UNIVERSITY OF MONTANA

Paula Short
Director of Communications
University Hall 109 • Missoula, Montana
t: (406) 243-5806 • e: paula.short@mso.umt.edu

TO: ASUM Child Care Parents
DATE: 1/30/2019
RE: Asbestos Test Data – ASUM Childcare

Attached you will find the complete test results for dust wipe samples and air samples collected from spaces in McGill Hall occupied by ASUM Child Care. They are:

LAB CODE	REPORT DATE	TEST DETAILS	DESCRIPTION
T190212	01/21/2019	TEM Dust Wipes	Taken in Child Care S. Classroom and Mechanical Room
T190213	01/21/2019	TEM Air Samples	Taken in Child Care S. Classroom and Mechanical Room
T190299	01/25/2019	TEM Air Samples	Set in front of (5) air diffusers, within Child Care kitchen, restroom and common area(s)
T190331	01/28/2019	TEM Dust Wipes	(7) samples taken in N. and S. Classrooms in Child Care

Please know that we've invited both environmental contractors (industrial hygienists) to attend the parent meeting Thursday, and we plan to walk through the data tables so that everyone is clear on each column and the numbers they contain.

We have also provided photographs for reference in showing exactly where samples were taken, whether they were air or surface samples, and the test results. Many of you have asked about this level of specificity and wanting to understand exactly where samples were collected.

The industrial hygienists provided some helpful explanations as we reviewed each of the reports. I'm including the key points here for your information, categorized by report.

T190212	01/21/2019	TEM Dust Wipes	Taken in Child Care S. Classroom and Mechanical Room

- The third page of this document (labeled 1 of 2 in the lower right), contains the data table with the sample results.
    - The third column from the right – labeled # of structures – is the actual number of asbestos fibers identified in the sample using an electron microscope.
    - Moving right, the next column is the type of asbestos detected, which is Chrysotile, a material commonly used in buildings constructed at the time McGill Hall was built.
    - The last column on the right is an interpolation of the concentration of asbestos structures per square centimeter based on what was actually identified in the sample.
    - These samples were collected on the surface of the air intake/diffusers. Air quality testing in front of these diffusers did not detect airborne asbestos fibers.

T190213	01/21/2019	TEM Air Samples	Taken in Child Care S. Classroom and Mechanical Room

- The third page of this document (labeled 1 of 2 in the lower right), contains the data table with the sample results.
    - The third column from the right – labeled asbestos fibers – is the actual number of asbestos fibers identified in the air sample using an electron microscope.
    - The last column on the right is an interpolation of the concentration of asbestos fibers per cubic centimeter based on the sample data.

T190299	01/25/2019	TEM Air Samples	Set in front of (5) air diffusers, within Child Care kitchen, restroom and common area(s)

- There are five pages of test results from five separate air quality samples. These samples were taken in front of the air diffusers in the child care (locations on accompanying map). They collection timeframe was over 5 hours, which is longer than standard testing, which is 2 hours.
    - At the parent meeting, the contractor will walk through the table to explain the structure classes and the data within the table.
    - The five samples yielded a total of 2 fibers (both non-asbestos). Both contractors consider these readings to be "clean air."

T190331	01/28/2019	TEM Dust Wipes	(7) samples taken in N. and S. Classrooms in Child Care

These are the surface wipe samples which came back with unacceptable concentrations of asbestos fibers, prompting the decision to move ASUM child care.

- The third column from the right – labeled # of structures – is the actual number of asbestos fibers identified in the sample using an electron microscope.
- Moving right, the next column is the type of asbestos detected, which is Chrysotile, a material commonly used in buildings constructed at the time McGill Hall was built.
- The last column on the right is an interpolation of the concentration of asbestos structures per square centimeter based on what was actually identified in the sample.
- The accompanying map depicts the locations of these seven samples all taken within the child care classrooms, hallway and on the floor.
- The highest concentration estimate was on top of a ceiling light fixture; the lowest estimate was taken on the topside of a desk in the middle hallway.

The last page of each test results packet gives a brief description of the location where the samples were collected. We assembled a photo/map to provide greater detail and reference points so that you can see the samples/results relative to the orientation of the child care facility.

We are awaiting a final set of results from samples taken this week, including some additional points within the child care facility as well as other areas in McGill Hall. These will be shared as soon as they become available.

Thank you for your patience as we've moved as quickly as possible to gather this information. I hope you'll be able to attend the parent meeting tomorrow (Thursday, 1/31) at 5:30 pm in the University Center Theater. Child care will be available in UC 330.

I've included the agenda for the meeting along with these materials.

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January 21, 2019

GEM Environmental
P.O. Box 9053
Missoula, MT 59807

CLIENT PROJECT: U of M - Mcgill Hall Rm 014/001A, 19-024
LAB CODE: T190212

Dear Customer:

Enclosed are asbestos analysis results for TEM dust wipe samples received at our laboratory on January 21, 2019. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per ASTM D6480-05 Method.

