1. SCALE: INFORMATION ON THIS PLAN MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
2. SCALE: INFORMATION ON THIS PLAN MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
3. UNIT: PARTS PER MILLION
4. UNIT: LEAD

SOURCE(3): WORKS AND GOVERNMENT SERVICES CANADA, MHR PASSAGE R, FIRST FLOOR
1. PUBLIC PLAN, JUNE 14, 2001



Client/Location:		Title:	
MILWAUEN INSTITUTION BATH, ONTARIO		SAMPLING LOCATIONS - MHR PASSAGE R (FIRST FLOOR)	
Project No:	06811	Date:	14-JUL-2006
Drawn:	EM	Verified:	KE
Project Manager:		MHR	

LEGEND

FLOOR TILE SAMPLE LOCATION

CEILING TILE SAMPLE LOCATION

PAINT SAMPLE LOCATION

WALL OR CEILING SURFACING MATERIAL SAMPLE

ASBESTOS CONTAINING MATERIAL AS OBSERVED BY AQUA TERE (2006)

PIPE INSULATION SAMPLE LOCATION

LIGHT WITH ASBESTOS CONTAINING MATERIAL HEAT SHIELD

LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)

LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)

LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)

ASBESTOS CONTAINING FLOOR TILES

ASBESTOS CONTAINING CEILING TILES OR SURFACE EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921 ppm)

SCALE 1:200

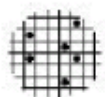
0 4 8m



Page 1 of 1

Jason Cooper, B.Sc.
Analyst

		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: MHR-AS-1	Asbestos Detected?	Yes	
LEX Sample: 01	Chrysotile:	20	Cellulose: None Detected
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: None Detected
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Parging / Insulation	Other Amphiboles:	None Detected	Non Fibers: 80
	Comments:		

**ACCUTEST LABORATORIES LTD.****Report of Analysis****Client:** Aqua Terre Solutions Inc.

2 Gurdwara Rd., Suite 200

Nepean, ON

K2E 1A2

Report Number: 2613835**Date Reported:** 2006-07-06**Date Submitted:** 2006-06-30**Project:** 06-811**Attention:** Mr. Mark Foerster**P.O. Number:** 260233**Matrix** Paint Chips**METHOD:** Analysis was performed on an Aqua-Regia digest of the sample material.**RESULTS:**

<u>LAB ID</u>	<u>Sample ID</u>	<u>Description</u>	<u>MDL</u>	Lead (Pb) <u>ug/g</u>
474248	MHR-Pb-1		3	3430

COMMENT:

28. MHT - ADMINISTRATION UNIT

28.1 Building Description

The MHT building was constructed in 1969 and contains one main floor and a basement. Floor plans MHT-1 (basement) and MHT-2 (first floor) showing the approximate building layout, dimensions, sampling locations and locations and/or areas with ACMs or lead are provided in Appendix 28. As noted in the floor plans, the majority of the basement is classified as a Confined Space. The location of this building is shown on site plan Figure 1-2 in Section 1 of this report.

28.2 Survey Findings

The DSHMS in MHT was conducted by Aqua Terre personnel on May 29-31, 2006. The results of the DSHMS are presented in the subsections of Section 28.2. Recommendations for mitigative measures and construction and removal procedures for the identified designated substances and hazardous materials in this building, and the facility as a whole are provided in Section 40. Laboratory certificates of analysis for asbestos and lead samples are provided in Appendix 28. Selected photographs showing areas of concern are also provided in Appendix 28.

28.2.1 Asbestos-Containing Materials (ACMs)

A total of sixteen (16) samples were collected from MHT for bulk asbestos analysis using the PLM and/or the TEM (Chatfield) method. Two of the collected samples were not submitted for analysis as one was identical to a previously sampled ceiling tile (THEM, 1997) and one was observed to be composed of fiberglass upon further inspection. Floor tile samples and the matrix of vinyl sheet flooring or linoleum flooring samples were submitted for bulk asbestos analysis using the TEM (Chatfield) method. All other samples (ceiling tiles, drywall, joint compound and the membrane portion of vinyl or linoleum sheet flooring) were submitted for bulk asbestos analysis using the PLM method. Results are presented in Table 28.1. The sample identification numbers, room number (where sampled and/or observed), description of material, friability, condition, accessibility, recommended action, asbestos content and estimated quantity (only for ACMs) are also included in Table 28.1. Information for ACMs observed and previously sampled (THEM, 1997) is also included in Table 28.1. Approximate sampling locations and areal or lateral extent of ACMs (if present) are shown on the floor plans in Appendix 28.

The following ACMs were identified:

- The vinyl floor tile in room 133 (described as beige with long stripes) contained between 2.5 and 5% chrysotile asbestos. These floor tiles were also identified in rooms 105, 129, 126, 127, 128 and 167 and were all in good condition.
- The fissured ceiling tiles (1 foot by 1 foot) previously sampled by THEM (1997) and found to contain 2% amosite asbestos were observed in rooms 125 (sample collected but not analysed), 106, 124, 133, 146, 150 and 159. The ceiling tiles were generally in good condition.
- Insulated pipe elbows were observed in the washroom of T-control (room 105/ST01), room 153, 138, Shaft 2, in B01 (basement) and in two of the crawl spaces (confined space #16 and #8). The insulation around these elbows was previously sampled by THEM and found to contain up to 60% chrysotile asbestos. A total of 105 elbows were observed.
- Insulated pipe lengths containing asbestos were observed in confined space #7 and #8. This insulation was previously sampled by THEM and found to contain 10% chrysotile asbestos and 15% amosite asbestos. A length of 8 m was observed in confined space #7 and a length of 4 m was observed in confined space #8.
- Light heat shields were observed in room 108 and the bathroom in T-control (105) and are presumed to be the same as previously sampled by THEM. The light heat shield previously sampled contained 60% chrysotile asbestos (THEM, 1997). Aqua Terre observed only two of these light heat shields in MHT.
- Parging material used on concrete equipment bases was previously sampled by THEM and found to contain between 20 and 30% chrysotile asbestos. This parging material was observed by Aqua Terre on equipment bases in rooms 153 and B01. The parging material is approximately 5 cm wide around the edge of the concrete equipment bases.

