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**BioMax Environmental**

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*Environmental Consulting and Industrial Hygiene Services*

April 17<sup>th</sup>, 2008

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

**Mitigation Procedures for 1<sup>st</sup> Floor Mitigation – Conference Room Areas  
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 recommendations pertaining to our inspection and review of microbial sampling data provided by Hygientech International, Inc. (HTI) within the moisture impacted areas associated with the 1<sup>st</sup> Level Conference Areas of your 450 N Street Building (subject building) located in Sacramento, California. BioMax understands that these microbial inspection and sampling data assessment and review services were contracted with BioMax in an effort to evaluate the recently discovered visible moisture intrusion identified within the noted conference room areas identified and reported by BOE staff on Wednesday, April 9<sup>th</sup>, 2008. It has been noted that the identified rooms of concern with significant moisture intrusion included rooms 105, 106, 107, and 108. Subsequent inspection performed by BioMax and HTI on April 9<sup>th</sup> also identified rooms 110 and 111 as also containing localized areas of moderate residual moisture located along the carpet tiles present along the perimeter walls.

Preliminary response activities recommended by BioMax and performed by the site mitigation contractor JLS, included notification of BOE that rooms 105-108, 110, and 111 would be temporarily precluded from staff access. Immediate supplemental barrier containments were also established at that time isolating HVAC supply/returns within rooms 105-108 as well as establishing critical containment at each doorway entry. Dehumidification equipment were also located and operated within each of these affected conference rooms as an immediate and interim precautionary measure until the noted HTI sampling data was available for review. Hence, based on subsequent visual observations, performance of moisture detection, and review of analytical sampling data provided by HTI (letter summary report dated April 16<sup>th</sup>, 2008), BioMax recommends the mitigative corrective procedures noted herein.

On-site inspection and data assessment activities were performed by Mr. Michael A. Polkaba, CIH, REA, of BioMax in accordance with currently recognized microbial assessment and sampling guideline procedures. Mr. Polkaba 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. Polkaba 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.

## RECOMMENDATIONS

Based on our preliminary observations within the impacted areas and review of current analytical findings available at this time, BioMax recommends that the following corrective measures and mitigative actions be considered as follows:

1. Due to the visual observations of current and historic moisture intrusion into the conference rooms and analytical findings and recommendations presented within HTT's April 16<sup>th</sup> report, BioMax recommends that additional deconstructive inspection and appropriate mitigation within the affected interior structures and wall cavities within rooms 105, 106, 107, and 108 be performed as noted below. The purpose of these activities should be to adequately assess and evaluate the full extent of any moisture intrusion and microbial damages within each of the noted areas under appropriate microbial mitigative protective containment systems.
2. In performing such mitigative measures, BioMax recommends that a qualified and experienced microbial abatement contractor be selected to erect critical containment barriers at the entrances to Rooms 105, 106, 107 and 108 and perform microbial mitigative measures within each of the interior areas noted. 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.
3. Due to the current adjacent occupancy and client use within the first floor reception areas adjacent to the affected conference rooms, as a precautionary measure, BioMax recommends that the mitigation contractor perform all mitigative removal activities (noted below) during times unoccupied by the majority of the tenant population. BioMax anticipates that such work will, therefore, be performed over the upcoming weekend if feasible. The selected mitigation contractor shall be directed to install a series of fully enclosed negative pressure environmental containment barriers encompassing rooms 105, 106, 107, and 108 during removal, inspection, and treatment. 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 premises. 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 at the horizontal decorative ceiling area located above each of the impacted areas. An adequate supply of HEPA filtered intake air shall also be established to allow an appropriate 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 inspection during the performance of prescribed mitigative measures so as to minimize unnecessary entrances for non mitigative related inspection purposes. 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 site contractor shall maintain an "as built" record of containment locations and delineations on a site map for further review and reference.

4. As an additional precautionary measure, HEPA filtered air scrubber units will also be operated in the reception hallway located outside the mitigative containment areas for the duration of destructive inspection and mitigative activities performed during non occupied building hours.
5. A series of similar plastic and/or otherwise impermeable zippered entry chambers shall be erected on the interior (and at the entrance) of each conference room containment system 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. Data logging monitoring equipment employed to record pressure differentials on a 24-hour basis shall be used for the duration of functional barrier use.
6. 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 conference room areas, as necessary. All Heating Ventilation and Air Conditioning (HVAC) supply vents and ceiling or wall mounted recessed lighting/ fan penetrations within the containment systems shall remain deactivated and covered within similar plastic barrier systems. All appropriate wall and ceiling penetrations present within the containment systems shall also be sealed and/or otherwise rendered airtight and inoperable so as to minimize unfiltered particulate intrusion into and out of the established containment systems. It is specifically recommended that the ceiling level materials be critically sealed from the working areas within each of the noted containment rooms so as to preclude fugitive emissions from exiting the noted containments. Any smoke detectors and/or fire suppression systems shall NOT be covered nor rendered inoperable within the subject building unless authorized to do so under the direction and supervision of DGS maintenance personnel.