Currently, there is no regulatory limit for asbestos in dust. The analytical sensitivity for the ASTM D6480-05 method is 1,000 structures per square centimeter.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

GEM Environmental

CLIENT PROJECT: U of M - Mcgill Hall Rm 014/001A, 19-024

LAB CODE: T190212

TEST METHOD: Dust Wipe
ASTM D6480-05

REPORT DATE: 01/21/19

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ASBESTOS DUST ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: GEM Environmental
P.O. Box 9053
Missoula, MT 59807

Lab Code: T190212
Date Received: 01-21-19
Date Analyzed: 01-21-19
Date Reported: 01-21-19

Project: U of M - Mcgill Hall Rm 014/001A, 19-024

TEM DUST WIPE (ASTM D6480-05)

Client ID Lab ID	Area Sampled (cm^2)	Area Analyzed (mm^2)	Filtration Factor	Analytical Sensitivity (s/cm^2)	# of Structures	Asbestos Type	Concentration (s/cm^2)
AHA-W-014 -01 T91373	930	0.1	200	2,100	23	Chrysotile	47,000
AHA-W-000B -01 T91374	930	0.1	200	2,100	36	Chrysotile	74,000
AHA-W-001A -01 T91375	930	0.1	200	2,100	53	Chrysotile	110,000

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LEGEND: None

METHOD: ASTM D6480-05

ANALYTICAL SENSITIVITY: 1,000 structures/cm^2

REGULATORY LIMIT: None

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Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

ANALYST: Amanda Rucinski

APPROVED BY: Tianbao Bai, Ph.D., CIH
Laboratory Director

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CHAIN OF CUSTODY

LAB USE ONLY:
ECEI Lab Code: T90212
ECEI Lab I.D. Range: T91378-375 (3)

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

COMPANY INFORMATION	PROJECT INFORMATION
ECEI CLIENT #:	Job Contact: Christopher Casas
Company: GEM Environmental, Inc.	Email / Tel: chris.casas@gem-environmental.com
Address: P.O. Box 9053	Project Name: U of M - Mcgill Hall Rm 014/001A
Missoula, MT 59807	Project ID#: 19.024
Email: chris.casas@gem-environmental.com	PO #:
Tel: 406-370-4139 Fax:	STATE SAMPLES COLLECTED IN: MT

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME 4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w/POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☑
PCM AIR*	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☒	☐	☐	☐	☐
TEM AIR (PCME)	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-15	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☐
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☒	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D6755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-16			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
TEM QUALITATIVE	IN-HOUSE METHOD		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

**Blanks should be taken from the same sample lot as field samples.*

REMARKS / SPECIAL INSTRUCTIONS: ~~w/ Positive Stop~~

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	01/19/19	[signature]	1/21 9:00

By submitting samples, you are agreeing to ECEI's Terms and Conditions.
Samples will be disposed of 30 days after analysis

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SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: GEM Environmental, Inc.	Job Contact: Christopher Casas
Project Name:	
Project ID #:	Tel: 406-370-4139

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
AHA-W-014-01	Room 014 ~~001A~~ Air Intake for Phoom ~~Air Supply Diffuser~~	1SF	PLM ☐	TEM ☐
AHA-W-008B-01	Air Supply, Diffuser Room 008B	1SF	PLM ☐	TEM ☐
AHA-W-001A-01	Air Supply, Diffuser Room 001A	1SF	PLM ☐	TEM ☐
			PLM ☐	TEM ☐
PCM-39	Room 014 Below loading	1068	PLM ☐	TEM ☐
PCM-48	Room 001A - Kitchen	1065	PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
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January 21, 2019

GEM Environmental
P.O. Box 9053
Missoula, MT 59807

CLIENT PROJECT: U of M - Mcgill Hall Rm 014/001A, 19-024
LAB CODE: T190213

Dear Customer:

Enclosed are asbestos analysis results for TEM air samples received at our laboratory on January 21, 2019. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per NIOSH 7402 Method.

The current OSHA 8-hour time weighted average permissible exposure limit (PEL) for asbestos is 0.1 f/cc and the 30 minutes excursion limit is 1 f/cc. The detection limit for the NIOSH 7402 method is one confirmed asbestos fiber above 95% expected mean blank value.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

GEM Environmental

CLIENT PROJECT: U of M - Mcgill Hall Rm 014/001A, 19-024

LAB CODE: T190213

TEST METHOD: Air NIOSH 7402

REPORT DATE: 01/21/19

ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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Client: GEM Environmental
P.O. Box 9053
Missoula, MT 59807

Lab Code: T190213
Date Received: 01-21-19
Date Analyzed: 01-21-19
Date Reported: 01-21-19

Project: U of M - Mcgill Hall Rm 014/001A, 19-024

TEM AIR NIOSH 7402

Client ID Lab ID	Volume (Liters)	PCM f/cc	Asbestos Type	Asbestos Fibers	Asbestos %	Asbestos f/cc
PCM-39 T91376	1088	0.0032	None Detected	0	0	<0.0032
PCM-48 T91377	1065	0.0025	Chrysotile	1	100	0.0025

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LEGEND: f/cc = fibers/cubic centimeter

METHOD: NIOSH 7402

Limit of Detection: 1 confirmed asbestos fiber above 95% of expected mean blank value

REGULATORY LIMIT: OSHA Excursion Limit (EL) is 1.0 fibers per cc based on a 30 minute sample; OSHA Permissible Exposure Limit (PEL) is 0.10 fibers per cc based on 8 hour TWA

ANALYTICAL EQUIPMENT: JEOL Electron Microscope (JEM-1200 EXII)
NORAN EDS System 7 (NSS112E)

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Information provided by customer includes customer sample ID, location, volume and area as well as

No Field Blanks were submitted for project T190213.

