



4151 N. Mulberry Dr, Suite 275
Kansas City, MO 64116
Telephone: 816.231.5580
Fax: 816.231.5641
www.occutec.com

December 5, 2012

Mr. David Hartshorn, GSA Heartland Region
Certified Industrial Hygienist
Facilities Management Division 6PF
1500 East Bannister Road, Room 2101
Kansas City, Missouri 64131-3088

**RE: Goodfellow Federal Complex – St. Louis, MO
Building #102D (MO0604AF) – Background Asbestos Air Monitoring
Project # 92084.04**

Dear Mr. Hartshorn:

On November 20, 2012, Ms. Patricia Garcia of OCCU-TEC, conducted background asbestos air monitoring services at the Goodfellow Federal Complex, Building 102D, located at 4300 Goodfellow Boulevard in St. Louis, Missouri. A recently completed asbestos inspection had identified asbestos containing floor tiles, pipe insulation, and drywall in “poor” condition at several locations. OCCU-TEC performed asbestos background air monitoring to ensure airborne asbestos had not migrated to other areas of the building. For this reason, transmission electron microscopy (TEM) background air samples were run in various areas of the building.

OCCU-TEC collected six TEM background air samples throughout the building. The samples were shipped via UPS to Bureau Veritas – North America (BV) in Kennesaw, Georgia for independent laboratory analysis.

TEM analysis procedures are specified in the National Institute of Occupational Safety and Health, Protocol 7402. TEM samples were collected on 25 millimeter, 0.45-micron pore size mixed cellulose ester membrane filters. TEM analysis is able to distinguish between asbestos fibers and non-asbestos fibers and records actual levels of airborne asbestos fibers. TEM can also distinguish the different types of airborne asbestos fibers.

Laboratory TEM air monitoring results indicate no asbestos structures were detected. Sampling was in accordance with EPA CFR Part 763 Appendix A to Subpart E. Air monitoring analysis sheets and laboratory analysis sheets are attached.

Respectfully,

(b) (6)

Jeff T. Smith
Senior Project Manager

Attached: TEM Analysis of Air Samples\
Laboratory Analysis



TEM ANALYSIS OF AIR SAMPLES

4151 North Mulberry Drive, Suite 275
 Kansas City, Missouri 64116
 (816) 231-5580
 Toll Free: (800) 950-1953
 Fax: (816) 231-5641

CLIENT NAME: GSA
 ADDRESS: 1500 E. Bannister, KCMO, 64197
 PROJECT NAME: GSA Background Asbestos TEM Air Monitoring - Goodfellow #102D

OCCU-TEC Project # : 92084.04
 Sample Date: 11/20/2012
 Analysis Date: 12/4/2012
 Report Date: 12/5/2012
 Rotometer # PJG

FILTER TYPE: 25mm, 0.45 um

Client Sample ID	Activity/ Location	Sample Type	Pump ID	Flow Rate (l/min)			Running Time		Total Minutes	Volume Liters	# Asbestos Structures	Asbestos Structures/mm ²	Concentration Structures/cc
				Start	End	Avg	Start	Stop					
90284-04-001	1st FL South End	BGD	317	10.17	10.17	10.17	9:18	12:37	199	2023.8	0	<22.00	<0.0042
90284-04-002	1st FL Dark Room	BGD	345	10.17	10.17	10.17	9:25	12:35	190	1932.3	0	<22.00	<0.0044
90284-04-003	1st FL North Office	BGD	341	10.17	10.17	10.17	9:30	12:40	190	1932.3	0	<22.00	<0.0044
90284-04-004	2nd FL North End	BGD	344	10.17	10.17	10.17	9:40	12:30	170	1728.9	0	<22.00	<0.0050
90284-04-005	2nd FL South End	BGD	286	10.17	10.17	10.17	9:43	12:33	170	1728.9	0	<22.00	<0.0050
90284-04-006	Outdoor	BGD	346	10.17	10.17	10.17	10:00	12:00	120	1220.4	0	<15.00	<0.0047

SAMPLE TYPE
 PRS=personal IWA=inside work area
 BLK= blank OWA= outside work area
 ICL=inside clearance OCL=outside clearance
 BGD=background NAE=negative air exhaust

ACTIVITY
 PREP=site prep. BGLO=bag load out
 GLBG=glovebag CLN=clean up
 GREM=gross removal EXC=excursion

RESPIRATOR TYPE
 HM=half mask APR=air purifying resp.
 FF=full face SA=supplied air
 P=powered PD=pressure demand
 SCBA=self contained breathing apparatus

