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WONDER MAKERS
ENVIRONMENTAL

June 22, 2009

Mr. Vince Sugent
7768 Pleasant Lane
Ypsilanti, MI 48197

RE: Review of the Opinion and Award of the Arbitrator in the Matter of an Arbitration Between the FAA and NATCA, Local DTW/D21, WM project GC09-8593

Dear Vince:

From a review of the Opinion and Award of the Arbitrator concerning the arbitration between the FAA and NATCA pertaining to hearings held on June 20-22, 2007, there are two issues that the arbitrator ruled that have important ramifications for NATCA personnel who work at the DTW ATCT. The first issue concerns the scenario if moisture or mold infiltration should recur at the DTW ATCT. The second issue concerns an award by the arbitrator that bad mold remediation caused illness suffered by NATCA DTW personnel.

Concerning the first issue of moisture or mold infiltration recurring at the DTW ATCT, the arbitrator concluded in his opinion and award dated October 5, 2007, that, "At present, all visible mold contamination has been removed. All porous material which is known to have been contaminated by mold has been replaced, and all potential sources of water infiltration have been sealed and made water tight." The arbitrator goes on to state, "Should moisture or mold infiltration recur, then it will be incumbent upon the Agency to make further efforts to remediate the problem, including, if necessary, the removal and replacement of the wallboard lining the elevator shaft and/or the redesigning of portions of the building to prevent water from infiltrating into areas where it is allowed to pool and form a breeding ground for mold." During a mold investigation conducted by Michael Cecil, CIH, on December 8-12, 2008, significant amounts of mold were observed and disturbed within the DTW ATCT by Mr. Cecil. So much so, that on December 13, 2008, eleven individuals who work in the DTW ATCT filed CA1's with complaints of headaches, chest tightness, respiratory issues, etc. These health effects were a direct result of the uncontained disturbance of large pieces of mold-contaminated drywall during Mr. Cecil's mold inspection. Based on Mr. Cecil's December 2008 mold investigation and the adverse health effect experienced by DTW NATCA personnel as a result of the disturbance of mold contamination, it is evident that mold infiltration has recurred in the facility.

The second important issue concerns an opinion by the arbitrator that bad mold remediation caused illness suffered by NATCA DTW personnel. In his opinion and

award it states, "The arbitrator agrees that those employees who were forced to take sick leave because the Agency's contractor failed to take appropriate measures to prevent noxious fumes from escaping the elevator shaft and entering the tower cab and TRACON should not be charged sick leave." This is just one example of numerous inadequate engineering controls and work practices used by the Agency's contractor that are mentioned throughout the opinion and award.

The arbitrator's determination that bad mold remediation caused illness suffered by NATCA DTW personnel is validation of the complaints that have been made against the FAA since 2005 and continue to this day.

Sincerely,

Michael A. Pinto, CSP, CMP
CEO

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**REPORT ON FAA'S ACTIONS TO ADDRESS
MOLD AT THE DETROIT METROPOLITAN AIR
TRAFFIC CONTROL TOWER FACILITY**

Federal Aviation Administration

Report Number: AV-2006-055

Date Issued: July 11, 2006

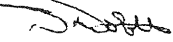


Memorandum

U.S. Department of
Transportation
Office of the Secretary
of Transportation
Office of Inspector General

Subject: ACTION: Report on FAA's Actions To Address
Mold at the Detroit Metropolitan Air Traffic
Control Tower Facility
Federal Aviation Administration
AV-2006-055

Date: July 11, 2006

From: David A. Dobbs 
Assistant Inspector General
for Aviation and Special Program Audits

Reply to
Attn. of: JA-10

To: Federal Aviation Administrator

This report presents the results of our review of the Federal Aviation Administration's (FAA) actions to address mold at the Detroit Metropolitan Air Traffic Control Tower facility (the Facility). The review was initiated at the request of several members of the Michigan congressional delegation. Specifically, the Members expressed concerns regarding allegations that FAA was not properly addressing mold issues found at the Facility and that this was causing air traffic controllers to become ill. A copy of the congressional request is included at the Appendix to this report.

We conducted the review between February 2006 and May 2006. Our scope and methodology can be found at Exhibit A. Exhibit B lists the agencies we contacted or visited. We conducted this program audit in compliance with Generally Accepted Government Auditing Standards as prescribed by the Comptroller General of the United States.

Our objectives were to determine whether FAA has taken effective actions to remediate mold growth found at the Detroit Metropolitan Air Traffic Control facility and prevent similar incidents from occurring in the future. We met with staff from several of the requesting congressional offices in May 2006 to discuss our results. A copy of that briefing is attached at Exhibit C.

RESULTS IN BRIEF

FAA has taken actions to remove mold from the Facility but has not alleviated the source of moisture causing its growth. Until the moisture source has been controlled, mold will continue to be an ongoing problem. FAA is aware of this issue and advised us that projects to address moisture and humidity problems will begin in late July 2006 and are expected to be complete in November 2006. Those projects include sealing and caulking the exterior of the tower to eliminate water infiltration; additional replacement of interior wallboard; and further heating, ventilation, and air conditioning work to manage humidity.

Completing those projects on schedule is essential to fully remediate mold at the Facility. We are recommending that FAA provide the requesting Members of Congress with a list of the planned actions to complete mold remediation efforts and alleviate moisture infiltration at the Facility. We are also recommending that FAA include the expected completion date for each project.

BACKGROUND

Mold is a common fungus that may be detected visually or by odor. It grows best in warm, damp, or humid conditions but can survive in dry conditions. Whether mold is dead or alive, exposure to mold may cause symptoms such as nasal stuffiness, eye irritation, wheezing, or skin irritation in sensitive individuals. Persons with a compromised immune system are at an increased risk.

It is not necessary to identify the type of mold or conduct sampling as mold must be removed regardless of type. There are no Federal standards for airborne concentrations of mold or mold spores. Air sampling provides information that is valid only at the time the sample was taken, and results may be difficult to interpret. Remediation includes removing mold and alleviating the source of moisture. Until the source of moisture is controlled, remediation efforts are not complete.

The Facility is a 12-story tower connected to a 2-story base building with a basement that houses offices, locker rooms, a lunch room, and the Terminal Radar Approach Control (TRACON). The elevator shaft is located in the center of the tower and extends from the basement to the 12th floor. According to FAA, floors 3 to 10 were designed as unoccupied spaces and form the tower shaft. These areas are unconditioned (no mechanical heating or cooling) and should not be occupied or used for storage. There is no common ventilation ductwork from these areas to occupied areas.

At the time of our review, there were a total of 146 employees at the Facility—49 assigned to the tower, 62 assigned to the TRACON, and 35 assigned to the Technical Operations area.

FINDINGS

FAA Has Taken Actions To Remove Mold at the Detroit Metropolitan Air Traffic Control Tower but Remediation Will Not Be Complete Until Moisture Issues Have Been Addressed

Mold was initially found in unoccupied space on the fourth and ninth floors of the tower in September 2004. In January 2005, contractors hired by FAA removed the mold identified on those floors but found additional mold that was outside the scope of the contract. During the same month, mold was found in the elevator shaft. However, the mold found in the elevator shaft was not immediately dealt with because it was located on fire-rated drywall, which could not be removed in sections because of safety issues.

In May 2005, FAA let another contract to remove the mold found on the third, fourth, and ninth floors. In October 2005, FAA began monthly inspections at the Facility. During the November 2005 inspection, additional mold was found on the third floor (this mold was removed) and in the elevator shaft.

As a result, in February 2006, FAA hired a contractor to conduct an assessment of mold in the elevator shaft and to develop a scope of work for remediation. The report recommended that FAA remove the mold using a High Efficiency Particulate Air (HEPA) vacuum and wipe the areas down with a detergent and water solution. FAA completed those steps on May 26, 2006.

In June 2005, FAA also let another contract to identify probable causes of the excess moisture. The report, published in August 2005, identified the contributing factors for excess moisture as (1) water infiltration at concrete panel joints and concrete slab edges around the exterior of the building, (2) location and placement of interior wallboard panels, and (3) heating, ventilation, and air conditioning (HVAC) issues.

FAA officials at the Facility told us that contracts have been let to address each of the issues identified in the August 2005 report, and work is expected to begin at the end of July 2006 and be complete by November 2006. According to the FAA officials at the Facility, the late completion date is needed because the exterior caulking is an extensive project and can only be done during warm weather.

Several Employees Have Experienced Adverse Health Effects Related to Mold

Exposure to mold may cause symptoms such as nasal stuffiness, eye irritation, wheezing, or skin irritation in sensitive individuals. Persons with a compromised immune system are at an increased risk. Several employees at the Facility have experienced adverse health effects related to mold exposure. These factors highlight the need for FAA to aggressively pursue completion of its remediation efforts.

As of May 2006, 5 of the 49 employees who work at the tower had filed a health claim for workers' compensation with the Department of Labor (DOL)—2 of those employees have not returned to work. In March and April of 2006, DOL accepted three of those claims—two for asthma and one for exposure to mold. Of the two remaining claims, one was denied and one is still pending a DOL decision.

As of May 2006, 1 of the 62 employees who work in the adjoining TRACON had filed a health claim for workers' compensation, which is still pending a DOL decision. None of the 35 Technical Operations employees who work in the same building had filed for workers' compensation.

At the request of FAA and Facility employees, three independent Federal agencies conducted reviews at the Facility to determine if the level of mold presents a health hazard to employees.

- In November 2005, the Department of Health and Human Services, Centers for Disease Control, National Institute of Occupational Safety and Health (NIOSH) conducted a Health Hazard Evaluation of the Facility to determine if workers are exposed to hazardous materials or harmful conditions. The NIOSH review included an evaluation of medical records and a review of documents provided by FAA but did not include a site visit. In a verbal briefing to our office on the preliminary results, NIOSH officials stated that it is possible that mold exposure could have triggered some of the upper respiratory tract allergic-type symptoms that were reported by employees. However, NIOSH concluded that there is not enough mold present to pose a serious health hazard. As of July 2006, NIOSH had not issued a final report.
- In February 2006, the Department of Health and Human Services, Public Health Services, Federal Occupational Health (FOH) office conducted an on-site visual inspection of the Facility, including the elevator shaft, to evaluate FAA's remediation efforts and determine if the mold presented a serious health hazard. The FOH report stated that the air quality within the Facility is acceptable and that abatement activities conducted were performed properly and in a safe manner.

- In March 2006, at the request of Facility employees, DOL's Office of Safety and Health Administration (OSHA) conducted a site inspection at the Facility. On June 19, 2006, OSHA issued its final report, which recommended that FAA eliminate all sources of water intrusion into the Facility and maintain and operate outside air ventilation systems in accordance with design specifications to prevent infiltration of unconditioned air. OSHA also noted that individuals with underlying health conditions may be more sensitive to mold and encouraged individuals experiencing illness to seek appropriate medical attention.

RECOMMENDATION

We recommend that the FAA Administrator provide the requesting Members of Congress with a list of the planned actions to complete mold remediation efforts and alleviate moisture infiltration at the Facility and include the expected completion date for each project. We are also requesting that the FAA Administrator provide us with a copy of the information provided to the requesting Members.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

On May 18, 2006, we held an exit conference with the Air Traffic Manager at the Detroit Metropolitan Air Traffic Control Tower and the Area Director, FAA Technical Operations. Those officials agreed with our findings and recommendations.

ACTIONS REQUIRED

Please provide the above requested information within 15 business days.

We appreciate the cooperation and assistance provided by you and your staff during our review. If you have any questions or need further information, please contact me at (202) 366-0500 or Dan Raville, Program Director, at (202) 366-1405.

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cc: FAA Deputy Administrator
ATO Chief Operating Officer
FAA Chief of Staff
Anthony Williams, ABU-100

EXHIBIT A. SCOPE AND METHODOLOGY

This review was conducted in accordance with Generally Accepted Government Auditing Standards prescribed by the Comptroller General of the United States and included such tests as we considered necessary to provide reasonable assurance of detecting abuse or illegal acts. We conducted this review between February 2006 and May 2006 using the scope and methodology described below.

To determine what actions FAA has taken to address mold at the Detroit Metropolitan Air Traffic Control Tower facility (the Facility), we toured the Facility on February 16, 2006, to observe the extent of remediation efforts. We reviewed documentation and reports provided by FAA. We also conducted interviews with FAA officials at the local (Detroit), district, regional, and service areas and with local, regional, and national representatives from the National Air Traffic Controllers Association (NATCA).

To determine the current status of air traffic controllers' health claims at the Facility, we conducted interviews with FAA representatives and with NATCA officials at the local, regional, and national levels. We also reviewed documentation provided by FAA and NATCA.

To obtain a better understanding of Federal guidelines, we conducted interviews with and reviewed documents provided by several independent Federal agencies, including the Environmental Protection Agency, Indoor Environments Division; the Occupational Safety and Health Administration; the U.S. Department of Health and Human Services, Centers for Disease Control, National Institute of Occupational Safety and Health; and Public Health Services, Federal Occupational Health (FOH).

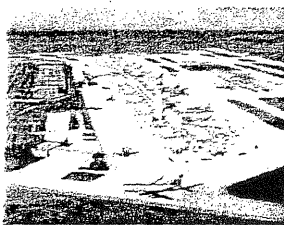
We did not rely on automated databases as part of this audit.

EXHIBIT B. AGENCIES VISITED OR CONTACTED

- FAA Air Traffic Control—Detroit Metropolitan Air Traffic Control Tower
- FAA Technical Operations—Detroit Metropolitan Air Traffic Control Tower, Superior District Safety Management Office, and Central Service Area Headquarters
- National Air Traffic Controllers Association—Detroit Metropolitan Air Traffic Control Tower, Great Lakes Region, and Washington National Headquarters
- Environmental Protection Agency—Indoor Environments Division
- U.S. Department of Labor, Occupational Safety and Health Administration
- U.S. Department of Health and Human Services, Centers for Disease Control, National Institute of Occupational Safety and Health
- U.S. Department of Health and Human Services, Public Health Services, Federal Occupational Health (FOH)

EXHIBIT C. OIG BRIEFING TO CONGRESSIONAL STAFF

Review of FAA Actions To Address Mold at the Detroit Metropolitan Air Traffic Control Tower (DTW)



May 25, 2006
Project Number 06A3007A000

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Objectives

The OIG received a letter dated January 9, 2006, from the following 6 Congressmen and 2 Senators:

Congressman John D. Dingell	Senator Carl Levin
Congresswoman Carolyn C. Kilpatrick	Senator Debbie Stabenow
Congressman Sander Levin	
Congressman John Conyers, Jr.	
Congressman Joe Schwarz, M.D.	
Congressman Thaddeus G. McCotter	

The OIG's objective was to respond to the following questions posed in the congressional letter:

- Has a proper and complete mold inspection and remediation been conducted at the facility, including direct sampling, air sampling, and physical intrusive inspecting?
- Has remediation occurred in the elevator shaft of the air traffic control tower?
- If remediation efforts have been concluded, why are air traffic controllers continuing to fall ill?

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Methodology

- On February 16, 2006, we visited Detroit Metropolitan Air Traffic Control Tower (DTW). As part of our visit, we toured the facility to determine the extent of remediation efforts.
- We also conducted interviews with officials from the following organizations:
 - Environmental Protection Agency (EPA), Indoor Environments Division
 - Occupational Safety and Health Administration (OSHA), Lansing, Michigan
 - U.S. Department of Health and Human Services
 - Center for Disease Control (CDC), National Institute of Occupational Safety and Health (NIOSH)
 - Public Health Service (PHS), Federal Occupational Health (FOH)
 - U.S. Department of Transportation, Federal Aviation Administration (FAA)
 - Technical Operations – Detroit Metropolitan Air Traffic Control Tower, District Office, Great Lakes Region, and Central Service Area
 - Detroit Metropolitan Air Traffic Control Tower
 - National Air Traffic Controllers Association (NATCA) - Detroit Metropolitan Air Traffic Control Tower, Great Lakes Region, and Washington Headquarters
- We reviewed documentation and reports provided by FAA and the controllers' union, NATCA.

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Results in Brief

Has a proper and complete mold inspection and remediation been conducted at the facility, including direct sampling, air sampling, and physical intrusive inspecting?

- Remediation has not been completed at DTW, as moisture issues have not been resolved.
- Mold found in unoccupied space on the third, fourth, and ninth floors and in the elevator shaft has been removed. Monthly inspections are being conducted to document the physical condition and identify any additional moisture or mold issues.
- *All projects to address identified moisture and humidity issues are planned for completion by late November 2006. This is the most important step FAA needs to complete to alleviate any future mold problems.*
- According to OSHA, NIOSH, CDC, and EPA, it is not necessary to identify the type of mold or conduct sampling as mold must be removed regardless of type. Furthermore, there are no Federal standards for airborne concentrations of mold or mold spores.

Has remediation occurred in the elevator shaft of the air traffic control tower?

