Our reference: 8027

February 15, 2006

U.S. Department of Justice
Washington, D.C. 20530

Re: Expert Report of Dr. Bruce Kelman in the matter of Mitchell *et al.* v. United States

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I have been asked to provide an expert opinion regarding the claims of human health effects from alleged exposure to molds in the matter of Mitchell *et al.* v. United States. I have extensive general knowledge in the field of toxicology and specific knowledge of the effects of mycotoxins from mold in indoor environments. The following report outlines my relevant qualifications and opinions.

Opinions

I conclude, to a reasonable degree of scientific certainty, the following opinions:

- Mold and mold spores are ubiquitous, and the maintenance of a mold-free home environment is not possible.
- Sampling and analysis presented in the report by Mold Lab Int'l is not useful for estimating exposure because of inappropriate sampling techniques, lack of controls, and a lack of laboratory accreditation.
- There are no data showing that mycotoxins were present in the indoor air of the residence at 2063-N Evans Road.
- There are no data showing that there was a sufficient amount of mycotoxin present in the indoor air of the residence at 2063-N Evans Road to have caused any injury to occupants.
- There could not have been sufficient amounts of mycotoxin present at the

subject property to cause any injuries to occupants.

- The symptoms identified by the Mitchell family have many possible causes and cannot be attributed to mycotoxin exposure during their occupancy of the residence at 2063-N Evans Road.

Qualifications

I am a board-certified toxicologist, certified by the American Board of Toxicology. I am a member of the Society of Toxicology, the American College of Occupational and Environmental Medicine, the American College of Toxicology, and the American Society of Pharmacology and Experimental Therapeutics. I am also a Registered Toxicologist in the United Kingdom and EUROTOX Registries. I received a Bachelor of Science degree in Physiology and Biophysics from the University of Illinois in 1969, a Master of Science degree and Ph.D. from the University of Illinois, Department of Physiology and Pharmacology in 1971 and 1975, respectively. I also did a Post Doctoral Study in Toxicology at the University of Tennessee from 1974 through 1976. Currently, I am a Principal of Veritox, Inc. Veritox charges $400 USD for my time. I have attached a true and correct copy of my curriculum vitae, rate schedule, and testimony list to this report (Appendices A – C).

The basis for my opinions in this case includes my education, training in basic science, experience in toxicology in general and as specifically related to mycotoxin exposure, ongoing review and analysis of published literature on the effects of mycotoxins on a broad range of mammalian species including humans, and general knowledge of the adverse effects of chemicals on mammalian species including humans. This training, experience, and study of the published literature include in-depth knowledge of inhalation toxicology, which includes normal respiration and adverse respiratory effects resulting from exposure to chemicals.

Records Reviewed

I reviewed the following records:

- Complaint;
- Answer to Complaint;
- First set of Interrogatories;
- Plaintiffs' Response to Defendant United States' First Set of Interrogatories, Requests for Production of Documents and Requests for Admissions;
- Plaintiffs' Response to Defendant United States' Second Set of Requests for Production;
- Deposition of Brenda Mitchell, dated 10/25/05;
- Deposition of Dominique Mitchell, dated 10/26/05;
- Deposition of Jennifer (Mitchell) Palmer, dated 10/26/05;
- Deposition of Calvin Mitchell, dated 10/27/05;
- Exhibits (1-27) to the Depositions of Brenda Mitchell, Dominique Mitchell, Jennifer Mitchell Palmer, and Calvin Mitchell;
- HHIM Survey Summary Report (Part I-IV), indoor air survey;
- Department of the Army, Department of Preventive Medicine letter to MSG and Mrs. Mitchell from Ms. C. Perry, dated 03/07/02;
- Department of the Army Memorandum for Housing Management Division re: industrial hygiene survey of 2063-N from Ms. C. Perry, dated 06/18/02;
- Aerotech Laboratories, Inc. reports, dated 02/13/02 and 06/18/02;
- Letter from J. Dutcher, Jr. Esq. to claims Judge Advocate regarding claims of the Mitchell's, dated 01/28/04;
- Department of the Army letter from J. Murphy to J. Dutcher, Jr. Esq. regarding the Mitchell's claims, dated 05/04/04;
- HHIM Single Air Sample Report, dated 02/28/05;
- Mold Lab Int'l Environmental Survey, dated 01/27/06;
- Mold Lab Int'l Mold Screening Report, dated 01/30/06;

- Email correspondence amongst C. Mitchell, B. Spencer, C. Ford, R. Means, and K. Kerchief regarding mold and the Mitchell's request for relocation;
- Medical records for Brenda Mitchell
- Medical records for Dominique Mitchell
- Medical records for Jennifer Mitchell
- Medical records for SDM
- Medical records for CAM

Complaint

Based on my review of the above records, it is my understanding that in the summer of 1999, the Mitchell family (Calvin, Brenda, Dominique, Jennifer, SDM, and CAM) moved into 2063-N Evans Road, Fort Sill, Oklahoma.

Plaintiffs admit that the alleged mold incident first occurred in January 2002 (Plaintiffs' Response to Defendant United States' First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, p. 11). Mold was again reportedly found by the Mitchell's in early 2003 and 2004 (Deposition of Calvin Mitchell 78:5-88:25, Brenda Mitchell Deposition 95:24-96:19). Hot water leaks were reported in 05/04 and 07/04 (Deposition of Brenda Mitchell 93:3-93:23, 94:4-94:25).