Sampled By: Pat Garcia

Expiration Date **10/2/2013**

Certificate Number: 7011090612MOIR11347

Training Date: **9/6/2012**

Missouri State Certificate for Asbestos Related Occupations

issued by Department of Natural Resources

P.O. Box 176

Jefferson City, MO 65102

Phone (573) 751-4817

Patricia J. Garcia

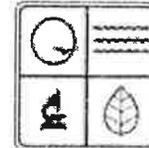
has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

(b) (6)

10/3/2012

Date

Director of Air Pollution Control Program





December 04, 2012

Jeff Smith
OCCU-TEC INC.
6501 E. Commerce
Suite 230
Kansas City, MO 64120-

Bureau Veritas Work Order No. A1211211

Reference: 92084.04 Building 102 D

Dear Jeff Smith:

Bureau Veritas North America, Inc. received 6 samples on November 27, 2012 for the analyses presented in the following report.

The results apply only to the samples analyzed in this project. Please note that any unused portion of the samples will be discarded after a sixty-day holding period, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning the report, please contact the analyst whose name appears on the report or myself at (770) 499-7701.

Sincerely,

(b) (6)

Kuntal Parikh

Senior Microscopist

Electronic signature authorized through password protection

Bureau Veritas North America, Inc.

Health, Safety, and Environmental Services
3380 Chastain Meadows Parkway, Suite 300
Kennesaw, GA 30144

Main: (770) 499-7701
Fax: (770) 499-7511
www.us.bureauveritas.com



CASE NARRATIVE

Date: 04-Dec-12

CLIENT: OCCU-TEC INC.
Project: 92084.04 Building 102 D
Work Order No A1211211

ANALYTICAL METHOD FOR AIRBORNE ASBESTOS FIBERS USING TRANSMISSION ELECTRON MICROSCOPY (TEM) BY THE AHERA METHOD

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

Upon receipt in the laboratory, filters are transferred to a glass slide with a drop of dimethyl formamide/acetic acid clearing solution. After clearing, samples are partially ashed in a plasma asher. The filters are then carbon coated in a vacuum evaporator. Portions of the cleared/ashed/coated filters are excised and placed on 200-mesh copper TEM grids in a wick-type solutional washer containing 100% acetone.

Two grids are placed consecutively in the TEM for examination. An equal number of openings are examined on each grid at 15,000X magnification. Asbestos structures containing fibers which meet a >5:1 length:width aspect ratio and a minimum length of 0.5 micrometers are identified using morphology, selected area electron diffraction, and energy-dispersive x-ray spectroscopy. Fibers are classified by structure type, are sized (length and width), and are identified as chrysotile, amphibole, ambiguous, or non-asbestos. Results are reported as total asbestos structures per square millimeter of filter and asbestos structures per cubic centimeter of air (asbestos structures/cc). The Kennesaw, Georgia laboratory is accredited by NVLAP –Lab Code 101125-0.

For clearance of a work area in schools (k-12) the requirement is that the average of the results of the five inside samples is <70 str/mm² assuming an analytical sensitivity of <0.005 structures/cubic centimeter.

The test report shall not be reproduced, except in full, without written approval of the laboratory. In addition, the report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

References



CLIENT: OCCU-TEC INC.

Project: 92084.04 Building 102 D

Work Order No A1211211

USEPA. 1987. Asbestos Hazard Emergency Response Act. Appendix A to 40 CFR 763, Subpart E. Washington: GPO. (AHERA protocol).



ANALYTICAL RESULTS

Client: OCCU-TEC INC.

Client Reference No.: 92084.04 Building 102 D

Work Order No.: A1211211

Date: 04-Dec-12

Analytical Method: TEM AHERA

Date Received: 11/27/2012 4:11:53 PM

Sample Type: Air

Report Date: 12/4/2012 4:59:53 PM

Grid Opening Size: 0.0112 mm²

Lab Sample No.	Client Sample ID	Reporting Limit (s/mm ²)	Total Asbestos (s/mm ²)	Structures Counted			Total Asbestos				95 % Confidence Limit	
				Chrysotile	Amphibole	Total	Chrysotile (s/cc)	Amphibole (s/cc)	Total (s/cc)	Sensitivity (s/cc)	Low	High
A1211211-001A	01-1st Floor South End	22	< 22	0	0	0	< 0.0042	< 0.0042	< 0.0042	0.0042	0	< 0.019
A1211211-002A	02- 1st Floor Dark Room	22	< 22	0	0	0	< 0.0044	< 0.0044	< 0.0044	0.0044	0	< 0.020
A1211211-003A	03- 1st Floor N. Office	22	< 22	0	0	0	< 0.0044	< 0.0044	< 0.0044	0.0044	0	< 0.020
A1211211-004A	04- 2nd Floor North End	22	< 22	0	0	0	< 0.0050	< 0.0050	< 0.0050	0.0050	0	< 0.022
A1211211-005A	05- 2nd Floor South End	22	< 22	0	0	0	< 0.0050	< 0.0050	< 0.0050	0.0050	0	< 0.022
A1211211-006A	06- Outdoor	15	< 15	0	0	0	< 0.0047	< 0.0047	< 0.0047	0.0047	0	< 0.021

