



HYGIENETECH

Hygiene Technologies International, Inc.

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July 15, 2011

State of California
Board of Equalization
450 N Street
Sacramento, California 94279

Document No. 21107001.1

Attention: David Gau

Regarding: Fungal Growth Inspection and Exposure Assessment Surveys
M Floor Supply Fans 3 & 4

Dear Mr. Gau:

On June 18 and 27, 2011, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) participated in a fungal growth inspection and sample collection surveys involving the Supply Fans 3 & 4 Room heating, ventilating, and air conditioning (HVAC) duct and filter bank on the M Floor of the State of California Board of Equalization (BOE) building located at 450 N Street in Sacramento, California. The inspections were performed in association with LaCroix Davis, LLC (LCD), an industrial hygiene consulting firm contracted with the State of California Department of General Services (DGS). Also present at the time was JLS Environmental Services, Inc. (JLS), whose employees assisted with access into the HVAC ducts and isolated the fans and the portions of ducts designated for inspection. On June 18, 2011, supply fans in the area were deactivated prior to commencement of the isolation of inspection areas with plastic sheeting and tape. All activities including isolation of the fans and HVAC ducts, access into the ducts, inspection, and sample collection, were conducted within controlled negative pressure containments that were monitored with the use of manometers. Those control measures were used so that dispersion of airborne spores, if any dispersion had occurred during sample collection or manipulation of HVAC system components, was limited to the enclosed areas. Following the completion of all such activities and upon the reactivation of supply fans, HygieneTech collected air samples at random locations within the building in order to determine airborne fungi exposure potentials for building occupants on June 19, 2011.

Surface and bulk samples were collected by LCD representatives and all such samples were subsequently analyzed for fungi (including yeasts, molds, rusts, smuts, and mushrooms) by trained and experienced microbiologists at Emlab P&K, a laboratory accredited by the American Industrial Hygiene Association (AIHA) and that successfully participates in the AIHA Environmental Microbiology Proficiency Analytical Testing Program, which HygieneTech has successfully used in the past for analysis of samples collected at the BOE building. The analytical data with supporting and background information appear in the enclosed Tables 21107001-6 and 21107001-7.

As shown in those tables, the surface assessment data indicated that *Cladosporium* was the predominant fungal growth found on the surface and bulk samples collected, with minimal levels of other



fungal growth involving *Alternaria*, colorless spores typical of *Penicillium* and *Aspergillus* species, *Periconia*-like species, and/or *Torula* also detected at several sample locations. Based on these data, and particularly because of the fact that *Cladosporium* was quite consistently found at comparable levels largely in the absence of growth of other mold genera, HygieneTech has formulated the following conclusions. One, low to sometimes moderate level mold growth involving *Cladosporium* has clearly occurred in the active HVAC system at the M Floor level. And two, the environmental condition within the HVAC system is not only conducive for growth of that genus, but it is essentially constant, given that other mold genera have not cultured on interior surfaces to any appreciable degree.

Subsequent to the HVAC duct inspection and reactivation of the supply fans, air samples were collected on June 19 using a Zefon brand Bio-Pump™ equipped with Zefon Air-O-Cell™ cassettes. The airborne spore count data presented in Table 21106001-15 showed mostly common fungal spore types outdoors such as *Alternaria*, ascospores, basidiospores, *Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, rusts, smuts, and *Torula*, with *Cladosporium* predominating. In the indoor areas tested, the data showed low airborne concentrations of common fungal spores that included one or more of the following: basidiospores, *Cladosporium*, *Epicoccum*, rusts, and/or smuts—data that are entirely normal and consistent with data recorded by HygieneTech in the past in the BOE building. The distribution of fungal spore types detected in the surveyed areas was consistent with those found outdoors, and the overall data within the tested areas were well below the overall data recorded outdoors. Overall, these data were considered unremarkable and are not believed to pose a health risk beyond that posed by the outdoor environment where exposures to airborne fungi are expected.

Be advised that the data provided in this report only represent limited fungal growth and exposure potentials that existed at the time the surveys were performed and at the precise sample locations indicated, the latter of which were selected based on the available background information provided. Note that fungal growth and exposure potentials may change due to changes in environmental conditions (such as those caused by water intrusion), use of mechanical systems, changes in fungal growth within HVAC systems, or other factors. HygieneTech plans to conduct additional investigations in the BOE building in order to assure that the indoor air quality is satisfactorily maintained.

If you have any comments or questions regarding the information contained in this correspondence, please feel free to contact our offices directly at (310) 370-8370.

Sincerely,

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

Kenny K. Hsi, CIH
Technical Director

Brian P. Daly, CIH, PE
President



CLIENT: State of California
Board of Equalization
450 N Street
Sacramento, California 94279

TABLE 21107001-6
SURFACE FUNGAL GROWTH POTENTIALS
SUPPLY FANS 3 AND 4 DUCT SAMPLING
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 18, 2011

Page 1

SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-061711-3-B01A	Supply Fan 3 & 4 Room, Fan 3 duct interior; southern end; about three feet downstream of fan; approximately two feet below the top surface of duct; bulk sample duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-B01B	Supply Fan 3 & 4 Room, Fan 3 duct interior; southern end; about three feet downstream of fan; top surface; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-B02A	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 15 feet downstream of fan; approximately two feet above the bottom surface of duct; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-B02B	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 15 feet downstream of fan; bottom surface; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-B03A	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 20 feet downstream of fan; top surface of duct; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-B01A	Supply Fan 3 & 4 Room; Fan 4 duct interior; northern end; about three feet downstream of fan; approximately two feet below top surface of duct; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.



