



March 14, 2007

Mr. Howard Blankenship  
Regional Vice President, Central Region

RE: Response to Project Action Plan for Mold and Moisture Mitigation MCI ATCT  
and Statement of Work; WM Project GC07-7366

Dear Howard:

This letter will serve as a response to the documents entitled *Project Action Plan for Mold and Moisture Mitigation MCI ATCT* dated 2/27/2007, the related *Statement of Work: Microbial Remediation, Federal Aviation Administration, Kansas City Airport Traffic Control Tower (MCI ATCT)* dated 2/22/07, and *MCI ATCT Mold and Moisture Project Action Plan Table* dated 2/27/07. The documents were provided as attachments to a memo from Tony Roetzel to Nancy Kort and Jo L. Tarrah dated 2/28/07.

The review of these documents shows several work practices and deficiencies that are outside the industry standard of care documents, and as such, could potentially lead to incomplete remediation, reoccurrence of fungal growth, and negative impacts to the occupants' health. The industry standard of care refers to governmental and professional guidance documents relating to the mold remediation industry, including:

- Occupational Safety & Health Administration (OSHA) *A Brief Guide to Mold in the Workplace*
- Health Canada *Fungal Contamination in Public Buildings: A Guide To Recognition And Management*
- American Conference of Governmental Industrial Hygienists *Bioaerosols: Assessment and Control*
- American Conference of Governmental Industrial Hygienists *Field Guide for the Determination of Biological Contaminants in Environmental Samples*
- Association of Specialists in Cleaning and Restoration (ASCR) *Recommended Professional Practice for Remediation of Mold Contamination in Building Interiors*
- The Institute of Inspection Cleaning and Restoration Certification (IICRC) *S500 Standard and Reference Guide for Professional Water Damage Restoration*

- The Institute of Inspection Cleaning and Restoration Certification (IICRC) *S520 Standard and Reference Guide for Professional Mold Remediation*
- New York City Department of Health *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*
- American Industrial Hygiene Association *Report of Microbial Growth Task Force*
- Environmental Protection Agency *Mold Remediation in Schools and Commercial Buildings*
- Texas Mold Assessment and Remediation Rules (25 TAC Sections 295.301-295.338)

A layman's explanation of the basic areas of agreement in the various documents that make up the standard of care for the mold remediation industry can be found in chapter five of Wonder Makers Environmental's *Fungal Contamination: A Comprehensive Guide for Remediation*.

Unfortunately, the Statement of Work and the Project Action Plan rely heavily on a single document: the New York City Guidelines. Such an approach neglects the wealth of information included in the other documents and the advances in the industry that have occurred since the NYC Guidelines were published.

What is even more troubling is that the specifications do not address some of the basic premises of mold remediation. It appears from the *MCI ATCT Mold and Moisture Project Action Plan Table* that mold remediation efforts will be conducted from June 18 to July 20, 2007. However, "corrective work implementation" related to the engineering analysis will not begin until October 15, 2007. This means that chronic water sources not related to the blocked floor drain will remain for several months *after* mold remediation efforts have been conducted. The vast majority of documents that make up the standard of care state that all water and humidity sources should be fixed before or during remediation to prevent the reoccurrence of fungal growth. This concept is also supported by the agency in Section 3.0 of the Guidance for the Management of Mold in FAA Facilities (Final Draft dated December 7, 2005) which notes that "Remediation not only includes removal or cleaning of mold contaminated surfaces; it also includes abatement of the moisture issues that created the growth conditions for the mold. In all situations, the underlying cause of the water accumulation must be rectified or fungal growth will undoubtedly reoccur." Given that mold growth in buildings is possible within a few days of finish materials becoming wet, the lag between mold remediation and identification of moisture sources (much less correction of water intrusion) is risky.