- Remediation of mold identified in the elevator shaft was completed on May 25, 2006.

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Results in Brief (continued)

If remediation efforts have been concluded, why are air traffic controllers continuing to fall ill?

As stated earlier, remediation efforts have not been completed. The following is the status of health claims at DTW as of May 25, 2006:

- 5 of 49 (10%) employees who work in the control tower at DTW have filed a workers' compensation claim with the Department of Labor — 3 of the 5 have returned to work.
- 1 of 62 (2%) employees who work in the adjoining Terminal Radar Approach Control facility (TRACON) has filed a workers' compensation claim with the Department of Labor.
- None of the 35 employees who work in Technical Operations at the tower have filed a workers' compensation claim.
- Of the six claims for workers' compensation, three were approved, one was denied, and two are pending.

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Background: Mold Basics

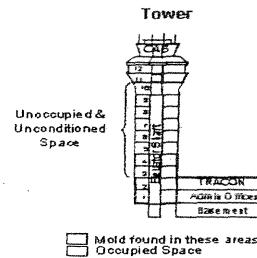
OSHA, NIOSH, CDC, and EPA provided the following information regarding mold:

- Mold is a fungus that is found everywhere. It grows best in warm, damp, or humid conditions but can survive in dry conditions.
- Mold itself is not toxic or poisonous, though it can produce mycotoxins. Almost all of the known effects of mycotoxin exposures are attributable to ingestion of large amounts of contaminated food. No conclusive evidence exists to link exposure to indoor airborne mycotoxins with human illness.
- Whether mold is dead or alive, exposure to mold may cause symptoms such as nasal stuffiness, eye irritation, wheezing, or skin irritation in sensitive individuals. Persons with a compromised immune system are at an increased risk.
- Mold may be detected visually or by odor. It is not necessary to identify the type of mold or conduct sampling as mold must be removed regardless of type.
- Air sampling provides information only for the moment in time when the sample was taken, and results may be difficult to interpret. There are no Federal standards for airborne concentrations of mold or mold spores.
- Remediation is complete when the moisture source is identified/controlled and visible mold is removed.

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Background: DTW Layout

- DTW is a 12-story tower connected to a 2-story base building with a basement. The elevator shaft is located in the center of the tower and extends from the basement to the 12th floor. Stairs are used to obtain access to the cab from the 12th floor.
- The first and second floors contain offices, a lunchroom, locker rooms, and the TRACON. A hallway connects the tower with the TRACON.
- According to FAA, floors 3 through 10 were designed as *unoccupied* spaces and form the tower shaft. These areas are unconditioned (no mechanical heating or cooling) and should not be occupied or used for storage. There is no common ventilation ductwork from these areas to occupied areas.
- Floors 11 and 12 are occupied and conditioned spaces.
- The tower cab, located above the 12th floor, is a conditioned space with an exterior catwalk.



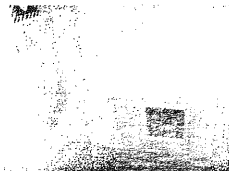
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Is remediation of mold at DTW complete? What actions has FAA taken?

Remediation at DTW is *not* complete.

Mold was found in unoccupied space on the third, fourth, and ninth floors as well as on the walls of the elevator shaft. In order for remediation to be complete, moisture sources must be addressed and mold must be removed. FAA has taken actions to remove visible mold on the three floors and in the elevator shaft, but has not completed projects to address the source of moisture. Actions taken by FAA include:

- January 2005 – Limited areas of moldy gypsum wallboard were removed on the fourth and ninth floors. Additional mold was discovered and was not removed as it was not in the statement of work. This work was accomplished in the May 2005 remediation.
- May 2005 – Remediation was conducted on the 3rd, 4th, and 9th floors to include a total of 110 total square feet of wallboard material. This work included remediation of additional mold found during the January 2005 remediation. The photo at right depicts the ninth floor gypsum wallboard remediation work.
- June 2005 – A moisture assessment was conducted by an FAA contractor to identify probable causes of excess moisture. The Moisture Assessment Report stated that contributing factors to moisture issues may be location and placement of gypsum wallboard panels, water infiltration at concrete panel joints, and water penetration of the concrete slab edges.



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Is remediation of mold at DTW complete? What actions has FAA taken? (continued)

- January 2006 – Remediation was conducted on the third floor in response to mold identified during the November monthly moisture inspection. The photo at right depicts this completed remediation that replaced the lower two feet of gypsum wallboard from the wall bordering the elevator shaft.
- February 2006 – In early February, a visual assessment of the control tower elevator shaft was conducted by FAA engineers, the Southwest Area Program Manager from Federal Occupational Health (FOH), and two independent Certified Industrial Hygienists contracted by the FAA. The purpose was to assess visible mold growth so that FAA could develop a scope of work for the elevator shaft remediation.
 - The FOH representative stated in the final report dated May 9, 2006, that DTW is “one of the cleanest FAA facilities FOH has inspected to date.” The report also stated that mold within the elevator shaft is minimal and HEPA vacuuming was recommended to remove it.



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Is remediation of mold at DTW complete? What actions has FAA taken? (continued)

- The independent Certified Industrial Hygienist contracted by the FAA stated in a report dated March 10, 2006, that there were isolated patches of visible mold growth of three square feet or less on seven floors of the elevator shaft that could be removed by HEPA vacuuming and wipe-down.
- In late February, the FAA engineering team conducted another on-site assessment of the tower to identify actions necessary to prevent water infiltration and moisture condensation. In response, the engineering team developed a schedule of projects targeted for completion by the end of November 2006.
- March 2006 – A team from OSHA conducted an on-site review of conditions at DTW in response to an employee complaint. The report of OSHA's review has not yet been released.
- May 2006 – Remediation of the elevator shaft was conducted by HEPA vacuuming and damp wipe-down with detergent and water.

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What was the condition of the elevator shaft?

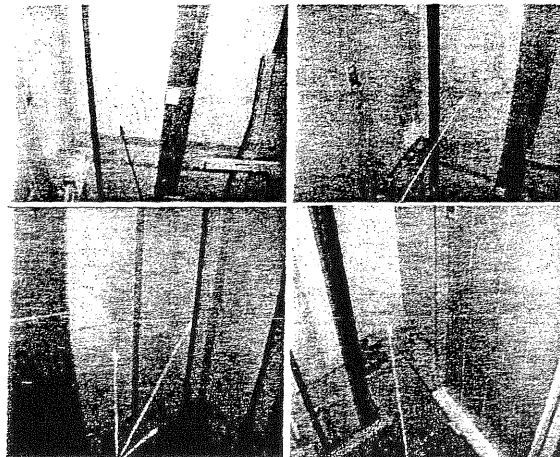
Several inspections of the elevator shaft have been conducted:

- June 2005 – An FAA contractor conducted a Moisture Assessment and reported that the visual inspection revealed minor surface mold growth on the interior shaft-liner at levels 6 through 9.
- February 2006 – Three parties (2 FAA contractors and an FOH official) inspected the elevator shaft. The official from the FOH's Public Health Service noted that there were small areas of visible mold in the elevator shaft that have not yet been remediated. One of the contractors reported that there were isolated patches of visible mold growth on the elevator shaft walls on seven various floors (3, 5, 6, 7, 8, 9, and 11) measuring less than three square feet.
- October 2006 – As part of monthly facility inspections led by an FAA Technical Operations Supervisor, a team rides in the cab of the elevator and inspects the interior of the elevator shaft by peering through a hatch in the roof of the elevator cab.
- May 2006 – Mold in the elevator shaft was remediated by HEPA vacuuming and damp wipe-down with detergent and water. FAA continues to conduct monthly moisture inspections of the facility (including the elevator shaft) to identify mold or moisture issues.

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What did the mold in the elevator shaft look like?

- **Top Left:** Spots of visible mold growth on east wall of shaft of the third floor.
- **Top Right:** Visible mold growth on shaft on west wall of seventh floor.
- **Bottom Left:** Visible mold growth on shaft on west wall of eighth floor.
- **Bottom Right:** Visible mold growth on east wall of shaft of sixth floor.



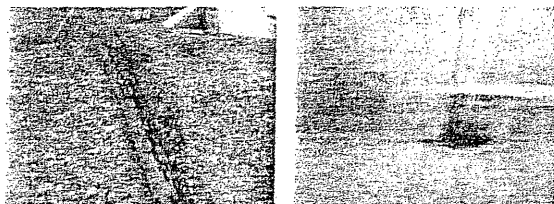
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What additional actions are planned by FAA to address mold and moisture issues at DTW?

Mold identified at DTW has been removed, but projects to address moisture and humidity issues have not been completed. The facility conducts monthly moisture inspections to identify mold or moisture issues. The FAA has planned several projects to address moisture and humidity issues. These are the key steps FAA needs to complete so that water infiltration does not reoccur:

- July - October 2006 - Exterior sealing and caulking to eliminate water infiltration.
- August - September 2006 - Interior work that may include removal of walls/wallboard and changes to accommodate HVAC duct modifications if needed.
- August - November 2006 - Mechanical/electrical work including HVAC (Heating/Ventilation/Air Conditioning) work to control and manage humidity within the tower and elevator shafts.

Pictured:
Near right - Exterior caulking failure.
Far right - Moisture seeping into unoccupied space in the tower from the exterior wall.



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What is the status of the health of employees working at DTW?

As noted in the chart below, as of May 25, 2006, 5 of the 49 employees who work in the control tower have filed a health claim for workers' compensation (2 of whom have not returned to work), 1 of the 62 employees who work in the TRACON have filed a health claim for workers' compensation, and none of the 35 Technical Operations employees who work in the building have filed for workers' compensation.

*DTW/TRACON/Technical Operations Statistics
(As of May 25, 2006)*

Workgroup	Employees*	Filed Workers' Compensation	Have Not Returned to Work
DTW	49	5 (10%)	2 (4%)
Detroit TRACON	62	1 (2%)	1 (2%)
Detroit Tech Ops	35	0 (0%)	0 (0%)
Total	146	6 (4%)	3 (2%)

*excludes administrative staff

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What is the status of the health of employees working at DTW? (continued)

The following tables provide additional details on the five employees at the tower and one employee at the TRACON who filed for workers' compensation:

Tower Controller	Date Claim Filed	Dates Controller Was Out of Work	Did the Department of Labor Accept the Claim?
#1	September 30, 2005	October 1, 2005 to present	Yes, for Asthma, March 28, 2006
#2	September 27, 2005	October 1, 2005 to November 12, 2005	Yes, for Asthma, April 18, 2006
#3	September 8, 2005	July 26, 2005 to present	Yes, for Exposure to Mold, April 14, 2006
#4	December 29, 2005	December 14, 2005 to January 31, 2006	No, Denied
#5	January 17, 2006	December 19, 2005 to January 29, 2006	Pending

TRACON Controller	Date Claim Filed	Dates Controller Was Out of Work	Did the Department of Labor Accept the Claim?
#1	April 26, 2006	February 19, 2006 to present	Pending

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Does mold pose a serious health hazard at DTW?

According to officials at two Federal agencies, conditions at DTW do not pose a serious health hazard to employees:

- **November 2005** — NIOSH began conducting a Health Hazard Evaluation of DTW, including a review of medical records. The medical doctor on the NIOSH team stated that it is possible that mold exposure could have triggered some of the upper respiratory tract allergic-type symptoms that were reported by controllers but stated that the claims of actual occupational illness or disease due to mold exposure are not supported by the conditions at the tower. NIOSH concluded that there is not enough mold present to pose a serious health hazard.
- **February 2006** — FOH conducted a health assessment of the tower and stated that there is not enough mold to produce an affect on someone's health unless the person has a compromised immune system or allergic sensitivity to mold. FOH stated that the only mold at DTW was a small amount of dry mold in the elevator shaft.
- **March 2006** — OSHA conducted a site inspection although the elevator shaft could not be observed because it could not be taken out of service at the time of the OSHA inspection. As of May 25, 2006, OSHA has not released a final report of its assessment to determine if the level of mold at DTW presents a serious health hazard.

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Conclusions

As of May 25, 2006:

- Remediation is not complete at Detroit Metropolitan Air Traffic Control tower because moisture infiltration and humidity issues have not been corrected.
- All projects planned to eliminate the moisture are estimated to be completed by the end of November 2006.
- Of the 49 employees working in the tower at DTW, 5 have filed workers' compensation claims with the Department of Labor, of which 3 have been accepted; 1 has been denied; and 1 is pending. Two of the 5 employees who filed workers' compensation claims remain out of work.
- Of the 62 employees working in the TRACON adjoining DTW, 1 has filed a workers' compensation claim with the Department of Labor. The claim is pending.
- None of the 35 Technical Operations employees have filed a workers' compensation claim.

APPENDIX. CONGRESSIONAL REQUEST LETTER TO OIG

Congress of the United States
Washington, DC 20515

January 9, 2006

Kenneth M. Meade, Inspector General
United States Department of Transportation
400 7th Street S.W. Room 9210
Washington, D.C. 20590

Dear Inspector General Meade:

We write with great concern to a serious issue occurring at the Detroit Metropolitan Airport's air traffic control tower. Over the last year, air traffic controllers have been getting sick while on the job. Many of these illnesses are attributed to black mold that has been found within the tower itself.

We have written two letters to the Federal Aviation Administration (FAA) regarding this issue, and while we are told by the FAA remediation efforts have been conducted, we continue receiving calls from our constituents that work in the tower that they are getting sick when they enter the tower. Two of the more severe health cases amongst the air traffic controllers leave them in a leave without pay status, pending their Office of Workers' Compensation Programs (OWCP) claim, due to the effects of their illnesses. Numerous others have been utilizing excessive sick leave due to mold related symptoms or illnesses.

We are also informed by the National Air Traffic Controllers Association (NATCA) that their efforts to work with FAA officials to solve the problem have been met with a reluctant and inadequate effort to alleviate the black mold problem. We believe that the Inspector General should investigate the black mold remediation process at Detroit Metropolitan Airport. Specifically, the Inspector General should examine the following questions:

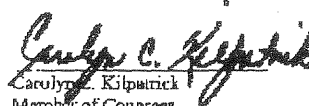
1. If remediation efforts have been concluded, why are air traffic controllers continuing to fall ill? Has a proper and complete mold inspection and remediation been conducted at the facility, including direct sampling, air sampling, physical intrusive inspecting?
2. Has remediation occurred in the elevator shaft of the air traffic control tower?

For over a year, this has been a serious issue at Detroit Metropolitan Airport, and yet some of our constituents are still getting ill when they enter the air traffic control tower. It is important that those who work at the tower know that the black mold has been remediated properly. It is equally important that the flying public know that the air traffic controllers who help guide them into Detroit Metro know that they are healthy and able to do their jobs safely and effectively.

Sincerely,




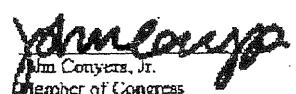
John D. Dingell
Member of Congress




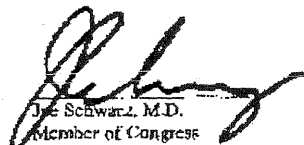
Carolyn E. Kilpatrick
Member of Congress


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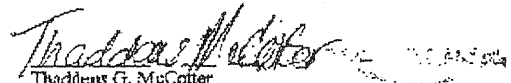

Sumner Levin
Member of Congress


Jim Conyers, Jr.
Member of Congress


Carl Levin
U.S. Senator


Joe Schwarz, M.D.
Member of Congress


Debbie Stabenow
U.S. Senator


Thaddeus G. McCotter
Member of Congress

14b



WONDER MAKERS
ENVIRONMENTAL

December 27, 2006

Mr. Vincent Sugent
Detroit Metro Tower FACREP
Detroit Metro Tower
Building 801
Detroit, MI 48242

RE: Review of Memorandum from David A. Dobbs, Assistant Inspector General for Aviation and Special Program Audits, dated July 11, 2006. Wonder Makers Environmental Project GC06-6598

Dear Vinnie:

This letter will serve as a critique of the memorandum that was authored by David A. Dobbs, Assistant Inspector General (AIG) of Aviation and Special Program Audits, on July 11, 2006. The subject of the memorandum was listed as ACTION: Report on FAA's Actions To Address Mold at the Detroit Metropolitan Air Traffic Control Tower Facility, Federal Aviation Administration, AV-2006-055.

The report is disappointing to say the least. It is vague in its content despite the breadth of information provided to the AIG by your organization. There are both errors and obvious omissions that this document does not address.

We could offer pages and pages of comments regarding this document; however this would be an unnecessary exercise since we have provided similar comments regarding other recent poorly conducted investigations and written reports provided by other federal agencies. It is quite disappointing that none of the federal agencies investigating this issue, including the Inspector General's office, has conducted a legitimate indoor air quality investigation of the DTW ATCT. Not a single organization has conducted any level of investigative air monitoring or taken a single moisture measurement inside the facility. This fact alone makes it is obvious that this report, and others, were written by individuals that have little or no knowledge of the remediation industry's current standard of care.