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SURFACE FUNGAL GROWTH POTENTIALS
SUPPLY FANS 3 AND 4 DUCT SAMPLING
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 18, 2011

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SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-061711-4-B01B	Supply Fan 3 & 4 Room; Fan 4 duct interior; northern end; about three feet downstream of fan; top surface; bulk sample of duct liner	Insulation	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-B02A	Supply Fan 3 & 4 duct area; Fan 4 duct interior; about 15 feet downstream of fan; bottom surface at southern end; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-B02B	Supply Fan 3 & 4 duct area; Fan 4 duct interior; southern end; about 15 feet downstream of fan; approximately two feet above the bottom surface of duct; bulk sample of duct liner	Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-B03A	Supply Fan 3 & 4 duct area; Fan 4 duct interior at western access door; top surface of duct; bulk sample of duct liner	Insulation	Very few	< 1+ <i>Cladosporium</i> species (spores, hyphae) < 1+ Colorless spores typical of <i>Penicillium/Aspergillus</i> (spores, hyphae)	None	Fungal growth
2372-061711-3-T01A	Supply Fan 3 & 4 Room, Fan 3 duct interior; southern end; about three feet downstream of fan; approximately two feet below the top surface of duct; from surface of duct liner	Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-T01B	Supply Fan 3 & 4 Room, Fan 3 duct interior; southern end; about three feet downstream of fan; top surface; from surface of duct liner	Moderate	Very few	3+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.



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SURFACE FUNGAL GROWTH POTENTIALS
SUPPLY FANS 3 AND 4 DUCT SAMPLING
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 18, 2011

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SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-061711-3-T01C	Supply Fan 3 & 4 Room; Fan 3 interior; from vertical surface of flex connector	Moderate	Very few	3+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-T02A	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 15 feet downstream of fan; approximately two feet above the bottom surface of duct; from surface of duct liner	Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-T02B	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 15 feet downstream of fan; bottom surface; from surface of duct liner	Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-3-T03A	Supply Fan 3 & 4 duct area; Fan 3 duct interior; northern end; about 20 feet downstream of fan; top surface of duct; from surface of duct liner	Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-T01A	Supply Fan 3 & 4 Room; Fan 4 duct interior; northern end; about three feet downstream of fan; approximately two feet below top surface of duct; from surface of duct liner	Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-T01B	Supply Fan 3 & 4 Room; Fan 4 duct interior; northern end; about three feet downstream of fan; top surface; from surface of duct liner	Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-T01C	Supply Fan 3 & 4 Room; Fan 4 interior; from vertical surface of flex connector	Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A



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TABLE 21107001-6
SURFACE FUNGAL GROWTH POTENTIALS
SUPPLY FANS 3 AND 4 DUCT SAMPLING
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 18, 2011

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SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-061711-4-T02A	Supply Fan 3 & 4 duct area; Fan 4 duct interior; about 15 feet downstream of fan; bottom surface at southern end; from surface of duct liner	Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-T02B	Supply Fan 3 & 4 duct area; Fan 4 duct interior; southern end; about 15 feet downstream of fan; approximately two feet above the bottom surface of duct; from surface of duct liner	Moderate	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-061711-4-T03A	Supply Fan 3 & 4 duct area; Fan 4 duct interior at western access door; top surface of duct; from surface of duct liner	Moderate	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.



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TABLE 21107001-7
SURFACE FUNGAL GROWTH POTENTIALS
SUPPLY FANS 3 AND 4 FILTER BANK
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 27, 2011

Page 1

SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-062711-3/4C-B01A	Filter bank for Supply Fans 3 & 4; about center; approximately six feet south of northern partition wall and four feet above floor; bulk sample of pre-filter	Paper filter	Very few	1+ <i>Alternaria</i> species (spores, hyphae, conidiophores) 1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-062711-3/4C-B02B	Filters bank for Supply Fans 3 & 4; about center; approximately six feet south of northern partition wall and four feet above floor; bulk sample of primary filter	Metal filter	Very few	<1+ <i>Cladosporium</i> species (spores, hyphae)	None	Minimal fungal growth
2372-062711-3/4C-B03A	Filter bank for Supply Fans 3 & 4; western portion; approximately four feet south of northern partition wall and four feet above floor; bulk sample of pre-filter	Paper filter	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) <1+ <i>Alternaria</i> species (spores, hyphae)	None	Fungal growth
2372-061711-3/4C-B04B	Filter bank for Supply Fans 3 & 4; western portion; approximately four feet south of northern partition wall and four feet above floor; bulk sample of primary filter	Metal filter	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) <1+ <i>Alternaria</i> species (spores, hyphae)	None	Fungal growth
2372-062711-3/4C-T01A	Filter bank for Supply Fans 3 & 4; about center; approximately six feet south of northern partition wall and four feet above floor; from surface of pre-filter	Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) <1+ <i>Alternaria</i> species (spores, hyphae)	None	Fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.

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APPENDIX A



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TABLE 21107001-7
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SUPPLY FANS 3 AND 4 FILTER BANK
M FLOOR
SACRAMENTO, CALIFORNIA
JUNE 27, 2011

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SAMPLE NUMBER	SAMPLING LOCATION	BACKGROUND DEBRIS OR MATERIAL DESCRIPTION	MISCELLANEOUS SPORES PRESENT*	FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES**	OTHER COMMENTS	GENERAL IMPRESSION
2372-062711-3/4C-T02B	Filter bank for Supply Fans 3 & 4; about center; approximately six feet south of northern partition wall and four feet above floor; from surface of primary filter	Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) <1+ <i>Alternaria</i> species (spores, hyphae)	None	Fungal growth
2372-062711-3/4C-T03C	Filter bank for Supply Fans 3 & 4; about center; approximately six feet south of northern partition wall and six feet above floor; from top surface of primary filter metal frame	Heavy	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-062711-3/4C-T04A	Filter bank for Supply Fans 3 & 4; western portion; approximately four feet south of northern partition wall and four feet above floor; from surface of pre-filter	Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) <1+ <i>Torula</i> species (spores, hyphae)	None	Fungal growth
2372-062711-3/4C-T05B	Filter bank for Supply Fans 3 & 4; western portion; approximately four feet south of northern partition wall and four feet above floor; from surface of primary filter	Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Fungal growth
2372-062711-3/4C-T06C	Filter bank for Supply Fans 3 & 4; western portion; approximately four feet south of northern partition wall and six feet above floor; from top surface of primary filter metal frame	Heavy	Very few	<1+ <i>Alternaria</i> species (spores, hyphae) < 1+ <i>Cladosporium</i> species (spores, hyphae) < 1+ <i>Periconia</i> -like species (spores, hyphae)	None	Minimal fungal growth

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.

