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**BioMax Environmental**

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*Environmental Consulting and Industrial Hygiene Services*

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September 29<sup>th</sup>, 2008

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

**Microbial Assessment and Mitigation Procedures -  
First Floor Janitor's "Hopper" Room  
Department of General Services Board of Equalization Building  
450 N. Street  
Sacramento, California**

Dear 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 inspection and preliminary microbial sampling assessment services provided within the newly discovered moisture and mold impacted areas associated with the 1<sup>st</sup> Floor Janitor's Room area of your 450 N Street Building (subject building) located in Sacramento, California. BioMax understands that these microbial inspection and sampling assessment services were contracted with BioMax in an effort to evaluate the visible moisture damage and potential microbial growth recently discovered within the noted Hopper Room and adjacent (above) mechanical system plenum area during the recent Security Kiosk plenum mitigative efforts. According to DGS personnel, such areas had been identified and reported as a previous area of visible staining present on the ceiling sheetrock surface within the noted Hopper Room. Following such discovery, BioMax was directed by DGS to perform a preliminary visual and surface sampling assessment of the impacted materials and adjacent areas in preparation of the development of appropriate mitigation procedures to repair and mitigate the currently damaged materials, as necessary.

Hence, these microbial inspection and assessment services have been performed with the intended purpose perform a preliminary physical inspection of the impacted material areas and to gather and interpret analytical sampling data relative to such damages as necessary. Site access was provided on Friday, September 19<sup>th</sup>, 2008 by DGS site representatives. On this day, Mr. Michael A. Polkable, CIH, REA of BioMax performed a preliminary area inspection and sampling assessment within and adjacent to the areas of concern identified by DGS representatives at locations above and adjacent to the first floor Hopper room area as noted.

Based on current information provided and our visual observations gathered at this time, BioMax collected a series of surface and bulk microbial samples within and surrounding the areas and materials of concern so as to evaluate and assess the current environmental microbial conditions associated with the impacted areas at this time.

## SITE OBSERVATIONS

On-site inspection and sampling assessment activities were performed by Mr. Michael A. Polkabila, CIH, REA, of BioMax in accordance with currently recognized microbial assessment and sampling guideline procedures. Mr. Polkabila 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. Polkabila 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. A summary of significant notations and observations gathered during BioMax's site inspection and assessment of the subject areas are compiled as follows:

1. At the time of our preliminary site inspection performed on September 19<sup>th</sup>, 2008 interior environmental conditions within the subject area consisted of a temperature of approximately 72 degrees F with relative humidity of 27 %. Ambient outdoor conditions both prior to and following our interior assessment consisted of mild sunny conditions with predominant winds noted at approximately 0-5 knots from the westerly direction. Outdoor conditions were recorded at a temperature of 82 degrees and relative humidity range of 29%.
2. Site observations noted within the subject Janitor's (Hopper) Room area are as follows:

At the time of our assessment, a critical plastic barrier had been installed within the security kiosk plenum area for the purposes of isolating the moisture damaged wallboard from the kiosk area mitigation area.

Entrance into the Hopper Room ceiling plenum was achieved through the ceiling access hatch present within the western side of the Hopper Room utilizing an expandable ladder. Upon entry into the Hopper Room plenum area, BioMax observed and utilized plywood footing sheets in place with areas of staining present at wall to floor margins. Upon inspection of western side wallboard surfaces, BioMax noted significant moisture related staining present adjacent to and within insulated plumbing pipes and penetrations. Localized visual indications of "spotty" mold-like growth was also observed present on the sheetrock surfaces and piping insulation covering as viewed within the plenum areas. Preliminary estimates of significant visible staining and mold-like growth were observed within an area greater than 50 square feet wherein areas of staining, delamination, and peeling of structural materials consisting primarily of sheetrock paper surfaces and insulation were noted at the time of our assessment. Based on such visual preliminary findings, BioMax collected a series of bulk material and surface samples from representative examples of impacted materials.

3. Utilization of hand-held moisture detection equipment indicated normal moisture content within many of the affected sheetrock materials surveyed within the noted areas at the time of our assessment. Hence, current evidence had indicated that the current moisture damages were likely the result of previous moisture releases over an extended period of time.
4. A series of digital images were also collected during BioMax's inspection and sampling assessment activities. Images are attached 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 on September 19<sup>th</sup>, 2008. All sampling equipment, supplies, calibration materials, and collection media were provided by BioMax as part of the performance of this scope of work. Sample collection procedures and methods were performed using aseptic sampling methods following techniques prescribed by the contracted analytical laboratory.

#### Bulk and BioTape Surface Sampling:

During our site inspection and sampling assessment activities, representative bulk material and surface material samples were collected from interior areas and materials of concern noted within in Table 1 below. All surface samples were collected using "same-lot" BioTape collection media prepared and supplied by SKC International in accordance with manufacturers sampling guidelines as well as applicable professional certified industrial hygiene microbial sampling practices. Bulk material samples were similarly collected utilizing aseptic sample collection technique in accordance with standard microbial sampling practices. Disposable gloves utilized during sample collection and changed between each sample.

Written sampling procedural guidance material prepared by the analytical laboratory and/or sample media manufacturer may also be provided upon request. A summary of bulk material and surface material sampling locations are provided in Table 1. Specific sample locations may also be referenced within the digital image attachment, as necessary.

