July 1, 2004

SUBJECT: Building 103 Mold Air Sampling

Executive Summary

Following the comprehensive safety and air quality inspection on this building by GSA in July 2003, airborne mold was resampled in September of that same year followed by another round of sampling in May 2004. Sampling on September 3, 2003 showed the presence of stachybotris spores in one location; not present outdoors. This was confirmed also in May 2004. Moisture infiltration was determined to be the cause of these readings which although not excessive are considered atypical of most buildings. Recommendations to correct the moisture problems should eliminate the presence of stachybotris.

September 2003 Sampling

Sampling was performed by David Hartshorn, GSA Industrial Hygienist. Results (see Appendix 1) indicated the presence of stachybotris mold spores in the air in selected locations. This finding is consistent with the moisture problems noted at the building and its related effect on drywall materials. Recommendations were made and completed to replace wet ceiling panels and patch the roof and drains to eliminate future growth.

May 2004 Sampling

Sampling for airborne mold spores was conducted again by Gary Adams, GSA Industrial Hygiene consultant on May 24th and 25th in buildings 103 and 107. The building 103 sampling was considered follow-on to previous sampling to gauge any difference in the airborne levels and to assess other areas of concern.

As in all other sampling, the results were compared to outdoor ambient levels that day, in accordance with current industrial hygiene protocol. The total mold counts within the building were comparable to outdoor levels. However, stachybotris was found in very low levels in the training room only (see Appendix 2). This tends to support the concern that roof and/or drain leaks had led to growth in this area. Further investigation behind the walls has indicated the source to be primarily from roof drains. Steps have been subsequently taken to further seal the building roof and to repair the drain leaks.

Appendix 1 – Sept 2003 Mold Spore Sampling Summary

General Services Administration
1500 E. Bannister Road
Kansas City, MO 64131
IAQ Bldg 103, 4300 Goodfellow.xls // Mold Sampling of 3 Sep 03

FACILITY ID:
Building 103, 4300 Goodfellow Blvd., St. Louis, MO

LOCATION SURVEYED	SAMPLE ID	CONTAMINANT	PUMP ID	SAMPLE DATE	ELAP. TIME (Min.)	FLOW RATE (LPM)	VOL. (L)
Floor 2, Bridge crossing over from Bldg. 103 to Bldg. 103D	5429040	Mold	23021	03-Sep-2003	15	14.55	218.3
Bldg. 103D, Floor 2, Column L-32 (carpeting wet from recent rains)	5429033	Mold	23021	03-Sep-2003	15	14.55	218.3
Floor 1, Column F-34	5429038	Mold	23021	03-Sep-2003	15	14.55	218.3
Outside, near south door	5429044	Mold	23021	03-Sep-2003	15	14.55	218.3

NOTE: Calibrations completed using Bios Corp. Dry Cal DC-Lite DCL-MH, Ser. No. 6181		PUMP CALIBRATION RECORD Flow Rates in Liters per minute (LPM)				Average Flow
Pump Mfgr. & Model	Pump S/N	Pre-Cal Date	Pre-Cal Flow	Post-Cal Date	Post-Cal Flow	
Zephon Hi-Vol	23021	03-Sep-2003	14.76	03-Sep-2003	14.33	14.55

AIRBORNE MOLD ANALYSIS RESULTS	SAMPLE LOCATIONS AND RESULTS (Counts/m^3)			
	F2, Crossover	Bldg 103D, L-32	F1, F-34	Outside
	5429040	5429033	5429038	5429044
Total Mold Spores	4,417	2,067	283	30,946
Alternaria	18	51	9	208
Aspergillus/Penicillium-types	278	413		57
Ascospores	945	113	57	3,527
Basidiospores	510	208	113	3,779
Cladosporium	1,680	907	57	19,178
Curvularia	5	5		5
Drechslera/Bipolaris		5		5
Epicoccum		5	5	246
Nigrospora		5	5	265
Pithomyces	23	18		5
Rusts	19			14
Smuts/Myxomycetes		94	19	
Stachybotrys	14	36		
Cercospora-like	38			170
Other Hyaline	850	113	19	3,433
Other Brown Fungi	38	57		57
Small Brown Round		38		

Appendix 2 – May 2004 Mold Sampling Laboratory Results

*Environmental Analysis Associates, Inc. * 5290 Soledad Road * San Diego, CA 92109 * (858) 272-7747*

ENVIRONMENTAL AIRBORNE AEROSOL ANALYSIS

Client Name: General Services Administration
Client Project #: Building 103 **Project Desc:** Building 103
EAA Project #: O4-O464 **Date Collected:** 5/24/2004