MCEF: Mixed Cellulose Ester Filter
 s/mm²: Structures per square millimeter
 "--" : No Results (Air Volume is 0)

s/cc: Structures per cubic centimeter of air collected.
 <: Result is less than the indicated limit of detection.

Note 1: AHERA Structures counted contain fibers which met a $\geq 5:1$ (length:width) aspect ratio and were $\geq 0.5\mu\text{m}$ in length.

Note 2: AHERA sampling criteria requires that >1200 liters of air be collected on 0.45 μm filters. Deviation from these requirements

Note 3: Yamate Level II Structures counted contain fibers which meet a $\geq 3:1$ (length:width) aspect ratio.

Analyst(s) Name/Date: (b) (6) 12/4/2012



ANALYTICAL RESULTS

Client: OCCU-TEC INC.

Client Reference No.: 92084.04 Building 102 D

Work Order No.: A1211211

Date: 04-Dec-12

Analytical Method:	TEM AHERA	Filtration Filter:	MCE Filter, .45um
Sample Type:	Air	Effective Filter Area:	385 mm ²
Date Received:	11/27/2012 4:11:53 PM	Grid Opening Size:	0.0112 mm ²
Report Date:	12/4/2012 4:59:53 PM		

Lab Sample No.	Client Sample Identification	Date Sampled	Prep Date	Air Vol. (L)	Dilution Factor	Analysis Date	Analyst	Grid Box Identification
A1211211-001A	01-1st Floor South End	11/20/12 @ 12:00 am	12/04/12 @ 8:50 am	2024	1	12/04/12 @ 4:19 pm	KRP	12-04-12B-1

Analysis	Grid Openings Counted	Reporting Limit (s/mm ²)	Total Asbestos (s/mm ²)	Structures Counted			Total Asbestos				95 % Confidence Limit	
				Chry-sotile	Amph-ibole	Total	Chrysotile (s/cc)	Amphibole (s/cc)	Total (s/cc)	Sensitivity (s/cc)	Low	High
Asbestos	4	22	< 22	0	0	0	< 0.0042	< 0.0042	< 0.0042	0.0042	0	< 0.019

TEM Count Details

Rec	Grid	Grid Opening ID	Count	Length (um)	Width (um)	Structure ID	Structure Type	EDS	Mass (ng)
1	A1	C4A	0	0.00	0.00	None Detected			0
2	A1	C4C	0	0.00	0.00	None Detected			0
3	A2	C4A	0	0.00	0.00	None Detected			0
4	A2	C4C	0	0.00	0.00	None Detected			0

Total Fibers: 0

Total Mass: 0

TEM Microscope Documentation

Instrument	*Magnification	Accelerating	
		Voltage	Calibration Date
TEM 1/D675	14590x	100 KeV	11/8/2012

*Magnification = Calibrated screen magnification at 15,000X. For ISO Method 10312 the calibrated screen magnification is at 20,000X



ANALYTICAL RESULTS

Client: OCCU-TEC INC.

Client Reference No.: 92084.04 Building 102 D

Work Order No.: A1211211

Date: 04-Dec-12

Analytical Method:	TEM AHERA	Filtration Filter:	MCE Filter, .45um
Sample Type:	Air	Effective Filter Area:	385 mm ²
Date Received:	11/27/2012 4:11:53 PM	Grid Opening Size:	0.0112 mm ²
Report Date:	12/4/2012 4:59:53 PM		

Lab Sample No.	Client Sample Identification	Date Sampled	Prep Date	Air Vol. (L)	Dilution Factor	Analysis Date	Analyst	Grid Box Identification
A1211211-006A	06- Outdoor	11/20/12 @ 12:00 am	12/04/12 @ 8:50 am	1220	1	12/04/12 @ 4:19 pm	KRP	12-04-12B-1

