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# **BioMax Environmental**

*Environmental Consulting and Industrial Hygiene Services*

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September 22<sup>nd</sup>, 2008

Mr. Doug Button  
Deputy Director  
Real Estate Services Division  
707 Third Street - 8th Floor  
West Sacramento, CA 95605

**Post Mitigation Assessment Report**  
**Department of General Services**  
**Board of Equalization Building, 450 N. Street**  
**Break Room 807 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper (Janitor) Rooms**  
**Sacramento, California**

Mr. Button,

BioMax Environmental, LLC (BioMax) is pleased to provide The Department of General Services (DGS) with this letter summary report detailing BioMax's findings and recommendations pertaining to our post mitigation microbial inspection and sampling assessment services provided within the noted break room and interior Hopper Rooms (Janitor's Room) areas of the 22<sup>nd</sup> and 23<sup>rd</sup> floors of the Board of Equalization (BOE) building located at 450 N Street, Sacramento, California. BioMax understands that these post mitigation microbial inspection and sampling assessment services were contracted with BioMax, at your request, in an effort to review and verify the successful completion of microbial mitigative efforts performed by your restoration contractor, JLS Environmental, Inc., (JLS) within the previously identified areas located within the subject building.

Therefore, these post mitigation clearance assessment services are intended to assess the current site conditions wherein mitigative activities were performed by JLS to investigate and address (as needed) the prior moisture and mold related damages and impacts. Procedural recommendations pertaining to BioMax's review of historical and analytical data associated with the subject break room and interior Hopper Room areas have been summarized within our previously developed procedural assessment reports including those entitled:

- Mitigative and Clean Up Procedures for Interior Electrical/Data Rooms, Janitorial Rooms, Supply Rooms, Copy Rooms, Storage Rooms, and Rest Room Areas, dated May 7<sup>th</sup>, 2008.
- 22<sup>nd</sup> Floor Procedures for Destructive Inspection and Microbial Mitigation, dated May 9<sup>th</sup>, 2008.
- Microbial Assessment of Break Room Areas ("Building Wide"), dated July 11<sup>th</sup>, 2008

Additional historical reports and assessment data may also be obtained for further historical background and technical reference, as necessary.

Hence, these post mitigation microbial clearance assessment services, thereby, are intended to provide a professional evaluation verifying the physical conditions wherein the successful completion of microbial removal and decontamination within each of the affected areas has been achieved. Following the completion of the prescribed mitigative activities performed by your mitigation contractor, Mr. Michael A. Polkabl, CIH, REA of BioMax performed a detailed post mitigation site inspection and sampling assessment within each of the affected interior areas (and adjacent impacted areas as necessary) as noted in this report. BioMax's findings and conclusions pertaining to these post mitigation sampling assessment activities are, therefore, summarized herein.

#### **SITE OBSERVATIONS:**

Site inspection and post mitigation assessment sampling activities were performed within the noted Break Room and Hopper Rooms on August 27<sup>th</sup>, 2008. Site access into each of these contained areas on these respective dates was facilitated by site contractor and DGS personnel. On each of these dates, Mr. Michael A. Polkabl, CIH, REA of BioMax performed a detailed visual site inspection within the noted containment system barriers associated with the noted interior areas identified as break room 807 (plus adjacent conference room 805), Hopper Room 22 and Hopper Room 23, respectively. Following the performance of a detailed visual assessment (indicating acceptable post mitigation conditions), BioMax collected a series of airborne SporeTrap confirmation samples within and surrounding each of these areas as noted below.

On-site inspection and clearance sampling assessment activities were performed by Mr. Michael A. Polkabl, CIH, REA, of BioMax in accordance with currently recognized microbial assessment and sampling guideline procedures. Mr. Polkabl has been certified in the Comprehensive Practice of Industrial Hygiene by the American Board of Industrial Hygiene and holds the right to the designation "Certified Industrial Hygienist" (CIH) under certification number CP 7104. Mr. Polkabl is also certified by the California Environmental Protection Agency (Cal/EPA) as a Class I Registered Environmental Assessor (REA) under Cal/EPA certification number 05011. Previously established clearance criteria developed for these activities has been formalized in BioMax's Post Mitigation Clearance Assessment Protocols dated February 15<sup>th</sup>, 2008. Such protocols have been reviewed and approved by BOE's environmental consultant, Hygientech International, Inc. (HTI) prior to implementation. A summary of significant notations and observations gathered during BioMax's site inspection and post mitigation clearance assessment activities within the subject containment areas are compiled as follows:

1. At the time of our site inspection and clearance sampling assessment performed on August 27<sup>th</sup>, 2008 ambient outdoor conditions both prior to and following our interior assessment

activities consisted of clear and mild conditions with an outdoor temperatures range between 73 and 102 degrees F and relative humidity of 29-21 %, respectively. Predominant winds were noted at approximately 0-5 knots from the southwesterly direction at the time of our assessment. Interior environmental conditions within the sampled containment areas consisted of a temperature range between 74 and 86 degrees F with relative humidity range of 26 to 29 percent.