In addition, the work plan does not provide an objective standard to determine when the work has been successfully completed. Section 8.0 of the Statement of Work would allow clearance of the work areas based solely on a visual inspection. Many of the documents in the standard of care advise that post-remediation air sampling should be used for large scale projects (generally 100 square feet or more). Even the NYC Guidelines state that "Air monitoring should be conducted prior to occupancy to determine if the area is fit to reoccupy."

Two other significant concerns with the documents involve their approach to chemicals used during the project. In a number of places the documents instruct the contractor to wipe metal studs and components with a bleach solution. There is no discussion about neutralizing the surfaces after the bleach application. Application of bleach to metal surfaces without proper neutralization can contribute to corrosion of such surfaces.

Other areas of the documents mandate the use of a “concentrated Sporidicin disinfectant solution”. Using any EPA registered chemical in a concentrated form rather than mixed according to label directions is a violation of the FIFRA regulations. More importantly, Sporidicin products contain 1-25% glutaraldehyde (depending on the specific style of the product), the material suspected of causing some of the health problems at the Detroit tower.

In the memo from Tony Roetzel dated February 28, 2007, he states, “The plan and its table of activities are considered working documents and will be revised when needed throughout the project to capture additional activities resulting from the completion of comprehensive engineering evaluation and/or other changes to the overall project.” We hope that Mr. Roetzel is willing to incorporate these suggested improvements into the work plan documents prior to their implementation. Inclusion of these suggested improvements will provide a balanced work plan that reflects a comprehensive approach derived from all current industry information.

Sincerely,

Michael A. Pinto, Ph.D., CSP, CMP  
CEO

Enclosure: Specific Concerns Regarding the Project Action Plan for Mold and Moisture Mitigation, MCI ATCT, and Statement of Work - Microbiological Remediation for Federal Aviation Administration Kansas City Airport Traffic Control Tower (MCI ATCT)



## Specific Concerns Regarding Mold and Moisture Mitigation at MCI ATCT

### Project Action Plan

#### 1.0 Environmental Assessment

This section states that water-damaged materials must be dried, cleaned or removed, and that mold-damaged materials must be remediated in accordance with New York City Guidelines and FAA guidance documents. However, the statement of work later calls for the wiping of certain areas of the elevator shaft liner with a “concentrated Sporidicin disinfectant solution”. This direction contradicts Section 3.1 (D) of the FAA’s Mold Guidance document which states, “Porous materials (*e.g.*, ceiling tiles, insulation, and wallboard) should typically be removed and discarded, especially if they have been wet for more than 48 hours.”

1.0.c Indicates that air monitoring will not be performed prior to remediation, yet Section 2.2 of the FAA guidance document says that air sampling for mold may be necessary if “there is evidence from a visual inspection or bulk sampling that the ventilation system may be contaminated”. With visible mold identified in 41 different areas of the facility, air monitoring should be conducted to determine background levels and confirm whether the HVAC system is impacted.

That same paragraph indicates that air monitoring “may be performed for post-remediation clearance purposes if deemed appropriate ...” Determination of air monitoring criteria for post-remediation should be made prior to the release of the work plan for bids so that all contractors know the end point to which they will be held accountable.

#### 2. Remediation and Short Term Restoration

Several positive steps are mandated by the agency, including the installation of paperless gypsum board as a replacement product, installation of access doors for inspection, and repair of any walls cored or cut open for inspection. This implies that the agency understands the value of invasive sampling to identify and quantify the extent of mold contamination in the building, a procedure that they have prohibited NATCA from completing at the Detroit tower.

#### 3. Long Term Facility Corrective Action

As in the Detroit facility, the FAA has not yet determined the source of the water intrusion/condensation in the elevator shaft. Unfortunately, the similarity in design between the Kansas City and the Detroit towers has not benefited the agency in Kansas City as more than two years of effort in the Detroit tower has failed to conclusively identify the cause of the water intrusion or determine an appropriate response action to keep it from reoccurring.