The following information is provided to support our contention that the report contains both errors and critical omissions which diverts the audit report from reaching reasonable conclusions regarding the FAA's conduct in this matter. The information in this letter follows the sequencing of the AIG memo.

According to page one of the memorandum the inspection was the result of a request made by members of Michigan's congressional delegation. The members were concerned that the FAA was not properly addressing mold issues found at the facility and that this was causing air traffic controllers to become ill. Sadly, the AIG memorandum never directly answers the primary question asked in the January 2006 letter from the congressional delegation: "If remediation efforts have been conducted, why are air traffic controllers continuing to fall ill?"

The review was conducted between February 2006 and May 2006. The AIG's objective was twofold. To determine if the FAA has taken effective actions to remediate mold growth found at the Detroit Metropolitan Air Traffic Control facility and to determine whether the FAA has taken effective actions to prevent similar incidents from occurring. Unfortunately, in another odd omission the AIG never addressed the issue of the FAA's reluctance to work with the air traffic controllers in alleviating the problem. This omission is even more egregious given the fact that the AIG included a copy of the original congressional request letter as an appendix to the report and that NATCA supplied hundreds of pages of documentation that showed the Agency's disregard for your health concerns. The AIG's failure to address this critical issue as part of the scope of the audit appears to have emboldened the FAA to deny access to us.

At the top of page 2 is a section entitled **RESULTS IN BRIEF**. According to the AIG the FAA has taken actions to remove mold from the facility but has not alleviated the source of the moisture causing its growth. This statement is purposely vague in that it does not offer any examples of successful remediation that were conducted at the facility. In the past we have provided assessments of work performed in the building. While the projects did "occur" none of the projects properly addressed the mold concerns found in DTW ATCT nor is there any documentation supplied. This is evidenced by several projects that were found to be incomplete (see letter of finding IA05-5776 dated January 27, 2005 and May 20, 2005 letter to you). In addition, despite numerous requests, the FAA has not conducted a comprehensive indoor air quality assessment of the entire DTW ATCT building.

With regard to the moisture issues in the building the AIG states that the FAA "... has not alleviated the source of moisture causing mold growth." He further states that the FAA will gain control of the moisture by accomplishing three things;

1. Sealing and caulking the exterior of the tower to eliminate water infiltration.
2. Replacement of additional wall board.
3. Further heating, ventilation, and air conditioning work to manage humidity in the building.

The AIG stated that these projects would be implemented late July 2006 and November 2006. According to you some of these tasks have been accomplished during the past few months. Nevertheless, reports from members of the Airway Facilities group in the building indicate that the plan to install dehumidification units on floors 3-10 of the tower

have been cancelled "due to lack of funds". This pattern of the FAA agreeing to complete a task designed to address the root cause of the problem and then backtracking has been repeated many times in the past two years.

Further down page 2 there is a section entitled **BACKGROUND**. While we agree with much of what is in this section we would like to clarify a few items. Mold is in fact an allergen that causes many of the symptoms described in the first paragraph. However, it is well documented that mold growth in buildings can cause problems beyond allergic reactions. A large proportion of upper respiratory infections, such as the bronchitis and recurring sinusitis reported by controllers, have been shown by the Mayo Clinic to be caused by fungal agents. The mycotoxins produced by various types of mold can cause skin rashes, fatigue and negatively impact mental acuity--the type of symptoms reported by the controllers. Nor is this contention linking mold, mycotoxins, and ill health" junk science. For example the California Department of Health recently concluded that the current information suggest "that some health problems reported or clinically diagnosed following or concurrent with significant exposure to indoor mold and mold fragments reflect toxic effects, not just allergic effects ..." (Indoor Mold: A General Guide to Health Effects, Prevention and Remediation, January 2006, page 19.)

In the second paragraph of this section the first three sentences state,

It is not necessary to identify the type of mold or conduct sampling as mold must be removed regardless of type. There are no Federal standards for airborne concentrations of mold or mold spores. Air sampling provides information that is valid only at the time the sample was taken, and results may be difficult to interpret.

Each sentence requires expansion to avoid the false premise implied by the paragraph that a well conceived sampling plan would not be useful. The first sentence indicates that sampling is not necessary to determine if mold should be removed and to some degree this is true. However this only applies to signs of visible mold. If hidden mold that may be growing inside wall, ceiling cavities or other hidden spaces is suspected one easy way to find if this hypothesis is true is to take air samples and compare them to an out-of-doors sample. In the case of the DTW ATCT hidden mold has been found in numerous instances particularly on the 3rd and 9th floors during remediation. Since mold has appeared in multiple floors behind finished building materials it is reasonable to assume that it may be in similar locations on different floors. One simple way to figure out if this is true is to take air and wall cavity samples in these areas.

OSHA states in their document entitled A Brief Guide to Mold in the Workplace that "...air sampling may provide tangible evidence supporting a hypothesis that investigators have formulated." Sampling in the case described above would be such an instance. This type of sampling would help assess which areas of the tower have mold, particularly behind finish building materials.

In the second sentence the statement about there not being a federal standard is not necessarily true. OSHA says in Section III, Chapter 2 of its Technical Manual that contamination indoors is indicated if 1,000 cfu/m³ is found as a result of viable sampling. While this is not mentioned in the OSHA regulations, it can be used by the Compliance Officer as an indication of a contaminated environment.

Regarding the third sentence's suggestion that air sampling data is difficult to interpret, many documents that contribute to the mold remediation industry standard of care suggest that professionals should be used to interpret sample data.

The third paragraph gives a brief description of the DTW ATCT. The AIG states in the third and fourth sentences;

“According to FAA, floors 3 to 10 were designed as unoccupied spaces and form the tower shaft. These areas are unconditioned (no mechanical heating or cooling) and should not be occupied or used for storage.”

There is no mention of the fact that for years many of these spaces were used for storage and the 10th floor housed the NATCA offices.

A review of the next section entitled **FINDINGS: FAA Has Taken Actions To Remove Mold at the Detroit Metropolitan Air Traffic Control Tower but Remediation Will Not Be Complete Until Moisture Issues Have Been Addressed** reveals more in what was not said rather than what was. This section is an attempt by the AIG to summarize what the FAA has done in the tower since discovering mold on the third and ninth floors of the tower in September of 2004. In the first paragraph it mentions the discovery of the mold in September 2004 and within one sentence jumps to the remediation work conducted (or rather attempted) in January 2005. There is no mention of any of the events that occurred in between those times. Some of those include;

- The fact that the FAA took bids from amply qualified remediation contractors to perform the remediation work in the tower and then rebid and awarded the remediation contract to a contractor whose quote was estimated to be more than 75% below the original proposals.
- The bulk sampling conducted by an FAA contractor and the related results or their response to the results.
- The MIOSHA inspection that was conducted in December 2004 or its results.
- The visual inspection conducted after work was completed by the FAA contractor that found that the scope of work had not been followed and as a result of the poor work biological contaminants had been spread throughout the facility.
- The fact that the original Statement of Work required “final clearance area surface sampling” and that it was never conducted after the work was performed.
- The post-remediation inspection and sampling conducted by Wonder Makers Environmental that determined aspects of the work plan had not been followed. Air and surface sample analysis indicated that *Stachybotrys*, *Chaetomium* and *Aspergillus/Penicillium* were recovered in samples from the fourth, ninth & tenth floors.

The next sentence makes mention of the mold discovered by the FAA's industrial hygienist. It states that “...the mold found in the elevator shaft was not immediately dealt

with because it was located on fire rated drywall, which could not be removed in sections because of safety issues.” This is not a true statement. The FAA authorized a new contractor to spray the mold in the elevator shaft within 36 – 48 hours of its discovery. This operation resulted in the CAB being evacuated for up to five hours. Eight controllers working in the CAB sought medical attention related to this incident.

No mention is made of the samples that were taken by us the day after this incident or the samples taken by the FAA’s industrial hygienist that confirmed that this spraying of the mold in the elevator shaft had been ineffective and had not corrected the situation.

The second paragraph in this section starts with another contractor beginning work in May 2005. There is no explanation of the events that occurred between January 2005 and May 2005. In February 2005 laboratory analysis confirmed the presence of *Acremonium*, *Penicillium*, and *Stachybotrys* on the fourth floor. Later in February the FAA held a meeting to discuss “The DTW Mold and Structural Issues”. Neither Air Traffic, NATCA, nor PASS employees were represented at this meeting. The minutes of this meeting state that “it was agreed that the mold that had been found at the ATCT posed little health risk to the employees.”

At the end of the month the Air Traffic Manager requested that Tech Ops conduct regular air sampling in the building. To date this has not been done.

In March of 2005 Wonder Makers Environmental conducted an inspection of the tower and visually confirmed that exposed mold remained on the fourth and ninth floors. Air and dust samples from these floors showed levels of *Aspergillus/Penicillium*, *Memnoniella* and *Stachybotrys*. In addition, the Department of Labor cited the FAA for not having MSDS or proper training for the chemicals that were sprayed in the tower shaft on January 22, 2005.

In April of 2005, NATCA voluntarily restricted access to their tenth floor office due to levels of *Stachybotrys*. During the pre-construction meeting at the beginning of the month the FAA separated remediation work in the tower into short term and long term goals. Work needed in the elevator shaft was determined to be a long term goal and remediation in the rest of the building was determined to be a short term goal.

The remediation work conducted in May was completed by the same contractor that conducted inappropriate remediation in January 2005. Photographs taken by the FAA indicated that this work was not done in accordance with their own work specifications. The CIH hired by the FAA to oversee the work was one of the persons that violated these specifications. The AIG made no mention of the NATCA employees that fell ill during the remediation and/or those that fell ill within a few days after the remediation.

Results from this report showed spore levels inside the areas sampled were less than out-of-doors; however the spores found out-of-doors were not the same types of molds as the ones found indoors. The indoors samples were dominated by *Aspergillus/Penicillium* and the out-of-doors sample had high levels of basidiospores, ascospores, and

Cladosporium. A sample taken from the 9th floor indicated the presence of *Stachybotrys* and *Chaetomium*. The FAA's CIH's requested that this area be recleaned and resampled. A second set of samples were taken the following day. Laboratory analysis indicated that *Stachybotrys* was still present in this area and yet the FAA's CIH stated in their report dated July 29, 2005, that "the biodiversity of fungal taxa identified on the 9th floor on May 21 was similar to that identified in the sample collected out-of-doors." However, this is not true. *Stachybotrys* was not present in any of the out-of-doors samples taken on this day. If the presence of *Stachybotrys* caused the recleaning and resampling of the 9th floor on May 19, its presence on May 21 should have resulted in a similar request.

As in the previous paragraph the AIG skipped from May 2005 to October 2005. No mention was made of the following;

- The FAA hired Jacobs Engineering to conduct a structural survey of the building and to provide advice regarding potential remediation actions that might be needed to correct any findings. FAA changed the wording for future surveys from "mold related activities" to "water intrusion issues".
- The health symptoms for two NATCA employees got significantly worse.
- In September 2005 the Jacobs Engineering report is published. The main finding is that there is over 6,000 square feet of drywall in the elevator shaft that is impacted with mold. The report said this was a "minor" problem even though documents within the standard of care would characterize this as a large or extensive project.

In October, as stated in the AIG report, a moisture survey was conducted of the building by the FAA and its environmental, safety and health contractor. No one used a single moisture meter to assist in the survey and NATCA's environmental representative was restricted by the FAA from using this or any other monitoring device during this survey.

In late October/early November the FAA forced NATCA to vacate their office on the tenth floor. NATCA representatives reminded FAA officials that contents in this office had been determined to be contaminated with *Stachybotrys* and that they would need to be cleaned prior to being moved. The FAA repeatedly denied the request to have these items cleaned even after NATCA offered to cover the cost of the cleaning. The AIG report made no mention of these circumstances.

The AIG states that "during the November 2005 inspection, additional mold was found on the third floor (this mold was removed) and in the elevator shaft." The mold was removed on January 24, 2006. However, to our knowledge, clearance samples were not taken after this work was completed.

The next paragraph notes that the FAA hired a contractor to conduct an assessment of the mold in the elevator shaft and to develop a scope of work for remediation. It says the report recommended that the FAA remove the mold by using a high efficiency particulate air (HEPA) vacuum and wet wiping the mold with a detergent and water solution. The AIG did not indicate that this was in direct violation of the standard of care for mold

remediation that states in numerous documents that if mold is found growing on porous finish materials they must be removed, not cleaned. He also made no mention of the fact that this plan does not follow recommendations from the elevator shaft wall board manufacturer. It also doesn't mention the fact that these recommendations are in direct conflict with an article the FAA's industrial hygienist coauthored and published on their company's web site. This article clearly states that mold contaminated porous materials should be removed. It makes no mention of "cleaning" gypsum wall board.

The next two paragraphs provide information related to the Jacobs Engineering report. The AIG indicated that the Jacobs report "...identified the contributing factors for excess moisture as;

1. Water infiltration at concrete panel joints and concrete slab edges around the exterior of the building,
2. Location and placement of interior wallboard panels, and
3. Heating, ventilation, and air conditioning (HVAC) issues."

While much effort has been directed at the first item, the last two have been given short shrift, particularly with the recent decisions to eliminate dehumidification equipment from the unoccupied floors.

The next page is entitled **Several Employees Have Experienced Adverse Health Effects Related to Mold**. This section acknowledges that several employees "...have experienced adverse health affects related to mold exposure." While it provides numbers of individuals affected, it only provides a general summary of their symptoms. There is no mention of the FAA's antagonistic approach in denying that these claims are mold related.

Further down this page and the next, the AIG indicates that other federal agencies including NIOSH; the Department of Health and Human Services, Public Health Services, Federal Occupational Health office; and OSHA, have conducted investigations and/or inspections of mold related activities in the DTW ATCT. The disappointing part of this section is that the AIG never points out that samples and moisture measurements were not taken during any of the site visits conducted by these agencies. All findings and recommendations in these reports are the result of record reviews and visual observations. Specific critiques of each of these reports have already been submitted to you.

As with all of the previous reports from the above federal agencies this report is disappointing. It is obvious that even though your office provided them with several hundred pages of documentation that contested the validity of FAA findings or directly contradicted the FAA's position on this issue with cold hard facts, this information was ignored. It appears that the only purpose of the AIG's inspection was to affirm the FAA's position rather than determining the truth of the situation and finding the areas where the FAA has been negligent in their conduct of the matters related to mold in the DTW ATCT.

Please let us know if we can be of further assistance.

Sincerely,

A handwritten signature in black ink that reads "Michael A. Pinto". The signature is written in a cursive, flowing style.

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

15

U.S. Department of Labor
Occupational Safety and Health Administration
315 W. Allegan Street, Room 207
Lansing, Michigan 48933
(517) 487-4996
FAX (517) 487-4997



June 19, 2006

Joseph Figliuolo
Air Traffic Manager
Federal Aviation Administration
Detroit Metropolitan Airport
Building 801, Room 104
Detroit, MI 48242

Dear Mr. Figliuolo:

As you know, an inspection of your workplace, located at Detroit Metropolitan Airport, Detroit, Michigan by representatives of the Occupational Safety and Health Administration (OSHA) was completed on March 21, 2006. The inspection addressed the allegation of employee exposure to mold in the Detroit Metropolitan Airport Air Traffic Control Tower (Control Tower).

The situation involving mold in the Control Tower has been an ongoing concern since prior to January 2005 when remediation efforts were undertaken by the Federal Aviation Administration (FAA). No sampling for mold was done by OSHA because there was no visible evidence of the presence of mold in the occupied spaces of the Control Tower. As a general rule, sampling for molds and other bioaerosols is not done. There are currently no governmental or professional recommendations for airborne concentrations of mold, mold spores, mycotoxins, and other bioaerosols with which to compare sampling results and sampling for mold, mold spores, mycotoxins, and other bioaerosols is not part of a routine building evaluation.

It should be remembered that we are all exposed to mold spores in the air we breathe on a daily basis, both indoors and outdoors. Molds can grow on just about any organic substance, as long as moisture and oxygen are available. Mold growth may occur when excessive moisture accumulates in buildings or on building materials including carpet, ceiling tile, insulation, paper, wallboard, wood, surfaces behind wallpaper, or in heating, ventilation and air conditioning systems. It is impossible to remove all molds and mold spores in the indoor environment. The key to mold prevention is moisture control and adequate ventilation.

I understand that a number of individuals who work in the Control Tower have complained of various illnesses which may be related to their working environment. Most people experience no health effects from exposure to the molds present in indoor or outdoor air. However, molds and their metabolic by-products have been associated with adverse health effects. Building related illnesses (BRIs) are diagnosed by evaluation of signs and symptoms by physicians or other licensed health care professionals. The health effects from exposure to mold contamination in an indoor environment can be common allergic BRIs such as allergic rhinitis, allergic asthma, and hypersensitivity pneumonitis and other infections. Some individuals with underlying health conditions may be more sensitive to molds. We would encourage any individuals experiencing illnesses to continue to seek appropriate medical attention.

