



May 11, 2007

Mr. Howard Blankenship
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RE: Review of Revised Statement of Work for Microbiological Remediation, MCI ATCT and Related Documents; WM Project GC07-7366

Dear Howard:

This letter will serve as a response to the documents entitled *Statement of Work: Microbiological Remediation for Federal Aviation Administration, Kansas City Airport Traffic Control Tower (MCI ATCT)* dated 3/29/07, *Supplemental Statement of Work: Microbiological Remediation and Partial Restoration for Federal Aviation Administration, Kansas City Airport Traffic Control Tower (MCI ATCT)* dated 3/29/07, a letter addressed to you from David A. Price, Air Traffic Manager, dated 4/12/07 RE: Information request of March 12, 2007, and a memo addressed to you from Howard Lyons, Staff Manager, dated 5/1/07 RE: Mold Remediation Briefing.

Specifically you asked us to review the revised and supplemental statements of work in order to determine if changes made since the 2/22/07 version have adequately addressed the numerous concerns raised in our 3/14/07 letter to you.

While a handful of changes were made, serious deficiencies and flawed clearance criteria still exist in the current versions, which could potentially lead to incomplete remediation, dispersion of fungal contaminants outside the work area, and negative impacts to the occupants' health.

Of greatest concern is the selective use of containment and negative pressure enclosures in areas where large scale remediation will be conducted (greater than 100 square feet). For instance, in 11TS5/11TS5A approximately 126 square feet of gypsum board and insulation will be removed, and in room 3TS5 213 square feet of gypsum board will be removed without containment, negative pressure enclosure, or decontamination unit. While the New York City guidelines (*i.e.*, *Guidelines on Assessment and Remediation of Fungi in Indoor Environments* or GARFIE) suggest using negative pressure enclosures for areas of over 100 square feet of *contiguous* contamination, it also states, "Widespread contamination poses much larger problems that must be addressed on a case-by-case basis."

We strongly disagree with the selective use of containment barriers and negative pressure enclosures in areas of significant contamination, as well as the reliance on only a single standard of care document. For example, OSHA and EPA guidance documents on mold indicate that full

negative pressure enclosures should be used when “total surface area affected greater than 100 (ft²) or potential for increased occupant or remediator exposure during remediation estimated to be significant”. It is obvious that the MCI tower meets both of these criteria.

In the Project Scope Briefing attached to the 5/1/07 memo it states, “In occupied and unoccupied areas of the MCI ATCT, all remediation specifications meet or exceed GARFIE guidelines.” This does not appear to be the case. According to GARFIE, even during the remediation of small isolated areas (10 square feet or less) “all areas should be left dry and visibly free from contamination and debris.” However, the *Mold Remediation Project Clearance Protocol* attached to the *Statement of Work* states, “Should visibly dusty environmental conditions exist inside the containment area, the sample collection period may be reduced to one-minute intervals, in order to reduce the collection of non-microbial particulates that can mask the presence of mold spores.”

Among the majority of industry professionals and standard of care documents there is a consensus that visible dust and debris is not acceptable in the work area. The presence of dust, dirt, and contamination warrants re-cleaning prior to clearance sampling. The logic behind this is that fungal contamination may be present in the settled dust and if the contractor is not capable of cleaning visible dust, it is unlikely that they are capable of cleaning microscopic fungal spores. In addition, the reduction of sampling time/volume without making the same changes to the comparison samples would skew the data.

We are disappointed by the FAA’s decision to deny NATCA access to meetings, calls, or other forums related to the mold remediation activities at the Kansas City ATCT. As GARFIE states under the *Conclusions* section, “Effective communication with building occupants is an essential component of all remedial efforts.” Given the deficiencies of the statements of work to date, the additional input from NATCA could be beneficial in creating a work plan that rectifies the mold growth while at the same time protects the health of occupants.

If you have any further questions, do not hesitate to contact us.

Sincerely,

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

Enclosure: Specific Concerns Regarding Mold and Moisture Mitigation at MCI ATCT
(Revised 5/08/2007)

cc: Kevin Peterson, ktbmp@stjoelive.com

Specific Concerns Regarding Mold and Moisture Mitigation at MCI ATCT **Revised 5/08/2007**

**Note: Comments related to changes made to the 2/22/07 statement of work are underlined and in italics.*

Project Action Plan

1. 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 Sporicidin 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.”