**Table 1. Bulk Material and BioTape Surface Sample Locations:**

Sample Number	Material Sampling Location
B01	Stained sheetrock paper at Western pipe penetration
B02	Stained pipe insulation paper at west plenum wall location
B03	Stained sheetrock tape paper material at west plenum wall

Sample Number	Material Sampling Location
S01	Stained plywood flooring material at western plenum location.
S02	Light Staining of plywood flooring material at southwestern plenum area.
S03	Non-stained plywood flooring material surface

Following sample collection, bulk material and surface samples were subsequently labeled and placed within individual plastic Ziploc storage bags for transportation via Federal Express Priority Mail to the analytical laboratory noted below. 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 QA/QC practices. Once collected, labeled, and recorded, the samples were double sealed within airtight plastic Ziploc bag containers and similarly transported via Federal Express Priority Mail to Environmental Microbial Laboratories (EMLabs) of San Bruno, California. Sampling and chain of custody records are provided as an attachment to this letter report for further reference.

**ANALYTICAL FINDINGS AND CONCLUSIONS**

**Bulk Material and Surface Sample Findings:**

Laboratory analytical methods for the identification and enumeration of microbial taxa within collected surface and bulk material samples were conducted in accordance with prescribed analytical procedures and quality control/assurance measures. Laboratory analytical methods for the identification and enumeration of microbial fungal contaminants within the collected surface/bulk material samples were achieved through direct microscopic analysis using bright field microscopy.

Original laboratory results including the identification of recognizable microbial taxa are provided as an attachment to this letter report for further reference. Sampling and chain of custody records are provided as an attachment to this report for further reference. A summary of analytical findings pertaining to the collected bulk material and surface samples are presented in Table 2 below:

**Table 2. Summary of Bulk Material and Surface Findings:**

Sample Number	Sample Material and Location	Mold Genera Identified Present
B01	Stained sheetrock paper at Western pipe penetration	Elevated Stachybotrys mold spores identified (420 counts)
B02	Stained pipe insulation paper at west	Elevated Stachybotrys (162 counts) and

Sample Number	Sample Material and Location	Mold Genera Identified Present
	plenum wall location	Penicillium/Aspergillus type spores (19 counts) identified
B03	Stained sheetrock tape paper material at west plenum wall	Elevated Ulocladium spores (138 counts).
S01	Stained plywood flooring material at western plenum location.	Moderate Penicillium/Aspergillus (5 counts) and Cladosporium (3 counts) identified.
S02	Light Staining of plywood flooring material at southwestern plenum area.	Moderate Cladosporium (16 counts) and trace Pen/Asp (1 count), Basidiospores (1 count), and smuts (1 count) identified.
S03	Non-stained plywood flooring material surface	Low Cladosporium (16 counts) and trace Pen/Asp (2 counts), Basidiospores (1 count), and smuts (1 count) identified.

Noted relative levels should be used for comparative purposes only and are not intended to establish "safe" or "acceptable" indoor levels/conditions.

Analytical findings as presented in Table 2 above clearly indicated the presence of unique microbial fragments (spores) present in each of the bulk materials and stained surfaces sampled as noted. The identified hydrophilic (moisture loving) mold taxa, such as Stachybotrys, Ulocladium, and Penicillium/Aspergillus type spores identified within the visibly "stained" bulk and surface materials sampled, represent what BioMax believes to be likely indicative of prior historical chronic mold growth and likely not resultant directly from any singular recent water release incident. The surface samples collected from the "non-stained" plywood surfaces identified on the plenum flooring surfaces (as viewed from the plenum) indicated the presence of low levels of what BioMax believes to be indicative of trace fugitive spore deposition both within and adjacent to the impacted area.

Although there are currently no regulatory standards or limits pertaining to allowable surface fungal concentrations (for any mold taxa) present on interior working environment surfaces, there is a general consensus among indoor air quality and microbial experts that significant visible microbial contamination found within occupied space building materials should be treated, removed, and/or otherwise minimized wherever practicable. Hence, BioMax believes that the findings detailed in this report warrant the implementation of the recommended precautions, continued area controls, and the performance of mitigative measures pertaining to the areas of identified visible microbial contamination.

## RECOMMENDATIONS

Based on our preliminary observations and review of current analytical findings within the subject first level Janitor's (Hopper) Room area and adjacent plenum, BioMax recommends that the following corrective measures and mitigative actions be considered as follows:

1. Due to the confirmed findings of elevated microbial contamination present within the sampled building materials of the Hopper Room area work space and adjacent plenum areas as noted in this report, BioMax recommends that additional deconstructive and appropriate mitigation the affected structures and ceiling cavities within the impacted subject areas be performed as noted below. The purpose of these activities should be to evaluate the full extent of physical moisture damages and to appropriately perform microbial mitigative measures under prudent containment controls as detailed in this summary report.
2. BioMax recommends that a qualified and experienced microbial abatement contractor be selected to erect critical containment barriers encompassing the Hopper Room area and adjacent spaces within the employee hallway and elevator lobby. Delineation of such containment areas will be developed upon coordination with JLS and BOE representatives. The selected contractor must be specifically trained in the field of microbial abatement techniques and methods as well as maintain demonstrated proficiency in the establishment and use of appropriate barriers, personal protective equipment, abatement techniques and methods in the removal and decontamination of microbial affected and impacted materials. Similar negative pressure critical barriers shall also be established at any perimeter openings within of the plenum space so as to preclude fugitive emissions from escaping the plenum areas during the performance of these mitigative activities.
3. **Hopper Room Containment** - Due to the current use of the Hopper Room by building staff, BioMax recommends that current janitorial operations be temporarily relocated and that barrier structures within the first floor hallway and elevator lobby areas are constructed as "hard shell" containment barriers utilizing plywood and/or other similar hard building materials. Within such barriers, the mitigation contractor should be directed to install a fully enclosed negative pressure environmental containment barrier encompassing the entirety of the impacted ceiling and wall materials as designed for this scope of work. These containment systems shall be designed for the purposes of containing and controlling possible fugitive emissions of airborne fungal spore contaminants during all forthcoming deconstruction, inspection, and mitigative activities within the Hopper room and associated adjacent plenum spaces as noted. All critical containment systems shall be constructed of plastic and/or otherwise airtight materials so as to create a negative pressure system within the noted areas of concern. Due to physical constraints, all negative air pressure shall be maintained within the critical areas with the use of a High Efficiency Particulate Aerosol (HEPA) filtered "negative air machine" vented to the outside workspace environment. An adequate supply of filtered intake air shall also be established to allow an adequate supply of "clean" filtered make-up air into the critical containment. Wherever possible, clear translucent plastic observation windows shall be placed on the critical containment barrier within direct sight of the affected areas for the purposes of non-entry inspection during the

performance of prescribed mitigative measures. BioMax is prepared to provide your selected contractor with additional and ongoing detail pertaining to the establishment maintenance, and specific locations of critical containment barriers, as necessary. Once, containment parameters have been established, the mitigation contractor shall maintain an "as built" record of exact containment locations and materials for further review and reference.

4. **Plenum containment** – All perimeter penetrations leading to adjacent Security Kiosk plenum spaces shall be sealed with plastic and maintained within negative pressure so as to preclude fugitive transmission of spores during the mitigative process within the Hopper Room plenum areas. Following the physical removal and/or decontamination of moisture and mold damaged building materials within and above the Hopper Room area, a detailed HEPA vacuuming of adjacent horizontal surfaces (such as exposed sheetrock at plenum flooring) shall be performed within the entire hopper Room plenum space prior to forthcoming clearance assessment as noted below.
5. **HEPA Scrubbers** - Upon establishment of critical containment barriers, BioMax recommends that the selected microbial abatement contractor also places and maintains appropriate HEPA filtered air-scrubbing and/or dehumidification units within the affected work space and plenum areas, as necessary. It is currently anticipated that all mitigative activities shall be performed during "off hours" as requested by BOE management personnel.
6. **Containment Entry Areas** - A series of similar plastic and/or otherwise impermeable zippered entry chambers shall also be erected at the entrance of the containment systems for the purpose of establishing worker entrance/exit and clean personal protective equipment donning and decontamination area. HEPA filtered vacuum equipment capable of the effective removal of particulate contaminants from tools and personal protective equipment shall be placed within each of the zippered chambers closest to the working area. During such measures, appropriate signage and warnings must be posted on the exterior of containment entrances to preclude uninformed access from unauthorized personnel.
7. **Pressure Monitoring** - Data logging monitoring equipment employed to record pressure differentials on a 24-hour basis shall be used for the duration of functional barrier use. A negative pressure goal of 0.02 shall be utilized for the duration of the mitigative effort and paper roll-chart records shall be collected and maintained by the mitigation contractor for review and reference as requested.
8. **Supply Vents and Penetrations** - All adjacent Heating Ventilation and Air Conditioning (HVAC) supply vents and ceiling and/or wall mounted recessed lighting/ fan penetrations within each of the containment systems shall be deactivated and covered within similar plastic barrier systems to preclude fugitive transfer of airborne particulates. Any smoke detectors and/or fire suppression systems, however, shall NOT be covered nor rendered inoperable within the subject building unless authorized to do so under the direction and supervision of DGS building maintenance personnel.

9. **Worker Training** - Workers engaged in mold remediation/mitigation activities must be adequately trained and equipped with properly selected personal protective equipment (PPE) including, at minimum, hooded Tyvek coveralls, air purifying full face respirators with N100 minimum HEPA filter rating or similar PAPR systems, nitrile or latex gloves, chemical resistant boots or boot covers, with taped joints. Site control zones shall be established with exclusion, contaminant reduction (decontamination), and support zones in accordance with published Environmental Protection Agency (EPA) and California Department of Occupational Safety and Health (Cal/OSHA) guidelines. BioMax would be happy in providing the selected contractor with further site-specific detail regarding PPE regimen and appropriate site control zones, as necessary.
10. **Removal of Damaged Materials** - BioMax specifically recommends that all physically stained and/or mold damaged materials (such as impacted sheetrock and plywood materials) be inspected and removed under containment controls. As verified through visual inspection, any stained and/or moisture/mold affected interior sheetrock and building materials should be removed, wherever feasible, to the extent of visible staining, at a minimum. All visibly damaged plywood walk-way floor materials associated with the plenum area HVAC equipment shall also be removed and disposed under containment controls for appropriate inspection of underlayment materials. Removal of moisture impacted and mold damaged materials may employ the use of supplemental item-specific containment methods and systems (such as sealed plastic glove-bag containment systems, or equivalent) applicable to the materials being removed at the option of the mitigation contractor and direction of the Project CIH. BioMax currently anticipates that all visually affected ceiling sheetrock and plywood HVAC unit flooring materials present within the plenum space shall be removed for disposal, and physical inspection of underlayment surfaces, as necessary. All sheetrock exhibiting elevated moisture content and/or staining within adjacent areas shall be similarly removed as necessary. Any underlayment materials exhibiting visible signs of moisture staining shall also be removed or decontaminated, as necessary.
11. **Other Damaged Areas Encountered**- Other potentially affected areas and building materials encountered during these deconstructive and investigative stages must be thoroughly inspected during these deconstructive stages to identify the extent of any additional microbial related materials and water damage indicators. It is currently anticipated that such additional moisture damaged materials may have traveled into the areas below the noted Hopper Room plenum and are, therefore, designed within the containment barriers as noted. In general, all identified microbial impacted materials shall be removed to the extent of visible staining and at least 2 feet beyond such identified perimeters, wherever possible.
12. **Decontamination and Cleaning** - All remaining moisture/mold affected porous and non-porous building materials deemed infeasible for removal and/or disposal (due to structural integrity concerns) shall be inspected and receive a series of decontamination treatment measures designed to minimize and control the presence of microbial related substances. Decontamination methods employed shall, at a minimum, include treatment of all identified surfaces with a series of thorough chlorine based mildicide (minimum 10 parts water to 1 part chlorine soln.) applications followed by a series of thorough HEPA filtered vacuuming