ANALYST: Kamila Reichert
Kamila Reichert

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director

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CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:
ECEI Lab Code: D910213
ECEI Lab I.D. Range: T41876-877 (2)

COMPANY INFORMATION	PROJECT INFORMATION
ECEI CLIENT #:	Job Contact: Christopher Casas
Company: GEM Environmental, Inc.	Email / Tel: chris.casas@gem-environmental.com
Address: P.O. Box 9053	Project Name: U of M - Mcgill Hall Rm014/001A
Missoula, MT 59807	Project ID#: 19-024
Email: chris.casas@gem-environmental.com	PO #:
Tel: 406-370-4139 Fax:	STATE SAMPLES COLLECTED IN: MT

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME 4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w/POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR*	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☒	☐	☐	☐	☐
TEM AIR (PCME)	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-15	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☐
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☒	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-16			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
TEM QUALITATIVE	IN-HOUSE METHOD		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

*Blanks should be taken from the same sample lot as field samples.

REMARKS / SPECIAL INSTRUCTIONS: ~~w/ Positive Stop~~

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	01/19/19	[signature]	1/21 9:00

By submitting samples, you are agreeing to ECEI's Terms and Conditions.
Samples will be disposed of 30 days after analysis

Page _____ of _____
Version: CCOC.07.18.1/2.LD

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SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: GEM Environmental, Inc.	Job Contact: Christopher Casas
Project Name:	
Project ID #:	Tel: 406-370-4139

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
AHA-W-014-01	Room 014 ~~Air Supply Diffuser~~ Air Intake for Dining Room	15F	PLM ☐	TEM ☐
AHA-W-0008-01	Air Supply, Diffuser Room 0008	15F	PLM ☐	TEM ☐
AHA-W-001A-01	Air Supply, Diffuser Room 001A	15F	PLM ☐	TEM ☐
			PLM ☐	TEM ☐
PCM-39	Room 014 Below Landing	1068	PLM ☐	TEM ☐
PCM-48	Room 001A - Kitchen	1065	PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
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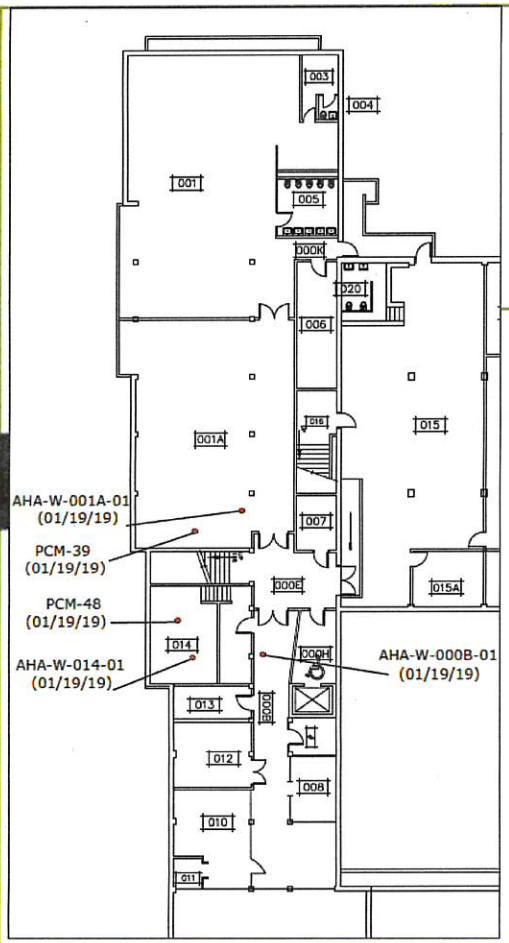
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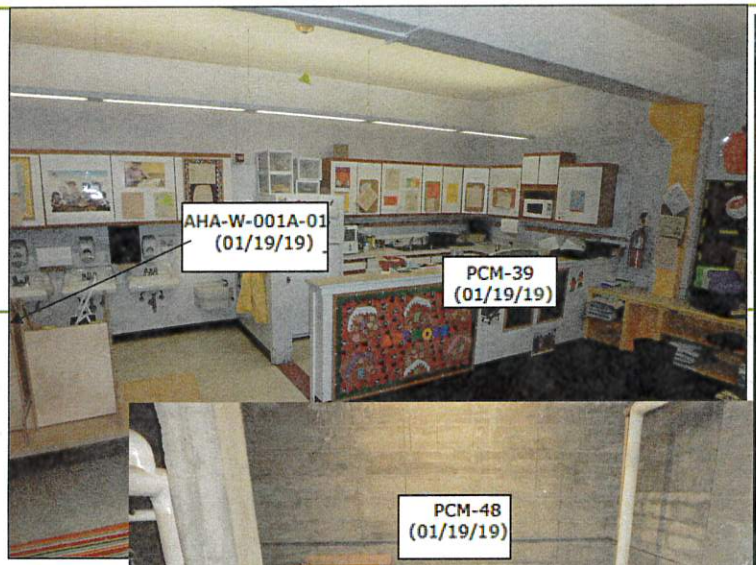
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(01/19/19)
PCM-39
(01/19/19)