Analysis	Grid Openings Counted	Reporting Limit (s/mm ²)	Total Asbestos (s/mm ²)	Structures Counted			Total Asbestos				95 % Confidence Limit	
				Chry-sotile	Amph-ibole	Total	Chrysotile (s/cc)	Amphibole (s/cc)	Total (s/cc)	Sensitivity (s/cc)	Low	High
Asbestos	6	15	< 15	0	0	0	< 0.0047	< 0.0047	< 0.0047	0.0047	0	< 0.021

TEM Count Details

Rec	Grid	Grid Opening ID	Count	Length (um)	Width (um)	Structure ID	Structure Type	EDS	Mass (ng)
1	A6	C4A	0	0.00	0.00	None Detected			0
2	A6	C4C	0	0.00	0.00	None Detected			0
3	A6	E4A	0	0.00	0.00	None Detected			0
4	A7	C4C	0	0.00	0.00	None Detected			0
5	A7	E4A	0	0.00	0.00	None Detected			0
6	A7	E4C	0	0.00	0.00	None Detected			0

Total Fibers: 0

Total Mass: 0

TEM Microscope Documentation

Instrument	*Magnification	Accelerating	
		Voltage	Calibration Date
TEM 1/D675	14590x	100 KeV	11/8/2012

*Magnification = Calibrated screen magnification at 15,000X. For ISO Method 10312 the calibrated screen magnification is at 20,000X

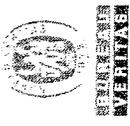
Analyst(s) Name/Date:

(b) (6)

12/4/2012

A/21/211

Request for Laboratory Analytical Services



Page: _____
For Lab Use Only
Lab Project No. _____

IMPORTANT: Date results required: As soon as possible
Rush charges authorized? Yes No
E-mail results Fax or
E-mail Address: jsmith@occutec.com

Bureau Veritas North America, Inc.

Report results to: Client Project Number: 92084.04 Send invoice to: P.O. No. PJ2F00548
Name: Jeff Smith Name: David Hartshorn
Company: OCCU-TEC Company: GSA Heartland
Mailing Address: 4151 N. Mulberry, Suite 275 Address: 1500 E. Bannister Road
City, State, Zip: Kansas City, MO 64116 City, State, Zip: Kansas City, MO 64197
Telephone No.: 816-994-3421 Fax No.: 816-231-5641

Special instructions and/or specific regulatory requirements:
(method, limit of detection, etc.) Asbestos Air Testing Services -

Soil samples only: Which state are these from? _____
Water samples are: _____
Drinking water _____ Groundwater _____
Wastewater _____

Building: 102D

Client Sample Identification	Date Sampled	Time Sampled	Matrix/Media	Air Volume (Liters)	# of Jars	ANALYSIS REQUESTED (List each analyte on the lines below, multiple analytes per line)
<u>01 - 1st FL SOUTH LANA</u>	<u>11/20/19</u>	<u>9:18</u>	<u>Air</u>	<u>2024</u>		<u>Asbestos TEM Air A+B+C</u>
<u>02 - 1st FL BREAK ROOM</u>	<u>11/20/19</u>	<u>9:25</u>		<u>1932</u>		
<u>03 - 1st FL N. OFFICE</u>	<u>11/20/19</u>	<u>9:30</u>		<u>1932</u>		
<u>04 - 2nd FL NORTH LANA</u>	<u>11/20/19</u>	<u>9:40</u>		<u>1729</u>		
<u>05 - 2nd FL SOUTH LANA</u>	<u>11/20/19</u>	<u>9:43</u>		<u>1729</u>		
<u>06 - OUTDOOR</u>	<u>11/20/19</u>	<u>10:00</u>		<u>1220</u>		

Collected by: PAULINA GARCIA Date/Time: 11/20/17 Collector's Signature: [Signature] Date/Time: 11/20/12
Relinquished by: PAULINA GARCIA Date/Time: 11/26/12 Received by: [Signature] Date/Time: 11-27-12
Relinquished by: _____ Date/Time: _____
Method of Shipment: UPS Sample Condition on Receipt: Acceptable
Authorized by: [Signature] Other: (Explain)

(Signature MUST accompany request!)

Detroit Lab	Atlanta Lab	Chicago Lab
22345 Roethel Drive	3380 Chastain Meadows Pkwy., Ste 300	95 Oakwood Road
Novi, MI 48375	Kennesaw, GA 30144	Lake Zurich, IL 60047
248.344.2652	770.499.7500	888.576.7522
800.806.5887	800.252.9919	847.726.3320
Fax: 248.344.2655	Fax: 770.499.7511	Fax: 847.726.3323

Canadian Clients
1415 Janette Ave
Windsor, ON N8X 1Z1

Visit our Website:
www.us.bureauveritas.com/tse

4:18 PM