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APPENDIX A



CLIENT: State of California
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Sacramento, California 94279

TABLE 21006001-15
AIRBORNE TOTAL FUNGI RESULTS
450 N STREET
SACRAMENTO, CALIFORNIA
JUNE 19, 2011

Page 1

Results reported in spores per cubic meter of air (spores/M³)

SAMPLE NUMBER	21006001-15 TM01OUT	21006001-15 TM02	21006001-15 TM03	21006001-15 TM04
SAMPLING LOCATION/ACTIVITIES	Outdoors; about 15 feet north of building; approximately five feet above ground/Normal outdoor activities	1 st Floor; Low Rise Elevator Lobby; about center; approximately five feet above floor/Sampling activities only	4 th Floor; Elevator Lobby; about center; approximately five feet above floor/Sampling activities only	11 th Floor; High Rise Elevator Lobby; about center; approximately five feet above floor/Sampling activities only
START/STOP	20:36:00/20:41:00	20:43:00/20:48:00	20:50:00/20:55:00	20:57:00/21:02:00
SAMPLE TIME	5 minutes	5 minutes	5 minutes	5 minutes
Alternaria	80			
Ascospores	160			
Aureobasidium				
Basidiospores	430	53		
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	1,700			
Curvularia				
Epicoccum				13
Nigrospora				
Oidium				
Other brown				
Penicillium/Aspergillus types	110			
Pithomyces				
Rusts	27			
Smuts(Periconia, Myxomycetes)	290	13	40	13
Stachybotrys				
Stemphylium				
Torula	40			
Ulocladium				
Zygomycetes				
Hyphal fragments	130	<13	80	13
Background debris*	2+	<1+	2+	2+
TOTAL **	2,800	67	40	27

*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

**Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.

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TABLE 21006001-15
AIRBORNE TOTAL FUNGI RESULTS
450 N STREET
SACRAMENTO, CALIFORNIA
JUNE 19, 2011

Page 2

Results reported in spores per cubic meter of air (spores/M³)

SAMPLE NUMBER	21006001-15 TM05	21006001-15 TM06		
SAMPLING LOCATION/ACTIVITIES	14 th Floor; Elevator Lobby; about center; approximately five feet above floor/Sampling activities only	22 nd Floor; Elevator Lobby; about center; approximately five feet above floor/Sampling activities only	This column intentionally left blank	This column intentionally left blank
START/STOP	21:03:00/21:08:00	21:10:00/21:15:00		
SAMPLE TIME	5 minutes	5 minutes		
Alternaria				
Ascospores				
Aureobasidium				
Basidiospores	53			
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium		53		
Curvularia				
Epicoccum				
Nigrospora				
Oidium				
Other brown				
Penicillium/Aspergillus types				
Pithomyces				
Rusts	13			
Smuts, Periconia, Myxomycetes	13			
Stachybotrys				
Stemphylium				
Torula				
Ulocladium				
Zygomycetes				
Hyphal fragments	<13	<13		
Background debris*	3+	2+		
TOTAL**	80	53		

*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

**Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.



Report for:

Mr. Chris Corpuz, Mr. Ted Ice, Mr. Ashley McKinley, Ms. Andrea Steinbach
LaCroix Davis, LLC
3685 Mt. Diablo Blvd.
Suite 210
Lafayette, CA 94549

Regarding: Project: 2372.02-572; DGS BOE
EML ID: 798126

Approved by:

Lab Manager
Dr. Kamashwaran Ramanathan

REVISED REPORT

Dates of Analysis:
Direct microscopic exam (Qualitative): 06-28-2011

Service SOPs: Direct microscopic exam (Qualitative) (I100005)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: LaCroix Davis, LLC
 C/O: Mr. Chris Corpuz, Mr. Ted Ice, Mr. Ashley
 McKinley, Ms. Andrea Steinbach
 Re: 2372.02-572; DGS BOE

Date of Sampling: 06-17-2011
 Date of Receipt: 06-23-2011
 Date of Report: 06-24-2011

DIRECT MICROSCOPIC EXAMINATION REPORT

(Wet Mount)

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 3535709-2: Bulk sample 2372-061711-3-B01A: Fan unit #3 side				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535710-2: Bulk sample 2372-061711-3-B01B: Fan unit #3 top				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535711-2: Bulk sample 2372-061711-3-B02A: Fan unit #3 side				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535712-2: Bulk sample 2372-061711-3-B02B: Fan unit #3 bottom				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535713-2: Bulk sample 2372-061711-3-B03A: Fan unit #3 top				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535714-2: Bulk sample 2372-061711-4-B01A: Fan unit #4 side				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535715-2: Bulk sample 2372-061711-4-B01B: Fan unit #4 top				
Insulation	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535716-2: Bulk sample 2372-061711-4-B02A: Fan unit #4 bottom				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535717-2: Bulk sample 2372-061711-3-B02B: Fan unit #4 side				
Insulation	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535718-2: Bulk sample 2372-061711-4-B03A: Fan unit #4				
Insulation	Very few	< 1+ <i>Cladosporium</i> species (spores, hyphae) < 1+ Colorless spores typical of <i>Penicillium/Aspergillus</i> (spores, hyphae)	None	Minimal mold growth

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 3535719-2: Tape sample 3-T01A				
Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535720-2: Tape sample 3-T01B				
Moderate	Very few	3+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535721-2: Tape sample 3-T01C				
Moderate	Very few	3+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535722-2: Tape sample 3-T02A				
Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535723-2: Tape sample 3-T02B				
Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535724-2: Tape sample 3-T03A				
Moderate	Very few	4+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535725-2: Tape sample 4-T01A				
Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535726-2: Tape sample 4-T01B				
Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535727-2: Tape sample 4-T01C				
Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535728-2: Tape sample 4-T02A				
Moderate	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3535729-2: Tape sample 4-T02B				
Moderate	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 3535730-2: Tape sample 4-T03A				
Moderate	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth

* Indicative of normal conditions, i.e. seen on surfaces everywhere. Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating. Distribution of spore types seen mirrors that usually seen outdoors.