PCM-48
(01/19/19)
AHA-W-014-01
(01/19/19)
01/22/2019

AHA-W-000B-01
(01/19/19)
01/30/2019

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ASBESTOS LABORATORY REPORT
by Transmission Electron Microscopy

Prepared For

GEM Environmental

Client Project: U of M - McGill Hall Rm's 001A, 001, 005, 19-024

CEI Lab Code: T190299

Test Method: ISO 10312

Date Reported: 01/25/19

TEL: 919-481-1413
www.EurofinsUS.com/CEI

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January 25, 2019

GEM Environmental
P.O. Box 9053
Missoula, MT 59807

CLIENT PROJECT: T190299

Dear Customer:

Enclosed are asbestos analysis results for TEM air samples received at our laboratory on January 25, 2019. The samples were analyzed for PCM equivalent (PCMe) asbestos structures using transmission electron microscopy (TEM) per ISO 10312 method.

Currently, there is no regulatory standard for the airborne asbestos structures using the specified ISO method. The analytical sensitivity for the ISO 10312 method varies with the sample volume and the TEM grid areas analyzed.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

Tianbao Bai

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

CLIENT:	GEM Environmental	CEI Lab Code:	T190299
	P.O. Box 9053	CEI Sample ID:	T91941
	Missoula, MT 59807	Client Sample ID:	PMC-01
		Date Received:	1/25/2019
		Date Analyzed:	1/25/2019
Project:	U of M - McGill Hall Rm's 001A, 001, 005, 19-024	Date Reported:	1/25/2019

ISO 10312 - International Standards for the Determination of Asbestos Fibers - Direct Transfer TEM

Modified for PCMe Analysis

Minimum Level of Analysis (chry):	CD	Air Volume (L):	1,260
Minimum Level of Analysis (amph):	ADX	Grid Openings Analyzed:	57
Filter Type:	MCE	Average Grid Opening Area:	0.018
Filter Size:	385 mm^2	Area Analyzed:	1.02
Pore Size:	0.8 um	Analytical Sensitivity (str/cc):	0.00030
Magnification:	10,000	Detection Limit (str/cc):	0.00090

	Structure Count				Poisson 95% Confidence Interval	
Structure Class	Primary Structure	Total Structure	Density str/ mm^2	Conc (str/cc)	LCL (str/cc)	UCL (str/cc)
PCMe Strs (chry)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Strs (amph)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb Strs	1		0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Str (All)	1		0.98	<0.00030	<0.00030	0.00090
PCMe F&B (chry)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (amph)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb F&B		1	0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe F&B (All)		1	0.98	<0.00030	<0.00030	0.00090

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ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

CLIENT:	GEM Environmental	CEI Lab Code:	T190299
	P.O. Box 9053	CEI Sample ID:	T91942
	Missoula, MT 59807	Client Sample ID:	PCM-02
		Date Received:	1/25/2019
		Date Analyzed:	1/25/2019
Project:	U of M - McGill Hall Rm's 001A, 001, 005, 19-024	Date Reported:	1/25/2019

ISO 10312 - International Standards for the Determination of Asbestos Fibers - Direct Transfer TEM

Modified for PCMe Analysis

Minimum Level of Analysis (chry):	CD	Air Volume (L):	1,260
Minimum Level of Analysis (amph):	ADX	Grid Openings Analyzed:	57
Filter Type:	MCE	Average Grid Opening Area:	0.018
Filter Size:	385 mm^2	Area Analyzed:	1.02
Pore Size:	0.8 um	Analytical Sensitivity (str/cc):	0.00030
Magnification:	10,000	Detection Limit (str/cc):	0.00090

	Structure Count				Poisson 95% Confidence Interval	
Structure Class	Primary Structure	Total Structure	Density str/ mm^2	Conc (str/cc)	LCL (str/cc)	UCL (str/cc)
PCMe Strs (chry)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Strs (amph)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Str (All)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (chry)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (amph)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe F&B (All)		0	<0.98	<0.00030	<0.00030	0.00090

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ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

CLIENT:	GEM Environmental	CEI Lab Code:	T190299
	P.O. Box 9053	CEI Sample ID:	T91943
	Missoula, MT 59807	Client Sample ID:	PCM-03
		Date Received:	1/25/2019
		Date Analyzed:	1/25/2019
Project:	U of M - McGill Hall Rm's 001A, 001, 005, 19-024	Date Reported:	1/25/2019

ISO 10312 - International Standards for the Determination of Asbestos Fibers - Direct Transfer TEM