Table 28.1 Summary of Asbestos Survey, Building MHT

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
MHT-AS-1	139	Vinyl coated ceiling tile, white, 2'x4'	Friable	Good	C(exposed)	none	ND	-
MHT-AS-2	140	Vinyl sheet flooring, blue	Non-friable	Good	A	none	ND	-
MHT-AS-3	134	Drywall joint compound	Friable	Good	A	none	ND	-
MHT-AS-4	133 Also in 105 129 126 127 128 167	Vinyl floor tile, beige with long stripes, 1'x1'	Non-friable	Good	A	7	(C) 2.5-5%	90 m ²
MHT-AS-5	138	Ceiling tile, white flecked, 2'x4'	Friable	Good	C(exposed)	none	ND	-
MHT-AS-6	125 Also in 106 124 133 146 150 159	Ceiling tile, white fissured, 1'x1' as sampled by THEM	Friable	Good (generally)	C(exposed)	7	(A) 2% (THEM, 1997)	94 m ²
MHT-AS-7	125	Fire rated gypsum board	Friable	Good	A	none	ND	-
MHT-AS-8	124	Vinyl floor tile, off white flecked, 1'x1'	Non-friable	Good	A	none	ND	-
MHT-AS-9	123	Acoustic matting - further inspection suggested fibreglass composition	-	-	-	-	Not Submitted	-
MHT-AS-10	120	Vinyl coated drywall	Friable	Good	A	none	ND	-

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
MHT-AS-11	113	Pink vinyl sheet flooring	Non-friable	Good	A	none	ND	-
MHT-AS-12	113	Ceiling tiles, white flecked, 2'x2'	Friable	Good	C(exposed)	none	ND	-
MHT-AS-13	171	Linoleum flooring, beige (tile pattern)	Non-friable	Good	A	none	ND	-
MHT-AS-14	143	Vinyl floor tile, blue, 1'x1'	Non-friable	Good	A	none	ND	-
MHT-AS-15	161	Vinyl floor tile, white and grey flecked, 1'x1'	Non-friable	Good	A	none	ND	-
MHT-AS-16	107	Vinyl floor tile, grey speckled, 2'x2'	Non-friable	Good	A	none	ND	-
Not Sampled	105 (ST01)	Insulation around pipe elbows, as sampled by THEM	Friable	Fair (7) Poor (1)	A	5/6 3	(C) 30-40% (THEM, 1997)	8 (2.5-inch diameter)
Not Sampled	153	Insulation around pipe elbows, as sampled by THEM	Friable	Good	C(exposed)	7	(C) 30-40% (THEM, 1997)	8 (3.5-inch diameter)
Not Sampled	138 & Shaft 2	Insulation around pipe elbows, as sampled by THEM	Friable	Good	C(exposed)	7	(C) 30-40% (THEM, 1997)	2 (2.5-inch diameter)
Not Sampled	B01	Insulation around pipe elbows, as sampled by THEM	Friable	Good	C(exposed)	7	(C) 30-60% (THEM, 1997)	20 (2.5-3.5-inch diameter) 28 (4-6.5-inch diameter)

Sample ID	Room Number	Materials	Friable ¹	Condition ²	Accessibility ³	Action ⁴	Asbestos Content ⁵	Estimated Quantity
Not Sampled	Confined Space #16	Insulation around pipe elbows, as sampled by THEM	Friable	Good	C(concealed)	7	(C) 30-60% (THEM, 1997)	35 (2-inch diameter), 1 (4-inch diameter)
Not Sampled	Confined Space #8	Insulation around pipe elbows, as sampled by THEM	Friable	Good (2) Poor (1)	C(concealed)	74	(C) 30-60% (THEM, 1997)	3 (2-4-inch diameter)
Not Sampled	Confined Space #7	Insulation around pipe length, as sampled by THEM	Friable	Good	C(concealed)	7	(C) 10% (A) 15% (THEM, 1997)	8 m (8-inch diameter)
Not Sampled	Confined Space #8	Insulation around pipe length, as sampled by THEM	Friable	Good	C(concealed)	7	(C) 10% (A) 15% (THEM, 1997)	4 m (8-inch diameter)
Not Sampled	ST01 & 108	Light heat shield, as sampled by THEM	Friable	Good	C(exposed)	7	(C) 60% (THEM, 1997)	2
Not Sampled	153 & B01	Parging material on concrete equipment base, as sampled by THEM	Friable	Good	A	7	(C) 20-30% (THEM, 1997)	<2 m ² (5 bases)

Notes:

- ¹ Friability is assessed as friable or non-friable
 - ² Condition is rated as good, fair or poor
 - ³ Accessibility is A, B, C(exposed), C(concealed) or D as defined in Section 2.3.1.
 - ⁴ Action is 1, 2, 3, 4, 5, 6 or 7 as defined in Section 2.3.1.
 - ⁵ Asbestos Content is Chrysotile (C), Amosite (A) or Other Fibre (O) expressed as a percentage
- ND None Detected (for PLM <0.1%; TEM <0.1%)

28.2.2 Lead-Containing Materials

Twenty-three samples of paint were collected from the building and submitted for laboratory analysis of lead. A summary of the lead paint survey is provided in Table 28.2. The sample identification numbers, room number (where sampled), description, condition, layers, lead content and approximate area (for paint containing greater than 600 ppm of lead) are also included in Table 28.2. Approximate sample locations and areal extent of paint containing greater than 600 ppm of lead are shown in the floor plans in Appendix 28.