† Quantities of molds seen growing are listed in the MOLD GROWTH column and are graded 1+ to 4+, with 4+ denoting the highest numbers.

†† Some comments may refer to the following: Most surfaces collect a mix of spores which are normally present in the outdoor environment. At times it is possible to note a skewing of the distribution of spore types, and also to note "marker" genera which may indicate indoor mold growth. Marker genera are those spore types which are present normally in very small numbers, but which multiply indoors when conditions are favorable for growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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WEATHER	Mo	Tu	We	Th	Fr	Sa	Su
Temp							
Humidity							
Wind							
Clouds							
Other							

CONTACT INFORMATION

Company: **Lacroix Davis, LLC**
 Address: **3685 Mt. Diablo Blvd, Lafayette CA94549**
 Special Instructions: **Please Email All Contacts**
 Contact: **Chris Corpus, Ted Lee, Andrea Struback, Ashley Meddler**
 Phone: **925-299-1140**

PROJECT INFORMATION

Project ID: **2372.02-572**
 Project Desc: **DGS BQF**
 Project Zip Code: **06171**
 Project Sampling Date & Time: **06/17/11**
 PO Number: _____

TURN AROUND TIME CODES - (TAT)

STD - Standard (DEFAULT)
ND - Next Business Day
SD - Same Business Day Rush
WH - Weekend/Holiday
 Rushes received after 2pm on weekdays, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
3-T01A		I	ND		
3-T01B		I	ND		
3-T01C		I	ND		
3-T02A		I	ND		
3-T02B		I	ND		
3-T03A		I	ND		
4-T01A		I	ND		
4-T01B		I	ND		
4-T01C		I	ND		
4-T02A		I	ND		
4-T02B		I	ND		
4-T03A		I	ND		

SAMPLE TYPE CODES

BC - BioCassette™ CP - Contact Plate T - Tape D - Dust
 A1S - Andersen ST - Spore Trap: Zefon, Aserpeno, W - Water
 SAS - Surface Air Sampler Burkard... B - Bulk SO - Soil

RELINQUISHED BY

Chris Corpus DATE & TIME: **6/21/11 12:50**

RECEIVED BY

AM DATE & TIME: **6-23-11 12:50**

FUNGAL ANALYSIS

REQUESTED SERVICES

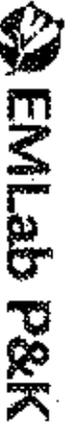
Non-Culturable: Spore Trap Tape Swab Bulk Bio: Other:

000798126

Spore Trap Analysis	Direct Microscopic Exam (Qualitative)	Air Fungi (Genus ID + Asp. speciation)
Spore Trap Analysis - Other particles	Quantitative Spore Count Direct Exam	Air Fungi - Full speciation Pen. & Clad, genus only
	Dust Characterization	Air Fungi - Full speciation
		1-Media Surface Fungi (Genus ID + Asp. speciation)
		1-Media Surface Fungi - Full speciation Pen. & Clad, gen
		1-Media Surface Fungi - Full speciation
		2-Media Surface Fungi (Genus ID + Asp. speciation)
		2-Media Surface Fungi - Full speciation Pen. & Clad, gen
		2-Media Surface Fungi - Full speciation
		3-Media Surface Fungi (Genus ID + Asp. speciation)
		3-Media Surface Fungi - Full speciation Pen. & Clad, genus or
		3-Media Surface Fungi - Full speciation

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WEATHER	Mo	Tu	We	Th	Fr	Sa	Su
Temp							
Humidity							
Wind							
Clouds							
Other							

CONTACT INFORMATION

Company: **LaCroix Davis, LLC** Address: **3695 Mt. Diablo Blvd, Lafayette CA94549**
 Contact: Chris Carper, Ted Iser, Andrew Steinback, Ashley Mackley
 Special Instructions: **Please Email All Contacts**
 Phone: **925-299-1140**

PROJECT INFORMATION

Project ID: **2372-02-572**
 Project Desc: **D&S-BOE**
 Project Zip Code: **94171**
 Sampling Date & Time: **06/17/11**
 PO Number: _____

TURN AROUND TIME CODES - (TAT)

STD - Standard (DEFAULT)
ND - Next Business Day
SD - Same Business Day Rush
WH - Weekend/Holiday

Rushes received after 2pm on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
2372-061711-3-B01A	Fan Unit #3 side	B	ND		Analyst: Do Not analyze to surface of sample. Want to know what has generally collected inside sample.
2372-061711-3-B01B	Fan Unit #3 top	B	ND		
2372-061711-3-B02A	Fan Unit #3 side	B	ND		
2372-061711-3-B02B	Fan Unit #3 bottom	B	ND		
2372-061711-3-B03A	Fan Unit #3 top	B	ND		

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	D - Dust
ATS - Andersen	ST - Spore Trap	SW - Swab	W - Water
SAS - Surface Air Sampler	Zenon, Allergenco, Burkard	B - Bulk	SO - Soil
O - Other			