Modified for PCMe Analysis

Minimum Level of Analysis (chry):	CD	Air Volume (L):	1,260
Minimum Level of Analysis (amph):	ADX	Grid Openings Analyzed:	57
Filter Type:	MCE	Average Grid Opening Area:	0.018
Filter Size:	385 mm^2	Area Analyzed:	1.02
Pore Size:	0.8 um	Analytical Sensitivity (str/cc):	0.00030
Magnification:	10,000	Detection Limit (str/cc):	0.00090

	Structure Count				Poisson 95% Confidence Interval	
Structure Class	Primary Structure	Total Structure	Density str/ mm^2	Conc (str/cc)	LCL (str/cc)	UCL (str/cc)
PCMe Strs (chry)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Strs (amph)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb Strs	1		0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Str (All)	1		0.98	<0.00030	<0.00030	0.00090
PCMe F&B (chry)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (amph)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb F&B		1	0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe F&B (All)		1	0.98	<0.00030	<0.00030	0.00090

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ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

CLIENT:		CEI Lab Code:	T190299
	GEM Environmental	CEI Sample ID:	T91944
	P.O. Box 9053	Client Sample ID:	PCM-04
	Missoula, MT 59807	Date Received:	1/25/2019
		Date Analyzed:	1/25/2019
Project:	U of M - McGill Hall Rm's 001A, 001, 005, 19-024	Date Reported:	1/25/2019

ISO 10312 - International Standards for the Determination of Asbestos Fibers - Direct Transfer TEM

Modified for PCMe Analysis

Minimum Level of Analysis (chry):	CD	Air Volume (L):	1,260
Minimum Level of Analysis (amph):	ADX	Grid Openings Analyzed:	57
Filter Type:	MCE	Average Grid Opening Area:	0.018
Filter Size:	385 mm^2	Area Analyzed:	1.02
Pore Size:	0.8 um	Analytical Sensitivity (str/cc):	0.00030
Magnification:	10,000	Detection Limit (str/cc):	0.00090

	Structure Count				Poisson 95% Confidence Interval	
Structure Class	Primary Structure	Total Structure	Density str/ mm^2	Conc (str/cc)	LCL (str/cc)	UCL (str/cc)
PCMe Strs (chry)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Strs (amph)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Str (All)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (chry)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (amph)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe F&B (All)		0	<0.98	<0.00030	<0.00030	0.00090

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ASBESTOS AIR ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

CLIENT:	GEM Environmental	CEI Lab Code:	T190299
	P.O. Box 9053	CEI Sample ID:	T91945
	Missoula, MT 59807	Client Sample ID:	PCM-05
		Date Received:	1/25/2019
		Date Analyzed:	1/25/2019
Project:	U of M - McGill Hall Rm's 001A, 001, 005, 19-024	Date Reported:	1/25/2019

ISO 10312 - International Standards for the Determination of Asbestos Fibers - Direct Transfer TEM

Modified for PCMe Analysis

Minimum Level of Analysis (chry):	CD	Air Volume (L):	1,260
Minimum Level of Analysis (amph):	ADX	Grid Openings Analyzed:	57
Filter Type:	MCE	Average Grid Opening Area:	0.018
Filter Size:	385 mm^2	Area Analyzed:	1.02
Pore Size:	0.8 um	Analytical Sensitivity (str/cc):	0.00030
Magnification:	10,000	Detection Limit (str/cc):	0.00090

	Structure Count				Poisson 95% Confidence Interval	
Structure Class	Primary Structure	Total Structure	Density str/ mm^2	Conc (str/cc)	LCL (str/cc)	UCL (str/cc)
PCMe Strs (chry)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Strs (amph)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb Strs	0		<0.98	<0.00030	<0.00030	0.00090
Total PCMe Str (All)	0		<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (chry)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe F&B (amph)		0	<0.98	<0.00030	<0.00030	0.00090
PCMe Non-Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe Asb F&B		0	<0.98	<0.00030	<0.00030	0.00090
Total PCMe F&B (All)		0	<0.98	<0.00030	<0.00030	0.00090

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LEGEND:

chry = chrystotile
mm^2 = square millimeter
um = micrometer or micron
str/cc = structures per cubic centimeter
LCL = lower confidence limit
amph = amphiboles
strs = structures
F&B = fibers and bundles
PCMe = PCM equivalent
UCL = upper confidence limit

METHOD:

ISO 10312
Ambient Air – Determination of Asbestos Fibers – Direct Transfer Transmission Electron Microscopy Method, 1995

Analytical Sensitivity: Varies with the air volume and TEM grid area analyzed

REGULATORY LIMIT: None

EXPLANATION:

PCMe structures = A fiberous structure of aspect ratio ≥ 3:1, longer than 5 um .