2. At the time of this assessment, each of the observed interior containment barrier systems, whereby microbial mitigative and inspection activities were performed, were established and maintained within the impacted areas as per BioMax's protocols. Specific detail as noted on the "as built" construction site floor diagram documents may be reviewed for further reference as necessary. BioMax routinely performed regular and periodic inspections and review of records/conditions within and surrounding each of the noted containment areas during mitigative activities. A review of such information has indicated a preponderance of evidence verifying that the current barrier systems have provided appropriate protective controls for the duration and performance of the noted mitigative activities.
3. During the post mitigation inspection of each containment system, BioMax noted the absence of visible evidence of elevated residual moisture and/or microbial indicators (such as staining, delamination, etc.) within the remaining exposed interior walls, wall framing, and wall cavities following the performance of mitigative measures. Utilization of a TraMex hand-held inductive moisture meter indicated normal moisture content within all remaining walls and building materials inspected within the sampled containment areas at the time of our assessment.
4. As noted within the previously referenced assessment reports, the primary affected areas of visible moisture damage previously identified within the noted break room primarily included moisture staining and mold damaged cabinetry, adjacent flooring, and wallboard materials. According to BioMax's review of current evidence and available historical data, it is BioMax's opinion that such material damage was likely caused by a history of chronic plumbing deficiencies and water release events over an extended period of time.
5. Primary affected areas of visible moisture damage previously identified within the noted Hopper Room areas primarily consisted of moisture staining and mold damaged materials within and adjacent to the wet-mop sink areas and adjacent flooring, and wallboard materials. According to BioMax's review of current evidence and available historical data, it is likely that such material damage were similarly caused by a history of chronic plumbing deficiencies and water release events over an extended period of time.
6. The establishment of containment system barriers encompassing each of the interior affected break room and Hopper Room areas were observed and verified under appropriate posting and negative pressure differential at the time of this post mitigation assessment. Worker and equipment entry and exit chambers comprised of a series of zippered plastic access doorways were also observed attached to the noted containment barriers consistent with BioMax's previously noted mitigation protocols.

7. As verified during these assessment activities, all identified affected interior wallboard building materials had been removed from each of the noted interior areas of concern exposing interior wall cavity framing (metal) and underlayment wallboard siding materials present within each of the impacted materials and areas. Upon post mitigation inspection, all remaining exposed building materials associated within the break room and Hopper Room areas exhibited no significant staining and/or elevated mold growth following the completion of prescribed physical material removal and chemical decontamination procedures performed by JLS within each impacted area.
8. Digital images and schematic records have been developed and maintained by JLS for the duration the performance of these mitigative removal activities indicating the extent and areas where visible staining and/or mold like indicators have been identified within the exposed wall cavities and wall cavity underlayment materials and subsequently removed within each containment area. Such records have been reviewed by BioMax as part of this clearance assessment and may be provided by JLS for additional review upon request.
9. Following the completion of visual inspections within each of these containment areas, BioMax collected series airborne samples within and outside the containment systems noted below for subsequent comparative analysis. Such samples collected within and surrounding each the interior containment system were performed in an effort to identify and quantify the presence of potential airborne mold spores present within (and surrounding) the containment systems following the completion of the prescribed mitigative effort. Findings associated with these verification sampling activities are noted below.
10. BioMax also collected a series of digital images during these post mitigative inspection and sampling assessment activities to document the conditions and significant site observations gathered at this time. Such images are provided as an attachment to this summary report for further reference, as necessary.

## **SAMPLING PROCEDURES**

On-site inspection and sampling assessment activities were conducted by Mr. Michael A. Polkaba, CIH, REA, of BioMax Environmental within the noted break room and Hopper Rooms on August 27<sup>th</sup>, 2008. All sampling equipment, supplies, calibration materials, and collection media were provided and maintained by BioMax as part of the performance of this scope of work. Sample collection procedures and methods were performed using standard industrial hygiene sampling methods following techniques prescribed by the contracted analytical laboratory.

### **Spore Trap Airborne Microbial and Particulate Sampling:**

The collection of airborne Spore Trap microbial samples was achieved using Zefon Air-O-Cell sampling cassette collection devices placed in each of the areas identified in the tables below.

Airborne Spore Trap samples were collected within and outside each of the containment area locations at a height of approximately four feet above ground level using a tripod mounted Quick Take 15 air sampling pump manufactured by SKC. Samples were collected at a calibrated flow rate of 15 liters per minute for a total of five minutes per sample. Resultant total sample volumes, therefore, corresponded to 75 liters collected for each collected sample. Field calibration of the SKC air sampling pump was conducted using a field rotometer device calibrated with a Bios Drycal primary standard flow meter. All spore trap air sampling and analytical procedures were performed in accordance with prescribed manufacturer guidelines as well as applicable professional certified industrial hygiene indoor air quality microbial investigation procedures and certified industrial hygiene practices.

Additional exterior ambient samples were also similarly collected and analyzed in an effort to identify and quantify representative background microbial taxa (types), rank order, and corresponding airborne spore levels present within the ambient environment at the time of this assessment for comparative purposes. Sampling collection activities performed during this study included the collection of identifiable airborne microbial contaminants within the representative area locations noted in Table 1:

**Table 1. Airborne Spore Trap Sampling Locations of Break Room 807/805, 22 Hopper, and 23 Hopper Rooms:**

Air Sample Number	Spore Trap Air Sampling Location
13857654	Ambient Pre Sample 23 <sup>rd</sup> Floor West Balcony
13856259	Hallway outside 22 Hopper Room (outside containment)
13857633	22 <sup>nd</sup> Floor Hopper Room (inside containment)
13856329	Adjacent 22 <sup>nd</sup> Floor Mail Center (inside containment)
13856215	23 <sup>rd</sup> Floor Hallway (outside containment)
13856215	23 <sup>rd</sup> Floor Hopper Room (inside containment)
13857628	Hallway near 807 (outside containment)
13857624	Break Room 807 (inside containment)
13857616	Ambient 23 <sup>rd</sup> Floor North Balcony (retest sample)
13857724	Ambient-post Garage Rooftop

At the conclusion of sampling activities, preparation and shipping of the collected samples were accomplished in accordance with standard industrial hygiene chain of custody (COC) documentation procedures and quality assurance/quality control practices. Once collected, labeled, and recorded, all samples were double sealed within airtight plastic Ziploc shipping containers and transported via Federal Express Priority Mail to Environmental Microbial Laboratories (EMLabs) in San Bruno, California. EMLabs holds current applicable analytical accreditation and specializes in microbial analytical procedures. Sampling and chain of custody records are provided as an attachment to this letter report for further reference.