Table 28.2 Summary of Lead Paint Survey, Building MHT

Sample ID	Room Number	Colour, Location and Description	Condition ¹	Layers Noted ²	Lead Content (ppm)	Estimated Quantity (m ²)
MHT-Pb-1	139	Medium teal, paint on concrete walls and trim throughout MHT	Good	yes	184	-
MHT-Pb-2	139 Also in 137, 140	Light yellow, sub layer to MHT-Pb-1	Good	yes	726	169
MHT-Pb-3	140	Dark teal on bulkheads and doors in MHT	Good	yes	25	-
MHT-Pb-4	139	Light teal, on concrete walls throughout MHT	Good	yes	243	-
MHT-Pb-5	137	Powder blue on tool board, also observed in Room 143	Good	no	226	-
MHT-Pb-6	140	Red, on fire cabinet (containing hose), throughout MHT	Good	no	26	-
MHT-Pb-7	140	Dark grey, on door frames	Good	no	15	-
MHT-Pb-8	136	Pale yellow on walls	Fair	yes	16	-
MHT-Pb-9	136 Also in 132A, 135, 138, 153, 163-165	Peach (undercoat to Pb-8) on walls	Fair to Good	yes	932	107
MHT-Pb-10	129	Black paint on concrete walls (bottom runner), also observed on doors and gates	Good	yes	19	-
MHT-Pb-11	B01	Green on pipes and pump	Good	no	553	-
MHT-Pb-12	B01	Yellow on pipes and fan unit	Good	no	156	-

Sample ID	Room Number	Colour, Location and Description	Condition ¹	Layers Noted ²	Lead Content (ppm)	Estimated Quantity (m ²)
MHT-Pb-13	B01	Grey ceiling paint (on concrete)	Fair	no	1320	140
MHT-Pb-14	125	Light pink on metal frame of phone booths and on concrete walls	Good	no	56	-
MHT-Pb-15	125	Black on metal frame of phone booths	Good	no	9	-
MHT-Pb-16	125	Beige paint on concrete walls	Good	no	142	-
MHT-Pb-17	124	Dark brown paint on concrete (3 blocks)	Good	no	22	-
MHT-Pb-18	113	White paint in Rooms 113&115	Good	no	4	-
MHT-Pb-19	175	Rose paint on vinyl clad drywall	Good	no	60	-
MHT-Pb-20	175	Dusty blue on door	Good	no	38	-
MHT-Pb-21	175	Navy blue on door frame	Good	no	95	-
MHT-Pb-22	167	Mint green paint on concrete walls	Good	no	449	-
MHT-Pb-23	105	Magenta paint on doors and gates	Fair	no	921	33.2

Notes:

¹ Condition is rated as good, fair or poor with peeling and/or flaking

² Layers of paint are noted visually and can only be observed if the layers are different colour

bold Exceeds the Surface Coating Materials Regulations limit of 0.06 % by weight (mg/g), or 600 ppm

Analytical results indicated that four of the paint samples contained concentrations of lead above 600 ppm. The yellow sub-layer sampled in room 139 contains 726 ppm of lead and was observed in good condition. This yellow sub layer is presumed to be contained in Rooms 140 and 137 however it may also be present in other areas of MHT (although not observed by Aqua Terre). Should this yellow sub-layer be observed in other areas of MHT, it should be assumed to contain lead in concentrations above 600 ppm.

The peach undercoat sampled in room 136 was found to contain 932 ppm of lead and was also observed in rooms 153 (as a top coat), 164, 165 and 166. The peach paint was in good condition except in room 136 where water damage was causing the paint to peel. The peach paint was observed in an area approximately 107 m². The grey ceiling paint sampled in the basement (B01) was found to contain 1320 ppm of lead. The magenta paint sampled from the doors and gates in room 105 (T-control) was found to contain 921 ppm of lead. The magenta paint was in fair condition as some was peeling off the gates. The area covered by the gates and doors is estimated to be 33 m².

Cast iron pipe flanges likely containing leaded packing material (as sampled in building MHH and found to contain 91.3% lead) were observed in the basement (B01) and in confined space #8. A total of 79 pipe flanges were observed ranging in diameter from 3 to 8 inches.

One lead-sealed battery was observed in room 126. This battery was mounted on the wall as a power supply for an emergency light.

No other sources of lead such as lead pipe or lead wiring were identified in accessible areas during the survey by Aqua Terre. Lead-containing solder may be present in water lines throughout the building.

28.2.3 Mercury

Two mercury-containing thermostats were observed in room 188. Each mercury thermostat likely contains 3 g of mercury.

Although several fixtures still exist, no high intensity discharge mercury vapour lamps were found in use in this building.

Fluorescent light bulbs contain between 0.01 to 0.04 g of mercury vapour depending on manufacturer and age (Environment Canada, 2002). The number of fluorescent light fixtures observed by Aqua Terre in MHT was approximately 300. Assuming two bulbs per fixture, an estimated 600 fluorescent light bulbs are contained in MHT, indicating that the total amount of mercury in the bulbs at MHS could range from an estimated 3 g to 12 g.

28.2.4 Silica

Silica is contained in the concrete and concrete blocks observed throughout the interior and exterior of MHT.

28.2.5 Other Designated Substances

During this survey, none of the following designated substances were observed in MHT: acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates or vinyl chloride.

28.2.6 Polychlorinated Biphenyls (PCBs)

During the environmental audit conducted in 2006 (Aqua Terre 2006) CSC staff informed Aqua Terre that, although a number of the PCB-containing fluorescent light ballasts had been removed from the facility, an estimated 800-1000 light fixtures that are likely PCB-containing still remain throughout the facility. There are an estimated 300 fluorescent light fixtures in MHT. Aqua Terre inspected 17 ballasts as summarized in Table 28.3.

Table 28.3 Summary of Inspected Fluorescent Light Ballasts, Building MHT

Room Number	Manufacturer	Condition	PCB containing
103	Ideal	good	No
111	Advance Electronics	good	No
113	Advance Electronics	good	No
120	Westinghouse Coolescent	good	Likely (could not identify date stamp)
124	Westinghouse Coolescent	good	Yes (date stamp August 1969)
B01	EBT	good	No
134	EBT	good	No
137	Ultramizer	good	No
105	Philips	good	No
162	CGE Gold Label (model 17A 240TW)	poor (leaking)	Likely (could not identify date stamp)
162	CGE Gold Label (model 17A 240TW)	good	Likely (date stamp "9701" indicates 1979)
148	Universal (catalogue #446-LR-TCP)	good	Yes (date stamped "1 75")
150	Westinghouse Coolescent	good	No
169	Philips	good	No
154	Philips	good	No
164	Philips	good	No
172	EBT	good	No

No other sources of PCBs were observed in this building during this survey. During the previous environmental audit (Aqua Terre, 2006), CSC staff informed Aqua Terre that all PCB-containing “wet” transformers had been replaced with non-PCB-containing “dry” transformers.