PCMe Fibers or Bundle = A fiber or bundle of aspect ratio ≥ 3:1, longer than 5 um

PCMe Non-Asb Strs = A non-asbestos structure of aspect ratio ≥ 3:1, longer than 5 um

PCMe Non-Asb F&B = A non-asbestos fiber or bundle of aspect ratio ≥ 3:1, longer than 5 um

DISCLAIMER:

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T790299
T91941-48 (5)

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CHAIN OF CUSTODY

LAB USE ONLY:
ECEI Lab Code:
ECEI Lab I.D. Range:

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

COMPANY INFORMATION	PROJECT INFORMATION
ECEI CLIENT #:	Job Contact: Christopher Casas
Company: GEM Environmental, Inc.	Email / Tel: chris.casas@gem-environmental.com
Address: P.O. Box 9053	Project Name: U of M - McGill hall Rm's 001A, 001 005
Missoula, MT 59807	Project ID#: 19-024
Email: chris.casas@gem-environmental.com + rbrownell@northern lh.com	PO #:
Tel: 406-370-4139 Fax:	STATE SAMPLES COLLECTED IN: MT

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR*	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR (PCME)	ISO 10312	☐	☒	☐	☐	☐	☐
TEM AIR	ASTM 6281-15	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☐
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☐	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-16			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
TEM QUALITATIVE	IN-HOUSE METHOD		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

Blanks should be taken from the same sample lot as field samples.

REMARKS / SPECIAL INSTRUCTIONS: ~~w/ Positive Stop~~

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	01/24/19	DC	1-25 9:40

By submitting samples, you are agreeing to ECEI's Terms and Conditions.
Samples will be disposed of 30 days after analysis

79626a

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SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: GEM Environmental, Inc.	Job Contact: Christopher Casas
Project Name: U of M- McGill Hall Rm's 001A, 001, 005	
Project ID #:	Tel: 406-370-4139

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
PCM-01	Rm 001A - South End of HVAC Trunk	1260	PLM ☐	TEM ☐
PCM-02	Rm-001A - Middle of HVAC Trunk	1260	PLM ☐	TEM ☐
PCM-03	Rm-001A - North End of HVAC Trunk	1260	PLM ☐	TEM ☐
PCM-04	Rm 005 - Middle of Restroom	1260	PLM ☐	TEM ☐
PCM-05	Rm 001 - Kitchen	1260	PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
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			PLM ☐	TEM ☐

Page _____ of _____

TA0299

Allie Peregoy

From: Chris Casas <chris.casas@gem-environmental.com>
Sent: Thursday, January 24, 2019 4:51 PM
To: Allie Peregoy
Cc: Bob Brownell
Subject: RE: Edit a Report

EXTERNAL EMAIL*

Allie,

NIOSH 7400 A rules state " there is no upper limit on the fiber diameter in the counting rules"

ISO 10312 method defines a PCME fiber as "any particle with parallel or stepped sides, greater, longer than 5 um and which has a diameter between .2 and 3.0 um"

Therefore the Method for PCME counting under ISO 10312 method will not provide a count of PCM fibers equivalent under NIOSH 7400 method.

May the CEI analysis for the 10312 be modified to include fibers of all diameters so any PCME fibers are equivalent to PCM fibers under NIOSH 7400 ?

let me know your thoughts, and or recomendations.

Thanks,

-Chris

Christopher E. Casas | Principle Industrial Hygienist & Geologist |

GEM Environmental, Inc. | 201 N. Russel St. Suite 6 | Missoula, MT 59801

Cell: 406-370-4139

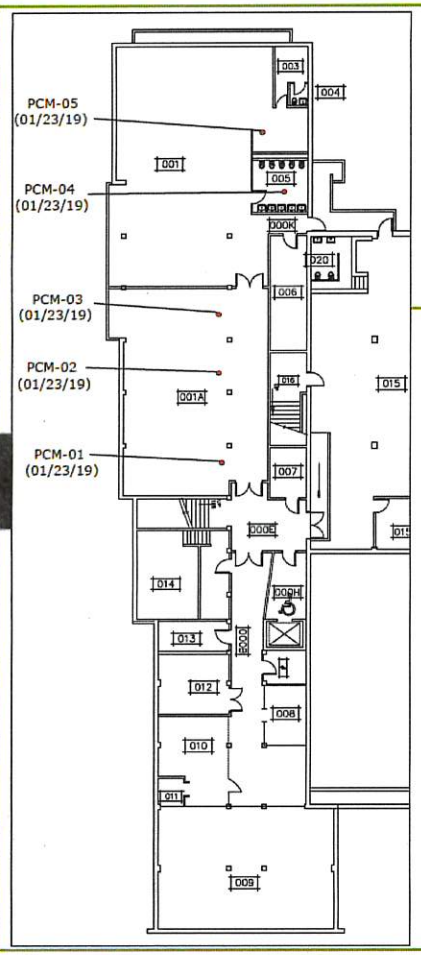
---- On Thu, 24 Jan 2019 08:52:15 -0700 **<AlliePeregoy@eurofinsUS.com>** wrote ----

Hey Chris,

Here is a template of what it would look like. Let me know if you need anything else.