## ANALYTICAL FINDINGS AND CONCLUSIONS

### Airborne Spore Trap Findings Break Room 807/805, 22 Hopper Room, and 23 Hopper Room:

Laboratory analytical methods for the identification and enumeration of microbial (mold) taxa and particulate contaminants were conducted in accordance with prescribed analytical procedures and quality control/assurance measures. Original laboratory results including the enumeration of recognizable microbial spore and particulate types are also attached to this letter report for further reference and detail. A summary of airborne Spore Trap microbial (mold) and particulate findings pertaining to each of the subject areas are presented in Table 2 below:

**Table 2. Airborne Microbial and Particulate Findings – Break Rooms 2202, 2223, 2224.**

Location Desc	Total Mold Spores (CFU/m <sup>3</sup> )	Background Debris (scale of 1-4)	Skin Cell Fragments (scale of 1-4)	Hypal Fragments (units/m <sup>3</sup> )
Ambient Pre Sample 23 <sup>rd</sup> Floor West Balcony	4,300	3+	1+	160
Hallway outside 22 Hopper Room (outside containment)	190	2+	2+	13
22 <sup>nd</sup> Floor Hopper Room (inside containment)	53	2+	1+	<13
Adjacent 22 <sup>nd</sup> Floor Mail Center (inside containment)	66	2+	1+	<13
23 <sup>rd</sup> Floor Hallway (outside containment)	66	3+	1+	<13
23 <sup>rd</sup> Floor Hopper Room (inside containment)	53	2+	1+	<13

Location/Desc	Total Mold Spores (CFU/m <sup>3</sup> )	Background Debris (scale of 1-4)	Slan Cell Fragments (scale of 1-4)	Fungal Hyphal Fragments (units/m <sup>3</sup> )
Hallway near 807 (outside containment)	120	3+	1+	13
Break Room 807 (inside containment)	230	3+	2+	13
Ambient 23 <sup>rd</sup> Floor North Balcony (retest sample)	120	3+	1+	<13
Ambient-post Garage Rooftop	4,200	3+	1+	80

The analytical findings presented in Table 2 above clearly indicate the presence of significantly lower concentrations of total microbial (mold) spores measured within each of the interior samples collected both within and surrounding the subject break room and Hopper Room containment areas when compared to the levels currently measured within the samples collected from the corresponding ambient outside environment. Analytical findings also indicate similar fungal taxa distribution (mold types) and rank order (predominant taxa) of molds identified within the mitigated areas as well as the adjacent hallway areas sampled (area noted as "Hallway" outside containment). Analysis of fungal hyphal fragments (vegetative fungal growth structures) also indicated fewer structures within the interior containment areas and adjacent interior spaces when compared to the corresponding levels found within the ambient outside environmental samples. Particularly worthy of note, was the absence of elevated levels of hydrophilic (moisture loving) mold taxa following the performance of mitigative activities within each of the noted containment areas.

Although there are currently no regulatory standards or limits pertaining to allowable airborne fungal concentrations (for any mold taxa) present in indoor environments, there is a general consensus among indoor air quality experts that airborne microbial contamination found within "typical healthy" living and working spaces are generally similar in kind and present at levels which are below those found in the corresponding native outside environment. BioMax believes that the absence of visible staining resultant from moisture and/or residual mold, the absence of elevated residual moisture, absence of elevated hyphal structures, and relatively fewer total airborne mold levels with typical taxa and rank order distribution following mitigative clean-up activities are consistent with these generally acceptable interior working space conditions. BioMax, therefore, believes that these findings provide reasonable evidence indicating that current microbial removal and clean-up measures have successfully removed and contained mold contamination within the above noted mitigated areas and materials to normal representative levels.

Based on these findings, BioMax believes that the current physical site conditions present within each of the mitigated areas may be considered acceptable in meeting both the visual and analytical clearance criteria established for these activities. As such, BioMax's review and interpretation of the collected analytical data associated with each of the noted containment areas has been shown to meet the previously referenced clearance criteria established for these activities. Such clearance criteria has been presented in BioMax's Post Mitigation Clearance Assessment Protocols dated February 15<sup>th</sup>, 2008, and has been reviewed and approved by BOE's environmental consultant, HTI. Therefore, BioMax believes that the verified achievement of such criteria supports BioMax's determination and conclusion that the noted break room and restroom areas may be considered acceptable for reconstruction at this time.

#### **Airborne Particulate Findings:**

Analytical particulate findings also sampled and analyzed as part of this assessment identified, what BioMax believes to be, "unremarkable" levels present within the collected air samples. Such findings within and surrounding the noted containment areas also provide reasonable evidence indicating that current particulate clean-up and mitigative control measures have successfully controlled and contained particulate debris within the identified containment areas to acceptable post mitigation clean-up levels.

#### **RECOMMENDATIONS**

Based on BioMax's post mitigation assessment findings and conclusions presented in this report, BioMax believes that the current airborne microbial levels sampled and analyzed from within break rooms 807 (and adjacent conference room 805) as well as 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Room areas provides no significant evidence of elevated residual microbial contamination or airborne contamination/migration following the completion of the prescribed microbial mitigative measures. BioMax understands that parallel airborne and surface assessment sampling performed within each of these containment areas by BOE's consultant, HTI, also indicated acceptable airborne and surface microbial levels (as provided to BioMax verbally) following the completion of the mitigative effort. BioMax anticipates that HTI will be preparing a formal summary report of their parallel findings for appropriate distribution shortly.

Hence, based on current site observations, field measurements, and review of all available findings (both BioMax's and HTI's) at this time, BioMax believes that the mitigated areas within the noted containment areas may be considered acceptable for general reconstruction following prudent reconstruction practices. Therefore, based on our professional review and interpretation of these current referenced findings, BioMax provides the following recommendations for consideration as discussed below:

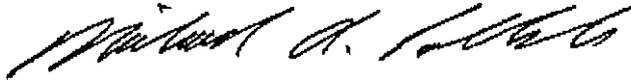
1. BioMax believes that current airborne microbial (mold) levels and mold taxa (types) identified within Break Room 807 and conference room 805 as well as the 22<sup>nd</sup> and 23<sup>rd</sup> Floor hopper Room areas are currently consistent with generally acceptable conditions and industry standard parameters following the performance of the mitigative activities noted.