OBSERVATIONS AND RECOMMENDATIONS

The facility has experienced water intrusion problems for several years from various sources such as leaking pipes/valves, a blocked drain, roof leaks, possible high humidity in the elevator shaft, condensation, and malfunctioning ventilation resulting in water leaks, possible water infiltration through the pre-cast concrete panel joints and possible water penetration at concrete slab edges.

The key to mold prevention is moisture control. The most important initial step in prevention is a visual inspection. Regular checks of the building envelope and drainage systems should be made to assure that they are in working order. Identify and, to the extent possible, eliminate sources of dampness, high humidity, and moisture to prevent mold growth. Wet or damp spots and wet, non-moldy materials should be cleaned and dried as soon as possible (preferably within 24 to 48 hours of discovery).

The outside air ventilation system serving the cab was disabled to prevent mechanical problems associated with freezing coils. Staff indicated that the dampers to the unit were shut about ten years ago because a chilled water coil had "frozen." Section 8.4.1.2 of the ANSI/ASHRAE Standard 62.1-2004 (Ventilation for Acceptable Indoor Air Quality) recommends that every three months the outside air dampers and actuators be visually inspected or remotely monitored to verify that they are functioning. Section 8.1.2 of the ANSI/ASHRAE standard recommends that the ventilation systems be operated with at least 17 cubic feet per minute (cfm) per person of outside air introduced into the workspace whenever it is occupied. There was no outside air coming into the facility from air handling unit number 14 which was providing conditioned air to the "cab" on the day of the OSHA site visit. It is necessary to bring in more outside air to the "cab" than is exhausted in order to keep the "cab" under positive pressure compared to surrounding environments. The original design for the Control Tower called for a minimum of 500 cfm of outside air. The result of not providing make-up air is that any contaminant released in the Terminal or Tower would not be diluted and removed by ventilation with outside air and it would be difficult to keep the "cab" under positive pressure as required by the Control Tower Design Specifications.

The smoke trail evaluation indicated the base of the Control Tower is negatively pressurized compared to the outside and to the Terminal. This is significant because this infiltrating air feeds the "stack effect" in the Tower. Stack effect is the ventilation in buildings that results from thermal differences between indoor and outdoor temperature. The greater the thermal difference and the height of the structure, the greater the stack effect. Consequently, any contaminant released in the Tower or Terminal would end up in the "cab".

Recommendations:

- Eliminate all sources of water intrusion into the facility. Mold can grow wherever there is dampness. Damp or wet building materials and furnishings should be cleaned and dried within 24 to 48 hours to prevent the growth of mold.
- Maintain and operate the outside air ventilation system in accordance with design specifications. Provide 500 cfm of outside air to the "cab" and keep the "cab" under positive pressure through proper maintenance and operation of air handler numbers 13 and 14. Operate air handlers numbers 1 thru 4 serving the first two floors such that the first two floors of the facility are under positive pressure compared to the outside and to the Terminal. All HVAC systems should be operated to keep the facility under positive pressure to prevent infiltration of unconditioned air. Pressurizing the lower floors will help minimize the "stack effect" in the elevator shaft and middle tower area.

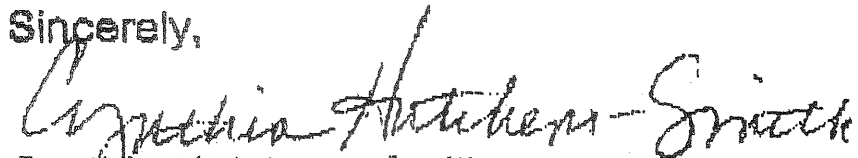
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DTW AIRWAYS FAC

I have enclosed for your information a list of observations and technical recommendations which will be helpful for the continued control of mold and the improvement of the ventilation system at your facility. Many of these recommendations are based on guidelines developed by various scientific or regulatory organizations and should be followed as closely as possible.

I would appreciate your review of this information and would like to receive a report from you within 60 days to address your progress towards implementing these recommendations. If you have any questions, or if OSHA can be of further assistance to you, please feel free to contact my office.

Sincerely,



Cynthia Hutchens-Smith
Area Director

Enclosure

15b



W O N D E R M A K E R S
E N V I R O N M E N T A L

July 6, 2006

Mr. Vincent Sugent
Detroit Metro Tower FACREP
Detroit Metro Tower
Building 801
Detroit, MI 48242

RE: Wonder Makers Environmental Project GC06-6598

Dear Vincent:

As you requested, I have completed an evaluation of three documents from Cynthia Hutchens-Smith, Area Director of the Occupational Safety and Health Administration. The first document was a letter dated June 19, 2006 addressed to Mr. Vincent Sugent in relation to a workplace inspection conducted at Detroit Metropolitan Airport Air Traffic Control Tower by OSHA on March 21, 2006. This letter did not bear the signature of Mrs. Hutchens-Smith. The other documents include a similar letter and an enclosure of observations and recommendations addressed to Joseph Figliuolo in relation to the same workplace inspection. The letter to Mr. Figliuolo did bear the signature of Mrs. Hutchens-Smith.

Both letters contain paragraphs explaining why sampling for mold was not conducted during the workplace inspection. The justification given was listed as follows:

“No sampling for mold was done by OSHA because there was no visible evidence of the presence of mold in the occupied spaces of the control tower. As a general rule, sampling for molds and other bioaerosols is not done.”

The act of basing sampling strategies solely on visible mold in occupied spaces strongly neglects information on hidden mold provided in the OSHA Safety and Health Information Bulletin entitled *A Brief Guide to Mold in the Workplace*. With the lack of visual identification of mold in hidden areas such as the interior of the elevator shaft, sampling would have been an extremely useful tool in assessing the potential presence of a reservoir for mold in unoccupied areas.

The document entitled *Observations and Recommendations* highlights a potential vehicle of transport for mold in the creation of a “stack effect” caused by improper maintenance of HVAC systems in the Control Tower. The document goes as far as saying, “Consequently, any contamination released in the Tower or Terminal would end up in the “cab”.”

In addition, the investigation lacked a of thorough identification of water sources, did not document consultation with effected employees, and contained discrepancies with OSHA's own document *A Brief Guide to Mold in the Workplace*.

To detail these discrepancies I have enclosed a four column-chart which compares specific sections from Mrs. Hutchens-Smith's letters and enclosure to OSHA's *A Brief Guide to Mold in the Workplace*.

Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Michael A. Pinto". The signature is written in a cursive, flowing style.

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

Enclosures:

**Comparison of Mold Related Information From Documents
By Cynthia Hutchens-Smith and OSHA**

Letter Written by Cynthia Hutchens- Smith to Vincent Sugent	Letter Written by Cynthia Hutchens- Smith to Joseph Figliuolo	Observations and Recommendations (Enclosure from Cynthia Hutchens- Smith to Joseph Figliuolo)	OSHA's A Brief Guide to Mold in the Workplace	Comments
<p>"We have found that at the time of our inspection, the areas that were identified to have contained black mold had been remediated by a private contractor in January 2005."</p>	<p>"The situation involving mold in the Control Tower has been an ongoing concern since prior to January 2005 when remediation efforts were undertaken by the Federal Aviation Administration (FAA)."</p>		<p>"How Do You Know When You Have Finished Remediation/ Cleanup? -When you have identified and completely corrected the source of the water or moisture problem. - -Mold removal should be complete. Visible mold, mold damaged materials, and moldy odors should no longer be present. -Sampling, if conducted, should show that the level and types of mold and mold spores inside the building are similar to those found outside."</p>	<p>No evidence was provided by Mrs. Hutchens-Smith (in all three of her documents) to indicate that efforts were made to assess whether historically cited water sources had been successfully repaired. Success of the remediation was based solely on a visual inspection in occupied spaces. No mention was made of the lack or presence of moldy odors. No mention was made of attempts to visually detect mold in unoccupied areas (i.e. elevator shaft). In addition, her documents make no mention of consulting sampling data taken between the remediation in January 2005 and the OSHA inspection in March of 2006.</p>
<p>"No sampling for mold was done by OSHA because there was no visible evidence of the presence of mold in the occupied spaces of the Control Tower."</p>	<p>"No sampling for mold was done by OSHA because there was no visible evidence of the presence of mold in the occupied spaces of the Control Tower."</p>		<p>"Testing for mold is expensive, and there should be a clear reason for doing so....In addition, air sampling may provide tangible evidence supporting a hypothesis that investigators have formulated."</p>	<p>Based on continuing illnesses experienced by Control Tower occupants even after remediation had occurred, and limited accessibility to areas of historical water damage and fungal contamination, sampling would provide empirical data concerning the absence or presence of a fungal source.</p>

Comparison of Mold Related Information From Documents
By Cynthia Hutchens-Smith and OSHA

Letter Written by Cynthia Hutchens-Smith to Vincent Sugent	Letter Written by Cynthia Hutchens-Smith to Joseph Figliuolo	<i>Observations and Recommendations</i> (Enclosure from Cynthia Hutchens-Smith to Joseph Figliuolo)	OSHA's <i>A Brief Guide to Mold in the Workplace</i>	Comments
<p>"There are currently no governmental or professional recommendations for airborne concentrations of mold, mold spores, mycotoxins, and other bioaerosols with which to compare sampling results and sampling for mold, mold spores, mycotoxins, and other bioaerosols are not a part of a routine building evaluation."</p>	<p>"There are currently no governmental or professional recommendations for airborne concentrations of mold, mold spores, mycotoxins, and other bioaerosols with which to compare sampling results and sampling for mold, mold spores, mycotoxins, and other bioaerosols are not a part of a routine building evaluation."</p>		<p>"Due to the wide difference in individual susceptibility to mold contamination, sampling results may have limited application. However, sampling results can be used as a guide to determine the extent of an infestation and the effectiveness of the clean up.</p> <p>Sampling, if conducted, should show that the level and types of mold and mold spores inside the building are similar to those found outside."</p>	<p>While there are no permissible exposure limits established by OSHA, the industry standard of care and OSHA'S Brief Guide both agree that sampling should show similar fungal concentrations and ecologies inside and outside the building.</p> <p>As OSHA's <i>A Brief Guide to Mold in the Workplace</i> clearly states, sampling results can be used as a guide to determine the degree of mold contamination and the success of a clean up effort.</p> <p>Lack of sampling data or visual inspection in unoccupied areas historically impacted by water gives no foundation on which to base the success of remediation efforts or employee exposure.</p>
<p>"It should be remembered that we are all exposed to mold spores in the air we breathe on a daily basis, both indoors and outdoors."</p>	<p>"It should be remembered that we are all exposed to mold spores in the air we breathe on a daily basis, both indoors and outdoors."</p>		<p>"Most typical indoor air exposures to mold do not present a risk of adverse health effects. Potential health concerns are important reasons to prevent mold growth and to remediate existing problem areas."</p>	<p>Without sampling data it is impossible to determine if mold exposures indoors are "typical" to normal indoor/outdoor fungal ecologies.</p>

Comparison of Mold Related Information From Documents
By Cynthia Hutchens-Smith and OSHA

Letter Written by Cynthia Hutchens-Smith to Vincent Sugent	Letter Written by Cynthia Hutchens-Smith to Joseph Figliuolo	<i>Observations and Recommendations</i> (Enclosure from Cynthia Hutchens-Smith to Joseph Figliuolo)	OSHA's <i>A Brief Guide to Mold in the Workplace</i>	Comments
<p>"The key to mold prevention is moisture control and adequate ventilation."</p>	<p>"The key to mold prevention is moisture control and adequate ventilation."</p>	<p>"The facility has experienced water intrusion problems for several years from various sources such as leaking pipes/valves, a blocked drain, roof leaks, possible high humidity in the elevator shaft, condensation, and malfunctioning ventilation resulting in water leaks, possible water infiltration through pre-cast concrete panel joints and possible water penetration at concrete slab edges."</p> <p>"The outside air ventilation system serving the cab was disabled to prevent mechanical problems associated with freezing coils.....There was no outside air coming into the facility from air handling unit number 14 which was providing conditioned air to the cab on the day of the OSHA visit."</p>	<p>"Since mold requires moisture to grow, it is important to prevent excessive moisture in buildings. Improper maintenance and design of building heating/ventilating/air-conditioning (HVAC) systems, such as insufficient cooling capacity for an air conditioning system, can result in elevated humidity levels in a building."</p>	<p>As previously stated, no measurements were made to determine levels of moisture in areas historically impacted by water, or even in occupied space of the Control Tower that had been previously remediated.</p> <p>No efforts were made to thoroughly identify if any of the water sources were repaired.</p> <p>While issues of improper moisture control and ventilation were stated in Mrs. Hutchens-Smith's <i>Observations and Recommendations</i> document, no effort was made to determine if these problems lead to mold growth in unoccupied areas, and in turn, if employee exposure to mold occurred.</p>
<p>"The key to mold prevention is moisture control...."</p>	<p>"The key to mold prevention is moisture control...."</p>	<p>Identify and to the extent possible, eliminate sources of dampness, high humidity, and moisture to prevent mold growth.</p>	<p>"You must have identified and completely corrected the source of the water or the moisture problem."</p>	<p>"Mrs. Hutchens-Smith's recommendation of identifying and to the extent possible, eliminating water sources does not coincide with OSHA's Brief Guide document or the industry standard of care.</p>

Comparison of Mold Related Information From Documents
By Cynthia Hutchens-Smith and OSHA

Letter Written by Cynthia Hutchens-Smith to Vincent Sugent	Letter Written by Cynthia Hutchens-Smith to Joseph Figliuolo	Observations and Recommendations (Enclosure from Cynthia Hutchens-Smith to Joseph Figliuolo)	OSHA's A Brief Guide to Mold in the Workplace	Comments
	<p>"I understand that a number of individuals who work in the Control Tower have complained of various illnesses which may be related to their working environment."</p>		<p>"Questions That May Assist in Determining Whether a Mold Problem Currently Exists: -Are building occupants reporting health problems that they think are related to mold in the indoor environment?"</p>	<p>The letter to Mr. Sugent and the Observations and Recommendations document make no mention of employee illnesses that they believe are related to employee exposures to mold.</p> <p>While the diagnosis of illnesses related to bioaerosols must be made by a licensed health care professional, OSHA's <i>A Brief Guide to Mold in the Workplace</i> states that an evaluation should be made if building occupants are reporting health problems they believe are related to indoor mold exposures.</p> <p>No such evaluation is listed in any of the documents provided by Cynthia Hutchens-Smith.</p>
			<p>"All molds share the characteristic of being able to grow without sunlight; mold needs only a viable seed (spore), a nutrient source, moisture, and the right temperature to proliferate. This explains why mold infestation is often found in damp, dark, hidden spaces;....."</p>	<p>No mention is made of any attempt during the OSHA investigation to determine if mold growth was occurring in areas other than occupied spaces of the Control Tower.</p> <p>Based on findings during the (?????) remediation efforts, visible mold was found on areas behind the walls of occupied spaces which could be a continuing reservoir for fungal contamination.</p>

Comparison of Mold Related Information From Documents
By Cynthia Hutchens-Smith and OSHA

				Notes: Stack effect transporting contaminants to 'cab'

16

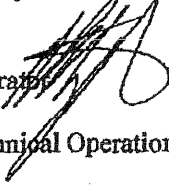


Federal Aviation Administration

Memorandum

Date: SEP 17 2008

To: Linda Washington, Assistant Secretary for Administration, Designated Agency Safety and Health Official

From: Robert A. Sturgell, Acting Administrator 

Prepared by: Steve Zaidman, Vice President, Technical Operations Services

Subject: Whistleblower Investigation – Allegations of Mold and Moisture Problems at Detroit Metropolitan Airport

Thank you for providing us your report on the Investigation of Mold and Moisture at the Federal Aviation Administration (FAA) Detroit Metropolitan Air Traffic Control Tower (DTW) Facility dated August 21, 2008.

Since discovery of mold at DTW in 2004, the FAA has diligently pursued the remediation of mold and elimination of water intrusion at the tower and base building to ensure that both facilities provide a safe and healthful workplace for our employees. To date, the FAA has expended in excess of \$1 million for remediation and modification efforts and approximately 45 personnel (FAA and contractor) have had some level of involvement.

Based on the corrective actions that the FAA has taken at these facilities, and the sampling and testing, which have been conducted by FAA and independent third parties, we strongly believe that both facilities provide a safe and healthful work environment for our employees. We hope that by accepting all your recommendations, this will further demonstrate FAA's commitment to ensure that DTW and the base building contain no health hazards for our employees. The recommendations and FAA's plans to implement them are included in attachment 1.