RELINQUISHED BY

DATE & TIME

Chris Carper 6/23/11

RECEIVED BY

DATE & TIME

[Signature] 6-23-11 12:50

FUNGAL ANALYSIS

REQUESTED SERVICES (Use Boxed)

Non-Culturable

Spore Trap	Spore Trap Analysis	Spore Trap Analysis - Other particles
Tape Swab	Direct Microscopic Exam (Qualitative)	Quantitative Spore Count Direct Exam
Bulk	Dust Characterization	
BioCase-DL	Air Fungi (Genus ID + Asp. speciation)	Air Fungi - Full speciation Pen. & Clad. genus only
	Air Fungi - Full speciation	
	1-Media Surface Fungi (Genus ID + Asp. speciation)	1-Media Surface Fungi - Full speciation Pen. & Clad. g
	1-Media Surface Fungi - Full speciation	
	2-Media Surface Fungi (Genus ID + Asp. speciation)	2-Media Surface Fungi - Full speciation Pen. & Clad. g
	2-Media Surface Fungi - Full speciation	
	3-Media Surface Fungi (Genus ID + Asp. speciation)	3-Media Surface Fungi - Full speciation Pen. & Clad. g
	3-Media Surface Fungi - Full speciation	

DL 000798126



Other

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WEATHER:	TD	FB	EW	WD	DR
Temp					
Wet					
Moist					
Fog					

CONTACT INFORMATION

Company: **LaCroix Davis, LLC**
 Address: 3685 Mt. Diablo Blvd, Lafayette CA94549
 Contact: Chris Conroy Tel: Lee; Andrea Steinbeck Ashley McKinley
 Special Instructions: Please Email All Contacts
 Phone: 925-299-1140

PROJECT INFORMATION

Project ID: **2372-02-572**
 Project Desc: **DGS - BOE**
 Project Zip Code: **06171**
 Project Date & Time: **06/17/11**
 PO Number:

TURN AROUND TIME CODES - (TAT)

STD - Standard (DEFAULT)
ND - Next Business Day
SD - Same Business Day Rush
WH - Weekend/Holiday

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
2372-0671-4-BQ1A	Fan Unit #4 Side	B	ND		
2372-0671-4-BQ1B	Fan Unit #4 top	B	ND		
2372-0671-4-BQ2A	Fan Unit #4 bottom	B	ND		
2372-0671-4-BQ2B	Fan Unit #4 side	B	ND		
2372-0671-4-BQ3A	Fan Unit #4	B	ND		

SAMPLE TYPE CODES

BC - BioCassette
 A1S - Andersen
 SAS - Surface Air Sampler
 O - Other

CP - Contact Plate
 ST - Spore Trap
 Burkard

T - Tape
 SW - Swab
 B - Bulk

D - Dust
 W - Water
 SO - Soil

RELINQUISHED BY

David Casper
 6/17/11

RECEIVED BY

[Signature]
 6-23-11

FUNGAL ANALYSIS

REQUESTED SERVICES (✓ Boxes)

Non-Culturable	
Spore Trap	
Tape Swab	
Bulk	
Direct Microscopic Exam (Qualitative)	X
Quantitative Spore Count Direct Exam	
Dust Characterization	
Air Fungi (Genus ID + Asp. speciation)	
Air Fungi - Full speciation Pen. & Clad, genus only	
Air Fungi - Full speciation	
1-Media Surface Fungi (Genus ID + Asp. speciation)	
1-Media Surface Fungi - Full speciation Pen. & Clad, ge	
1-Media Surface Fungi - Full speciation	
2-Media Surface Fungi (Genus ID + Asp. speciation)	
2-Media Surface Fungi - Full speciation Pen. & Clad, g	
2-Media Surface Fungi - Full speciation	
3-Media Surface Fungi (Genus ID + Asp. speciation)	
3-Media Surface Fungi - Full speciation Pen. & Clad, genus or	
3-Media Surface Fungi - Full speciation	

000798126



S, Swab, Bulk

Other

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Report for:

Mr. Chris Corpuz, Mr. Ted Ice, Mr. Ashley McKinley, Ms. Andrea Steinbach
LaCroix Davis, LLC
3685 Mt. Diablo Blvd.
Suite 210
Lafayette, CA 94549

Regarding: Project: DGS-BOE; M Fan 3/4 Filter Bank
EML ID: 799507

Approved by:

Lab Manager
Dr. Kamashwaran Ramanathan

Dates of Analysis:

Direct microscopic exam (Qualitative): 06-28-2011

Service SOPs: Direct microscopic exam (Qualitative) (I100005)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

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Document Number: 200091 - Revision Number: 5

Client: LaCroix Davis, LLC
 C/O: Mr. Chris Corpuz, Mr. Ted Ice, Mr. Ashley
 McKinley, Ms. Andrea Steinbach
 Re: DGS-BOE; M Fan 3/4 Filter Bank

Date of Sampling: 06-27-2011
 Date of Receipt: 06-28-2011
 Date of Report: 06-28-2011

DIRECT MICROSCOPIC EXAMINATION REPORT
 (Wet Mount)