Hence, BioMax recommends that no further airborne and/or surface microbial sampling activities are warranted within these specific noted containment areas and that the containment systems may be deactivated and considered as "acceptable" for reconstruction at this time.

2. During the performance of interior reconstruction activities, BioMax recommends that a qualified and experienced building inspector/contractor be utilized to verify the current compliance and functional integrity of all applicable building related plumbing, flashing, sealing, and drainage systems in accordance with current building codes and construction practices. Any identified deficiencies should be appropriately documented, corrected, and functionally verified (tested) prior to subsequent reconstruction. Certainly, the establishment and/or installation of any additional corrective measures or engineering controls (as identified through additional professional engineering consultation) should also be performed and implemented in accordance with applicable standards, building codes, and ordinances, as appropriate.
3. BioMax recommends that reconstruction of interior structural building materials within these areas should only be undertaken utilizing high quality, visibly clean (hand selected) construction grade building materials obtained from reputable commercial sources and which are verified through visual assessment to be free from elevated microbial contamination and/or elevated moisture content. Building materials, which are notably moist and/or visibly stained, should not be used during the reconstruction undertaken within the subject building.
4. BioMax also recommends that current plastic barriers (as established during this mitigative activity) should remain during any reconstruction activity so as to minimize the potential transmission of associated nuisance construction dust and debris as desired.
5. Reasonable additional assessment and investigative measures may also be required upon the identification of new or previously undiscovered materials and/or information related to moisture/microbial impacts within the noted structures and/or areas, as necessary. Any occurrence and/or re-occurrence of moisture intrusion following reconstruction within these areas should also be reviewed and addressed through additional professional consultation, as necessary. BioMax is certainly prepared to provide such professional consultation pertaining to these and any follow-up investigative measures upon request.

BioMax believes that the conclusions and recommendations provided above are consistent with standard industry microbial mitigative practices and prudent industrial hygiene hazard control and assessment methods. Please do not hesitate to contact me directly at (510) 724-3100 if you have any questions, comments, and/or require further assistance regarding this subject matter.

Sincerely,



Michael A. Polkabila, CIH, REA  
Vice President, Principal



**LIMITATIONS**

Please note that the professional opinions presented in this review are intended for the sole use of the California State Department of General Services (DGS) and their designated beneficiaries. No other party should rely on the information contained herein without the prior written consent of BioMax Environmental and DGS. The professional opinions provided herein are based on BioMax's review and understanding of current site information and observed site conditions present within the areas inspected at the time these services were performed. Professional recommendations provided as part of this limited scope of work are intended for client consideration only and are not intended as a professional or regulatory mandate. Implementation of any of the above measures or recommendations does not, in any way, warrant the day-to-day health and/or safety of building occupants, residents, site workers, nor regulatory or building code compliance status during normal and changing environmental conditions. As microbial contamination, by nature, may change over time due to additional moisture intrusion, favorable growth conditions, and changing environments, the findings of this report are subject to change in the event that such conditions and/or environments arise. Also, the professional opinions expressed here are subject to revision in the event that new or previously undiscovered information is obtained or uncovered.

The information contained in this and any other applicable communication is for consideration purposes only. It is not intended, nor should it be construed as providing legal advice or warranting any level of safety or regulatory compliance. The sole purpose of such information is to assist with the anticipation, identification, evaluation and control of elevated and/or unnecessary health of physical hazards. Any action taken based on this information, including but not limited to opinions, suggestions and recommendations, whether implied or expressed, is the sole responsibility of the individual taking the action. The management of acceptable health and safety is criteria dependent and situation specific in nature, therefore requiring extensive knowledge and prudent value assessments so as to be properly determined and maintained.

These services were performed by BioMax in accordance with generally accepted professional industrial hygiene principals, practices, and standards of care. Under the existing Industrial Hygiene Definition and Registration Act, all reports, opinions or official documents prepared by a Certified Industrial Hygienist (CIH) constitutes an expression of professional opinion regarding those facts or findings which are subject of a certification and does not constitute a warranty or guarantee, either expressed or implied.

## EMLab P&amp;K

11720 North Creek Pkwy N, #400, Bothell, WA 98011  
(650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: Biomax Environmental  
C/O: Mr. Michael Polkabila  
Re: 082708-01

Date of Sampling: 08-27-2008  
Date of Receipt: 08-28-2008  
Date of Report: 08-29-2008

## SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	13857654: Ambient 23rd floor w balcony		13856259: Hallway outside 22 hopper room		13857633: 22nd floor hopper room IC		13856329: 22nd floor mail center IC	
Comments (see below)	A		B		B		B	
Lab ID-Version#:	2032396-1		2032397-1		2032398-1		2032399-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria	2	27						
Arthrinium								
Ascospores*	4	213						
Aureobasidium								
Basidiospores*	7	373						
Bipolaris/Drechslera group	1	13						
Chaetomium								
Cladosporium	39	2,080	2	107			1	53
Curvularia								
Epicoccum	1	13						
Fusarium								
Nigrospora	1	13						
Oidium	1	13						
Other brown	1	13	2	27			1	13
Penicillium/Aspergillus types†	58	1,330	1	53	1	53		
Pithomyces								
Rusts*								
Scopulariopsis								
Smuts*, Periconia, Myxomycetes*	18	240						
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Background debris (1-4+)††	3+		2+		2+		2+	
Hyphal fragments/m3	160		13		<13		<13	
Pollen/m3	347		<13		<13		<13	
Skin cells (1-4+)	1+		2+		1+		1+	
Sample volume (liters)	75		75		75		75	
<b>TOTAL SPORE/m3</b>		<b>4,300</b>		<b>190</b>		<b>53</b>		<b>66</b>

Comments: A) 44 of the raw count *Penicillium/Aspergillus* type spores were present as a single clump. This data has been reported prior to completion of the QC analysis. B) This data has been reported prior to completion of the QC analysis.