We note that your investigation did not find any indicators of poor indoor air quality and did not detect elevated mold spore concentration. In fact, indoor concentrations were consistently lower than outdoor concentrations.

Finally, although we plan to implement your recommendations, our review of the report disclosed information that we believe is inaccurate or misleading and does not correctly identify the existing conditions or the efforts that FAA has taken to protect its employees. This information is detailed in attachment 2 to this memorandum. We highly recommend you consider making the appropriate adjustments to your report. The FAA remains dedicated to providing a safe and healthful work environment for all its employees.

Attachments

Attachment 1

FAA Action Plan to Accomplish Recommendations Contained in
OST DTW Mold Investigation Report Dated August 21, 2008

Air Traffic Control Tower Mold/Moisture Recommendations

A. OST Recommendation (ATCT): Conduct a comprehensive inspection of the wall cavities on every floor of the air traffic control tower, making sure to inspect the wall cavity from the unoccupied room side of the elevator shaft.

FAA Response: The FAA will retain a Certified Industrial Hygienist experienced with mold and indoor air quality issues to complete the recommended action. **Action:** Project completion date is December 31, 2008.

B. OST Recommendation (ATCT): Based on the comprehensive inspection, remove all visibly contaminated (molded and water damaged porous materials) from the air traffic control tower.

FAA Response: The FAA will develop and implement projects to remove molded and water damaged porous materials identified from the inspection. **Action:** Design and engineering will begin immediately upon completion of the inspection with contract work following as soon as possible.

C. OST Recommendation (ATCT): Develop a mold remediation project communication plan for the facility to improve communication efforts between FAA management and union employees.

FAA Response: The FAA will develop a plan to improve communication.
Action: Project communication plan implementation date is October 1, 2008.

D. OST Recommendation (ATCT): Remove all unnecessary wallboard and carpeting from unoccupied areas of the air traffic control tower and remove any wallboard currently in contact with concrete floors.

FAA Response: The FAA will assess which wallboard and carpeting is not needed in the unoccupied areas of the ATCT. A project will be developed to remove these items. **Action:** This effort will be included in the work to be accomplished under Recommendation B.

E. OST Recommendation (ATCT): Evaluate the fire rating of cement backer board and mold resistant/paperless wallboard.

FAA Response: The FAA will evaluate wallboard that needs to be replaced in the ATCT and attempt to substitute with fire-rated, mold-resistant products. When the wallboard is replaced, a gap will be left between the concrete floor slab and new wallboard to prevent wicking of moisture into the panel. **Action:** This effort will be included in the work to be accomplished under Recommendation B.

F. OST Recommendation (ATCT): Continue efforts to prevent moisture intrusion into the air traffic control tower and prevent condensation from forming.

FAA Response: The FAA will continue to prevent water intrusion and condensation issues in the ATCT. Comments and recommendations were submitted to the OST indicating that the corrective measures identified were completed and controlling the ATCT moisture issues. Further preventative measures such as gaps between the drywall and the concrete slab floors, removal of unnecessary wallboard and carpeting, and monitoring the environmental conditions (i.e., with sensors) in various areas will be pursued by FAA. **Action:** Monitoring is on-going; other items will be accomplished under Recommendation B.

G. OST Recommendation (ATCT): Actively monitor moisture in the elevator shaft and unoccupied areas of the air traffic control tower and implement corrective actions as necessary.

FAA Response: The monitoring is currently in progress. To date, there are no indications of excessive moisture and/or humidity. **Action:** The monitoring is on-going and will be documented for historical recordkeeping.

H. OST Recommendation (ATCT): Review the policies at FAA's Detroit Air Traffic Control Tower to ensure that employees are encouraged to report work-related health and medical problems.

FAA Response: The FAA will review such policies. **Action:** Policy will be reviewed and made available to all facility personnel on-site by October 1, 2008.

I. OST Recommendation (ATCT): Evaluate other FAA air traffic control towers for mold and moisture infiltration problems. The Detroit Metropolitan Airport air traffic control tower is of a Leo Daly design. FAA operates other Leo Daly designed towers of similar construction and characteristics. It is prudent for FAA to inspect these other towers to determine if similar mold and moisture problems exist at those facilities.

FAA Response: The DTW ATCT is a Leo Daly designed tower. The FAA will inspect Leo Daly designed towers throughout the country to determine if mold and moisture problems exist at these facilities. **Action:** The inspection of all Leo Daly towers will be completed by December 31, 2008.

Base Building Roof Moisture Recommendations

J. OST Recommendation (Base Building): Replace the leaking base building roof.

FAA Response: **Action:** Prior to the Department's investigation, the FAA had plans to replace the roof. At the Department's request, those plans were placed on hold pending the conclusion of the investigation. A new roofing membrane will be installed by March 30, 2009.

K. OST Recommendation (Base Building): Continue to immediately remove and replace water damaged building materials as necessary.

FAA Response: The FAA will continue to remove and replace such items. When such incidents arise, an investigation shall be made to identify the moisture source and correct it. Action: Issues should not continue after roof replacement under Recommendation J.

L. OST Recommendation (Base Building): Develop a roof project communication plan for the facility to improve communication efforts between FAA management and union employees.

FAA Response: Local FAA management will develop a communication plan to educate employees about the roof project and the control efforts being implemented to ensure a safe working environment. Action: Roof replacement efforts, including scope specifics and work hours, will be coordinated with facility management and employees in the accomplishment of Recommendation J by October 1, 2008.

Attachment 2

FAA Comments on QST DTW Mold Investigation Report Dated August 21, 2008

These comments are based on a thorough review of the report. We believe these comments are significant from the standpoint of ensuring the accuracy and completeness of the final report. We recommend that you review this information and revise the report accordingly.

1. Page 3, Executive Summary - 3rd and 4th bullets: The report states that FAA employees attributed a variety of symptoms to their exposure to mold and moisture at the Detroit Tower and that NIOSH's medical review failed to establish a link between the mold/ moisture and many of the symptoms.

The July 24, 2006 NIOSH report summarizing their Health Hazard Evaluation includes a medical review on pages 4-5. After reviewing the written symptoms profile and medical records provided by the employees, NIOSH concluded that:

- They could not find an association between Detroit Tower moisture/mold issues and the development of asthma in individuals without previous asthma;
- They could not find an association between the Detroit Tower moisture issues and the development of Chlamydiae pneumonia; and
- Citing research conducted by the Institute of Medicine of the National Academies, the evidence of an association between damp indoor environments or exposure to moldy environments and skin symptoms, mucous membrane irritation syndrome, lower respiratory illness in otherwise healthy adults, fatigue, neuropsychiatric symptoms, and immune diseases is either inadequate or insufficient.

In the interest of completeness and accuracy, we believe the following would be more appropriate wording for your report:

As part of a Health Hazard Evaluation, NIOSH conducted a medical review. They reviewed the written symptoms profile and medical records provided by site employees. They were unable to find an association between the Detroit Tower moisture/mold issues and many of the symptoms experienced by the employees.

2. Page 5, 3rd paragraph, 2nd sentence and page 8, 1st paragraph after bullets, 2nd sentence - You state that the FAA was advised to clean visible mold from the elevator shaft liner using a biocide chemical. The FAA took a conservative approach and did not use a biocide. We used a deodorizer called Dri-Eaz Milgo SR. It is not marketed or approved by the EPA as a biocide. It is primarily used as a spray to deodorize residential carpets by carpet cleaners and is suitable for use as a residential laundry aid. The only hazardous ingredient listed in the MSDS is isopropyl alcohol (3-6 percent). The manufacturer recommends the addition of 8 ounces per gallon for wall applications.

The FAA contractor added approximately 2 ounces per gallon. Once this dilution was completed, there was less than 0.5 percent alcohol in the liquid being sprayed. Common isopropyl alcohol in first aid kits is used at 70 percent strength.

3. Page 8, Footnote - The footnote refers to a Dr. Richard's Shoemaker. It is our understanding that this is the same "Dr. Ritchie Shoemaker" referred to in the court findings that follow: On July 22, 2008, the U.S District Court for the District of Columbia ruled in the case of Young and Ghee v. Burton and Lewis & Tompkins. The lawsuit sought recovery for damages suffered by plaintiffs as result of exposure to toxic mold while residing at the Stanton Glen Apartment (page 1). The judge dismissed the charges for the following reason:

"Based on the record herein, including testimony presented at a Daubert hearing, the Court concludes that Dr. Shoemaker's diagnosis of plaintiffs, as well as his opinions relating to general and specific causation are not sufficiently grounded in scientifically valid principles and methods...(pages 1-2)."

According to Page 15 of the same document, Dr. Shoemaker's:

"testimony has been excluded in a number of jurisdictions, including Virginia, Florida, and Alabama... A D.C. superior court judge excluded Dr. Shoemaker's testimony because neither his theory on the effects of indoor mold exposure nor his methodology in diagnosing the plaintiffs with chronic biotoxin- associated illness (CBAI) was generally accepted within the scientific community." Wright v. Fort Lincoln Realty Co., et al, No. o3ca4555, at 2-4 (D.C. Sup., Ct. Oct 15, 2007).

While we did commission the inspection, we now believe Dr. Shoemaker's methodology and work to be unreliable.

Thank you for the opportunity to provide these clarifications. I hope the information is useful in preparing your report.

16b



WONDER MAKERS
ENVIRONMENTAL

November 26, 2008

Mr. Vince Sugent
7768 Pleasant Lane
Ypsilanti, MI 48197

RE: Factual Errors in FAA's Response to DOT Mold Report
Wonder Makers Environmental project GC08-7927

Dear Vince:

On Monday, November 24, 2008, we submitted information regarding factual errors in the Department of Transportation (DOT) inspection report relating to mold the Detroit tower (*Investigation of Mold and Moisture at the Federal Aviation Administration Detroit Metropolitan Air Traffic Control Tower Facility*). That letter detailed 22 different sections in the report and appendices that contained contradictory or clearly inaccurate information. The earlier letter was submitted in order to meet your specific request for a listing of errors within a tight time frame.

The information in this letter should be considered an adjunct to our November 24 correspondence. It contains a similar analysis of the FAA's response to the DOT mold inspection report. As such, this review addresses concerns related to the September 17, 2008, memorandum from Robert Sturgell to Linda Washington and the September 22, 2008, letter from Mary Peters to Scott Bloch. An overall critique of the DOT report and FAA response that provides comments on their tone, selective use of data, and glaring omissions will be provided in a separate letter.

The format used for the attached critique is the same as presented in the previous letter. The items on the following pages include statements from the FAA responses and attachments. For convenience, specific sections of the FAA information are reproduced in italics with comments following in regular type. The comments are presented in the order that the items of concern appear in the letter from Secretary Peters and the memo from Administrator Sturgell.

Please let us know if you have any questions.

Sincerely,

Michael A. Pinto, CSP, CMP
CEO

Review of FAA Responses to DOT Mold Report for Items that are Not Factual

Each false statement is reprinted in italic type, followed in regular typeface by the facts that support the conflicting position.

Peters letter, page 1

Specifically, the investigation found visible mold growth in unoccupied floors of the air traffic control tower, indicating that moisture intrusion returned despite past remedial efforts by the FAA.

The scope of the DOT investigation was limited by the attitude of some of the inspectors. During the time on site there was a cursory review of the area above the ceiling tiles in the base building and other parts of the structure. Substantial evidence was presented to the investigators in the form of verbal reports and laboratory documentation that visible mold growth had been identified on numerous occasions in *occupied* areas of the building since the FAA reported that their remediation was complete. In fact, over 20 water-damaged ceiling tiles were removed from the structure (without any analysis or engineering controls) the day before the inspectors arrived! This Sunday work was passed off as a "standard response" to water intrusion in the building despite claims and countervailing evidence that indicated it was a last ditch attempt to improve the appearance of the structure and remove possible sources of fungal contamination. To make matters worse, the DOT inspectors refused to conduct a critical evaluation of the removed tiles and restricted NATCA's consultant, who was on site as an observer, from collecting any samples from the damaged tiles.

Peters letter, page 1

Regarding adverse health effects, the investigation indicated that approximately 15 employees, including the whistleblowers, continue to experience adverse health effects which they believe is caused by exposure to mold and moisture in their work environment. However, there have not been any new Occupational Safety and Health Administration (OSHA) recordable employee injuries or illnesses related to mold or air quality since July 2006.

Anyone who has even a passing knowledge of the situation at DTW knows that this statement is an intentional misdirection by the Agency. Substantial evidence has been presented by NATCA and medical professionals that documents continued and increasing health problems for occupants in the building. It is the responsibility of FAA management to properly record this information on the OSHA logs. To ignore the medical facts, violate OSHA recording standards, and then use the reported lack of OSHA cases to imply that conditions in the building had no negative impacts on the occupants over the past two years is both duplicitous and unconscionable.

Peters letter, page 1

In addition, the measured airborne fungal spores detected within the facility do not indicate elevated mold spore concentrations that would be likely to adversely impact employee health.

Although the limited sampling conducted during the limited DOT inspection did show that overall airborne spore concentrations in the building were less than those found out-of-doors, the second part of the sentence is not justified. Even the DOT inspectors agreed that occupants who were suffering from mold-related health effects would likely continue to suffer until proper remediation was completed (page 9, DOT report). The simple fact that employees are reporting health symptoms when in the building and substantiating those claims with medical records which indicate that their problems are linked to mold makes the FAA's assessment (that fungal spore levels in the building are not likely to adversely impact health) false and misleading.

Unfortunately, this is one of many statements made by the FAA and DOT that confirms a narrow view of the situation at DTW, and a parsing of information to justify a preconceived notion that the building is safe. This attitude and approach has been consistently used over the past 4½ years to cover up management mistakes rather than address the real issues.

Sturgell memo, page 1

Since the discovery of mold at DTW in 2004, the FAA has diligently pursued the remediation of mold and elimination of water intrusion at the tower and base building to ensure that both facilities provide a safe and healthful workplace for our employees.

The overall facts of the situation are in direct contrast to the Administrator's statement that the Agency *diligently* pursued remediation to provide a safe and healthful workplace. If they were diligent in addressing the issue, the DOT investigation would not have "substantiated the allegations that mold and moisture problems at the air traffic control facility have not been fully remediated" (Peters letter, page 1).

Since the discovery of mold at DTW the FAA has worked diligently to deflect and deny that there is mold in the building. The safety and health of the employees (and by extension the flying public) has been the lowest priority for the Agency. First, they denied there was mold, and then they insisted on calling it a "moisture issue". Nor did the FAA's efforts in addressing mold suffer from a mere lack of vigor. For years, the Agency has expended considerable effort to deny that a problem exists and restrict the air traffic controller union from conducting its own detailed investigations. Had the Agency been diligent in addressing the problems they would not have fought tooth and nail to keep NATCA from implementing additional safety controls during remediation or completing a detailed inspection of the facility – two recommendations that are now validated by the DOT report.

It is also important to note that NATCA is not the only group that has been calling for a comprehensive inspection of the facility. A January 2005 summarizing of the events that led to the evacuation of the tower (DTW ATCT MOLD REMEDIATION LESSONS LEARNED) offers a number of recommendations, including the following:

"If mold in a sensitive facility is suspected, hire a CIH to do a complete building inspection and make recommendations on how to accomplish remediation and/or cleanup as necessary."

Given that it is nearly four years since the recommendation was offered and that it took a Department of Transportation investigation in response to a whistleblower claim to get the FAA to agree to conduct a comprehensive inspection, using the term diligent to describe their efforts is clearly misguided.

It is truly disheartening to realize that the FAA's intransigence contributed to many of the problems documented in the DOT inspection report. Worse yet, the FAA continues to ignore the harm done to the occupants' health by their "diligent" attempts to provide a safe and healthy workplace.

Sturgell memo, page 1

Based on the corrective actions that the FAA has taken at these facilities, and the sampling and testing, which have been conducted by FAA and independent third parties, we strongly believe that both facilities provide a safe and healthful work environment for our employees. We hope that by accepting all your recommendations, this will further demonstrate FAA's commitment to ensure that DTW and the base building contain no health hazards for our employees.

If they were safe and healthful work environments there would be no need for the Agency to accept the DOT recommendations. For years the FAA has been provided with ample evidence from multiple internal and external sources that the structure at DTW has been the source of numerous serious health problems. Their refusal to admit that a problem exists has been one of the major factors in prolonging the problems.

Sturgell memo, page 1

We note that your investigation did not find any indicators of poor indoor air quality and did not detect elevated mold spore concentrations.

Although the Department of Transportation investigators may not have understood their own data, a number of results presented in their report (e.g., fungal species identified indoors, relative humidity levels, particulate levels, etc.) are clear indicators of indoor air quality problems. The specific explanations of these items were contained in our November 24, 2008, letter and attachments.

Sturgell memo, page 1

In fact, indoor concentrations were consistently lower than outdoor concentrations.