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 3541706-1: Bulk sample 2372.062711.3/4C.B01A: Center paper filter				
Paper filter	Very few	1+ <i>Alternaria</i> species (spores, hyphae, conidiophores) 1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3541707-1: Bulk sample 2372.062711.3/4C.B02B: Center metal filter				
Metal filter	Very few	< 1+ <i>Cladosporium</i> species (spores, hyphae)	None	Minimal mold growth
Lab ID-Version: 3541708-1: Bulk sample 2372.062711.3/4C.B03A: North paper filter				
Paper filter	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) < 1+ <i>Alternaria</i> species (spores, hyphae)	None	Mold growth
Lab ID-Version: 3541709-1: Bulk sample 2372.062711.3/4C.B04B: North metal filter				
Metal filter	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) < 1+ <i>Alternaria</i> species (spores, hyphae)	None	Mold growth
Lab ID-Version: 3541710-1: Tape sample 2372.062711.3/4C.T01A: Center paper filter				
Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) < 1+ <i>Alternaria</i> species (spores, hyphae)	None	Mold growth
Lab ID-Version: 3541711-1: Tape sample 2372.062711.3/4C.T02B: Center metal filter				
Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) < 1+ <i>Alternaria</i> species (spores, hyphae)	None	Mold growth
Lab ID-Version: 3541712-1: Tape sample 2372.062711.3/4C.T03C: Center metal frame top				
Heavy	Very few	1+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	None	Mold growth
Lab ID-Version: 3541713-1: Tape sample 2372.062711.3/4C.T04A: North paper filter				
Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores) < 1+ <i>Torula</i> species (spores, hyphae)	None	Mold growth
Lab ID-Version: 3541714-1: Tape sample 2372.062711.3/4C.T05B: North metal filter				
Heavy	Very few	2+ <i>Cladosporium</i> species (spores, hyphae, conidiophores)	Many dark amorphous particles detected, not biological in appearance.	Mold growth

Background Debris and/or Description	Miscellaneous Spores Present*	MOLD GROWTH: Molds seen with underlying mycelial and/or sporulating structures†	Other Comments††	General Impression
Lab ID-Version‡: 3541715-1: Tape sample 2372.062711.3/4C.T06C: North metal frame top				
Heavy	Very few	< 1+ <i>Alternaria</i> species (spores, hyphae) < 1+ <i>Cladosporium</i> species (spores, hyphae) < 1+ <i>Periconia</i> -like species (spores, hyphae)	None	Minimal mold growth

* Indicative of normal conditions, i.e. seen on surfaces everywhere. Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating. Distribution of spore types seen mirrors that usually seen outdoors.

† Quantities of molds seen growing are listed in the MOLD GROWTH column and are graded 1+ to 4+, with 4+ denoting the highest numbers.

†† Some comments may refer to the following: Most surfaces collect a mix of spores which are normally present in the outdoor environment. At times it is possible to note a skewing of the distribution of spore types, and also to note "marker" genera which may indicate indoor mold growth. Marker genera are those spore types which are present normally in very small numbers, but which multiply indoors when conditions are favorable for growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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MEMBERS	Eq	Rn	Stw	Wd	Qr
NAME					
LIST					
NUMBER					
HOW					

CONTACT INFORMATION

Company: **LaCroix Davis, LLC**
 Address: **3685 Mt. Diablo Blvd, Lafayette CA 94549**
 Contact: **Chris Cooper, Ted Lee, Andrea Stetachsky, Ashley Mckinley**
 Special Instructions: **Please Email All Contacts**
 Phone: **925-299-1140**

PROJECT INFORMATION

Project ID: **DGS-BOE**
 Project Desc: **M Egn 3/4 Filter Bank**
 Project Zip Code: **94027**
 PO Number: **2372-02-572**
 Sampling Date & Time: **6/27/11 9:00**

TURN AROUND TIME CODES - (TAT)

STD - Standard (DEFAULT)
 ND - Next Business Day
 SD - Same Business Day Rush
 WH - Weekend/Holiday
 Rushes received after 2pm or on Weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Avg. (as applicable)	NOTES (Time of day, Temp, RH, etc.)
2372-062711-3/4 C 7021A	Center Paper Filter	T	SD		
2372-062711-3/4 C 7021B	Center Metal Filter	T	SD		
2372-062711-3/4 C 7021C	Center Metal Frame Top	T	SD		
2372-062711-3/4 N 7021A	North Paper Filter	T	SD		
2372-062711-3/4 N 7021B	North Metal Filter	T	SD		
2372-062711-3/4 N 7021C	North Metal Frame Top	T	SD		
2372-062711-3/4 E BO1A	Center Paper Filter	B	SD		
2372-062711-3/4 E BO2B	Center Metal Filter	B	SD		
2372-062711-3/4 N BO3A	North Paper Filter	B	SD		
2372-062711-3/4 N BO4B	North Metal Filter	B	SD		

SAMPLE TYPE CODES

BC - BioCassette
 CP - Contact Plate
 ST - Spore Trap
 SAS - Surface Air Sampler
 T - Tape
 SW - Swab
 B - Bulk
 D - Dust
 W - Water
 SO - Soil
 O - Other

RELINQUISHED BY

Thurman

DATE & TIME

6/27/11 pm

RECEIVED BY

Felix

DATE & TIME

6/28/11 4:30

FUNGAL ANALYSIS

REQUESTED SERVICE

000799507

Non-Culturable	Spore Trap	BioCassette™
	Tape Swab	Water, Bulk
	Bulk	Dust, Soil, Contact Plate

Spore Trap Analysis	Direct Microscopic Exam (Qualitative)	Air Fungi (Genus ID + Asp. speciation)	1-Media Surface Fungi (Genus ID + Asp. speciation)	2-Media Surface Fungi (Genus ID + Asp. speciation)	3-Media Surface Fungi (Genus ID + Asp. speciation)	8-Media Surface Fungi (Full speciation)
Spore Trap Analysis - Other particles	Quantitative Spore Count Direct Exam	Air Fungi - Full speciation Pen. & Clad. genus only	1-Media Surface Fungi - Full speciation Pen. & Clad. genus or	2-Media Surface Fungi - Full speciation Pen. & Clad. genus or	3-Media Surface Fungi - Full speciation Pen. & Clad. genus or	8-Media Surface Fungi - Full speciation
	Dust Characterization	Air Fungi - Full speciation	1-Media Surface Fungi - Full speciation	2-Media Surface Fungi - Full speciation	3-Media Surface Fungi - Full speciation	8-Media Surface Fungi - Full speciation

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Report for:

Mr. Wesley Frey, Mr. Larry Sandhu
Hygiene Technologies International, Inc.: Northern California
3625 Del Amo Boulevard, Suite 180
Torrance, CA 90503-8370

Regarding: Project: 21106001-15
EML ID: 796237

Approved by:

Lab Manager
Malcolm Moody

Dates of Analysis:
Spore trap analysis: 06-20-2011

Service SOPs: Spore trap analysis (1038)

For clarity, we report the number of significant digits as calculated; but, due to the nature of this type of biological data, the number of significant digits that is used for interpretation should generally be one or two. All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

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Document Number: 200091 - Revision Number: 5

Client: Hygiene Technologies International, Inc.:
Northern California
C/O: Mr. Wesley Frey, Mr. Larry Sandhu
Re: 21106001-15

Date of Submittal: 06-19-2011
Date of Receipt: 06-20-2011
Date of Report: 06-20-2011

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	21106001-15 TM01OUT		21106001-15 TM02		21106001-15 TM03	
Comments (see below)	None		None		None	
Lab ID-Version‡:	3526987-1		3526988-1		3526989-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria	6	80				
Arthrinium						
Ascospores*	3	160				
Aureobasidium						
Basidiospores*	8	430	1	53		
Bipolaris/Drechslera group						
Botrytis						
Chaetomium						
Cladosporium	32	1,700				
Curvularia						
Epicoccum						
Myrothecium						
Nigrospora						
Penicillium/Aspergillus types†	2	110				
Pithomyces						
Rusts*	2	27				
Smuts*, Periconia, Myxomycetes*	22	290	1	13	3	40
Stachybotrys						
Stemphylium						
Torula	3	40				
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	2+		< 1+		2+	
Hyphal fragments/m3	130		< 13		80	
Pollen/m3	67		13		27	
Skin cells (1-4+)	< 1+		< 1+		2+	
Sample volume (liters)	75		75		75	
§ TOTAL SPORES/m3		2,800		67		40

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.
 * Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
 † The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
 †† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.
 The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
 For more information regarding analytical sensitivity, please contact QA by calling the laboratory.
 ‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
 § Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

Client: Hygiene Technologies International, Inc.:
Northern California
C/O: Mr. Wesley Frey, Mr. Larry Sandhu
Re: 21106001-15

Date of Submittal: 06-19-2011
Date of Receipt: 06-20-2011
Date of Report: 06-20-2011

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	21106001-15 TM04		21106001-15 TM05		21106001-15 TM06	
Comments (see below)	None		None		None	
Lab ID-Version‡:	3526990-1		3526991-1		3526992-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria						
Arthrinium						
Ascospores*						
Aureobasidium						
Basidiospores*			1	53		
Bipolaris/Drechslera group						
Botrytis						
Chaetomium						
Cladosporium					1	53
Curvularia						
Epicoccum	1	13				
Myrothecium						
Nigrospora						
Penicillium/Aspergillus types†						
Pithomyces						
Rusts*			1	13		
Smuts*, Periconia, Myxomycetes*	1	13	1	13		
Stachybotrys						
Stemphylium						
Torula						
Ulocladium						
Zygomycetes						
Background debris (1-4+)††	2+		3+		2+	
Hyphal fragments/m3	13		< 13		< 13	
Pollen/m3	< 13		13		< 13	
Skin cells (1-4+)	1+		2+		1+	
Sample volume (liters)	75		75		75	
§ TOTAL SPORES/m3		27		80		53

Comments:

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.
 * Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
 † The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
 †† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.
 The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
 For more information regarding analytical sensitivity, please contact QA by calling the laboratory.
 ‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
 § Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

Client: Hygiene Technologies International, Inc.:
Northern California
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Re: 21106001-15

Date of Submittal: 06-19-2011
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MoldRANGE™: Extended Outdoor Comparison

Outdoor Location: 21106001-15 TM01OUT

Fungi Identified	Outdoor data	Typical Outdoor Data by Date†				Typical Outdoor Data by Location‡			
		Month: June				State: CA			
	spores/m3	low	med	high	freq %	low	med	high	freq %
Generally able to grow indoors*									
Alternaria	80	7	40	420	61	7	27	210	51
Bipolaris/Drechslera group	-	7	13	190	18	7	13	130	12
Chaetomium	-	7	13	120	13	7	13	120	20
Cladosporium	1,700	46	640	9,100	96	53	590	7,800	96
Curvularia	-	7	19	470	15	7	13	230	7
Nigrospora	-	7	13	150	11	7	13	200	9
Penicillium/Aspergillus types	110	20	160	2,000	71	33	210	2,500	83
Stachybotrys	-	7	13	340	3	7	13	210	4
Torula	40	7	13	190	13	7	13	160	11
Seldom found growing indoors**									
Ascospores	160	13	290	8,500	84	13	110	2,100	69
Basidiospores	430	13	430	22,000	94	13	210	8,700	92
Rusts	27	7	13	210	23	7	13	270	24
Smuts, Periconia, Myxomycetes	290	7	53	1,200	77	7	40	560	66
§ TOTAL SPORES/m3	2,800								

† The Typical Outdoor Data by Date represents the typical outdoor spore levels across North America for the month indicated. The last column represents the frequency of occurrence. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 2.5% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

‡ The Typical Outdoor Data by Location represents the typical outdoor spore levels for the region indicated for the entire year. As with the Typical Outdoor Data by Date, the four columns represent the frequency of occurrence and the typical low, medium, and high concentration values for the spore type indicated. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

§ Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor data" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. In addition, EMLab P&K may not have received and tested a representative number of samples for every region or time period. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: Hygiene Technologies International, Inc.:
 Northern California
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 Re: 21106001-15

Date of Submittal: 06-19-2011
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MoldSTAT™: Supplementary Statistical Spore Trap Report

Outdoor Summary: 21106001-15 TM01OUT:

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Alternaria				80	7 - 27 - 450	48
Ascospores				160	13 - 160 - 5,300	76
Basidiospores				430	13 - 370 - 19,000	91
Cladosporium				1,700	27 - 480 - 9,700	91
Penicillium/Aspergillus types				110	13 - 180 - 2,500	73
Rusts				27	7 - 20 - 330	20
Smuts, Periconia, Myxomycetes				290	7 - 40 - 870	66
Torula				40	7 - 13 - 170	10
Total				2,840		

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

Indoor Samples

Location: 21106001-15 TM02

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 2%	dF: 4 Result: 0.8400 Critical value: 9.4877 Inside Similar: Yes	Result: 0.4000	dF: 8 Result: 0.6012 Critical value: 0.6190 Outside Similar: No	Score: 105 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
	Basidiospores				53
	Smuts, Periconia, Myxomycetes				13
	Total				67

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MoldSTAT™: Supplementary Statistical Spore Trap Report

Location: 21106001-15 TM03

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 1%	dF: 4 Result: 0.8400 Critical value: 9.4877 Inside Similar: Yes	Result: 0.2222	dF: 8 Result: 0.4762 Critical value: 0.6190 Outside Similar: No	Score: 107 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Smuts, Periconia, Myxomycetes					40
Total					40

Location: 21106001-15 TM04

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: < 1%	dF: 4 Result: 0.8400 Critical value: 9.4877 Inside Similar: Yes	Result: 0.2000	dF: 9 Result: 0.0875 Critical value: 0.5833 Outside Similar: No	Score: 107 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Epicoccum					13
Smuts, Periconia, Myxomycetes					13
Total					27

Location: 21106001-15 TM05

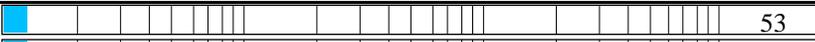
% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 2%	dF: 4 Result: 0.8400 Critical value: 9.4877 Inside Similar: Yes	Result: 0.5455	dF: 8 Result: 0.2560 Critical value: 0.6190 Outside Similar: No	Score: 104 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Basidiospores					53
Rusts					13
Smuts, Periconia, Myxomycetes					13
Total					80

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MoldSTAT™: Supplementary Statistical Spore Trap Report

Location: 21106001-15 TM06

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)
Result: 1%	dF: 4 Result: 0.8400 Critical value: 9.4877 Inside Similar: Yes	Result: 0.2222	dF: 8 Result: 0.6667 Critical value: 0.6190 Outside Similar: Yes	Score: 101 Result: Low
Species Detected		Spores/m3		
		<100	1K	10K
		>100K		
Cladosporium				
Total				

* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

** An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

*** The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

**** MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. EMLab P&K reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor ranges" are based on the results of the analysis of samples delivered to and analyzed by EMLab P&K and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical analysis provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. EMLab P&K hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: Hygiene Technologies International, Inc.:
 Northern California
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 Re: 21106001-15

Date of Submittal: 06-19-2011
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MoldSCORE™: Spore Trap Report

Outdoor Sample: 21106001-15 TM01OUT

Fungi Identified	Outdoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					6	80
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					32	1,700
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					2	110
Stachybotrys					ND	< 13
Torula					3	40
Seldom found growing indoors**						
Ascospores††					3	160
Basidiospores††					8	430
Rusts					2	27
Smuts, Periconia, Myxomycetes††					22	290
Total						2,840

Location: 21106001-15 TM02

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium					ND	< 13
Cladosporium					ND	< 13
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†					ND	< 13
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores††					ND	< 13
Basidiospores††					1	53
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes††					1	13
Total						67

MoldSCORE‡			Score
100	200	300	
			100
			100
			100
			100
			100
			100
			100
			100
			100
			100
			105
			100
			101
Final MoldSCORE			105

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MoldSCORE™: Spore Trap Report

Location: 21106001-15 TM03

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores††					ND	< 13				100
Basidiospores††					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes††					3	40				107
Total						40				Final MoldSCORE 107

Location: 21106001-15 TM04

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Epicoccum					1	13				105
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores††					ND	< 13				100
Basidiospores††					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes††					1	13				102
Total						27				Final MoldSCORE 107

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MoldSCORE™: Spore Trap Report

Location: 21106001-15 TM05

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					ND	< 13				100
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores††					ND	< 13				100
Basidiospores††					1	53				104
Rusts					1	13				105
Smuts, Periconia, Myxomycetes††					1	13				101
Total						80				Final MoldSCORE 104

Location: 21106001-15 TM06

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13				100
Bipolaris/Drechslera group					ND	< 13				100
Chaetomium					ND	< 13				100
Cladosporium					1	53				101
Curvularia					ND	< 13				100
Nigrospora					ND	< 13				100
Penicillium/Aspergillus types†					ND	< 13				100
Stachybotrys					ND	< 13				100
Torula					ND	< 13				100
Seldom found growing indoors**										
Ascospores††					ND	< 13				100
Basidiospores††					ND	< 13				100
Rusts					ND	< 13				100
Smuts, Periconia, Myxomycetes††					ND	< 13				100
Total						53				Final MoldSCORE 101

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Re: 21106001-15

Date of Submittal: 06-19-2011
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MoldSCORE™: Spore Trap Report

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

†The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods.

††Most of these spore types are not seen with culturable methods (Anderson sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores.

‡Rated on a scale from 100 to 300. A rating less than 150 is low and indicates a low probability of spores originating inside. A rating greater than 250 is high and indicates a high probability that the spores originated from inside, presumably from indoor mold growth. A rating between 150 and 250 indicates a moderate likelihood of indoor fungal growth. MoldSCORE is NOT intended for wall cavity samples. It is intended for ambient air samples in residences. Using the analysis on other samples (like wall cavity samples) will lead to misleading results.