procedures using power sanding and/or brush agitation. The duration and frequency of mildicide and HEPA sanding/brushing applications employed may vary depending on local material contamination but shall be sufficient in removing and decontaminating all visible surface staining to levels deemed by BioMax to be consistent with representative background levels. Reasonable additional mitigative measures and controls may be required, as necessary, upon discovery of additional contaminated materials as well as BioMax's site inspection findings and observations performed during this scope of work. BioMax will be available to provide ongoing consultation with the contractor pertaining to these measures and site/material specific decontamination measures upon request.

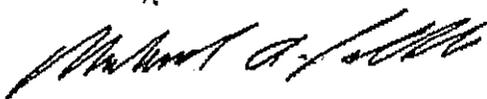
13. **HEPA Vacuuming of Adjacent Plenum Surfaces** – Due to the confirmed presence of elevated spore deposition within horizontal surfaces (plenum sheetrock floor) adjacent to the visibly impacted areas, BioMax recommends that all Hopper Room plenum area surfaces be HEPA vacuumed as part of this mitigative effort. The intent of such efforts and activities is to significantly reduce the confirmed accumulation of spores and debris within such surfaces as observed and sampled in this assessment. Although existing outside of the visibly stained areas, such deposits were noted in the current analytical data on the exposed non-stained plywood surfaces as viewed and sampled from the hopper Room plenum space. Hence, subsequent cleaning by the mitigation contractor of these surfaces is recommended as a precautionary protective measure as part of this mitigative effort.
14. **Clearance Inspection and Assessment** - Upon completion of mitigation efforts performed by the selected mitigation contractor, BioMax recommends the performance of a visual inspection conducted by the Project CIH to verify that all significant mold and moisture related staining have been removed and/or treated and that all prescribed mitigative efforts and measures have been appropriately achieved. Once visual clearance criteria has been established, the Project CIH will collect a series of microbial "clearance" air samples to further verify that all affected containment areas have been appropriately decontaminated to acceptable background airborne levels and that the affected material areas within the subject building are deemed as "acceptable" for reconstruction. Such Post Mitigative "clearance" evaluation criteria applicable to this building have been previously developed in BioMax's February 15<sup>th</sup>, 2008 letter report titled Post Mitigation Clearance Assessment Protocols and previously approved by HygieneTech, Inc. (HTI) in their approval letter dated February 22<sup>nd</sup>, 2008. Additional "punch-list" action items may be provided to the mitigation contractor following the performance of this site clearance inspection following receipt of analytical results, as deemed necessary.
15. **Mildicide Encapsulant** - Upon review of analytical sampling results by the Project CIH and achievement of acceptable post mitigative clearance criteria, BioMax recommends that DGS considers directing the mitigation/reconstruction contractor to apply a mildicide-based sealant onto all remaining organic-based building materials and previously treated surfaces as an additional precautionary measure. Any such use of a recognized commercially available sealant product with microbial growth inhibitors in accordance with manufacturer's application and use instructions is believed to be currently acceptable for these purposes. The provision of appropriate access must certainly be provided to BOE and its consultants for

inspection of affected areas and materials prior to final encapsulation and reconstruction upon request.

16. **Repair Verification and Inspection** - Following the performance of these mitigative and clearance assessment measures, the designated site reconstruction contractor is strongly encouraged to verify that repairs to any faulty and/or deficient building penetration, drainage, plumbing and/or building envelop sealing systems have been appropriately inspected, replaced/repared, and function tested prior to the reconstruction of the interior structures and cavities. Such repairs and inspection should be performed by a person knowledgeable in building construction codes and requirements as applicable to the materials and areas in question. Certainly, the repair/replacement and/or establishment of any such additional engineering controls (as recommended through additional professional consultation) must be performed and implemented in accordance with applicable standards, building codes, and ordinances, as necessary.
17. **Reconstruction** - Upon completion, reconstruction of interior structural materials should be undertaken utilizing visibly clean (hand selected) construction grade materials in accordance with applicable building codes and requirements. The reconstruction contractor shall be required to only select materials which are obtained from reputable commercial sources and which are believed and visually verified to be free from elevated microbial contamination and/or elevated moisture content. New building materials, which are notably moist and/or visibly stained, shall NOT be used during the reconstruction of the subject structure. BioMax specifically recommends that reconstruction materials selected for use be specifically selected based on their moisture deterrent and anti-microbial properties wherever feasible.
18. **Additional Assessment and/or Mitigation** - Reasonable additional assessment and mitigative measures may also be required upon the identification of new or previously undiscovered materials and/or information related to moisture/microbial impacts, as necessary. Any reoccurrence of moisture intrusion following reconstruction should certainly be reviewed and addressed through further professional consultation, as necessary. BioMax would be happy to provide additional microbial consultative services pertaining to the mitigation of such structures so as to minimize potential adverse impacts to the interior working environment during the performance of any such activities upon request..