The FAA and DOT investigators continue to place inordinate emphasis on the overall comparison of mold spore levels inside the structure to the number of spores identified outside the structure. Although this is an appropriate starting point, even a cursory review of the documents that are considered authoritative in the industry shows that it is not an ending point for the analysis of data related to potential fungal contamination and indoor air quality problems. Of primary concern is the fact that every major document that suggests a comparison of indoor and outdoor contamination levels states that a review should be done of the types of spores that are found inside and outside. By its statements the Agency is misrepresenting the facts. For example, the FAA would like to ignore that spore types were found inside the building that were not recovered from out-of-doors such as:

- *Stachybotrys* that was identified in four samples collected in room 928 and in one sample collected in room 428.
- *Aspergillus versicolor* found in the base building 1st floor office
- *Ulocladium* on samples collected in rooms 928 (2 samples), 428 (2 samples), and the TRACON.

In addition, this repeated emphasis on the overall indoor/outdoor comparison ignores the fact that many occupants have probably developed sensitization to specific molds found inside the structure. This long-term exposure and resultant sensitization means that even a very small quantity of the offending organism(s) can cause significant reactions. Despite the fact that this medically recognized phenomenon has been clearly demonstrated by the controllers' medical reports and acknowledged in a number of previous FAA-sponsored investigations, the Agency conveniently ignores this reality in its interpretation of sampling results.

Sturgell memo. page 1

...our review of the report disclosed information that we believe is inaccurate or misleading and does not correctly identify the existing conditions or the efforts that FAA has taken to protect its employees.

This is actually a true statement, but not in the way that the FAA implies in the memo. The statement is offered by the Agency to indicate that conditions are better inside the facility than documented by the DOT. As shown in our previous letter, the DOT inspection does not correctly identify the existing conditions, primarily because the report skews the data to the positive side rather than being negative. In actuality, conditions inside the building related to indoor air quality are objectively worse than the DOT inspectors conclude.

Nor does the DOT inspection correctly identify the efforts that the FAA has taken to *endanger* the health of its own employees. For years the occupants, both individually and through their union, have begged their employer to conduct a detailed health survey and comprehensive inspection of the facility—and even offered to cover the cost of such an inspection. That the Department of Transportation now concludes that a “comprehensive inspection of the tower’s elevator shaft and wall cavities on all floors to determine the full extent of the moisture and mold problem” is necessary is a serious indictment of the FAA’s actions “taken to protect the employees”. (Peters letter, page 2; Sturgell memo, page 1)

Sturgell memo, page 2 (Attachment 1)

C. OST Recommendation (ATCT): Develop a mold remediation project communication plan for the facility to improve communication efforts between FAA management and union employees.

FAA Response: The FAA will develop a plan to improve communication. Action: Project communication plan implementation date is October 1, 2008.

If anything, communication related to mold and other indoor contaminants has deteriorated since October 1, 2008, not improved. NATCA specifically requested that

their outside experts be allowed to attend a pre-construction meeting to discuss the replacement of the base building roof that was held on November 5, 2008. NATCA's rationale was based on concerns about potential disturbance of fungal contamination, as well as the types of chemicals that would be used during the project. Having a union trusted expert to ask appropriate questions and interpret the responses from the Agency's safety and health experts would have been an important step in reestablishing trust and improving communication between management and employees. Instead, the FAA denied the union's request and perpetuated the hostility that has developed in regards to IAQ and fungal remediation projects. This is just one example of how the Agency gives lip service to improving communication but has taken no substantive action despite the commitment of the Administrator to do so.

Sturgell memo, page 3 (Attachment 1)

F. OST Recommendation (ATCT): Continue efforts to prevent moisture intrusion into the air traffic control tower and prevent condensation from forming.

FAA Response: ...corrective measures identified were completed... Action: Monitoring is on-going...

The FAA has committed to conducting monitoring in the past, but monitoring by unknowledgeable and ill-equipped individuals is often worse than no monitoring at all. Such pseudo-inspections, like the moisture inspections of the elevator shaft that were conducted for months by individuals who had no moisture measuring equipment and who prevented union representatives from using such equipment, contribute to the problems in the building by covering them up.

Even the DOT inspector documented Agency efforts at falsifying monitoring efforts related to moisture and mold. Page 1 of Appendix C of their report notes, "The elevator shaft had devices installed to measure temperature and relative humidity. FAA had not been using the sensors, but decided to activate them during the investigation. There are 9 moisture monitors in total; some are outside the elevator shaft in unoccupied tower space."

It is important to note that the Sturgell memo was dated September 17, 2008. NATCA has repeatedly requested copies of the data from the monitoring units for review, including through a freedom of information request. To date, no information has been provided. The Agency has a clearly established track record of conducting intentionally ineffective monitoring inspections in order to show paper compliance while hiding the true facts. The installation of monitoring equipment without activating the devices is another example of the FAA's willingness to spend taxpayers' dollars in order to show how much they have spent to remedy the problem without utilizing the monitors to benefit the occupants. This history of bogus monitoring and refusal to share information appears to be continuing, which contradicts the commitment made in the Sturgell memo.

Sturgell memo, page 3 (Attachment 1)

G. OST Recommendation (ATCT): Actively monitor moisture in the elevator shaft and unoccupied areas of the air traffic control tower and implement corrective actions as necessary.

FAA Response: The monitoring is currently in progress. To date, there are no indications of excessive moisture and/or humidity. Action: The monitoring is on-going and will be documented for historical recordkeeping.

See response to item F above.

Sturgell memo, page 4 (Attachment 1)

L. OST Recommendation (Base Building): Develop a roof project communication plan for the facility to improve communication efforts between FAA management and union employees.

FAA Response: Local FAA management will develop a communication plan... Action: Roof replacement efforts...will be coordinated with facility management and employees...by October 1, 2008.

Whatever communication plan the FAA has for this re-roofing project it has *not* been coordinated with employees. The answer to item C on page 2, described above, illustrates how the FAA's plan for communication is to deny entry into the building for anyone who could help the employees actually understand the issues being discussed.

Another tactic that the Agency uses to subvert communication despite their commitment to improve it is the selection of what information they share with the occupants. Something as simple and non-controversial as sharing material safety data sheets (MSDS's) for chemicals that will be used on the re-roofing project has been used to frustrate legitimate project input from the employees. FAA managers initially provided NATCA with four MSDS's (compressed air, acetylene, welding rods, and developer) that they indicated would be part of the project. Then, at the pre-construction meeting, they offered a sampling plan that did not address potential hazards associated with the materials for which they provided data sheets. When questions were raised about the proposed sampling scheme the FAA provided different MSDS's, including dozens for materials that they did not expect to use but "could be on the truck". When the sequence of events is combined with the fact that NATCA's experienced safety and health professionals were excluded from the meeting it is clear that the Agency does not feel compelled to live up to the commitment that its Administrator made to the Secretary of Transportation.

Sturgell memo, page 5 (Attachment 2)

2. Page 5, 3rd paragraph, 2nd sentence and page 8, 1st paragraph after bullets, 2nd sentence—You state that the FAA was advised to clean visible mold from the elevator shaft liner using a biocide chemical. The FAA took a conservative approach and did not use a biocide. We used a deodorizer called Dri-Eaz Milgo SR.

Although this statement about Dri-Eaz Milgo SR being the product used during the cleaning of the elevator shaft liner is correct, the statement that the FAA took a

conservative approach and did not use a biocide is false. There is ample evidence from the records of the FAA and the contractor that proves the Agency requested their contractor to spray an anti-microbial chemical as part of the remediation process. For example, the general work authorization from Coaches Catastrophic Cleaning dated 1/22/05 and signed by Randy Grant of the FAA clearly shows that the contractor was authorized to conduct "biohazard cleaning" with "anti-microbial spray/HEPA vacuum". An undated statement titled "Work performed at DTW by TEOC and Coach's" by Ned Gibson (SUP SMO Environmental Protection Specialist) declared "Coaches Catastrophic Cleaning sealed the areas of exposed mold left by the initial contractor on the fourth and ninth floors and applied a deodorizer/biocide in the affected areas". The MSDS for the Milgo-SR product supplied by the contractor at the time of the work showed both isopropyl alcohol and gluteraldehyde as hazardous ingredients.

In a broader sense, the logic behind the FAA's statement that spraying a deodorizer as a conservative or safer alternative to the recommended product is twisted. The FAA is admitting that instead of using an EPA-approved biocide as recommended by an industrial hygienist they used an unapproved chemical in a manner inconsistent with the label directions. Perhaps if an Agency representative had looked at the label directions they would have thought twice before characterizing the use of Milgo-SR in an active air traffic control center as a conservative approach. The label for the product clearly states

"All application personnel should have complete respiratory protection. Evacuate all others (including pets) from the area. Treated areas should be adequately ventilated and not to be re-entered for at least one hour after treatment."

Sturgell memo, page 5 (Attachment 2)

It is not marketed or approved by the EPA as a biocide. It is primarily used as a spray to deodorize residential carpets by carpet cleaners and is suitable for use as a residential laundry aid. The only hazardous ingredient listed in the MSDS is isopropyl alcohol (3-6 percent). The manufacturer recommends the addition of 8 ounces per gallon for wall applications.

This post-incident spin on a situation that was totally mishandled by the Agency is ludicrous. The MSDS that was provided to the FAA by the contractor listed both isopropyl alcohol and gluteraldehyde as hazardous ingredients. It was not until several days after the tower evacuation that a more current version of the data sheet was brought forward.

It is clear from a careful review of all of the documents related to that incident that the Agency's second attempt at mold control was as haphazardly managed as the first attempt. To this day, the FAA does not know with certainty what was in the sprayer that was used or what concentration was mixed. Even after the Agency had a sample of the material that was reported to have been in the sprayer analyzed for chemical content the project managers could not verify that the material used was Milgo-SR. The results of the chemical testing revealed 28 separate compounds. Most of the reported compounds are considered to be hazardous materials, including benzene and octanol.

Sturgell memo, page 5 (Attachment 2)

The FAA contractor added approximately 2 ounces per gallon. Once this dilution was completed, there was less than 0.5 percent alcohol in the liquid being sprayed. Common isopropyl alcohol in first aid kits is used at 70 percent strength.

This statement is in conflict with the information from a variety of sources. As noted in the answer to the previous item it is clear that the Agency does not know what was applied to the elevator shaft liner and other areas of the building. The Gibson document cited previously states that the contractor brought premixed materials into the building. One of the recommendations in the LESSONS LEARNED document that was prepared shortly after the tower evacuation states, "Have contractors bring any chemicals in their original containers and do any dilution or mixing on site where it can be observed".

A more serious falsehood in this statement is related to the FAA's comparison of the material applied as part of the mold remediation process to the application of isopropyl alcohol for first aid measures. The picture that the Agency wants to paint with this comparison is that the material used so haphazardly in January 2005 was safe, and by extension that the injuries suffered by the workers that day are somehow mitigated. Still, no amount of reinterpretation can change the facts of the incident. The FAA's own SER report filed shortly after the tower evacuation notes that spraying stopped at 12:50 and the complaints of illnesses from seven tower employees began at 1:05. The illnesses were significant enough to send a number of people to the hospital and cause a five-hour ground stop, but all of that has to be excused because isopropyl alcohol is used to treat wounds in a stronger concentration than what the Agency claims was in the mix being sprayed.

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DRAFT

DTW Project Communication Plan

September 25, 2008

The purpose of this communication plan is to ensure that project information is effectively communicated between managers, employees, Environmental and Occupational Safety and Health (EOSH) professionals, project Resident Engineer (RE) and site contractors. This plan specifically addresses projects associated with mold remediation, roof repair, and other efforts to address water intrusion and/or condensation.

1. Prior to Project Commencement

- a. Pre-Construction Meeting: Local management shall hold a Pre-Construction meeting prior to the start of each project. The meeting shall include the project RE, an EOSH professional, contractor(s) representatives, contracting officer, local management, and shall be made open to union (NATCA/PASS) attendance. The topics that shall be covered include the: 1) scope of work, 2) location(s), 3) project schedule, 4) potential hazards, including a review of the completed risk assessment plan, 5) controls to be used, 6) sampling plan (if applicable), 6) communication of project status and data to employees, 7) pre-construction checklist, 8) potential impacts to employees, 9) applicable Material Safety Data Sheets (MSDSs), 10) contingency plans, and 11) applicable background and historical information pertaining to project. A question and answer session shall take place afterwards. If necessary, a walkthrough of the affected areas may be conducted to further clarify the project scope.
- b. Memorandum to Employees: Each employee will be notified of an upcoming project via memorandum from local management. The memorandum shall address the following: 1) scope of work, 2) locations(s), 3) project schedule, 4) potential hazards, and 5) location where project information will be posted. The project RE and/or EOSH professional will assist local management in drafting the memorandum to ensure the appropriate information is captured in the document.
- c. Pre-Construction Checklist: In accordance with FAA order 3900.57, an FAA Preconstruction and Maintenance Project Safety and Health Checklist shall be completed prior to the start of the project. Please refer to the attached document. The purpose of the checklist is to identify potential safety and environmental hazards that may impact facility employees and the National Airspace System (NAS).

- d. MSDSs: The contractor shall provide all MSDSs to the project RE. The MSDSs will be reviewed during the pre-construction meeting and be made available to employees for their review.

2. During the Project

During the project, the RE shall maintain communication with the EOSH professional and local management. In the event that NAS operations may be adversely impacted by the project, the RE shall immediately notify local management.

After each shift, the contractor and/or RE shall provide a written briefing to local management to include the following: 1) summary of work accomplished, 2) upcoming schedule (e.g., next shift), 3) monitoring results, and 4) significant changes to the project. Local management will post these briefings in a designated location for employees to review. Local management shall host daily or periodic meetings to further communicate the project status and upcoming events.

Employees may contact their supervisor if any questions or concerns arise before or during the project. Supervisors will then forward those questions to the DTW Terminal Manager/DTW GNAS Manager. If requested, the RE and/or EOSH professional will provide input to the Terminal/GNAS managers.

3. Project Completion

The RE will notify the EOSH professional, contracting officer, and local management when the project is completed. This information will be communicated from local management to the employees. Local management shall notify employees when the project is completed.

17b



WONDER MAKERS
ENVIRONMENTAL

June 22, 2009

Mr. Vince Sugent
7768 Pleasant Lane
Ypsilanti, MI 48197

RE: Review of a draft of the DTW Project Communication Plan, September 25, 2008,
WM project GC09-8593

Dear Vince:

It is written in the DTW Project Communication Plan, September 25, 2008, "The purpose of this communication plan is to ensure that project information is effectively communicated between managers, employees, Environmental and Occupational Safety and Health (EOSH) professionals, project Resident Engineer (RE) and site contractors. This plan specifically addresses projects associated with mold remediation, roof repair, and other efforts to address water intrusion and/or condensation." Unfortunately, this communication did not take place in the past with DTW NATCA personnel. The FAA has consistently refused to share information with the union and vigorously blocked NATCA's efforts to procure enough information to accurately assess the conditions in the building. The actions of the Agency in prohibiting the exchange of information rather than enhancing it has led to adverse health effects for building occupants in this critical use facility.

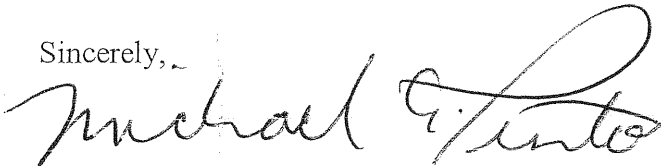
For example, this communication plan was not made available to NATCA voluntarily, but was only shared as a response to data requests related to a Federal whistleblower charge. In addition, the communication plan did not even meet the legal requirements that were in place for the FAA at the time that the plan was produced. Specifically, the communication plan did not acknowledge the award contained in the Opinion and Award of the Arbitrator in the matter of arbitration between the FAA and NATCA, Local DTW/D21 dated October 5, 2007. That decision read, "The Agency shall continue to comply with the Settlement Agreement in the Unfair Labor Practice proceeding. That agreement (Ag. Ex. 105) requires that the Agency grant Wonder Makers access to the facility to conduct such tests as Wonder Makers deems necessary to determine whether the facility is still encountering mold and/or moisture contamination, and that the Agency allow Wonder Makers to observe tests conducted by the Agency for it to make its determination whether the facility has mold or moisture infiltration problems."

NATCA was forced to go through a long and involved grievance process before this award was formulated by the arbitrator. During this extended process NATCA personnel were not allowed to have their experts conduct testing or even enter the DTW ATCT to

determine whether mold or moisture infiltration problems were adversely affecting the health of NATCA personnel in the ATCT. NATCA personnel themselves were forced to collect samples and take pictures of mold-contaminated materials to give to their experts, Wonder Makers, to determine what the situation was in the ATCT in terms of mold contamination. Obviously, excluding key individuals from the information collection and interpretation phases of a project does nothing to "ensure that project information is effectively communicated".