#### 5. Communications

This section indicates that project information will be provided to facility employees and local employee representatives. However, *timely* provision of information is necessary in order for the employees to have the ability to protect themselves.

#### 6. Risk Management Plan

NATCA personnel should be involved in the development of the risk management plan to make sure that all employee concerns are addressed. The current document does not indicate that such input would be allowed.

#### Mold and Moisture Project Action Plan Table

The section of interim actions indicates that water-damaged ceiling tiles and pipe insulation are to be removed in March 2007. No specific work plan or risk assessment was provided for these activities. In addition, the plan indicates that Tech Ops would perform the work. Such remediation without utilizing proper engineering controls and work practices can create significant exposure/health problems. Recently, several individuals in the Detroit TRACON became ill when ceiling tile replacement was conducted in that area. Some individuals have reported long term sensitization from that exposure.

The current plan calls for mold remediation to begin in June and be completed in July 2007. Corrective work to deal with the water intrusion is not scheduled to begin until October 2007 with an end date of March 2008. This lag time may result in re-establishment of fungal colonies as noted in Section 3.0 of the FAA's Mold Guidance document.

### **Statement of Work**

#### 1.0 Work Summary

This section states that the contractor must remove and dispose of all microbiological-contaminated materials in accordance with the New York City Department of Health's *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*(GARFIE). It does not mention any of the other standard of care documents for the mold remediation industry. GARFIE does not serve as a stand-alone document that represents the current knowledge base of the mold remediation industry. For instance, GARFIE does not take into account the presence of hidden mold in determining the scope of a mold remediation project. The FAA's mold guidance document lists 39 specific references as "relevant guidance documents" in Appendix A. The document also summarizes OSHA's *A Brief Guide to Mold in the Workplace* in Section 3.2 and adds additional FAA specific requirements. As such, the language in the FAA's own guidance document indicates that the primary reference should be the OSHA guidelines rather than the New York City guidelines.

The contractor is required to minimize dust generation using dust prevention and suppression methodologies outlined in GARFIE. As previously stated, the sole use of GARFIE neglects a vast amount of information concerning dust minimization techniques that should be specifically spelled out in the work plan. Such techniques include removal of drywall using HEPA vacuums at the face of cutting, using dust capturing devices such

as a Dust Muzzle or Kett Tool connected directly to a HEPA vacuum, working in proximity to the negative air machine, and the use of air scrubbers.

The work summary does indicate that isolation and negative pressure techniques will be used, which are the first steps toward protecting unimpacted areas from fungal contamination related to the remediation efforts.

#### 1.1.5 Certifications

This section states that the contractor shall be certified by IAQA, IICRC, NADCA or equivalent. However, the IAQA only certifies individuals, not organizations for mold remediation. It is important that all of the workers who will be onsite have mold remediation training/certification since company certifications do not guarantee that the workers on the jobsite are competent.

#### 1.4 Submittal Requirements

Although the required submittals are important, there is no requirement for the contractor to submit training/certification information for each of the employees who will be onsite. There is no indication that the contractor has to submit information that would allow the agency to determine whether the workers meet the minimum requirements for building security.

#### 4.0 Regulated Area

The specifications require the contractor to establish and maintain negative pressure enclosures while doing mold remediation work. The normal rate of four room air changes per hour is doubled for work in the elevator shaft. This extra level of protection is appropriate. This section also allows negative air machines to be vented inside the building if they are directed through a second HEPA filter. This is a reasonable accommodation for the challenges posed by the tower's unique type of structure.

There is no requirement for the utilization of decontamination chambers. Such an oversight will substantially increase the risk of cross contamination to the occupied areas of the building.