\* 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 while the rusts and smuts are plant pathogens.

† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paeclomyces*) 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.

‡ A "Version" greater than 1 indicates amended data.

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C/O: Mr. Michael Polkabra  
Re: 082708-01

Date of Sampling: 08-27-2008  
Date of Receipt: 08-28-2008  
Date of Report: 08-29-2008

## SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	13856269: 23rd floor hallway OC		13856215: 23 hopper room IC		13857628: Hallway at 807 OC		13857624: Break room 807 IC	
Comments (see below)	B		B		B		B	
Lab ID-Version‡:	2032400-1		2032401-1		2032402-1		2032403-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria								
Arthrinium								
Ascospores*								
Aureobasidium								
Basidiospores*						53		
Bipolaris/Drechslera group								
Botrytis								
Chaetomium								
Cladosporium							1	53
Curvularia								
Epicoccum							1	13
Fusarium								
Myrothecium								
Nigrospora								
Oidium								
Other brown							1	13
Penicillium/Aspergillus types †	1	53	1	53	1	53		
Pithomyces								
Rusts*	1	13			1	13		
Scopulariopsis							4	53
Smuts*, Periconia, Myxomycetes*							6	80
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Background debris (1-4+)††	3+		2+		3+		3+	
Hyphal fragments/m3	< 13		< 13		13		13	
Pollen/m3	< 13		< 13		< 13		13	
Skin cells (1-4+)	1+		1+		1+		2+	
Sample volume (liters)	75		75		75		75	
<b>TOTAL SPORE/m3</b>		<b>66</b>		<b>53</b>		<b>120</b>		<b>230</b>

Comments: B) This data has been reported prior to completion of the QC analysis.

\* 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 sample 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.

‡ A "Version" greater than 1 indicates amended data.

EMLab P&amp;K

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C/O: Mr. Michael Polkabila  
Re: 082708-01Date of Sampling: 08-27-2008  
Date of Receipt: 08-28-2008  
Date of Report: 08-29-2008**SPORE TRAP REPORT: NON-VIABLE METHODOLOGY**

Location:	13857616: Conference room 805 IC		1385772A: Garage rooftop ambient	
Comments (see below)	B		B	
Lab ID-Version†:	2032404-1		2032405-1	
	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria			2	27
Arthrinium				
Ascospores*				
Aureobasidium				
Basidiospores*			3	160
Bipolaris/Drechslera group				
Botrytis				
Chaetomium			3	40
Cladosporium			47	2,510
Curvularia				
Epicoccum				
Fusarium				
Myrothecium				
Nigrospora				
Oidium				
Other brown			3	40
Other colorless				
Penicillium/Aspergillus types‡	2	107	15	800
Pithomyces				
Rusts*			20	267
Scopulariopsis			1	53
Smuts*, Periconia, Myxomycetes*	1	13	20	267
Stachybotrys				
Stemphylium				
Torula			1	13
Ulocladium				
Zygomycetes				
Background debris (1-4+)††	3+		3+	
Hyphal fragments/m3	< 13		80	
Pollen/m3	< 13		40	
Skin cells (1-4+)	1+		1+	
Sample volume (liters)	75		75	
<b>TOTAL SPORE/m3</b>		<b>120</b>		<b>4,200</b>

Comments: B) This data has been reported prior to completion of the QC analysis.

\* 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*, *Paeclomyces*) 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 sample 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.

‡ A "Version" greater than 1 indicates amended data.

## EMLab P&amp;K

11720 North Creek Pkwy N, #400, Bothell, WA 98011  
(650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: Biomax Environmental  
C/O: Mr. Michael Polkabila  
Re: 082708-01

Date of Sampling: 08-27-2008  
Date of Receipt: 08-28-2008  
Date of Report: 08-29-2008

**MoldRANGE™: Extended Outdoor Comparison****Outdoor Location: 13857654, Ambient 23rd floor w balcony**

Fungi Identified	Outdoor data	Typical Outdoor Data by Date†				Typical Outdoor Data by Location‡			
		Month: August				State: CA			
	spores/m3	low	med	high	freq %	low	med	high	freq %
<b>Generally able to grow indoors*</b>									
Alternaria	27	7	40	530	69	7	27	210	59
Bipolaris/Drechslera group	13	7	13	250	26	7	13	120	13
Chaetomium	-	7	13	120	15	7	13	110	19
Cladosporium	2,080	53	800	11,000	98	53	640	6,400	98
Curvularia	-	7	27	850	29	7	13	210	7
Epicoccum	19	7	20	290	30	7	13	160	20
Nigrospora	13	7	13	240	21	7	13	170	8
Other brown	13	7	13	110	35	7	13	80	37
Penicillium/Aspergillus types	1,350	27	270	3,400	88	38	210	2,500	87
Scopulariopsis	-	7	13	280	< 1	7	13	160	< 1
Stachybotrys	-	7	13	460	4	7	13	280	5
Torula	-	7	13	160	16	7	13	150	13
<b>Seldom found growing indoors**</b>									
Ascospores	213	13	200	5,400	82	13	110	1,800	72
Basidiospores	373	13	370	20,000	96	13	230	6,700	94
Oidium	13	7	13	200	18	7	13	190	20
Rusts	-	7	14	290	27	7	13	250	28
Squats, Periconia, Myxomycetes	240	7	53	910	79	8	40	480	71
<b>TOTAL SPORES/M3</b>	<b>4,328</b>								

† 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/m<sup>3</sup>. 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.

\*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 squats 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.