Once again, it has been a pleasure working with DGS on these important matters. If you have any additional questions, comments, or require further assistance, please do not hesitate to contact me directly at (510) 724-3100.

Sincerely,



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



**LIMITATIONS**

Please note that the professional opinions presented in this review are intended for the sole use of 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 report communication is intended 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 identification, evaluation and control of potential contamination or unnecessary physical, chemical, and/or biological 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. Risk management and safety is criteria dependent and situation specific requiring extensive knowledge and value assessments to be properly determined by competent professionals.

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&K**

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Report for:

**Mr. Michael Polkabia**  
**Biomax Environmental**  
775 San Pablo Ave.  
Pinole, CA 94564

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Regarding: Project: Janitor's Plenum on Level 1; 450 N. Street, Sacramento, CA  
EML ID: 468758

Approved by:

Lab Manager  
Dr. Kamashwaran Ramanathan

Dates of Analysis:

Quantitative spore count direct exam: 09-24-2008

Project SOPs: Quantitative spore count direct exam (1100006)

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This coversheet is included with your report in order to comply with AIHA and ISO accreditation requirements.

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 corrections of results is not a standard practice. 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.

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Document Number: 200091 - Revision Number: 5

**EMLab P&K**

1150 Bayhill Drive, Suite 100, San Bruno, CA 94066  
 (650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: Biomax Environmental  
 C/O: Mr. Michael Polkabila  
 Re: Janitor's Plenum on Level 1; 450 N. Street,  
 Sacramento, CA

Date of Sampling: 09-19-2008  
 Date of Receipt: 09-22-2008  
 Date of Report: 09-24-2008

**QUANTITATIVE SPORE COUNT REPORT**

Location:	B01: Sheetrock paper at West pipe penetration		B02: Pipe insulation paper at West wall		B03: Sheetrock paper tape at West wall		S01: Stacked plywood flooring material West	
Comments (see below)	None		None		None		None	
Sample type	Bulk sample		Bulk sample		Bulk sample		Tape sample	
Lab ID-Version:	2068790-1		2068791-1		2068792-1		2068793-1	
	raw ct.	spores/unit	raw ct.	spores/unit	raw ct.	spores/unit	raw ct.	spores/unit
Alternaria								
Arthrinium								
Ascospores*								
Aureobasidium								
Basidiospores*								
Bipolaris/Drechslera group								
Botrytis								
Chaetomium								
Cladosporium							3	0.65
Curvularia								
Epicoccum								
Fusarium								
Myrothecium								
Nigrospora								
Other colorless								
Penicillium/Aspergillus types†			19	8.3			5	1.1
Pithomyces								
Rusts*								
Smuts*, Periconia, Myxomycetes*								
Stachybotrys	420	2,100	162	70				
Stemphylium								
Torula								
Ulocladium					138	60		
Zygomycetes								
Background debris (1-4+)‡	N/A		N/A		N/A		4+	
Sample size	100		100		100		100	
Unit	1 mm <sup>2</sup>		1 mm <sup>2</sup>		1 mm <sup>2</sup>		1 mm <sup>2</sup>	
<b>§ TOTAL SPORES/UNIT</b>		<b>2,100</b>		<b>78</b>		<b>60</b>		<b>1.8</b>

**Comments:**

\* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as nonsporulating colonies. 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 is an indication of the amount of non-biological particulate matter present on the slide (dust in the air) and is graded from 1+ to 4+ with 4+ indicating the largest amounts. This background material is also an indication of visibility for the analyst and resultant difficulty reading the slide. For example, high background debris may obscure the small spores such as the *Penicillium/Aspergillus* group. Counts from areas with 4+ background debris should be regarded as minimal counts and may actually be higher than reported.  
 † A "Version" greater than 1 indicates amended data.  
 § Total Spores/unit has been rounded to two significant figures to reflect analytical precision.

## EMLab P&amp;K

1150 Bayhill Drive, Suite 100, San Bruno, CA 94066  
(650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: Biomax Environmental  
C/O: Mr. Michael Polkabl  
Re: Janitor's Plenum on Level 1; 450 N. Street,  
Sacramento, CA

Date of Sampling: 09-19-2008  
Date of Receipt: 09-22-2008  
Date of Report: 09-24-2008

## QUANTITATIVE SPORE COUNT REPORT

Location:	S02: Light staining on plywood flooring SW		S03: Non stained plywood flooring at access	
Comments (see below)	None		None	
Sample type	Tape sample		Tape sample	
Lab ID-Version†:	2068794-1		2068795-1	
	raw ct.	spores/unit	raw ct.	spores/unit
Alternaria				
Arthrinium				
Ascospores*				
Aureobasidium				
Basidiospores*	1	0.22	1	0.22
Bipolaris/Drechslera group				
Botrytis				
Chaetomium				
Cladosporium	16	3.5	3	0.65
Curvularia				
Epicoccum				
Fusarium				
Myrothecium				
Nigrospora				
Other colorless				
Penicillium/Aspergillus types†	1	0.22	2	0.43
Pithomyces				
Rusts*				
Smuts*, Periconia, Myxomycetes*	1	0.22		
Stachybotrys				
Stemphylium				
Torula				
Ulocladium				
Zygomycetes				
Background debris (1-4+)††	4+		4+	
Sample size	100		100	
Unit	1 mm <sup>2</sup>		1 mm <sup>2</sup>	
<b>§ TOTAL SPORES/UNIT</b>		<b>4.2</b>		<b>1.3</b>