#### 6.0 Work Procedures

Section 6.2 requires the contractor to wet wipe non-porous furniture and fixtures with a "10% Chlorox [*sic*] solution or equivalent detergent solution". There are several problems with this directive besides the spelling error. Clorox is a bleach, which is not equivalent to detergents. More importantly, many industry professionals have determined that bleach solutions are not effective at denaturing mold spores. Because of its relatively long dwell time to be effective, irritating odor, corrosive nature, and proclivity to react with other materials, professional and mold remediation contractors are utilizing chemicals that have been specifically designed to be effective in mold remediation without the negative side effects found with bleach use.

Section 6.2 appears to have an error in requiring the contractor to wrap pre-cleaned furnishings and fixtures prior to their removal from the work area. Generally, pre-

cleaning of materials potentially impacted by deposition of fungal spores is adequate if the items are to be removed. Double layer wrapping is generally reserved for items that are to stay in the work area, as indicated at the bottom of the section.

Section 6.3 requires that the contractor maintain a pressure differential of negative 0.02 inches of water. However, there is no explicit requirement for them to have magnehelic gauges or other devices.

Section 6.4 details the amount of materials to be removed in various areas of the building. The total quantity of mold-contaminated material to be removed from the tower is substantially in excess of 100 square feet. In fact, the amount of shaft liner to be removed from the subjunction level equipment room is approximately 611 square feet. Because of the multiple areas where material is to be removed and the large quantity to be removed, each work area should be treated as a “Level IV Extensive Contamination” project as described in the FAA’s mold guidance document. This document (Section 3.2 (D)) requires decontamination areas at the entrance to each negative pressure enclosure.

The FAA document also requires that an experienced CIH design the work plan. There was no indication on the action plan or statement of work who authored the document.

Section 6.5 allows mold contamination totaling less than ten square feet to be cleaned rather than removed. The shaft liner is to be wiped with a “concentrated Sporidicin disinfectant solution”. This is part of the scope of work that repeats some of the problems that caused reported health effects at the Detroit tower. More importantly, wiping the surface mold does nothing to address the potential for contamination on the inner layers of the gypsum shaft liner.

Section 6.6 directs the contractor to wet wipe the metal walls with 10% “Chlorox” solution without requiring any neutralization. As indicated previously, such a work practice can contribute to long term corrosion of the metal.

Sections 6.7 through 6.10 require a number of surfaces to be wet wiped with a “concentrated Sporidicin disinfectant solution”. In addition to glutaraldehyde, Sporidicin contains a number of phenols. Both of these types of chemicals are significant irritants. This is one of the reasons that many individuals find Sporidicin to have an objectionable odor. It is interesting to note that the manufacturer’s MSDS indicates that “If vapors are strong enough to be irritating to the nose or eyes the threshold limit value (TLV) is probably exceeded”.

These same sections also require wiping of other surfaces with the 10% “Chlorox” solution. Utilizing multiple chemicals for cleaning/sanitization increases the risk that they will come in contact with one another with a potential for unanticipated reactions (odors, irritation, increased corrosion, etc.). There are plenty of tested products available that can be used for both purposes without the strong odor or potential for cross reactions. In particular, products with quaternary ammonium mixtures generally have less objectionable odors while offering similar levels of effectiveness.

### Sections 7.0 Air Monitoring and Inspection and 8.0 Final Clearance

The work plan does not provide an objective standard to determine when the work has been successfully completed. Section 8.0 of the Statement of Work would allow clearance of the work areas based solely on a visual inspection. Many of the documents in the standard of care advise that post-remediation air sampling should be used for large scale projects (generally 100 square feet or more). Even the NYC Guidelines state that “Air monitoring should be conducted prior to occupancy to determine if the area is fit to reoccupy.” The use of a visual inspection without supplemental air sampling to determine if the project was completed appropriately so as to avoid the potential for microscopic contaminants to impact occupied areas of the building is foolish. The Kansas City tower is a critical use facility where disruption of services due to occupant exposure to chemicals or biological contaminants could have dire consequences. The fact that some occupants have reported health effects that would indicate possible sensitization to biological contaminants should be a compelling rationale for mandating air samples prior to the dismantling of engineering controls.