28.2.7 Ozone Depleting Substances (ODSs)

An updated Halocarbon Inventory for the entire institution is provided in Appendix 40. A summary of the ODS containing equipment observed in MHT is provided in Table 28.4.

Table 28.4 Halocarbon Inventory, Building MHT

Room Number	Equipment Type	Manufacturer	Model #	Serial #	Refrigerant	Amount ¹ (kg)
B01	Air Drier	Johnson Controls	a-4210-3	na	R12	13 oz
132	AC	Daisy	SAC5250	203060900335	R22	0.34
140	Water Cooler	Tem SRITE	WR-10	FB32122	illegible	illegible
137	Refrigerator	Coldmatic	RSL40GC	955561261	R22	12oz
B01	Chiller	Trane	CCUAO 252MB51CF5C4B321 CE	L81H27676	R22	see outside unit
113	Refrigerator	Kenmore	55132-3Q	695273	R12	0.135
120	Refrigerator	Kenmore	illegible	illegible	R12	7oz
102	Water Fountain	Aquarius	DP134a-1	illegible	R12	5.8oz
103	Bar Fridge	Danby	d55	80200259	R12	1.9oz
175	Bar Fridge	Danby	dcr050wey-7	1198090021001660	R134a	2.1oz
121	Water Cooler	Super	ylr1-5-d26 wcd1000	200124657		
174	Bar Fridge	Danby	dcr-382wy	ga082266	R134a	2oz
143	Bar Fridge	Canadian Tire	bc-110	96200775	R12	2.1oz
144	Bar Fridge	Sanyo	sr-172w	990205981	R134a	2.3oz
167	Bar Fridge	Diplomat	do97-8	c0705282	R12	0.1
147	Bar Fridge	Danby	dcr29we	k9307164	R12	2.65oz
162	Water Cooler	Temprite	VTA12	740358865	R12	8.5 oz
196	Bar Fridge	Dat Corp	datsr16w	illegible	R12	1.94oz
151	Bar Fridge	Danby	dcr054w	1101050021001140	R134a	1.34oz
168	Bar Fridge	Danby	dcr79we4b	4039272	R12	2.11
179	Bar Fridge	Danby	dcr050wey-7	1197100021000240	R134a	2.12 oz
181	Bar Fridge	Danby	dcr66	10400060	R12	0.055
200	Bar Fridge	Danby	dcr050wey-7	1198080021000980	R134a	2.12 oz
194	Bar Fridge	Danby	dcr050wey-7	1197060021001340	R134a	2.12 oz
188	Refrigerator	Danby	d730	26031	R12	6.4 oz
105	Bar Fridge	Danby	dcr66	illegible	R12	0.055
157	Bar Fridge	Danby	dcr79we4b	j4039396	R12	2.11
roof top	AC	Carrier	50TJ-005-101Qe	2597G21650	R22	2.1
roof top	AC	Liebert Corps	D015-0010	B45167A9	illegible	illegible
roof top	AC	Liebert Corps	CSL-065Y	3070135	illegible	illegible
yard (for basement chiller)	AC	Trane	CAUBC2551A12	1381J03811	R22	12.7

Room Number	Equipment Type	Manufacturer	Model #	Serial #	Refrigerant	Amount ¹ (kg)
officers (roof top)	AC	Carrier	50TJ-005-101Qe	1596G30367	R22	4.4
roof top	AC	York	D2CE060A58C	NEXM124025	R22	4.03
roof top	AC	Lennox	CHA16-060-1Y	5603L 01880	R22	3.37

Notes:

¹ Amount of refrigerant recorded in kg unless specified otherwise

28.2.8 Urea Formaldehyde Foam Insulation (UFFI)

No UFFI was identified in MHT.

28.2.9 Fuel, Oil and/or Waste Oil Storage

No fuel, oil and/or waste oil storage were identified in MHT.

28.2.10 Chemical Storage

A variety of chemicals in the form of cleaning compounds were observed in the janitor's closets (Rooms 134 and 152). These cleaners included glass cleaners, floor sealers, strippers, finishers, pine cleaner, disinfectant, spill absorbent and insecticide. In room 134, *Comet* cleaner was stored beside a rust remover with which it is incompatible. There were also relatively small amounts of flammable materials in both janitor's closets. An uncapped pail (20 L) of *Swish PM23* ultra alkaline cleaner concentrate as well as a 4 L container of C3 refrigeration oil was observed in the basement (B01).

There was an incomplete MSDS binder in the hallway outside of Room 152 that contained many out-of-date MSDSs. No inventory of chemical compounds was observed in either area. The rooms also contained several unlabelled containers.

28.2.11 Radioactive Materials

No radioactive materials were observed in MHT.

28.2.12 Mould

Water damage, musty odours and/or mould growth were observed/detected in rooms 105, 112, 113, 120, 124, 129, 131, 132, 136, 153, 164, 172, 174, 175, 188, 194 and in the basement crawl spaces (confined spaces #7 and #16). Many of these observations were the result of condensation arising from an inadequate amount of insulation between pipes and ceiling tiles.

Dead birds were observed in confined spaces #8 and #16.



Solutions for a Working World

Company:	Aqua Terre Solutions Inc.	Report Date:	08-Jun-06
Contact:	Mr. Mark Foerster	Analysis Date:	05-Jun-06
Client Address:	2 Gurdwara Road, Suite 200, Ottawa, ON	Received Date:	31-May-06
Client Reference:	06-811	LEX Project Number:	08060971
Sampling Date:		Number of Analyses:	30

Analysis Requested Bulk Asbestos by PLM

Page 1 of 7

Analysis was performed in accordance with the method EPA/600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials adopted in Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act Ontario Regulation 278/05. LEX Scientific Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP 101949) by the National Institute of Standards and Technology for analysis of bulk materials for asbestos.