## Comments:

\* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as nonsporulating colonies. 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*, *Faecilomyces*) 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 is an indication of the amount of non-biological particulate matter present on the slide (dust in the air) and is graded from 1+ to 4+ with 4+ indicating the largest amounts. This background material is also an indication of visibility for the analyst and resultant difficulty reading the slide. For example, high background debris may obscure the small spores such as the *Penicillium/Aspergillus* group. Counts from areas with 4+ background debris should be regarded as minimal counts and may actually be higher than reported.

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

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

# BULK / SURFACE SAMPLING RECORD

## BIOMAX ENVIRONMENTAL, LLC

775 San Pablo Avenue, Pinole, CA 94564

Phone: (510) 724-3100 Fax (510) 724-31435 biomaxenv@aol.com

Project Name and Location: *Sanitar's Plenum on Level 1*  
*450 N. Street, Sacramento, CA*

Analytical Laboratory: *EM Labs* Date of Sampling: *9/19/08* Required Turn Around: *Stat*

Analysis Requested: *Fungal ID*

Sampled By: *MA Folkeholz Mike Gifford*

Sample ID	Sample Type B/S	Area/Volume Sampled	Location/Description
<i>B01</i>	<i>Bulk</i>	<i>12x2"</i>	<i>Sheetrock paper @ west pipe penetration</i>
<i>B02</i>	<i>Bulk</i>	<i>5x5"</i>	<i>Pipe insulation paper @ west wall</i>
<i>B03</i>	<i>Bulk</i>	<i>5x5"</i>	<i>Sheetrock Paper / Tape @ west wall</i>
<i>S01</i>	<i>Surface</i>	<i>1x1"</i>	<i>Stained Plywood flooring material west</i>
<i>S02</i>	<i>Surface</i>	<i>1x1"</i>	<i>Light staining on plywood flooring SW</i>
<i>S03</i>	<i>Surface</i>	<i>1x1"</i>	<i>Non stained plywood flooring @ access</i>



000468758

Instructions and Comments: *Fungal ID*

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

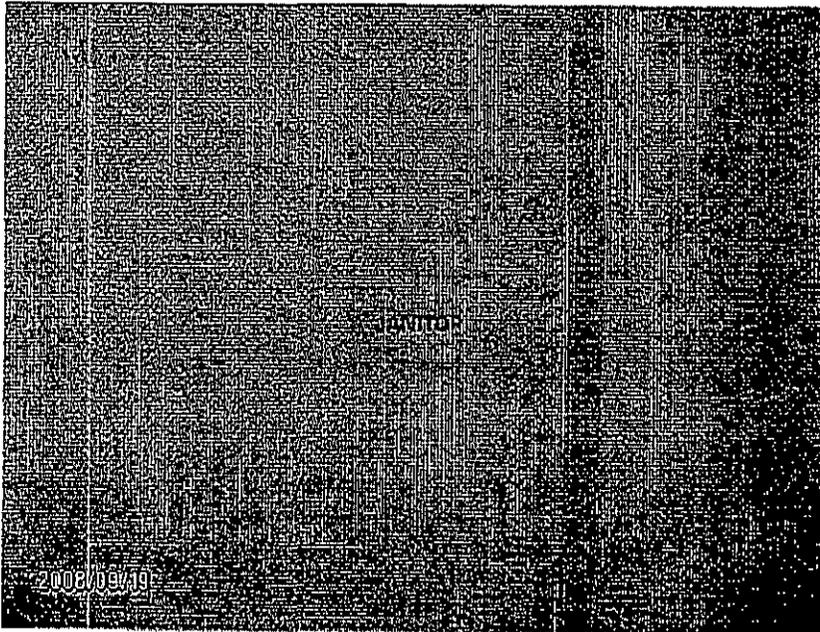
Relinquished by: <i>Mike Gifford</i>	Received By: <i>Ann Morrissey</i>
Method of Transportation: <i>Fed Ex</i>	
Time/Date Sent: <i>4:15 9/19/08</i>	Time/Date Received: <i>9-22-08 8:45</i>