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Client: Biomax Environmental  
C/O: Mr. Michael Polkabila  
Re: 082708-01

Date of Sampling: 08-27-2008  
Date of Receipt: 08-28-2008  
Date of Report: 08-29-2008

**MoldRANGE™: Extended Outdoor Comparison****Outdoor Location: 13857724, Garage rooftop ambient**

Fungi Identified	Outdoor data	Typical Outdoor Data by Date†				Typical Outdoor Data by Location‡			
		Month: August				State: CA			
	spores/m3	low	med	high	freq %	low	med	high	freq %
<b>Generally able to grow indoors*</b>									
Alternaria	27	7	40	530	69	7	27	210	59
Bipolaris/Drechslera group	-	7	13	250	26	7	13	120	13
Chaetomium	40	7	13	120	15	7	13	110	19
Cladosporium	2,510	53	800	11,000	98	53	640	6,400	98
Curvularia	-	7	27	850	29	7	13	210	7
Epicoccum	-	7	20	290	30	7	13	160	20
Nigrospora	-	7	13	240	21	7	13	170	8
Other brown	40	7	13	110	35	7	13	80	37
Penicillium/Aspergillus types	800	27	270	3,400	88	38	210	2,500	87
Scopulariopsis	53	7	13	280	< 1	7	13	160	< 1
Stachybotrys	-	7	13	460	4	7	13	280	5
Torula	13	7	13	160	16	7	13	150	13
<b>Seldom found growing indoors**</b>									
Ascospores	-	13	200	5,400	82	13	110	1,800	72
Basidiospores	160	13	370	20,000	96	13	230	6,700	94
Oidium	-	7	13	200	18	7	13	190	20
Rusts	267	7	14	290	27	7	13	250	28
Smuts, Periconia, Myxomycetes	267	7	53	910	79	8	40	480	71
<b>TOTAL SPORES/M3</b>	<b>4,177</b>								

† 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/m<sup>3</sup>. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

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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.

# MICROBIAL SPORE TRAP AIR SAMPLING RECORD



000460495

Page 1 of 1

**BioMax Environmental**  
775 San Pablo Ave.  
Pinole, CA 94564

[www.biomaxenvironmental.com](http://www.biomaxenvironmental.com)

Phone: (510) 724-3100  
Fax: (510) 724-3145  
[biomaxenv@aol.com](mailto:biomaxenv@aol.com)

Location: 450 N. Street Sacramento, CA	Client: DGS
Date: 8/27/08	Project #: 082708-01
Collected by: Michael A. Paltola CIM, REA Signature: <i>[Signature]</i>	Laboratory: EMLabs
	Req. Turn Around:
	Analysis: <u>Fungal</u> <u>Particulate (D)</u> <u>with Quantification.</u>

Sample Number	Time	Location/Desc	Temp / RH
13857659	0830	Ambient 23rd Floor W. Entry	73°/29%
13856259	0940	Hallway outside 22 Hopper Room	85°/27%
13857633	0950	22nd Floor Hopper Room (IC)	85°/27%
13856829	1000	22nd Floor Mail Center (IC)	86°/26%
13856269	1015	23rd Floor Hallway (OC)	85°/27%
13856215	1020	23 Hopper Room (IC)	85°/26%
13857628	1145	Hallway @ 807 (OC)	74°/29%
13857624	1150	Break Room 807 (IC)	74°/28%
13857616	1205	Conference Room 805 (IC)	74°/28%
13857724	1230	Garage Rooftop - Ambient	102°/21%
Total Sample Time (min): 5	Flow Rate (l/min): 15	Total Sample Volume (liters): 75	Ambient Conditions: Clear - mild 0.5 E Wind
Comments:			

Please sign this form below acknowledging sample receipt and return executed form with laboratory reports. Fax, send, e-mail results to BioMax Environmental at (510) 724-3145 [biomaxenv@aol.com](mailto:biomaxenv@aol.com)  
Other Instructions:

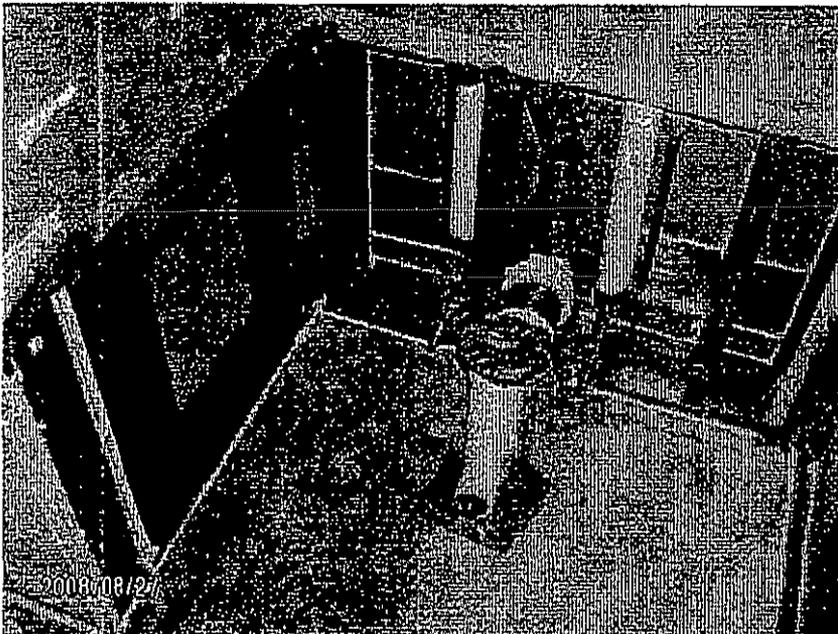
Relinquished by: <i>[Signature]</i>	Received By: <i>[Signature]</i>
Method of Transportation: <i>FedEx</i>	Time/Date Received: 8/29/08 930
Time/Date Sent: 4:00 8/27/08	

**Attachment A: Digital Images**

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August 27<sup>th</sup>, 2008BOE Building Break Room 807/805 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms Areas  
450 N Street, Sacramento, CA[Click here for color photos](#)

- 1) Image of hallway containment leading to 22<sup>nd</sup> Floor hopper Room area at time of assessment of BOE Building (Subject Building) located at 450 N Street, Sacramento, California.