The Sporicidin disinfectant solution has been substituted with a detergent solution in the elevator shaft. Section 7.10 of the SOW still calls for wet wiping the mold contaminated drywall and then cleaning the entire elevator shaft with a detergent solution. As previously mentioned this is not consistent with FAA’s guidance document or the overall industry standard of care that require porous materials with long term water damage or fungal growth to be removed.

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.

From the four documents provided and listed in the initial letter, there is no indication that the FAA has conducted background sampling or conducted an evaluation of the HVAC system to determine if it has been impacted by fungal contamination. In Section 1.0, item 1. of the Supplemental Statement of Work (SSOW) it states the contractor will clean “HVAC supply, return, or exhaust grilles, registers, or diffusers.” No mention is made of requirements to clean the interior of the ductwork or HVAC units servicing the building. Without a proper evaluation and/or cleaning of the entire HVAC system, it is possible that remediated areas could be re-contaminated by the deposition of fungal spores dispersed through the ductwork. Cleaning should be conducted following NADCA guidelines.

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.

A document entitled “Mold Remediation Project Clearance Protocol, Kansas City Airport Traffic Control Tower” was included as an attachment to the 3/29/07 statement of work. The document was prepared by Barbara Herbert, CIH (NISCII).

This protocol allows for sampling to be conducted even if visibly dusty conditions occur inside the containment area. “Should visibly dusty environmental conditions exist inside the containment area, the sample collection period may be reduced to one-minute intervals, in order to reduce the collection of non-microbial particulates that can mask the presence of mold spores.” As stated in the introduction letter, according to the documents that comprise the industry standard of care for mold remediation (including GARFIE), dust, debris, and visible contamination are not acceptable inside a containment or work area. Visible dust should warrant re-cleaning of the work area. Also, the variability of sample volumes (15 L in dusty areas, 75 L inside and outside of the work area, and 150 L out-of-doors) would lead to skewed data as it would be an apples to oranges comparison.

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 recurring.

In the first paragraph of the SSOW, the contractor is tasked “to correct certain moisture problems in the facility, to repair certain building components with water damage, (and) to water test areas of potential leaks.” It appears that some of the moisture issues to be addressed are listed in 1.0, #4, 7, 8, and 10 of the SSOW. These activities include insulating selected pipes, modifying drain lines, sealing openings in handrail posts on the junction level, installing water-stops at drains in the subjunction level air shafts, and applying spray-on insulation on steel surfaces in the ASDE Penthouse and Vestibule to prevent condensation. While it is commendable and required by the industry standard of care to address water sources, no information has been provided to indicated that a change in schedule has been made to implement an engineering analysis prior to the remediation work. As such, additional sources may not be rectified as part of the remediation process, which could lead to the recurrence of fungal growth in areas that had been remediated.

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.

The April 12, 2007 letter from David A. Price to Kevin Peterson states that NATCA's request to be allowed to sit in on all meetings, calls, or other forums regarding the study, assessment and remediation of mold contaminants at MCI was denied. In subpoint A it is stated that, "This request is denied as these are management meetings and the Union has no statutory right to be there."

While the Union may not have a statutory right to be present during the meetings, they have the right to a workplace free of environmental contaminants that could negatively impact their health. Based on the deficiencies in the previous and updated SOWs, NATCA input would be beneficial to help make sure that past decisions and errors occurring at other FAA facilities do not occur at MCI ATCT.

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.

No information concerning the development of a risk management plan or the involvement of NATCA personnel in the creation of such a document has been provided to Wonder Makers Environmental.

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.

Once again, the documentation provided does not indicate that a schedule change has been made to address this issue.

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 work summary still lists GARFIE as the sole document used for the establishment of the SOW. Once again, GARFIE was not designed as a stand-alone document for the mold remediation industry, and, as such, the SOW and SSOW should have been developed using the variety of governmental and professional reference documents that constitute the industry standard of care.

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.