Page 1 of 1

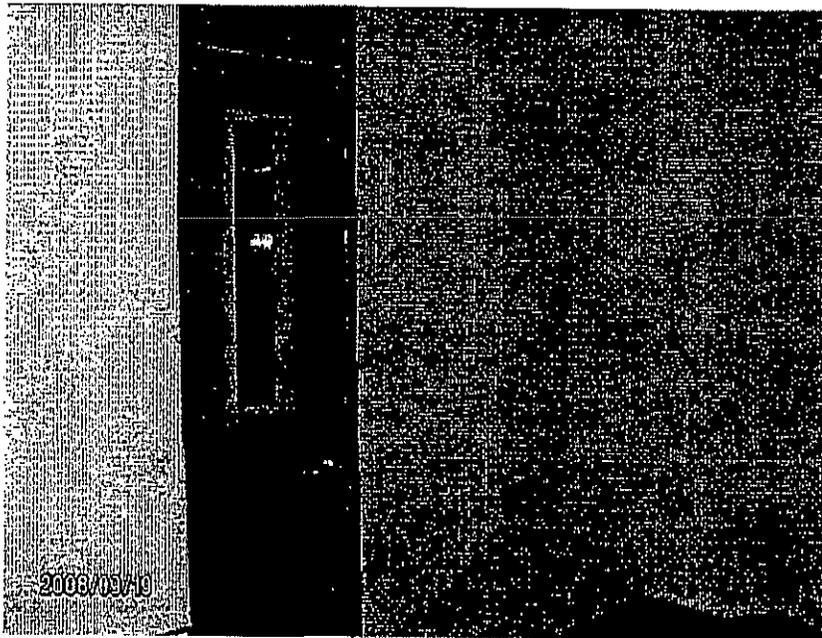
**Attachment A: Digital Images**  
September 19<sup>th</sup>, 2008  
BOE Building 1<sup>st</sup> Floor Janitor's Plenum Area  
Sacramento, CA

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[Click here for color photos](#)



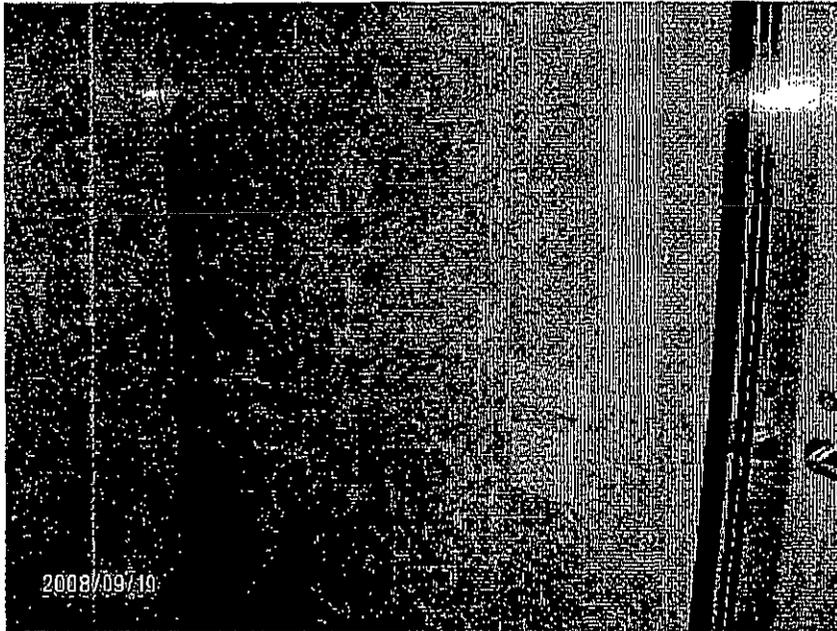
- 1) Image of First Floor Janitor access doorway within BOE Building (Subject Building) located at 450 N Street, Sacramento.



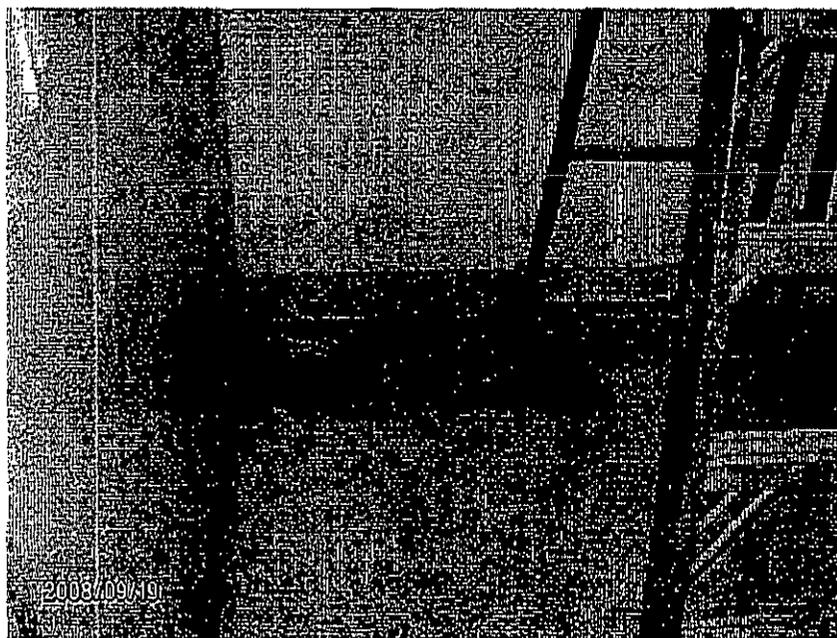
- 2) Image of doorway leading to elevator lobby adjacent to janitor's room at time of inspection.