- 2) Image of area and material removal adjacent to wet-mop sink unit at time of clearance assessment.

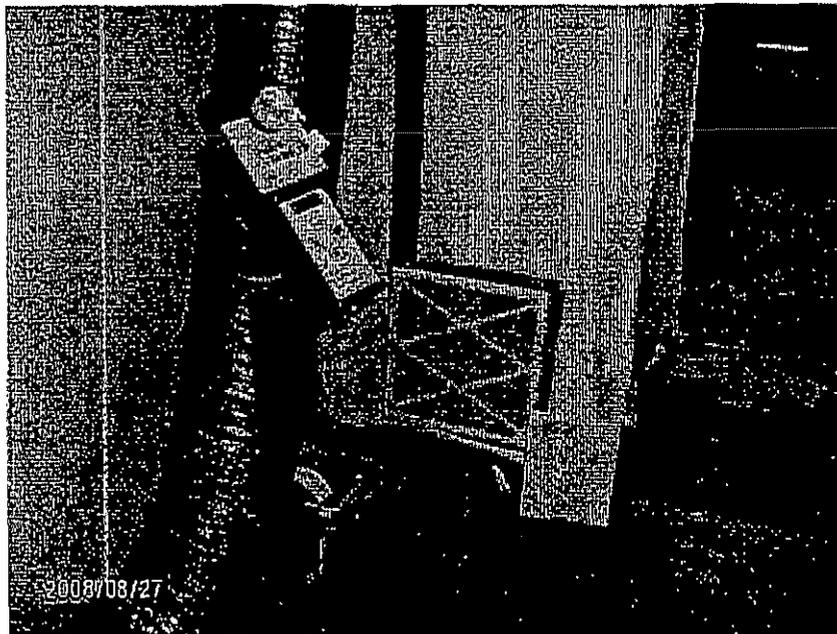
August 27<sup>th</sup>, 2008

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BOE Building Break Room 807/805 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms Areas  
450 N Street, Sacramento, CA



3) Image of air sampling equipment and wall removal within mail center room adjacent to 22<sup>nd</sup> floor Hopper Room area at time of assessment.



4) Image of air sampling equipment utilized in hallway adjacent to 23<sup>rd</sup> floor Hopper Room area at time of assessment.

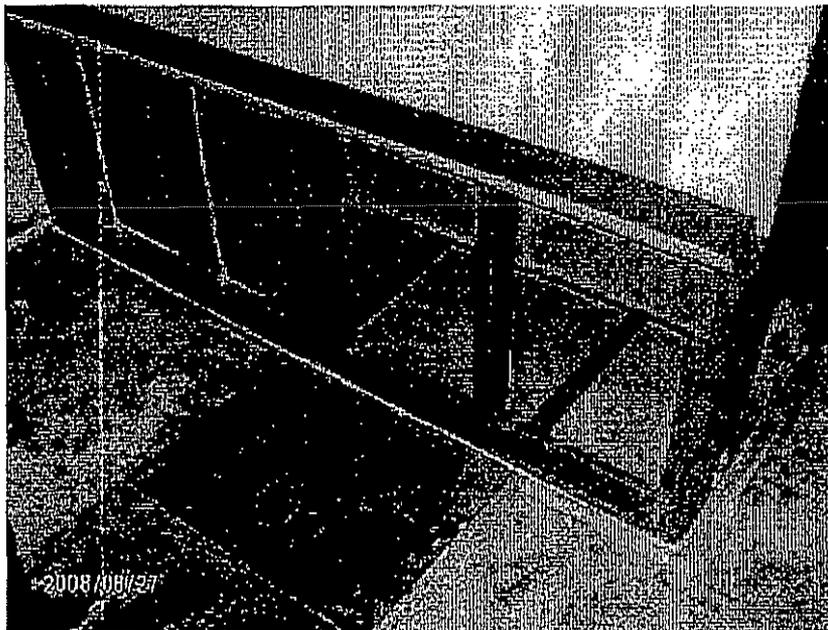
August 27<sup>th</sup>, 2008

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BOE Building Break Room 807/805 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms Areas  
450 N Street, Sacramento, CA



- 5) Image of air sampling equipment and area material removal adjacent to wet-mop sink unit within 23<sup>rd</sup> Floor Hopper Room at time of clearance assessment.

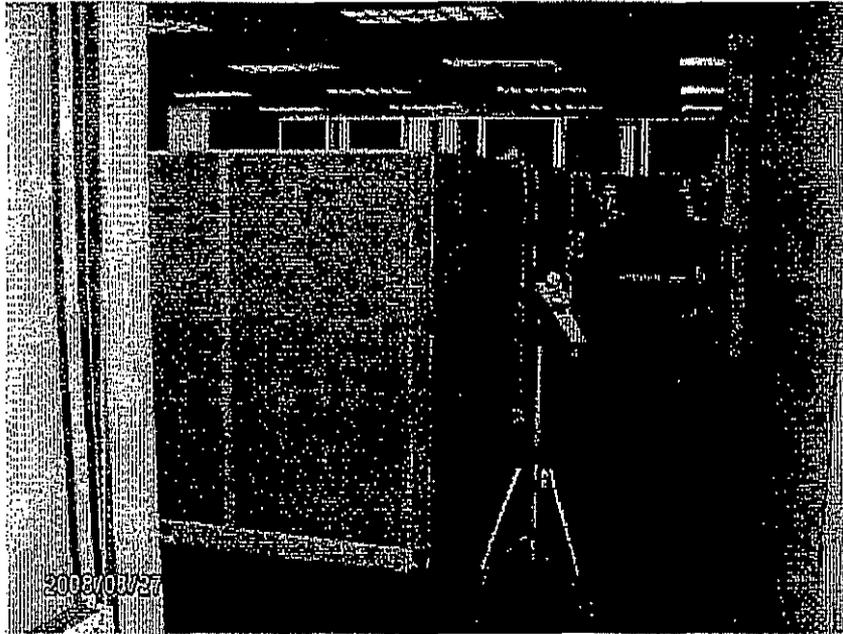


- 6) Image of wallboard removal delineation to left of wet-mop sink area within 23<sup>rd</sup> Floor Hopper Room area at time of assessment.