Nevertheless, we encourage you to continue your efforts to impel the FAA toward a truly cooperative working process and real sharing of information.

Sincerely,

A handwritten signature in cursive script that reads "Michael A. Pinto". The signature is written in black ink and is positioned below the word "Sincerely,".

Michael A. Pinto, CSP, CMP
CEO

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APPENDIX D: INDUSTRIAL HYGIENE REPORT

June 9, 2008

Mr. Thomas Black
Department of Transportation
1201 New Jersey Avenue, SE
Room W58-303
Washington, DC 20590

Dear Mr. Black:

On May 19 and 20, 2008, M. A. Cecil and Associates, Inc. conducted an inspection in the Detroit Metropolitan Airport Traffic Control Tower.

In accordance with the scope of work, the goal for this inspection was to determine if mold colonization was present in the control tower and to conduct bioaerosol air sampling in the control tower and base building. The following parameters were evaluated: bioaerosol (fungi and environmental bacteria), fungal spores, airborne particulate, carbon dioxide, carbon monoxide, temperature, and relative humidity.

The enclosed report includes the results of the sampling, discussion of the results and recommendations. If you have any questions or require additional information, please contact me at (301) 855-7710.

Sincerely,

Michael A. Cecil, CIH

Enclosure

INDOOR AIR QUALITY SURVEY
at the
DETROIT METROPOLITAN AIRPORT
AIR TRAFFIC CONTROL TOWER
Detroit, Michigan

Prepared for:

MR. TOM BLACK
DEPARTMENT OF TRANSPORTATION
1201 NEW JERSEY AVENUE, SE
ROOM W58-303
WASHINGTON, DC 20590

M. A. CECIL & ASSOCIATES, INC
4475 SHANNON WAY
PORT REPUBLIC, MARYLAND

May 2008

EXECUTIVE SUMMARY

M. A. Cecil and Associates, Inc. conducted an inspection in the Detroit Metropolitan Airport Traffic Control Tower. The inspection was conducted on May 19 and 20, 2008. The scope of work included an inspection of the control tower elevator shaft to determine if mold colonization was present and to conduct bioaerosol sampling in the control tower and base building. The goal was to determine if further mold remediation was required and evaluate the likelihood of employees being exposed to mold. A visual inspection (non invasive) of the elevator shaft was conducted followed by an invasive inspection of several locations within the tower.

The inspection of wall cavities on the fourth and ninth floors revealed that apparent mold growth is present in the ATCT. The location of the apparent mold growth observed and the previously abated contaminated drywall was likely caused by water intrusion. Based on the Jacobs Engineering inspection report water/moisture was able to enter the tower shaft at joints in the pre-cast concrete panels where deteriorated caulking and backer rod was unable to prevent moisture intrusion. The likely scenario is that water pooled on a given level's concrete floor and through wicking action was taken into the drywall thus allowing mold colonization. Furthermore, it is likely that the introduction of moisture laden air into the tower environment caused condensation to occur and further add moisture to the drywall. The surface mold previously observed and subsequently removed from the elevator shaft liner could have been due to condensation and/or poor moisture/temperature control of the elevator shaft environment.

Several corrective actions have been completed in the ATCT. Mold contaminated drywall was removed from several unoccupied levels of the tower. The exterior surface of the ATCT and base building were sealed with a moisture resistant sealant. Deteriorated caulking and backer rod was removed from pre-cast joints and replaced. Heaters have been installed and ventilation system modifications have been completed in an effort to control and or prevent condensation in the ATCT and moisture and temperature sensors were installed to monitor conditions in the elevator shaft and unoccupied tower levels. Also, cab roof leaks were sealed.

Based on the corrective actions completed thus far, the bioaerosol sampling results obtained during this survey, and the location of apparent mold growth it is suspected that FAA employees are not exposed to significant bioaerosol concentrations. Apparent mold growth was not noted on outward surfaces of drywall in the elevator shaft or on unoccupied level walls. The identified apparent mold growth was located between layers of intact drywall and in unoccupied areas. The unoccupied areas are not serviced by existing ventilation systems currently servicing occupied levels of the tower and totally independent from the base building ventilation systems. The only connection would be the air moved through the piston action of the elevator car in the elevator shaft which contains relief vents allowing air to be discharged at the top and bottom of the shaft.

Based on the sampling results and observations the following recommendations are offered.

- Perform comprehensive inspection of the elevator shaft drywall liner to identify mold contamination. Remove any porous material, such as drywall, which is visibly contaminated with mold or stained. Do not attempt to clean porous materials. Clean

remaining substrates, and replace building materials as necessary. The remediation must be conducted in a similar manner as asbestos abatement and as previously performed on the third, fourth, and ninth unoccupied levels of the ATCT.

- Proceed with the base building roof replacement. The roof must be replaced as it is the major source of water intrusion remaining. Ensure adequate control measures are in place and implemented to prevent infiltration of airborne volatile organic compounds likely to be generated from the roof replacement process. Consideration should be given to conducting the roof replacement during night hours.
- Remove drywall from unoccupied levels of the ATCT other than drywall necessary to maintain the required fire rating. If it is necessary to install drywall on unoccupied levels of the ATCT; replace drywall currently in contact with concrete floors with drywall installed with at least a one half inch gap or provide a strip of silicone caulking at the concrete/drywall junction to prevent condensation and/or moisture intrusion from wicking into the drywall.
- Alternatively, evaluate the fire rating for cement or backer board or mold resistant drywall now commercially available to be used as a substitute material for the removed drywall. Install a two foot high strip (from the floor) of a substitute material for walls located on unoccupied tower levels.
- Remove and discard the existing carpet in the former union office located in the tower.
- Monitor temperature and moisture levels in the elevator shaft and unoccupied levels and implement corrective actions as necessary to prevent condensation on surface materials.
- Continue to inspect the ATCT on a regular basis and remove and replace water damaged building materials as necessary.

INTRODUCTION

M. A. Cecil and Associates, Inc. conducted an inspection in the Detroit Metropolitan Airport Traffic Control Tower. The inspection was conducted on May 19 and 20, 2008. The scope of work included an inspection of the control tower elevator shaft to determine if mold colonization was present and to conduct bioaerosol sampling in the control tower and base building. The goal was to determine if further mold remediation was required and evaluate the likelihood of employees being exposed to mold. A visual inspection (non invasive) of the elevator shaft was conducted followed by an invasive inspection of several locations within the tower. To date, various entities have reported that only surface mold had been present on the elevator shaft lining and no invasive inspections were completed. In addition to the inspection numerous inspection reports were reviewed concerning past conditions, mold remediation, and recommendations to control moisture intrusion into the tower.

BACKGROUND

The Detroit Metropolitan Airport Air Traffic Control Tower (ATCT) is approximately 230 feet tall attached to a two story base building. Generally, the tower is constructed of concrete and steel. The two upper levels of the tower, cab and junction levels are occupied. The remaining levels 10 through 2 are unoccupied. Interior walls (perimeter) of the unoccupied levels are gypsum wall board on metal stud wall systems. The elevator shaft (central to the tower) is constructed with four layers of gypsum wallboard; the inner shaft is lined with two layers of fire rated gypsum wallboard on metal frame work and the outer shaft (unoccupied levels) is lined with two layers of gypsum wallboard.

There has been numerous water intrusion episodes reported occurring over the course of several years. The sources of water intrusion included roof leaks, water infiltration at pre-cast concrete panel joints due to deteriorated caulking, poor moisture and temperature control in the elevator shaft causing surface condensation, and deficiencies in the tower ventilation system allowing infiltration of unconditioned air. Numerous inspections were completed resulting in a general consensus to prevent moisture intrusion, rectify ventilation deficiencies, clean the visible 'surface' mold in the elevator shaft, and conduct mold remediation on the third, fourth, and ninth unoccupied levels of the tower.

To date, several FAA employees maintain that they have experienced allergic-like reactions and various illnesses thought to be related to the control tower environment.

EVALUATION METHODS

BIOAEROSOLS

A scope of work for this inspection was developed based on review of the various documents associated with the ATCT. This inspection included an inspection of the elevator shaft liner, the tower shaft (unoccupied levels), and the base building. Air sampling was conducted to evaluate bioaerosols, spores, airborne particulate, carbon dioxide, temperature, and relative humidity.

Bioaerosol sampling was performed using a single stage SAS Bioaerosol Sampler. The sampler draws air through a microsieve plate at a calibrated rate. This process accelerates airborne particles,

impacting them onto malt extract agar filled plates. The samples were incubated at 25°C and examined everyday for 7-10 days. Once on the agar plates, viable particles can grow into visible colonies. Their numbers give an indication of the airborne concentration of viable fungi and bacteria. During the incubation period subsequent colonies are isolated, identified to genus and counted to calculate airborne concentrations for each sample location.

SPORE SAMPLING

Microbial spore sampling was performed by drawing air through an Aerotrap spore sampler and aimed directly at a sticky and optically clear sampling media (microscope slide). An air-sampling rate of fifteen liters per minute was used. This process accelerates airborne particles, impacting them onto the gel strip inside the sampler. The slides were analyzed via microscopy and particles identified.

CARBON DIOXIDE

Carbon dioxide levels were measured using a KD Engineering Air Box Monitor. The instrument uses a non-dispersive infrared (NDIR) detector and was calibrated against a certified gas standard. Concentrations were spot checked at each sampling location.

CARBON MONOXIDE

Carbon monoxide levels were monitored using the KD Engineering Air Box Monitor. Concentrations were spot checked at each sampling location. The sampling was conducted simultaneously with carbon dioxide testing.

TEMPERATURE AND RELATIVE HUMIDITY

Temperature and relative humidity were monitored with the Air Box Monitor. Measurements were recorded for each sampling location. The sampling was conducted simultaneously with carbon dioxide testing.

AIRBORNE PARTICULATE

Particulate sampling was performed with a TSI Aerotrak (Model 8220) optical particle counter. This monitor uses laser technology to determine size of airborne particles. Particles are counted in six different size ranges.

RESULTS/DISCUSSION

INSPECTION

FAA has completed several of the recommended items contained in the Jacobs Engineering report entitled Moisture Assessment Report for the ATCT at Detroit Metropolitan Airport (August 2005). The tower pre-cast panel joints were stripped and new backer rod and sealant installed. The exterior of the tower and base building were sealed (paint-like product) in April/May 2006. Several ventilation system deficiencies were corrected to allow for sufficient air flow and conditioning of supply air to positively pressurize the tower thus preventing the infiltration of moisture and particulate laden air. Moisture sensors have been installed in the elevator shaft and at select locations of the tower shaft in an effort to monitor conditions in the shaft so that appropriate controls can be applied when needed (such as tempered air in winter months). The monitors were activated at the time of this inspection. Roof leaks in the cab have been sealed. Apparent mold growth (on drywall) noted on the third, fourth, and ninth levels were removed and drywall replaced.

Apparent mold growth on elevator shaft drywall was cleaned. An appropriate response plan has been implemented for leaks in general in the tower and base building.

A walk-through inspection was conducted in the tower and base building with concentration placed on the elevator shaft and the fourth and ninth unoccupied levels. The inspection of the elevator shaft was conducted from the roof of the elevator car. The car was stopped at every other level so that two levels of the shaft were inspected at each stop. There were no current signs of moisture intrusion or apparent mold growth in the elevator shaft. Several dried water stained/rust colored areas were noted and several discolored areas (surface mold removed) were noted also. A moldy or musty odor was not noted in the elevator shaft. The elevator pit sump was dry and the pit was relatively clean.

Drywall panels were physically removed from the fourth and ninth unoccupied levels corresponding to the discolored or cleaned areas within the elevator shaft. Drywall panels were removed from previously abated areas on both levels. The removal of the panels allowed for the inspection of the back side of the inner layer of the fire rated drywall of the elevator shaft liner without compromising the fire rating of the elevator liner. On the ninth level (928) two wall sections of the elevator shaft drywall were removed. Apparent mold growth was noted at both locations on the back surface of the outer layer of drywall, on the front surface of the inner layer of drywall, and on the back surface of the inner layer of fire rated drywall (inner layer of shaft liner). Apparent mold growth was identified on the backing of drywall located at the perimeter wall (at a column/cross member) also. This drywall was remediated previously. On the fourth level (428) drywall was removed from one wall of the elevator shaft wall. Minimal apparent mold growth was noted only on the back surface of the inner layer of fire rated drywall (inner layer of shaft liner) which corresponded specifically with an area of discoloration at the front corner (at floor level) of the elevator shaft liner.

The walk-through inspection included other levels of the tower and the first and second floor of the base building. There were no current signs of moisture intrusion with the exception of the roof leak in the second floor corridor adjacent to the janitor closet/roof access. The roof leak appeared to be at a roof drain. There were no signs of apparent mold growth. A moldy or musty odor was not noted in the base building. The existing built-up roof is composed primarily of fiberglass and asphalt products. The existing metal decking appeared intact at several inspection points.

BIOAEROSOLS

Bioaerosols are airborne particles that are living or that are released from living organisms. These living particles include fungi, bacteria, and plant pollens. Many of these particles have been implicated in human respiratory and skin allergies, hypersensitivity reactions and toxic effects.

Fungal spores and other viable particles may enter a space through the outside air intakes and due to their small size, are not effectively eliminated from the air stream by the air filtration system. Once they have settled out of the air stream, the spores may grow almost anywhere within a building where conditions permit. Optimal conditions include: a surface for growth, organic nutrients, darkness, and moisture. These conditions are often provided in the indoor environment. Areas in which microorganisms may proliferate or bioamplify include internal surfaces of air handling units and ducts, especially if insulated, ceiling tiles (wet or moist), carpet, and areas which remain dark, seldom cleaned, or congested with furniture and office materials.

Indoor environmental bacterial populations can be from humans as well as environmental sources. All humans shed skin flakes and bacteria. Commonly detected bacteria in indoor environments such as *Micrococcus* and *Staphylococcus* likely originate from human sources. Environmental bacteria such as *Bacillus* and *Pseudomonas* normally originate from soils, plants, or water.

Generally, there is insufficient evidence to show that bacteria are a cause of allergies. Exposure to significant concentrations of airborne bacteria could challenge an individual's immune system. However, bacterial byproducts (proteins and endotoxins) have been suggested as causative agents for occupant illnesses such as Monday morning fever. Monday morning fever is an allergic reaction to endotoxins produced by Gram negative bacteria such as *Pseudomonas* and *Flavobacterium*.

Fungi (molds and yeast) produce spores during their growth or reproductive cycle. The asexual and/or sexual spores are often considered allergens. It is not known what concentration of spores is required to evoke an allergic reaction. It is known, that individuals exposed intermittently to significantly elevated levels of allergens or moderate levels continuously for a time period (months or years) may become sensitized. An individual sensitized to an allergenic agent is said to have developed an allergy to that agent. Once sensitized, the individual experiences an allergic reaction at each time of exposure. The degree and extent of the reaction is dependent on the exposure concentration, the length of exposure and the individual. Therefore, a sensitized individual may react to relatively low and in some cases undetectable concentrations of allergens while a non-sensitized or less sensitized individual in the same indoor environment will not experience any symptoms.

Airborne fungi and bacteria naturally occur in most indoor environments. Currently, there are neither indoor air quality guidelines nor regulations for the determination of measured bioaerosol concentrations. However, excessive numbers or unusual types of microorganisms may cause health problems in sensitive individuals. Interpretation of such sample results depends on professional judgment as to whether types and amounts of organisms are comparable to normal background and the likelihood that the identified organisms will cause allergic reactions or infections. Since spores are only released into the air intermittently, any visible growth, water damage, or excessive dust may be considered an indication of potential bioaerosol problems, even where air sampling results are negative.

Bioaerosol samples were collected at five tower levels, two base building locations, and outdoors for comparison. The sampling was conducted at two time periods beginning at approximately 8:30 AM and 11:30 AM. The detected fungal concentrations for the first sampling period were insignificant. The indoor concentrations were less than the outdoors. However, the fungus, *Stachybotrys* was detected on the ninth and fourth unoccupied levels. Although this fungus is common in the environment it should not be present in the indoor environment. If detected, it is an indicator of chronic water intrusion and colonization of cellulose based building materials. The detection of *Stachybotrys* could have been due to the disturbance created during drywall panel removal to facilitate wall cavity inspections. *Stachybotrys* produces a sticky spore that does not readily become airborne unless physically disturbed. Exposure to *Stachybotrys* would not present any more of a health hazard than exposure to any other fungus in which an individual has become sensitized. Again, the degree and extent of the reaction is dependent on the exposure concentration,

the length of exposure, and the individual. The detected environmental bacteria concentrations were insignificant. The primary bacteria detected were human associated.

The detected fungal concentrations for the second sampling period were insignificant. Two colonies of *Stachybotrys* were detected on the fourth level. The detected environmental bacteria concentrations were insignificant. The primary bacteria detected were human associated. A full listing of sites sampled, species found, and concentration of each can be found in Appendix A.