7. 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.
8. Prior to removal of carpet tiles and/or wall materials, BioMax recommends that all interior fabric covered items or furnishings located within the containment areas be HEPA vacuumed, sealed in plastic, and relocated from the containment area systems prior to the initiation of mitigative activities. Hard surface materials such as tables may remain within the containment areas and will receive a thorough detail HEPA vacuuming and wet wiping treatment prior to the forthcoming clearance assessment and reuse.
9. BioMax specifically recommends that all carpet tiles within rooms 105, 106, 107, and 108 be removed for inspection and treatment of underlayment materials. Sheetrock and wallboard materials which intersect the perimeter glass and metal framed walls will also be inspected through removal of the baseboard and wallboard material layers along the floor-to-wall intersections. BioMax anticipated that a minimum of two (2) linear feet along the baseboard level shall be removed for appropriate physical inspection of wall cavity materials at these critical locations. Any visible indications of moisture damage and or mold-like staining present within such materials shall result in their physical removal. Removal of moisture impacted and mold damaged materials may also employ the use of appropriate 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 direction of the Project CIH, as necessary. BioMax currently anticipates that all carpet tiles and any visually affected wallboard/sheetrock materials present within the noted conference room areas shall be removed for disposal, as necessary. Following carpet tile (and any wallboard) removal, all underlayment surfaces shall receive a series of wet-wipe treatment applications utilizing microbial abatement solutions as discussed below. Any underlayment materials exhibiting visible signs of moisture staining shall also be removed and/or decontaminated (also as noted below), as necessary.
10. Other potentially affected areas and building materials encountered during these deconstructive and investigative stages, such as adjacent wall studs, floor underlayment, etc., must be thoroughly inspected during these deconstructive stages to identify any potential signs of additional microbial related growth and water damage indicators. In general, all microbial impacted materials shall be removed to the extent of visible staining and at least 2 feet beyond such identified perimeters, wherever possible.

11. 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 would be happy to provide ongoing consultation with the site mitigation contractor pertaining to these measures and site/material specific decontamination measures upon request.
12. Upon completion of mitigation efforts performed by the selected microbial abatement contractor, BioMax recommends the performance of a visual inspection conducted by the Project CIH to verify that all significant mold related staining and moisture indicators have been removed and/or treated and that all prescribed mitigative efforts and measures have been appropriately achieved. Once established, the Project CIH will collect a series of microbial "clearance" air samples to verify that all affected interior areas have been appropriately decontaminated to acceptable background airborne levels and that the affected areas within the impacted areas are verified as "cleared" for forthcoming reconstruction. Additional "punch-list" action items may be provided to the mitigation contractor following the performance of this site clearance inspection prior to receipt of analytical results, as deemed necessary by the Project CIH.
13. Upon review of analytical sampling results by the Project CIH and achievement of acceptable clearance criteria, BioMax recommends that the mitigation/reconstruction contractor apply a mildicide-based sealant onto any remaining organic-based building materials and treated surfaces. Use of a recognized commercially available encapsulant/sealant product with microbial growth inhibitors in accordance with manufacturer's application and use instructions is believed to be currently acceptable for these purposes. Following the achievement of acceptable clearance criteria, the provision of appropriate access shall be provided to BOE and its consultants for inspection of affected areas and materials prior to final encapsulation and reconstruction.
14. Following the performance of these mitigative 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 affected interior structures and cavities. Certainly, the repair/replacement and/or establishment of any such additional engineering controls (as recommended through

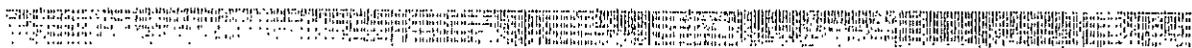
additional professional consultation) must be performed and implemented in accordance with applicable standards, building codes, and ordinances, as necessary.

- 15. 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 replacement carpet materials be 100 percent synthetic based and that reconstruction materials selected for use in the conference room areas be specifically selected based on their moisture deterrent and anti-microbial properties wherever feasible.
- 16. 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 any adverse impacts to the interior 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. Polkabila, 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.