Section 4.1 of the SSOW requires the contractor to use HEPA vacuums at the point of cutting or tools fitted with shrouds connected to HEPA vacuums to collect dust.

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.

As stated in the body of our letter, several areas of large scale remediation (in excess of 100 square feet) will be conducted without containment or negative pressure enclosures. In the MCI ATCT Mold Remediation Project Scope Briefing (attached to the May 1, 2007 memo from Howard Lyons), the fifth bullet point states that the areas will not require containment or negative pressure enclosures due to the quantity and/or location of the contaminated material. This exclusion of critical engineering controls based on location, even though the areas are in excess of 100 square feet, is illogical at best and allows for the cross contamination of unimpacted areas.

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 for mold remediation, not organizations. It is important that all of the workers who will be on site have mold remediation training/certification since company certifications do not guarantee that the workers on the job site are competent.

Section 1.15 has not been modified to ensure that each worker has been trained and certified.

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 on site. 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.

Section 1.4 of the SOW still does not require that proof of employee training be submitted for each worker.

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.

No section could be found in the SOW or SSOW specifically requiring a decon unit to be used for the remediation in the elevator shaft.

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 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 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.

The requirement to utilize a bleach solution no longer appears in the SOW or SSOW.

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.

The requirement for double wrapping cleaned items to be removed from the work area no longer appears in the SOW or SSOW.

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 4.3 of the SSOW requires that the contractor utilize a combination sensing alarm and recording type pressure differential monitor to ensure negative pressure meets the minimum requirement of 0.02.

Section 6.4 details the amount of material 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.

*It appears that a negative pressure enclosure will be utilized for removal of shaft liner in the subjunction level equipment room based on its listing in the mold remediation clearance protocol located in the SOW. There are no set sections in the SOW or SSOW that define which work areas will be remediated utilizing negative pressure enclosures. Instead, one must look at the clearance protocol and the Project Scope briefing attached to the May 1, 2007 memo listing what areas will **not** use them in order to determine where containments will be required. Having a section outlining the remediation areas that will utilize NPE’s would eliminate the need for backtracking and cross-referencing.*

The FAA document 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.

The updated SOW and SSOW (3/29/07) do not indicate the authors of the documents. The Mold Remediation Project Clearance Protocol was prepared by Barbara Herbert, CIH (NISCII). The fact that the clearance protocol doesn’t specify what constitutes a successful visual inspection and allows visible dust to be present after the visual inspection shows that requiring mold remediation specifications be drafted by a CIH does not ensure that the specifications will meet the industry standard of care for mold remediation.

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 Sporicidin

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.

As previously stated, wet wiping fungally contaminated porous materials is ineffective at removing mold and is outside both the FAA’s guidance document and the industry standard of care. Adding to the confusion, Section 1.2 “Removal and Remediation” of the SSOW states, “All gypsum board with any visible signs of mold or microbiological contamination or that is water-stained or damaged shall be removed or replaced.” This statement is in line with the standard of care, but unfortunately was not carried over to all work practices in the SOW or SSOW.

Oddly the first picture on page 26 of the SSOW has a caption that reads “This is a typical photo of the shaft liner panels in the elevator shaft.” A close look at the photo shows vertical lines of discoloration that appear to be water stains. If this is true, based on the statement above the entire shaft liner should be removed rather than wet-wiped.

Section 6.6 directs the contractor to wet wipe the metal walls with 10% “Clorox” 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% Clorox 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.

10% Clorox solution for wiping of surfaces no longer appears in the SOW, or SSOW. The updated version requires a detergent solution to be used for wet wiping of surfaces and cleaning of visible mold in the elevator shaft. While a detergent solution is recommended in GARFIE guidelines, it is not an industry recommended practice as the soap residue left behind can help support fungal growth, and is not capable of killing mold spores. Once again, there are a number of sanitizing agents designed specifically for mold remediation that do not have strong, objectionable odors, have shorter dwell times, work in heavy soil loading, and are not as reactive/corrosive.

While a detergent solution is the primary substance being used for wet wiping, the use of Sporocidin is still specified in the SOW (7.4 paragraph 4).

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.

See previous comments under “Project Action Plan 1.0c” regarding issues with the clearance criteria and sampling protocol.