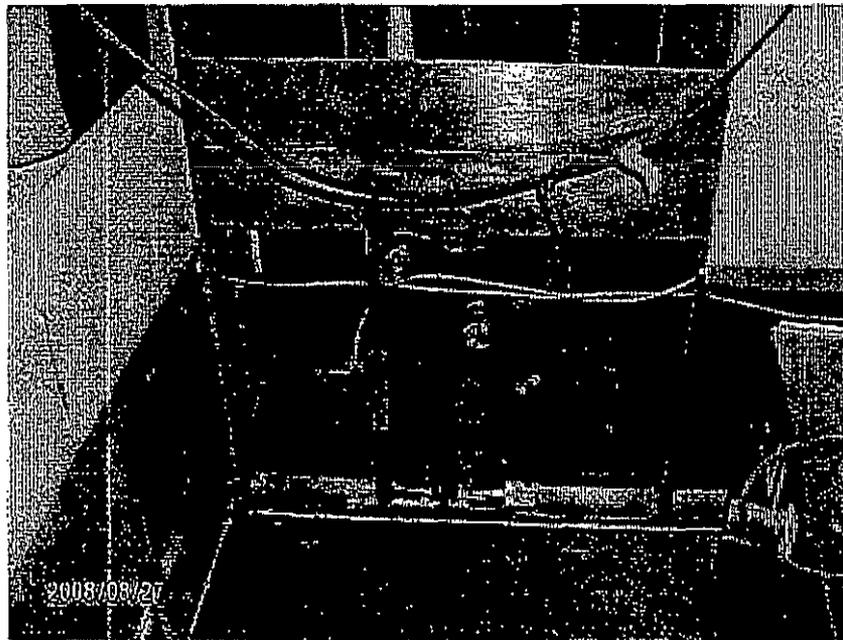
August 27<sup>th</sup>, 2008

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BOE Building Break Room 807/805 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms Areas  
450 N Street, Sacramento, CA



- 7) Image of air sampling performed within area occupied by BOE staff adjacent to Break room 807 at time of assessment.



- 8) Image of material removal delineation and exposed plumbing systems within break room 807 at the time of clearance assessment activities.

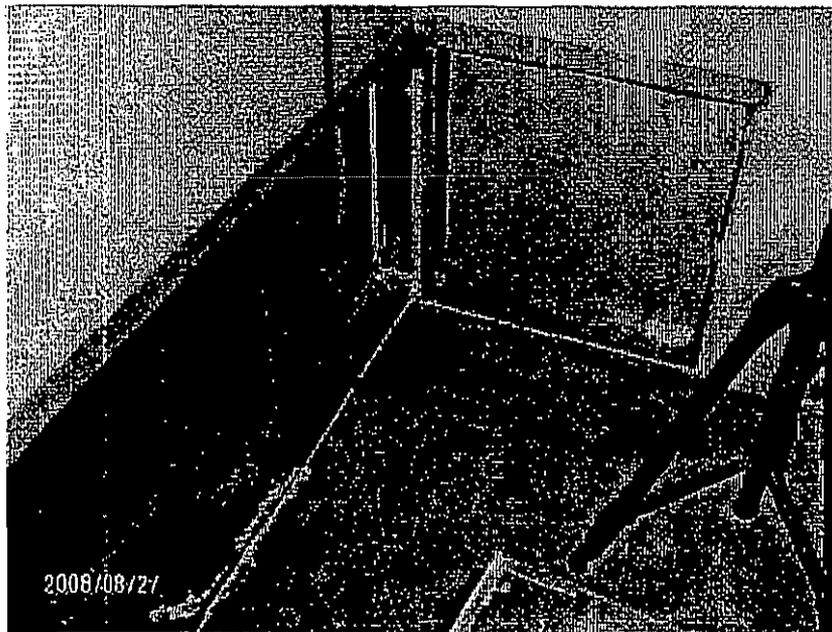
August 27<sup>th</sup>, 2008

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BOE Building Break Room 807/805 and 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms Areas  
450 N Street, Sacramento, CA



- 9) Close-up image of exposed wall cavity as viewed from Conference Room 805 at time of assessment.



- 10) Image from 807 indicating exposed subflooring and delineation of wallboard removal at previous area at the time of assessment.

**BIOMAX ENVIRONMENTAL**

*Environmental Consulting and Industrial Hygiene Services*

775 San Pablo Ave., Pinole, California 94564

**FAX COVER SHEET**

**DATE:** September 22, 2008

**TIME:** 2:38 PM

**TO:** MR. PETER BURFENING  
(Wilson, Elser)

**FAX:** (619) 321-6201

**PHONE:** (619) 321-6200

**FROM:** Michael Polkabra, CIH, REA  
BioMax Environmental, LLC

**FAX:** (510) 724-3145

**PHONE:** (510) 724-3100

Pete,

Attached please find BioMax's post mitigation clearance assessment report pertaining to Break Rooms 807/805 and the 22<sup>nd</sup> and 23<sup>rd</sup> Floor Hopper Rooms for appropriate distribution to BOE. There is concurrence with HTI on the data and, hence, no reason to delay the distribution.

Please let me know if you have any questions or require further information.

MP

Number of pages including cover sheet: 22