German Leal, B.Sc.
Laboratory Manager

Jason Cooper, B.Sc.
Analyst

Fibrous Asbestos Content %		Other Materials Content %
Client Sample: <u>MHT-AS-1</u>	Asbestos Detected? No	
LEX Sample: 01	Chrysotile: None Detected	Cellulose: 50
Layers Analyzed: Ceiling tile	Amosite: None Detected	MMVF: 30
Colour: Grey	Crocidolite: None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles: None Detected	Non Fibers: 20
Comments:		

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst _____

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		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: <u>MHT-AS-2</u>	Asbestos Detected?	No	
LEX Sample: 02	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: 90
Description: Jute Membrane (Floor sheet backing)	Other Amphiboles:	None Detected	Non Fibers: 10
	Comments:		
Client Sample: <u>MHT-AS-3</u>	Asbestos Detected?	No	
LEX Sample: 03	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Joint compound	Other Amphiboles:	None Detected	Non Fibers: 100
	Comments:		
Client Sample: <u>MHT-AS-1</u>	Asbestos Detected?	No	
LEX Sample: 04	Chrysotile:	None Detected	Cellulose: 50
Layers Analyzed: Ceiling tile	Amosite:	None Detected	MMVF: 40
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles:	None Detected	Non Fibers: 10
	Comments:		
Client Sample: <u>MHT-AS-1</u>	Asbestos Detected?	No	
LEX Sample: 05	Chrysotile:	None Detected	Cellulose: 40
Layers Analyzed: Ceiling tile	Amosite:	None Detected	MMVF: 50
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles:	None Detected	Non Fibers: 10
	Comments:		
Client Sample: <u>MHT-AS-2</u>	Asbestos Detected?	No	
LEX Sample: 06	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: 95
Description: Jute Membrane (Floor sheet backing)	Other Amphiboles:	None Detected	Non Fibers: 5
	Comments:		

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst _____

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		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: <u>MHT-AS-2</u>	Asbestos Detected?	No	
LEX Sample: 07	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: 100
Description: Jute Membrane (Floor sheet backing)	Other Amphiboles:	None Detected	Non Fibers: None Detected
		Comments:	
Client Sample: <u>MHT-AS-3</u>	Asbestos Detected?	No	
LEX Sample: 08	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Joint compound	Other Amphiboles:	None Detected	Non Fibers: 100
		Comments:	
Client Sample: <u>MHT-AS-3</u>	Asbestos Detected?	No	
LEX Sample: 09	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Joint compound	Other Amphiboles:	None Detected	Non Fibers: 100
		Comments:	
Client Sample: <u>MHT-AS-5</u>	Asbestos Detected?	No	
LEX Sample: 10	Chrysotile:	None Detected	Cellulose: 60
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 30
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles:	None Detected	Non Fibers: 10
		Comments:	
Client Sample: <u>MHT-AS-5</u>	Asbestos Detected?	No	
LEX Sample: 11	Chrysotile:	None Detected	Cellulose: 60
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 30
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles:	None Detected	Non Fibers: 10
		Comments:	

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
 MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
 PLM - method detection limit is 0.1%

Analyst _____

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		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: <u>MHT-AS-5</u>	Asbestos Detected?	No	
LEX Sample: 12	Chrysotile:	None Detected	Cellulose: 60
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 20
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Fibreboard ceiling tile	Other Amphiboles:	None Detected	Non Fibers: 20
	Comments:		
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 13.1	Chrysotile:	None Detected	Cellulose: 10
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: 90
	Comments:		
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 13.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: None Detected
	Comments:		
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 14.1	Chrysotile:	None Detected	Cellulose: 10
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: 90
	Comments:		
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 14.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: None Detected
	Comments:		

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst _____

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		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 15.1	Chrysotile:	None Detected	Cellulose: 10
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: Grey	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: 90
Comments:			
Client Sample: <u>MHT-AS-7</u>	Asbestos Detected?	No	
LEX Sample: 15.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Gypsum Board	Other Amphiboles:	None Detected	Non Fibers: None Detected
Comments:			
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 16.1	Chrysotile:	None Detected	Cellulose: 10
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: 90
Comments:			
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 16.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: None Detected
Comments:			
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 17.1	Chrysotile:	None Detected	Cellulose: 5
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: 95
Comments:			

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst _____

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		Fibrous Asbestos Content %	Other Materials Content %
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 17.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: None Detected
	Comments:		
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 18.1	Chrysotile:	None Detected	Cellulose: 5
Layers Analyzed: Gypsum	Amosite:	None Detected	MMVF: None Detected
Colour: White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: 95
	Comments:		
Client Sample: <u>MHT-AS-10</u>	Asbestos Detected?	No	
LEX Sample: 18.2	Chrysotile:	None Detected	Cellulose: 100
Layers Analyzed: Paper	Amosite:	None Detected	MMVF: None Detected
Colour: Brown	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Drywall	Other Amphiboles:	None Detected	Non Fibers: None Detected
	Comments:		
Client Sample: <u>MHT-AS-11</u>	Asbestos Detected?	No	
LEX Sample: 19	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow	Crocidolite:	None Detected	OtherFibers: 90
Description: Floor Tile Backing	Other Amphiboles:	None Detected	Non Fibers: 10
	Comments:		
Client Sample: <u>MHT-AS-11</u>	Asbestos Detected?	No	
LEX Sample: 20	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow	Crocidolite:	None Detected	OtherFibers: 80
Description: Floor Tile Backing	Other Amphiboles:	None Detected	Non Fibers: 20
	Comments:		

Other Amphiboles: ac=actinolite, a=anthophyllite, t=tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool,
Glasswool
PLM - method detection limit is 0.1%

Analyst _____

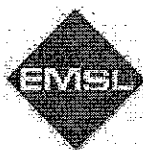
This test report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the United States government. This test report must not be reproduced except in full without the written consent of the laboratory.