Best,

Allie Peregoy


PCM-05
(01/23/19)
PCM-04
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PCM-03
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PCM-02
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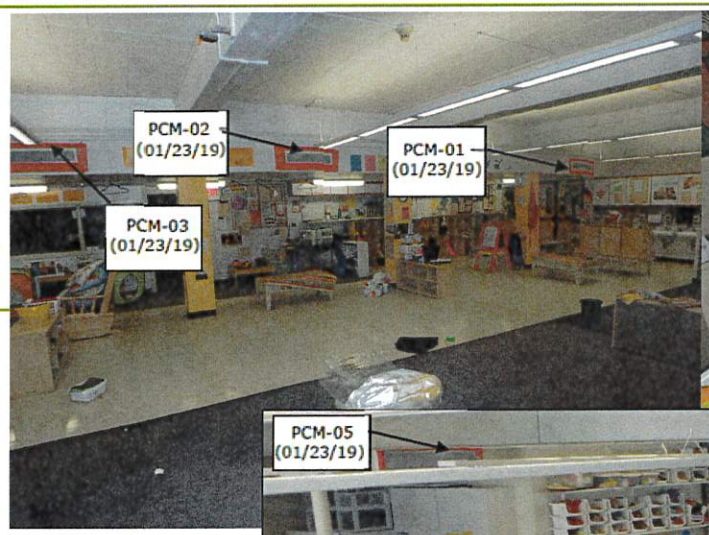
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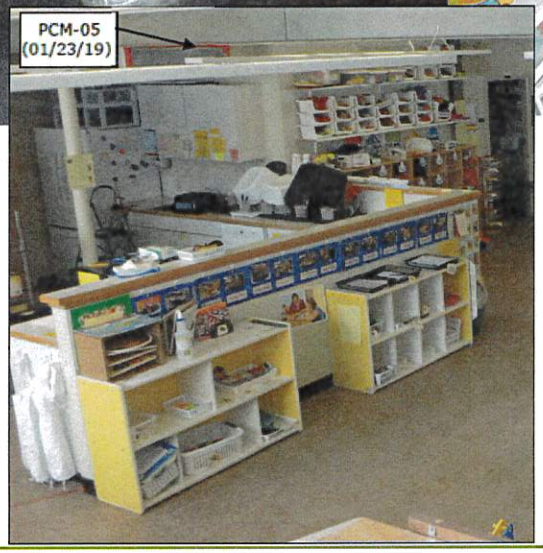
PCM-01
(01/23/19)
PCM-03
(01/23/19)

PCM-04
(01/23/19)
01/30/2019


PCM-05
(01/23/19)

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January 28, 2019

GEM Environmental
P.O. Box 9053
Missoula, MT 59807

CLIENT PROJECT: U of M - McGill Hall - 001A, 001, 19-024
LAB CODE: T190331

Dear Customer:

Enclosed are asbestos analysis results for TEM dust wipe samples received at our laboratory on January 28, 2019. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per ASTM D6480-05 Method.

Currently, there is no regulatory limit for asbestos in dust. The analytical sensitivity for the ASTM D6480-05 method is 1,000 structures per square centimeter.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

GEM Environmental

CLIENT PROJECT: U of M - McGill Hall - 001A, 001, 19-024

LAB CODE: T190331

TEST METHOD: Dust Wipe
ASTM D6480-05

REPORT DATE: 01/28/19

ASBESTOS DUST ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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Client: GEM Environmental
P.O. Box 9053
Missoula, MT 59807

Lab Code: T190331
Date Received: 01-28-19
Date Analyzed: 01-28-19
Date Reported: 01-28-19

Project: U of M - McGill Hall - 001A, 001, 19-024

TEM DUST WIPE (ASTM D6480-05)

Client ID Lab ID	Area Sampled (cm^2)	Area Analyzed (mm^2)	Filtration Factor	Analytical Sensitivity (s/cm^2)	# of Structures	Asbestos Type	Concentration (s/cm^2)
AHA-W-001A -02 T92293	100	0.1	20	1,900	6	Chrysotile	12,000
AHA-W-001A -03 T92294	100	0.1	10	960	16	Chrysotile	15,000
AHA-W-001 -01 T92295	100	0.1	10	960	22	Chrysotile	21,000
AHA-W-001 -02 T92296	100	0.1	20	1,900	51	Chrysotile	98,000
AHA-W-000B -02 T92297	100	0.1	20	1,900	12	Chrysotile	23,000
AHA-W-000B -03 T92298	100	0.1	10	960	5	Chrysotile	4,800
AHA-W-000B -04 T92299	100	0.1	20	1,900	7	Chrysotile	13,000

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LEGEND: None

METHOD: ASTM D6480-05

ANALYTICAL SENSITIVITY: 1,000 structures/cm^2

REGULATORY LIMIT: None

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Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

ANALYST: Kamila Reichert
Kamila Reichert

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director

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CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	
ECEI Lab Code:	T90331 (?)
ECEI Lab I.D. Range:	T92293-299

COMPANY INFORMATION	PROJECT INFORMATION
ECEI CLIENT #:	Job Contact: Christopher Casas
Company: GEM Environmental, Inc.	Email / Tel: chris.casas@gem-environmental.com
Address: P.O. Box 9053	Project Name: U of M- McGill hall-001A,001
Missoula, MT 59807	Project ID#: 19-024
Email: chris.casas@gem-environmental.com	PO #:
Tel: 406-370-4139 Fax:	STATE SAMPLES COLLECTED IN: MT

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME 4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR*	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR (PCME)	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-15	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☐
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☒	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-16			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
TEM QUALITATIVE	IN-HOUSE METHOD		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

Blanks should be taken from the same sample lot as field samples.