Client Sample #	Sample Description / Location	Analysis Comments
5982129	H17 Hallway	Low dust, skin cell fragments, opaque particles & mold
5984055	Conference Room	Moderate dust, low skin cell fragments, opaque particles & mold
5984057	Training Room	Low-moderate dust, low opaque, dander & mold. Stachybotrys present
7085896	Ambient	Low dust & skin cell fragments, high opaque particles & mold
7085889	Ambient	Low dust & dander, moderate opaque particles, high mold

AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m^3) - Spore Trap Sample Analysis

Category Sample #-->	5982129	5984055	5984057	7085896	7085889
Total Mold Spores (Cts/m^3)	411	199	205	32772	27922
Alternaria					132
Aspergillus/Penicillium-types					
Aureobasidium/Hormonema					
Asco/Basidiospores **	302	137	165	26606	24686
Other Basidiospores	27	27		1646	549
Botrytis					
Chaetomium					
Cladosporium					
Curvularia					
Drechslera/Bipolaris					
Epicoccum		7	7	66	132
Fusarium					
Nigrospora					
Oidium/Peronospora					
Pithomyces					99
Rusts					
Smuts/Myxomycetes				274	137
Stachybotrys			7		
Stemphylium					
Cercospora-like					132
Polythrincium trifolii				66	
Other Hyaline (majority tiny, hyaline)	82	27	27	3291	1783
Other Brown Fungi				823	274
Small Brown Round					
Hyphae fragments					
Algal spores					
Fern spores					
POLLEN (Total Cts/m^3)	20	Not detected	13	67	67
not specified	20		13	67	67
OTHER AEROSOLS (Cts/m^3)					
Skin cell fragments	2661	7131	5870	549	1097
Fiberglass / Mineral wool			7		
Cellulosic fibers	375	987	1080	132	263
Opaque particles	2167	4937	2688	13989	8503
Insect parts		7			
Statistical Parameters					
Vol. analyzed (m^3)--mold/aerosols:	0.036	0.036	0.036	0.004	0.007
Detect limit(Cts/m^3)--molds/aerosols:	27	27	27	274	137
% Sample analyzed--mold/aerosols:	24%	24%	24%	24%	24%
Volume analyzed(m^3)--pollen:	0.150	0.150	0.150	0.015	0.030
Detection limit (Cts/m^3)--pollen	7	7	7	67	33
Sample flow rate (lpm):	15.00	15.00	15.00	15.00	15.00
Sample trace length (mm):	14.40	14.40	14.40	14.40	14.40
Microscope field diameter (mm):	0.350	0.350	0.350	0.350	0.350

Outdoor mold ranges are based on So. California data. Other areas may vary.
*Some detection limits for particle categories may be higher than reported when EAA stopping rules are applied.
**Consist of a mix of tiny, hyaline Asco & Basidiospores

Analyst: (b) (6) Date: 05/27/2004

04-0464

May 24, 2004

Building 103

Collected by: Gary Adams

Zefon #	Location	Liters
5982129	H17 Hallway	150
5984055	Conference Room	150
5984057	Training Room	150
7085896	Ambient	15
7085884	Ambient	30

recd (b) (6) [redacted] 5/25 16-40

*Environmental Analysis Associates, Inc. * 5290 Soledad Road * San Diego, CA 92109 * (858) 272-7747*

ENVIRONMENTAL AIRBORNE AEROSOL ANALYSIS

Client Name: General Services Administration
Client Project #: Buildings 103, 104E & 107 **Project Desc:** Buildings 103, 104E & 107
EAA Project #: O4-O468 **Date Collected:** 5/25/2004

Client Sample #	Sample Description / Location	Analysis Comments
7085886	Bldg 107 basement file room	Low debris & skin cell fragments, moderate opaque particles & mold
7085899	Bldg 107 GSA front office	Low dust, skin cell fragments & opaque particles, Low-moderate mold
7085892	Ambient Bldg 107	Low debris & dander, moderate opaque, high mold
7085895	Bldg 103 1st floor F32.5	Low dust, skin cell fragments & opaque particles; low-moderate mold
7085897	Bldg 103 2nd floor G38	Low dust, skin cell fragments & opaque particles; moderate mold

AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m^3) - Spore Trap Sample Analysis