Fibrous Asbestos Content %		Other Materials Content %	
Client Sample: <u>MHT-AS-11</u>	Asbestos Detected?	No	
LEX Sample: 21	Chrysotile:	None Detected	Cellulose: None Detected
Layers Analyzed: Membrane	Amosite:	None Detected	MMVF: None Detected
Colour: Yellow	Crocidolite:	None Detected	OtherFibers: 90
Description: Floor Tile Backing	Other Amphiboles:	None Detected	Non Fibers: 10
	Comments:		
Client Sample: <u>MHT-AS-12</u>	Asbestos Detected?	No	
LEX Sample: 22	Chrysotile:	None Detected	Cellulose: 60
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 10
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Flecked Fibreboard Ceiling Tile	Other Amphiboles:	None Detected	Non Fibers: 30
	Comments:		
Client Sample: <u>MHT-AS-12</u>	Asbestos Detected?	No	
LEX Sample: 23	Chrysotile:	None Detected	Cellulose: 60
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 10
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Flecked Fibreboard Ceiling Tile	Other Amphiboles:	None Detected	Non Fibers: 30
	Comments:		
Client Sample: <u>MHT-AS-12</u>	Asbestos Detected?	No	
LEX Sample: 24	Chrysotile:	None Detected	Cellulose: 70
Layers Analyzed: Sample homogenized	Amosite:	None Detected	MMVF: 10
Colour: Grey/White	Crocidolite:	None Detected	OtherFibers: None Detected
Description: Flecked Fibreboard Ceiling Tile	Other Amphiboles:	None Detected	Non Fibers: 20
	Comments:		

Other Amphiboles: ac=actinolite, a=anthophyllite, t-tremolite, u=unidentified
MMVF: Man Made Vitreous Fibers: Fiberglass, Min. Wool, Rockwool, Glasswool
PLM - method detection limit is 0.1%

Analyst _____

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**EMSL Analytical, Inc.**

107 Haddon Ave., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4960 Email: westmontaslab@EMSL.com

Attn: **Natalija Njegus**
Lex Scientific
2 Quebec Street
Suite 204
Guelph, Ontario, Canada N1H-2T3

Customer ID: LEXS50
Customer PO: G0690
Received: 06/01/06 9:50 AM
EMSL Order: 040610832

Fax: Project: 11060972/06-811
Phone: (519) 824-7082

EMSL Proj:
Analysis Date: 6/6/2006
Report Date: 6/6/2006

**Asbestos Analysis of Bulk Materials via Transmission Electron Microscopy. Chatfield
Method (rev 2)**

SAMPLE ID	COLOR	MATRIX MATERIAL	NON-ASBESTOS FIBERS	RANGE	ASBESTOS TYPE	AVG
MHT-AS-2A 040610832-0001	Blue	100.0%	ND		ND	
MHT-AS-2B 040610832-0002	Blue	100.0%	ND		ND	
MHT-AS-2C 040610832-0003	Blue	100.0%	ND		ND	
MHT-AS-4A 040610832-0004	Beige	96.2%		2.5-5.0%	Chrysotile	3.8%
MHT-AS-4B 040610832-0005	Blue	%				Not Analyzed
MHT-AS-4C 040610832-0006	Blue	%				Not Analyzed
MHT-AS-8A 040610832-0007	Beige	100.0%	ND		ND	
MHT-AS-8B 040610832-0008	Beige	100.0%	ND		ND	
MHT-AS-8C 040610832-0009	Beige	100.0%	ND		ND	
MHT-AS-11A 040610832-0010	Beige	100.0%	ND		ND	
MHT-AS-11B 040610832-0011	Beige	100.0%	ND		ND	

Analyst(s)

Steve Siegel (30)

Stephen Siegel, CIH
or other approved signatory

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ACCREDITATIONS: AIHA #100194, NVLAP #101048-0 and NY STATE ELAP #10872

**EMSL Analytical, Inc.**

107 Haddon Ave., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4960 Email: westmontaslab@EMSL.com

Attn: **Natalija Njegus**
Lex Scientific
2 Quebec Street
Suite 204
Guelph, Ontario, Canada N1H-2T3

Customer ID: LEXS50
Customer PO: G0690
Received: 06/01/06 9:50 AM
EMSL Order: 040610832

Fax: Phone: (519) 824-7082
Project: 11060972/06-811

EMSL Proj:
Analysis Date: 6/6/2006
Report Date: 6/6/2006

**Asbestos Analysis of Bulk Materials via Transmission Electron Microscopy. Chatfield
Method (rev 2)**

SAMPLE ID	COLOR	MATRIX MATERIAL	NON-ASBESTOS FIBERS	RANGE	ASBESTOS TYPE	AVG
MHT-AS-11C 040610832-0012	Beige	100.0%	ND		ND	
MHT-AS-13A 040610832-0013	Beige	100.0%	ND		ND	
MHT-AS-13B 040610832-0014	Beige	100.0%	ND		ND	
MHT-AS-13C 040610832-0015	Beige	100.0%	ND		ND	
MHT-AS-14A 040610832-0016	Blue	100.0%	ND		ND	
MHT-AS-14B 040610832-0017	Blue	100.0%	ND		ND	
MHT-AS-14C 040610832-0018	Blue	100.0%	ND		ND	
MHT-AS-15A 040610832-0019	White	100.0%	ND		ND	
MHT-AS-15B 040610832-0020	White	100.0%	ND		ND	
MHT-AS-15C 040610832-0021	White	100.0%	ND		ND	
MHT-AS-18A 040610832-0022	Gray	100.0%	ND		ND	

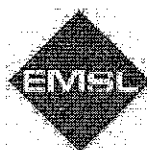
Analyst(s)

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Project: 11060972/06-811

EMSL Proj:
Analysis Date: 6/6/2006
Report Date: 6/6/2006

**Asbestos Analysis of Bulk Materials via Transmission Electron Microscopy. Chatfield
Method (rev 2)**

SAMPLE ID	COLOR	MATRIX MATERIAL	NON-ASBESTOS FIBERS	RANGE	ASBESTOS TYPE	AVG
MHT-AS-16B 040610832-0023	Gray	100.0%	ND		ND	
MHT-AS-16C 040610832-0024	Gray	100.0%	ND		ND	
MHR3-AS-1A 040610832-0025	White	100.0%	ND		ND	
MHR3-AS-1B 040610832-0026	White	100.0%	ND		ND	
MHR3-AS-1C 040610832-0027	White	100.0%	ND		ND	
MHFVU-AS-1A 040610832-0028	Beige	100.0%	ND		ND	
MHFVU-AS-1B 040610832-0029	Beige	100.0%	ND		ND	
MHFVU-AS-1C 040610832-0030	Beige	100.0%	ND		ND	

Analyst(s)

Steve Siegel (30)

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or other approved signatory

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ACCREDITATIONS: AIHA #100194, NVLAP #101048-0 and NY STATE ELAP #10872



ACCUTEST LABORATORIES LTD.