SPORE SAMPLING

Spore samples were collected at five tower levels, two base building locations, and outdoors for comparison. The sampling was conducted at two time periods beginning at approximately 8:30 AM and 11:30 AM. Indoor spore concentrations were lower than the outdoor concentration. The sample locations and concentrations are summarized in the attached table 2.

CARBON DIOXIDE

Carbon dioxide is a colorless, odorless, non-combustible gas that is a natural by-product of human respiration, fermentation, and combustion. Carbon dioxide has many important functions in maintaining normal body activities and is a key factor in the control of respiration and cerebral circulation. Plants consume carbon dioxide. As a result of the production consumption process, an atmospheric carbon dioxide concentration of 300 parts per million is typical.

The carbon dioxide data was used to determine the effectiveness of the ventilation system in supplying outside air to the indoor environment. NIOSH recommends to prevent employee discomfort, average carbon dioxide concentrations should not exceed 1,000 ppm. The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) recommends that indoor carbon dioxide concentrations should not be in excess of 700 ppm over the outdoor concentration.

Average carbon dioxide concentrations were within the ASHRAE recommendation. The average carbon dioxide concentration for each sampling location was as follows:

Location	CO2 Average
Tower cab	455
Tower break room	595
Tower union office	657
Level 928	671
Level 428	317
TRACON	690
Base - 1 st floor office (near 109)	515
Outdoors	375

ASHRAE recommends that office workers be supplied with 20 cubic feet per minute of outside air per occupant, in order to maintain acceptable carbon dioxide levels. This is based on an occupancy rate of seven occupants per 1,000 square feet (143 sq. ft./occupant) of floor space. The supplied cubic footage per minute of outside air per occupant may be determined with detected carbon dioxide levels with the use of the following ASHRAE derived equation:

$$\text{cfm/person} = \frac{10,500}{\text{CO}_2 (\text{indoor}) - \text{CO}_2 (\text{outdoor})}$$

Carbon dioxide levels below 900 ppm, based on a 375 ppm outdoor concentration would indicate sufficient outside air was introduced at or above 20 cfm/person.

CARBON MONOXIDE

Carbon monoxide (CO) is one of the most prevalent of all indoor air pollutants, introduced into a building from combustion sources. Indoor sources for air contamination can be produced from tobacco smoke, improperly vented combustion sources, or from leaking heat exchangers.

OSHA has established a PEL of 50 parts of CO per million parts of air for an 8-hour industrial exposure. At this level of exposure, it is felt that most people will not experience any adverse health effects. The ambient air quality standard for CO, set by the U.S. Environmental Protection Agency (EPA), is 9 ppm and is considered more appropriate for application to office environments.

The average carbon monoxide concentrations at each sampling location (identical to carbon dioxide locations) were consistently less than 5.0 ppm.

TEMPERATURE AND RELATIVE HUMIDITY

The primary functions of a building's ventilation system are to control temperature and humidity and to provide clean outdoor air for the dilution of odors and air contaminants. ASHRAE Standard 55-1992: *Thermal Environmental Conditions for Human Occupancy* is utilized for guidance on air temperatures, relative humidity, air movement and other thermal comfort parameters. Many complaints of poor air quality are actually caused or exacerbated by temperature and/or humidity values outside of the normal comfort ranges of 73-79°F and 40-60% humidity for summer or 68-74.5°F and 30-50% humidity for winter. The temperatures and relative humidity are summarized in the following table.

Location	Average Temperature (°F)	Average Relative Humidity (%)
Tower cab	72.1	28
Tower break room	73.1	29
Tower union office	75.2	30
Level 928	74.3	29
Level 428	70.7	35
TRACON	75.9	29
Base - 1 st floor office (near 109)	74.9	25
Outdoors	72.1	25

The average temperatures were within or insignificantly below the ASHRAE recommended range for summer (73-79°F). The average relative humidity was within or insignificantly below the ASHRAE recommended range of 40-60% for summer.

AIRBORNE PARTICULATE

Airborne particulate sampling was conducted at each sampling location (same as bioaerosols). This sampling was conducted as a screening to indicate the possibility that airborne mold spores were present in the indoor environment in lieu of other sampling techniques. Generally, the physical size of mold spores is in the range of 3 to 10 microns.

The particle counter counts particles in six size ranges. The detected particle counts, in each size range, are summarized in the attached table. The particle count for each size range and at each location was not significant when compared to the outdoors. During the AM sampling period there was an increase at the fourth and ninth levels; however, it occurred in all six ranges and was believed to be related to the resultant dust generated by removal of drywall panels and by individuals walking in the room. The same scenario appeared to have affected the PM sampling results.

VENTILATION

Dilution ventilation is used to control indoor air contaminants such as carbon dioxide, water vapor, particulate matter, biological aerosols and volatile organic compounds.

The ventilation of the tower (occupied levels) is provided by one unit located in a mechanical room on the junction level. Outside air is provided to the unit. The general condition of the unit was good. The filters (charcoal and pleated) were properly installed. Reportedly the pleated filters are changed quarterly and the charcoal filters changed approximately every six months. FAA has an O&M plan in place for unit maintenance and cleaning. The base building ventilation is provided by a roof mounted unit. Outside air is provided to the unit. Reportedly the pleated filters are changed quarterly. O&M procedures are completed at regularly scheduled intervals.

CONCLUSIONS/RECOMMENDATIONS

The inspection of wall cavities on the fourth and ninth floors revealed that apparent mold growth is present in the ATCT. The location of the apparent mold growth observed and the previously abated contaminated drywall was likely caused by water intrusion. Based on the Jacobs Engineering inspection report water/moisture was able to enter the tower shaft at joints in the pre-cast concrete panels where deteriorated caulking and backer rod was unable to prevent moisture intrusion. The likely scenario is that water pooled on a given level's concrete floor and through wicking action was taken into the drywall thus allowing mold colonization. Furthermore, it is likely that the introduction of moisture laden air into the tower environment caused condensation to occur and further add moisture to the drywall. The surface mold previously observed and subsequently removed from the elevator shaft liner could have been due to condensation and/or poor moisture/temperature control of the elevator shaft environment.

Several corrective actions have been completed in the ATCT. Mold contaminated drywall was removed from several unoccupied levels of the tower. The exterior surface of the ATCT and base building were sealed with a moisture resistant sealant. Deteriorated caulking and backer rod was removed from pre-cast joints and replaced. Heaters have been installed and ventilation system modifications have been completed in an effort to control and or prevent condensation in the ATCT and moisture and temperature sensors were installed to monitor conditions in the elevator shaft and unoccupied tower levels. Also, cab roof leaks were sealed.

Based on the corrective actions completed thus far, the bioaerosol sampling results obtained during this survey, and the location of apparent mold growth it is suspected that FAA employees are not exposed to significant bioaerosol concentrations. Apparent mold growth was not noted on outward surfaces of drywall in the elevator shaft or on unoccupied level walls. The identified apparent mold growth was located between layers of intact drywall and in unoccupied areas. The unoccupied

areas are not serviced by existing ventilation systems currently servicing occupied levels of the tower and totally independent from the base building ventilation systems. The only connection would be the air moved through the piston action of the elevator car in the elevator shaft which contains relief vents allowing air to be discharged at the top and bottom of the shaft.

Based on the sampling results and observations the following recommendations are offered.

- Perform comprehensive inspection of the elevator shaft drywall liner to identify mold contamination.
- Completely remove (plus one foot beyond visible contamination) any porous material, such as drywall, which is visibly contaminated with mold or stained. Do not attempt to clean porous materials. Clean remaining non porous substrates, and replace building materials as necessary. A water/detergent solution with a stiff bristle brush is sufficient followed by rinsing with water/detergent solution. Chemical biocides are not recommended. The remediation must be conducted in a similar manner as asbestos abatement and as previously performed on the third, fourth, and ninth unoccupied levels of the ATCT. Containments should be constructed with restricted access. A negative pressure/air filtration system must be installed and the system should be exhausted to the tower staircase. The removal and cleaning process should not be conducted until negative pressure has been established in each containment. Also, the placement of contact paper (one side sticky) over apparent mold growth prior to physical removal of drywall will minimize the amount of airborne spores and fungal particulate. The collection of spore trap samples can be used for containment clearance purposes; however, there is no substitute for a thorough visual inspection at the completion of the abatement process. The abatement process should be conducted overnight when minimal FAA employees are present.
- Proceed with the base building roof replacement. The roof must be replaced as it is the major source of water intrusion remaining. A rubber membrane roof with heat sealed seams has been specified. Evaluate material safety data sheets for all materials to be used for the roof replacement and ensure adequate control measures are in place and implemented to prevent infiltration of airborne volatile organic compounds likely to be generated from the roof replacement process. Consideration should be given to conducting the roof replacement during night hours.
- Remove drywall from unoccupied levels of the ATCT other than drywall necessary to maintain the required fire rating of the elevator shaft. If it is necessary to install drywall on unoccupied levels of the ATCT; replace drywall currently in contact with concrete floors with drywall installed with at least a one half inch gap or provide a strip of silicone caulking at the concrete/drywall junction to prevent condensation and/or moisture intrusion from wicking into the drywall.
- Alternatively, evaluate the fire rating for cement or backer board or mold resistant drywall now commercially available to be used as a substitute material for the removed drywall. Install a two foot high strip (from the floor) of a substitute material for walls located on unoccupied tower levels.

- Remove and discard the existing carpet in the former union office located in the tower.
- Monitor temperature and moisture levels in the elevator shaft and unoccupied levels and implement corrective actions as necessary to prevent condensation on surface materials.
- Continue to inspect the ATCT on a regular basis and remove and replace water damaged building materials as necessary.

Table I
 Bioaerosol Sampling Results
 Detroit ATCT
 May 19-20, 2008

Location	Fungal/Bacterial ID	Colony Counts	Concentration (cfu/m ³)
Tower Cab (AM)	No Growth	<1	
	Total Fungi	<1	<7
	Coag-negative Staphylococcus species	2	14
	Micrococcus species	2	14
	Total Bacteria	4	28
Tower Break room (AM)	No Growth	<1	
	Total Fungi	<1	<7
	Coag-negative Staphylococcus species	2	14
	Micrococcus species	3	21
	Total Bacteria	5	35
Union Office (tower)	Non-sporulating colony	1	7
	Total Fungi	1	7
	Micrococcus species	10	70
	Total Bacteria	10	70
Level 928	Penicillium species	5	35
	Stachybotrys species	7	49
	Ulocladium species	3	21
	Total Fungi	15	105
	Bacillus species	6	42
	Coag-negative Staphylococcus species	6	42
	Micrococcus species	12	85
	Total Bacteria	24	169
Level 428	Cladosporium species	2	14
	Penicillium species	2	14
	Stachybotrys species	1	7
	Ulocladium species	1	7
	Total Fungi	6	42
	Coag-negative Staphylococcus species	7	49
	Micrococcus species	7	49
Total Bacteria	14	98	
TRACON	Rhizopus species	1	7
	Total Fungi	1	7
	Coag-negative Staphylococcus species	3	21
	Micrococcus species	4	28
	Total Bacteria	7	49
Base Building 1 st Floor office	Aspergillus versicolor	1	7
	Cladosporium species	1	7
	Total Fungi	2	14
	Coag-negative Staphylococcus species	2	14
	Micrococcus species	7	49
	Total Bacteria	9	63

Table 1 (continued)
 Bioaerosol Sampling Results
 Detroit ATCT
 May 19-20, 2008

Location	Fungal/Bacterial ID	Colony Counts	Concentration (cfu/m ³)
Outdoors (roof)	Alternaria species	2	14
	Aspergillus fumigatus	2	14
	Cladosporium species	12	85
	Non-sporulating colonies	4	28
	Total Fungi	20	141
	Bacillus species	6	42
	Coag-negative Staphylococcus species	3	21
	Total Bacteria	9	63
Tower Cab (PM)	No Growth	<1	
	Total Fungi	<1	<7
	Coag-negative Staphylococcus species	1	7
	Total Bacteria	1	7
Tower Breakroom (PM)	Coelomycete species	1	7
	Rhodotorula species	1	7
	Total Fungi	2	14
	Coag-negative Staphylococcus species	5	35
	Micrococcus species	3	21
	Total Bacteria	8	56
Union Office (tower)	Cladosporium species	2	14
	Total Fungi	2	14
	Coag-negative Staphylococcus species	13	92
	Micrococcus species	5	35
	Total Bacteria	18	127
Level 928	Non-sporulating colony	1	7
	Stachybotrys species	2	14
	Ulocladium species	2	14
	Total Fungi	5	35
	Coag-negative Staphylococcus species	6	42
	Micrococcus species	8	56
	Total Bacteria	14	98
Level 428	Cladosporium species	2	14
	Penicillium species	1	7
	Ulocladium species	1	7
	Total Fungi	4	28
	Coag-negative Staphylococcus species	7	49
	Micrococcus species	10	70
	Total Bacteria	17	119
TRACON	Ulocladium species	1	7
	Total Fungi	1	7
	Coag-negative Staphylococcus species	5	35
	Micrococcus species	1	7
	Total Bacteria	6	42

Table 1 (continued)
 Bioaerosol Sampling Results
 Detroit ATCT
 May 19-20, 2008

Location	Fungal/Bacterial ID	Colony Counts	Concentration (cfu/m ³)
Base Building 1 st Floor office	Yeast	1	7
	Total Fungi	1	7
	Coag-negative Staphylococcus species	3	21
	Micrococcus species	2	14
	Total Bacteria	5	35
Outdoors	Alternaria species	2	14
	Cladosporium species	12	85
	Non-sporulating colonies	2	14
	Penicillium species	1	7
	Yeast	1	7
	Total Fungi	18	127
	Coag-negative Staphylococcus species	219	1,542
Total Bacteria	219	1,542	

Table 2
Spore Sampling Results
Detroit ATCT
May 19-20, 2008

Location	Presumptive Fungal ID	Counts of Fungal Structures	Fungal Structures/m ³
Tower Cab (AM)	None	<1	Total: <13
Tower Breakroom (AM)	None	<1	Total: <13
Union Office (tower)	Cladosporium	2	Total: 27
Level 928	Alternaria	1	
	Penicillium/Aspergillus group	6	
	Stachybotrys	1	
	Unknown	1	Total: 119
Level 428	Alternaria	1	
	Cladosporium	2	Total: 40
TRACON	Smuts.Periconia.Myxomycetes	2	Total: 27
Base Building 1 st Office Floor	None	<1	Total: <13
Outdoors (base roof)	Ascospores	5	
	Basidiospores	36	
	Cladosporium	7	
	Epicoccum	1	
	Hyphal Elements	4	
	Penicillium/Aspergillus group	2	
	Smuts.Periconia.Myxomycetes	3	Total: 773
Tower Cab (PM)	Algae	1	
	Basidiospores	1	
	Smuts.Periconia.Myxomycetes	2	Total: 53
Tower Breakroom (PM)	Penicillium/Aspergillus group	1	Total: 13
Union Office (tower)	Basidiospores	1	
	Cladosporium	2	
	Hyphal Elements	1	
	Smuts.Periconia.Myxomycetes	1	Total: 66
Level 928	Alternaria	1	
	Cladosporium	1	
	Hyphal Elements	1	
	Penicillium/Aspergillus group	1	
	Stachybotrys	1	Total: 65
Level 428	None	0	Total: <13
TRACON	Basidiospores	1	Total: 13
Base Building 1 st Floor Office	Penicillium/Aspergillus group	2	
	Smuts.Periconia.Myxomycetes	1	Total: 40
Outdoors	Ascospores	7	
	Basidiospores	43	
	Cladosporium	5	
	Colorless	1	
	Smuts.Periconia.Myxomycetes	4	Total: 799

Table 3
 Particle Count
 Detroit ATCT
 May 19-20, 2008

Location (AM)	Particle Size (micron)					
	0.3-0.5	0.5-1	1-3	3-5	5-10	>10
Tower Cab	3521	272	98	56	35	27
Tower Breakroom	5978	356	115	40	19	22
Union Office	9388	736	515	284	206	113
Level 928	12732	1714	1331	819	584	206
Level 428	22146	3825	2964	1769	1198	301
TRACON 212	5394	212	70	30	22	29
109	6558	324	163	111	90	29
Outside	52939	2501	385	103	66	19

Location (PM)	Particle Size (micron)					
	.3-.5	.5-1	1-3	3-5	5-10	>10
Tower Cab	9555	1073	167	48	42	10
Tower Breakroom	7172	752	277	105	70	26
Union Office	9985	780	426	252	185	97
Level 928	10707	640	243	128	112	44
Level 428	362088	182537	174390	103522	85340	35466
TRACON 212	1556757	92056	37464	16769	12131	3211
109	6054	406	200	113	92	32
Outside	73072	4256	286	105	91	10