Category Sample #-->	7085886	7085899	7085892	7085895	7085897
Total Mold Spores (Cts/m^3)	2057	1591	84480	1426	4005
Alternaria					
Aspergillus/Penicillium-types	549			55	439
Aureobasidium/Hormonema					
Asco/Basidiospores **	1371	1371	80229	1152	3566
Other Basidiospores		110	1371		
Botrytis					
Chaetomium					
Cladosporium		55	686	55	
Curvularia					
Drechslera/Bipolaris					
Epicoccum					
Fusarium					
Nigrospora					
Oidium/Peronospora					
Pithomyces					
Rusts					
Smuts/Myxomycetes					
Stachybotrys					
Stemphylium					
Torula					
Ulocladium					
Other Hyaline (majority tiny, hyaline)	137	55	2057	165	
Other Brown Fungi			137		
Small Brown Round					
Hyphae fragments					
Algal spores			274		
Feather fibrils			33		
POLLEN (Total Cts/m^3)	Not detected	27	67	13	Not detected
not specified		27	67	13	
OTHER AEROSOLS (Cts/m^3)					
Skin cell fragments	3703	7241	1234	2907	1810
Fiberglass / Mineral wool				13	
Cellulosic fibers	856	869	1020	645	395
Opaque particles	9189	4224	8914	4937	2798
Insect parts	99				
Statistical Parameters					
Vol. analyzed (m^3)--mold/aerosols:	0.007	0.018	0.007	0.018	0.018
Detect limit(Cts/m^3)--molds/aerosols:	137	55	137	55	55
% Sample analyzed--mold/aerosols:	24%	24%	24%	24%	24%
Volume analyzed(m^3)--pollen:	0.030	0.075	0.030	0.075	0.075
Detection limit (Cts/m^3)--pollen	33	13	33	13	13
Sample flow rate (lpm):	15.00	15.00	15.00	15.00	15.00
Sample trace length (mm):	14.40	14.40	14.40	14.40	14.40
Microscope field diameter (mm):	0.350	0.350	0.350	0.350	0.350

Outdoor mold ranges are based on So. California data. Other areas may vary.
*Some detection limits for particle categories may be higher than reported when EAA stopping rules are applied.
**Consist of a mix of tiny, hyaline Asco & Basidiospores

Analyst: (b) (6) Date: 05/27/2004

*Environmental Analysis Associates, Inc. * 5290 Soledad Road * San Diego, CA 92109 * (858) 272-7747*

ENVIRONMENTAL AIRBORNE AEROSOL ANALYSIS

Client Name: General Services Administration
Client Project #: Buildings 103, 104E & 107 **Project Desc:** Buildings 103, 104E & 107
EAA Project #: 04-0468 **Date Collected:** 5/25/2004

Client Sample #	Sample Description / Location	Analysis Comments
7085888	Bldg 104E 2nd floor North entrance to FSA	Low debris & dander, moderate opaque, low-moderate mold

AIRBORNE MOLD SPORE CONCENTRATIONS (Cts./m^3) - Spore Trap Sample Analysis	
Category Sample #-->	7085888
Total Mold Spores (Cts/m^3)	1152
Alternaria	
Aspergillus/Penicillium-types	55
Aureobasidium/Hormonema	
Asco/Basidiospores **	933
Other Basidiospores	
Botrytis	
Chaetomium	
Cladosporium	
Curvularia	
Drechslera/Bipolaris	
Epicoccum	
Fusarium	
Nigrospora	
Oidium/Peronospora	
Pithomyces	
Rusts	
Smuts/Myxomycetes	
Stachybotrys	
Stemphylium	
Torula	
Ulocladium	
Other Hyaline (majority tiny, hyaline)	165
Other Brown Fungi	
Small Brown Round	
Hyphae fragments	
Algal spores	
Feather fibrils	
POLLEN (Total Cts/m^3)	Not detected
not specified	
OTHER AEROSOLS (Cts/m^3)	
Skin cell fragments	1975
Fiberglass / Mineral wool	
Cellulosic fibers	227
Opaque particles	5541
Insect parts	
Statistical Parameters	
Vol. analyzed (m^3)--mold/aerosols:	0.018
Detect limit(Cts/m^3)--molds/aerosols:	55
% Sample analyzed--mold/aerosols:	24%
Volume analyzed(m^3)--pollen:	0.075
Detection limit (Cts/m^3)--pollen	13
Sample flow rate (lpm):	15.00
Sample trace length (mm):	14.40
Microscope field diameter (mm):	0.350

Outdoor mold ranges are based on So. California data. Other areas may vary.
*Some detection limits for particle categories may be higher than reported when EAA stopping rules are applied.
**Consist of a mix of tiny, hyaline Asco & Basidiospores

Analyst: (b) (6) Date: 05/27/2004

04-0468

May 25, 2004 GSA

Collected by: Gary Adams MS CIH

Zefon#	Location	Liters
7085886	Bldg 107 Basement file room	30
7085899	Bldg 107 GSA front office	75
7085892	Ambient Bldg 107	30
7085895	Bldg 103 1st floor F32.5	75
7085897	Bldg 103 2nd floor G38	75
7085888	Bldg 104E 2nd floor North entrance to FSA	75

Full analysis

Recd by (b) (6)
5/26/04 1130 hrs.

04-0468

#107 – Bsmt. File Room
Front office - GSA space

#103 – New FSA space 1st + 2nd floors
South end New furniture, but vacant

#104E – 2nd fl., North end
Ceiling leak area between restrooms + office space