Report of Analysis

Client: Aqua Terre Solutions Inc.

2 Gurdwara Rd., Suite 200

Nepean, ON

K2E 1A2

Report Number: 2611506

Date Reported: 2006-06-09

Date Submitted: 2006-06-05

Project: 06-811

Attention: Mr. Mark Foerster

P.O. Number: 260233

Matrix: Paint Chlps

METHOD: Analysis was performed on an Aqua-Regia digest of the sample material.

RESULTS:

<u>LAB ID</u>	<u>Sample ID</u>	<u>Description</u>	Lead (Pb)	
			<u>MDL</u>	<u>ug/g</u>
467551	MHT-PB-1		3	184
467552	MHT-PB-2		3	726
467553	MHT-PB-3		3	25
467554	MHT-PB-4		3	243
467555	MHT-PB-5		3	226
467556	MHT-PB-6		3	26
467557	MHT-PB-7		3	15
467558	MHT-PB-8		3	16
467559	MHT-PB-9		3	932
467560	MHT-PB-10		3	19
467561	MHT-PB-11		3	553
467562	MHT-PB-12		3	156
467563	MHT-PB-13		3	1320
467564	MHT-PB-14		3	56
467565	MHT-PB-15		3	9
467566	MHT-PB-16		3	142
467567	MHT-PB-17		3	22
467568	MHT-PB-18		3	4
467569	MHT-PB-19		3	60
467570	MHT-PB-20		3	38

COMMENT:

Approval: _____



ACCUTEST LABORATORIES LTD.

Report of Analysis

Client: Aqua Terre Solutions Inc.
2 Gurdwara Rd., Suite 200
Nepean, ON
K2E 1A2

Report Number: 2611507
Date Reported: 2006-06-09
Date Submitted: 2006-06-05
Project: 06-811

Attention: Mr. Mark Foerster

P.O. Number: 260233
Matrix: Paint Chips

METHOD: Analysis was performed on an Aqua-Regia digest of the sample material.

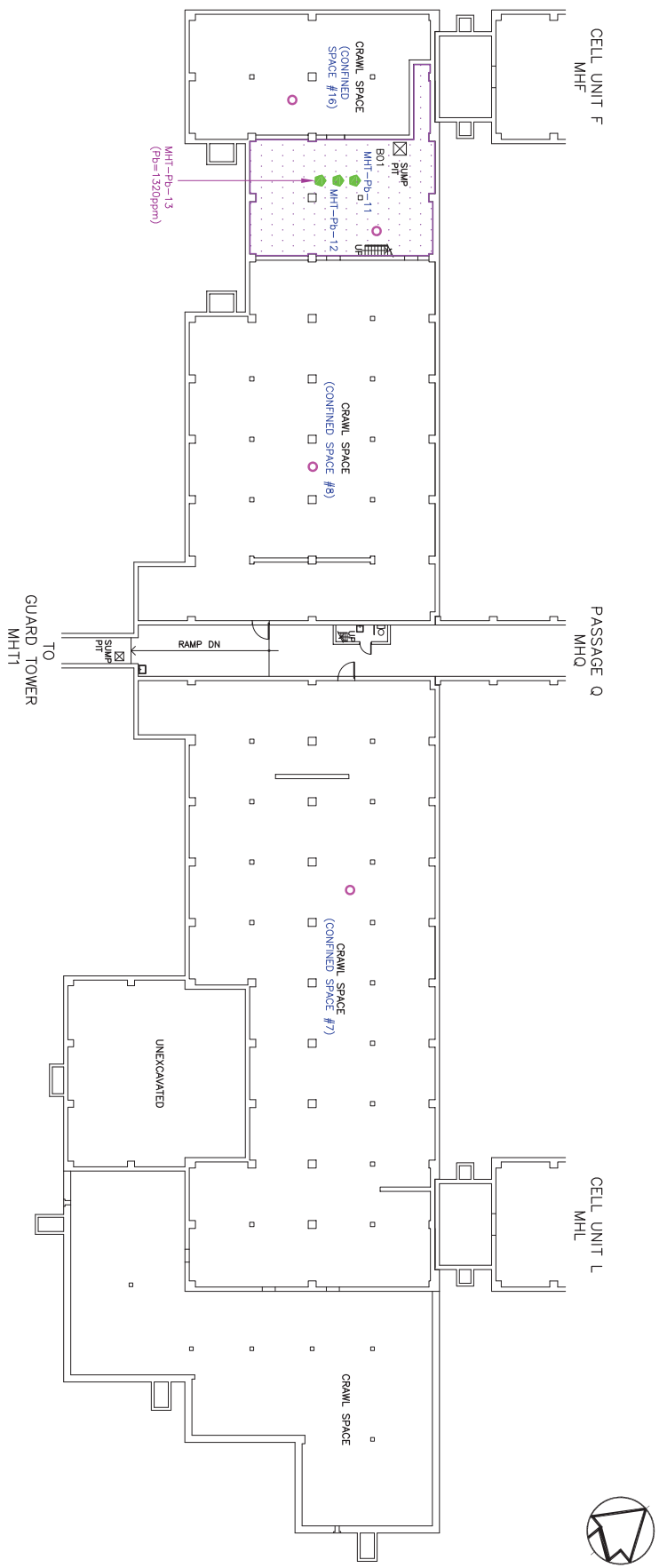
RESULTS:

<u>LAB ID</u>	<u>Sample ID</u>	<u>Description</u>	<u>MDL</u>	Lead (Pb)
				<u>ug/g</u>
467571	MHT-PB-21		3	95
467572	MHT-PB-22		3	449
467573	MHT-PB-23		3	921
467574	MHR3-PB-1		3	93
467575	MHOFT-PB-1		3	49
467576	MHOFT-PB-2		3	31
467577	MHOFT-PB-3		3	62
467578	MHOFT-PB-4		3	38
467579	MHOFT-PB-5		3	95
467580	MHOFT-PB-6		3	130

COMMENT:

Approval: _____

MHT ADMINISTRATIVE UNIT



ROOM INDEX

B01 MECHANICAL ROOM

BASEMENT PLAN

Public Works
Government Services Canada
Architectural and Engineering Services
Ontario Region

Troisx publics
Services gouvernementaux Canada
Services d'architecture et de génie
Région de Toronto

- NOTES:
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
 2. SAMPLE LOCATIONS MAY BE LOST IF IT IS PHOTOCOPIED OR FAXED
 3. "COPY" PARTS PER MILLION
 4. "Pb": LEAD
- SOURCES:
1. BASEMENT FLOOR PLAN, JUNE 14, 2001

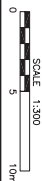


Client/Location:	PMSSC MILLIKEN INSTITUTION BATH, ONTARIO	Title:	SAMPLING LOCATIONS - MHT ADMINISTRATIVE UNIT (BASEMENT)
Project No:	06811	Date:	28-JUL-2006
Drawn:	EM	Verified:	KE
		Project Manager:	MWF
		Fig No:	FIGURE MHT-1

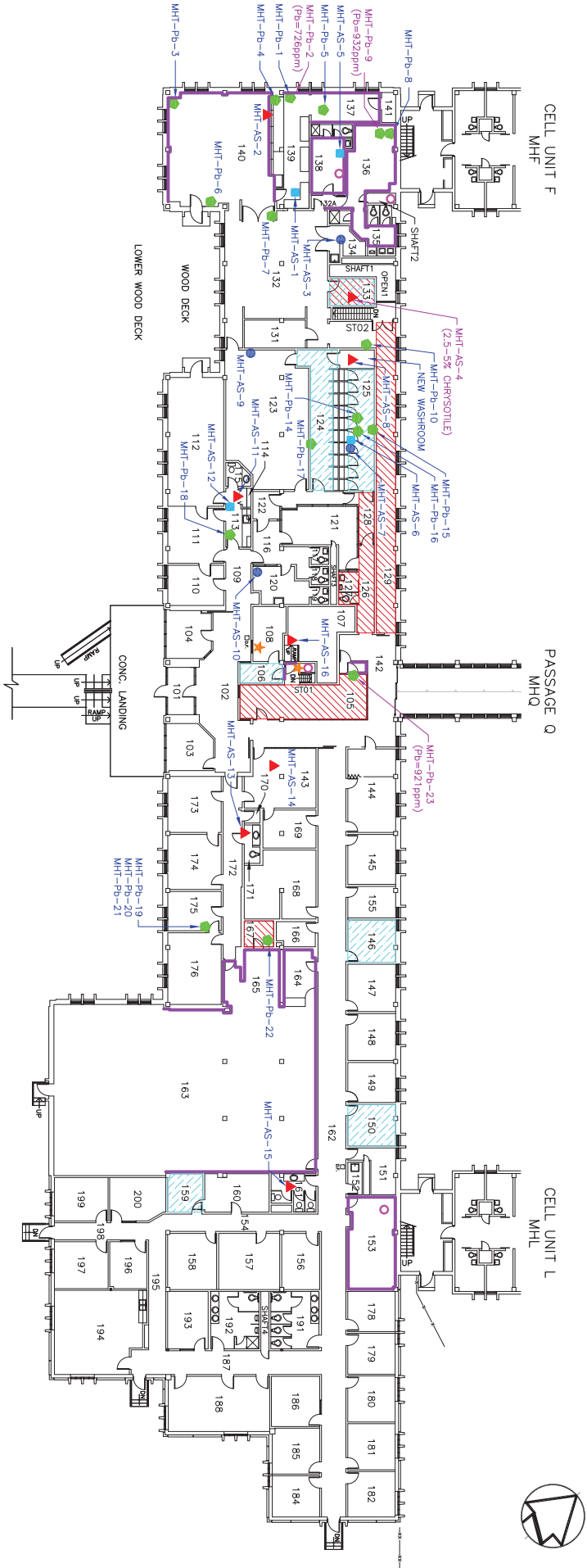
LEGEND

▲	FLOOR TILE SAMPLE LOCATION	—	LEAD CONTAINING PAINT ON WALL (>0.06%/600ppm)
■	CEILING TILE SAMPLE LOCATION	+	LEAD CONTAINING PAINT ON FLOOR (>0.06%/600ppm)
●	WALL OR CEILING SURFACING MATERIAL SAMPLE	+	LEAD CONTAINING PAINT ON CEILING (>0.06%/600ppm)
●	ASBESTOS CONTAINING MATERIAL AS SAMPLED BY THEM (1997) & OBSERVED BY AQA TIER 1 (2006)	—	ASBESTOS CONTAINING FLOOR TILES
●	PIPE INSULATION SAMPLE LOCATION	—	ASBESTOS CONTAINING CEILING TILES OR SURFACE
★	LIGHT WITH ASBESTOS CONTAINING MATERIAL IDENTIFIED	—	EXCEEDANCE IN ANALYSED SAMPLE

(Pb=921ppm)



MHT ADMINISTRATIVE UNIT



FIRST FLOOR PLAN

Public Works
Government Services Canada
Services gouvernementaux Canada
Toujours publics
Services gouvernementaux Canada
Services administratifs et de gestion
Toujours publics
Services gouvernementaux Canada
Services administratifs et de gestion



1. FLOOR FIRE PLAN, JUNE 14, 2007



Client/Location: PWSC MILWAUEN INSTITUTION BATH, ONTARIO
Project No: 06811
Drawn: EM
Title: SAMPLING LOCATIONS - MHT ADMINISTRATIVE UNIT (FIRST FLOOR)
Date: 17-AUG-2006
Project Manager: MFR
Fig No: 17-AUG-2006
FIGURE MHT-2