REMARKS / SPECIAL INSTRUCTIONS: w/ Positive Stop

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	01/26/19	VC	1/28/19 9:00am

By submitting samples, you are agreeing to ECEI's Terms and Conditions.
Samples will be disposed of 30 days after analysis

Version: CCOC.07.18.1/2.LD

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SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: GEM Environmental, Inc.	Job Contact: Christopher Casas
Project Name:	
Project ID #:	Tel: 406-370-4139

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
AHA-W-001A-02	Rm 001A - on Top of Kitchen Cabinets.	100 cm²	PLM ☐	TEM ☐
AHA-W-001A-03	Rm 001A - on Top of Desk, North End.		PLM ☐	TEM ☐
AHA-W-001-01	Rm 001 - on Top of Top Kitchen Stove		PLM ☐	TEM ☐
AHA-W-001-02	Rm 001 - Topside of Ceiling light, North Side		PLM ☐	TEM ☐
AHA-W-000B-02	Rm 000B - Top Side of TV In Hallway "North"		PLM ☐	TEM ☐
AHA-W-000B-03	Rm 000B - Top Side of Desk (Hallway) "Middle"		PLM ☐	TEM ☐
AHA-W-000B-04	Rm 000B - Floor South End of Hallway		PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
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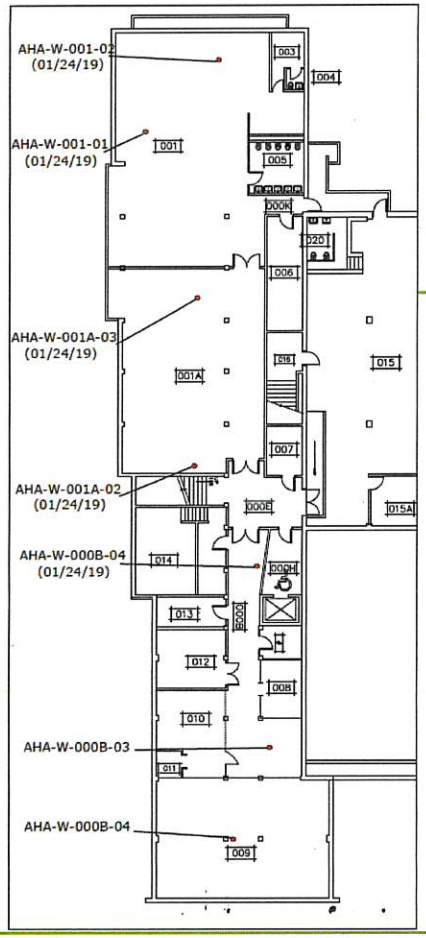
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(01/24/19)
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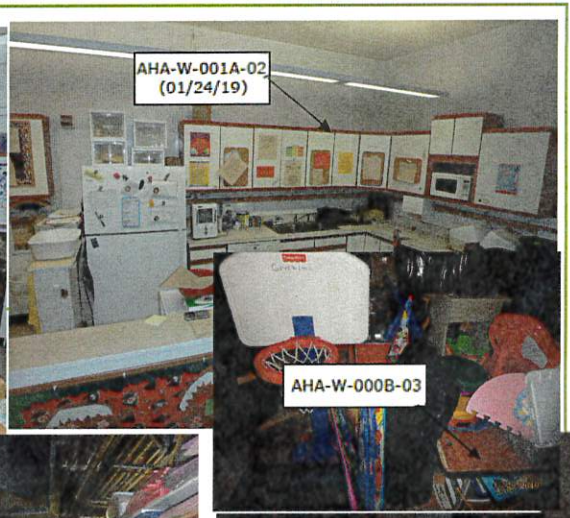
(01/24/19)


AHA-W-001A-02
(01/24/19)
AHA-W-000B-03

AHA-W-001-01
(01/24/19)

AHA-W-000B-04
(01/24/19)

AHA-W-000B-04
(01/24/19)

AGENDA

ASUM Child Care Parents' Meeting

January 31, 2019

5:30 – 7:00PM

The purpose of this meeting is to share information ASUM Child Care employees and with parents/families served by the child care in light of the recent relocation of the child care due to the detection on unacceptable levels of asbestos within the child care facility. There are three key objectives:

1. Provide background leading to the decision to relocate the child care;
2. Share all results of air quality and surface testing;
3. Provide information related to health/safety concerns and connect attendees with additional resources.

5:30-5:45	**Welcome/Meeting Introductions** Paula Short, UM Communications Paul Lasiter, VP Operations & Finance Alex Butler, ASUM President	**UC Theater**
5:45 – 6:00	**Timeline/Background** Kevin Krebsbach, Director of Facilities Services	**UC Theater**
6:00 – 6:30	**Sampling/Testing/Results** Bob Brownell, Northern Industrial Hygiene, Inc. Chris Casas, Gem Environmental, Inc.	**UC Theater**
6:30-7:00 (+/-)	**Health/Safety/FAQ/Q&A** Missoula County Health Department	**UC Theater**

Additional Instructions:

Child care is provided in UC 330 from 5p-8p