September 19<sup>th</sup>, 2008  
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Sacramento, CA

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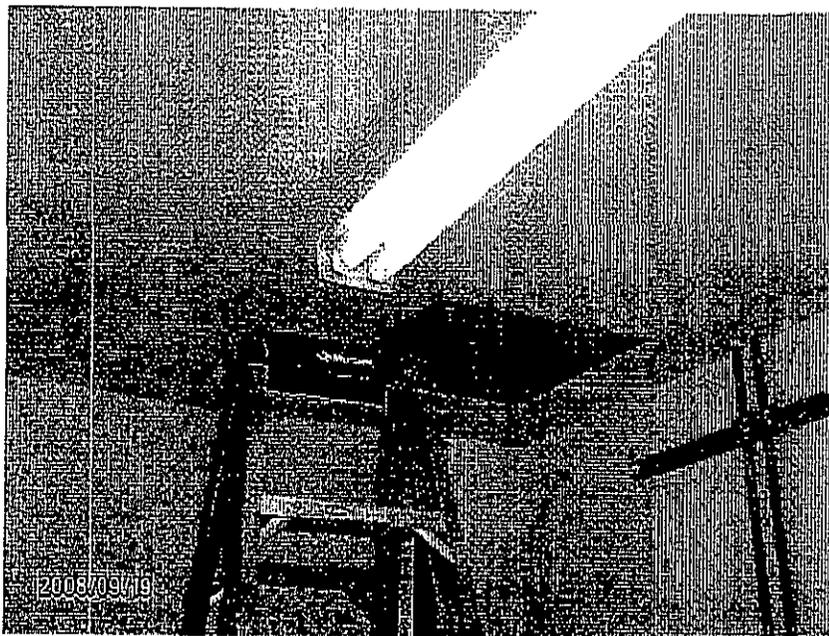
- 3) Image of marbled wall material within elevator lobby area adjacent to shared wall of first floor janitor room area.



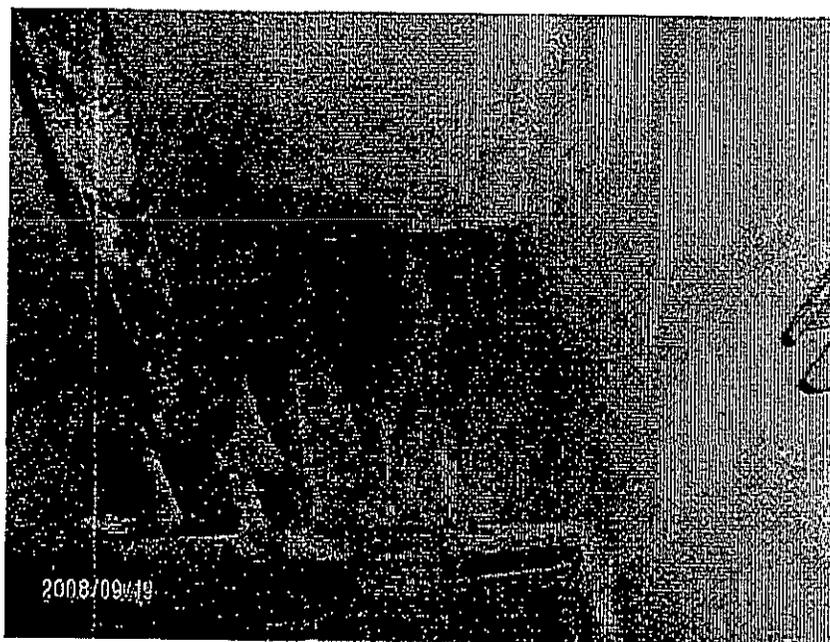
- 4) Image of stained flooring and cracking present within janitor's room at time of assessment.

September 19<sup>th</sup>, 2008  
BOE Building 1<sup>st</sup> Floor Janitor's Plenum Area  
Sacramento, CA

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5) Image of inspector access panel on ceiling within janitor's room.



6) Image of stained wallboard and plywood viewed from within janitor's plenum area at time of assessment.

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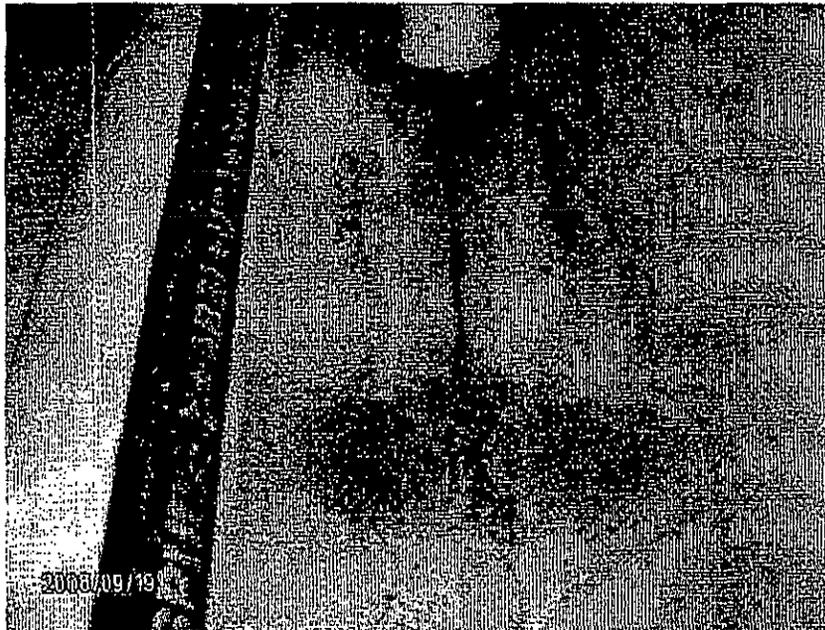
- 7) Close-up image of stained plumbing and plumbing insulation materials located on western wall of janitor's plenum.



- 8) Image of staining trails and physical dripping from plumbing systems as viewed within the janitor's plenum area.

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Sacramento, CA

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9) Additional image of plumbing structures and staining trails present on wallboard surfaces within western wall of janitor's plenum area.