Spore trap samples were collected by the Industrial Hygiene section of the Department of Preventive Medicine on February 7, 2002 and June 11, 2002. VOC air samples were also collected on February 7, 2002 (Department of Preventive Medicine letter to MSG and Mrs. Mitchell from C. Perry, March 7, 2002; HHIM Single Air Sample Report, February 28, 2005; Memorandum for Housing Management Division from CL Perry, June 18, 2002).

According to the plaintiff expert report, on January 25, 2006, Mold Lab Intl' collected

settled plate mold samples (Mold Lab Intl' Environmental Survey Report, dated 01/27/06; Mold Lab Int'l Mold Screening Report, dated 01/30/06).

In January 2003 the mold in the basement, ductwork, and ventilation shafts in the ceilings and floors was allegedly cleaned (Plaintiffs' Response to Defendant United States' First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, p. 7). Plumbing and sump pump repairs were completed shortly thereafter (Exhibit 9, LIT 00047).

Analysis of Toxicological Issues

Possible effects of mold exposure are allergies, infections, and toxicity. (Hardin, B.D., B.J. Kelman, and A. Saxon. 2003. Adverse Human Health Effects Associated with Molds in the Indoor Environment. Evidence-Based Statement, American College of Occupational and Environmental Medicine, J Occupation Environ Med. 45:470-478; American Academy of Allergy, Asthma and Immunology. Position Paper. Environmental and occupational respiratory disorders. J Allergy Clin Immunol 117(2):326-333).

Allergy

Molds are common and important allergens. About 5% of individuals are predicted to have some allergic airway symptoms from molds over their lifetime. However, it should be remembered that molds are not dominant allergens and that the outdoor molds, rather than indoor ones, are the most important.

Infection

Fungi are rarely significant pathogens for humans. Superficial fungal infections of the skin and nails are relatively common in normal individuals, but those infections are readily treated and generally resolve without complication. Fungal infections of deeper tissues are rare and in general are limited to persons with severely impaired immune

systems. The leading pathogenic fungi for persons with non-impaired immune function, *Blastomyces*, *Coccidioides*, *Cryptococcus*, and *Histoplasma*, may find their way indoors with outdoor air, but normally do not grow or propagate indoors. Due to the ubiquity of fungi in the environment, it is not possible to prevent immune-compromised individuals from being exposed to molds and fungi outside the confines of hospital isolation units.

Toxicity

Some molds that propagate indoors may, under some conditions, produce mycotoxins that can adversely affect living cells and organisms by a variety of mechanisms. Adverse effects of molds and mycotoxins have been recognized for centuries following ingestion of contaminated foods. Occupational diseases are also recognized in association with inhalation exposure to fungi, bacteria, and other organic matter, usually in industrial or agricultural settings. Molds growing indoors are believed by some to cause building-related symptoms. Despite a voluminous literature on the subject, the causal association remains weak and unproven, particularly with respect to causation by mycotoxins.

As a toxicologist, I evaluated whether or not the environmental conditions could have caused a toxic response in any members of the Mitchell family.

To determine whether exposure to a chemical has caused an injury, toxicologists have reached the following generally-accepted consensus on the methodology to be used. If any one of the following criteria are not met, causation cannot be established (Reference Manual on Scientific Evidence, 2nd edition, Federal Judicial Center).

a. The chemical(s) in question must first be present.
b. Toxicological and/or epidemiological studies must show that the chemical(s) in question are able to cause the claimed adverse effect.
c. Exposure of an individual(s) to the chemical(s) must be in sufficient quantities and sufficient length of time to cause the claimed adverse effect.

d. Exposure to the chemical(s) must precede the claimed adverse effect with an appropriate time frame specific to the individual chemical in which the development of the effect occurs.
e. If the above criteria are met then alternative known causes of the claimed adverse effect must be considered and weighed against the probability that the chemical(s) in question caused or contributed to the adverse effect.

As a toxicologist, I used the above criteria to determine whether or not the plaintiff could have been adversely affected by mycotoxins.

a) Were molds and mycotoxins present?

Were mold spores present and were they higher indoors than outdoors?

Molds are part of the fungi kingdom, which comprises a diverse group of organisms that evolved over 400 million years ago (Sherwood-Pike MA, and Gray J. 1985. Silurian fungal remains: probable records of the class Ascomycota. Lethaia 18:1-20). Mold and mold spores are everywhere around us, and have always been a part of our environment. The air we breathe is a virtual jungle of fungal spores, and we routinely encounter mold spores as part of everyday life both indoors and outdoors. Spore levels may vary seasonally, but some spores are always present (Solomon WR. 1975. Assessing fungus prevalence in domestic interiors. J Allergy Clin Immunol 56(3):235-242). The ubiquitous presence of mold in air and on building materials makes it impossible to construct or maintain a building that is mold-free using standard building design and construction techniques. Even if construction of a mold-free building space were possible, the maintenance of a "mold-free" home environment under normal conditions would be impossible, as many species of mold are naturally present on and in human bodies, potted plants, and on foods such as fresh fruit and cheeses. The most significant source of mold spores indoors is reported to be the outdoor air (Solomon WR. 1975. Assessing fungus prevalence in domestic interiors. J Allergy Clin Immunol 56(3):235-242), and a mold-free building will no longer be mold-free once a door or window is opened, or a person enters.

It is therefore almost certain that mold spores were present in the home environment, and the question is whether there is an increased risk of health effects from indoor levels as opposed to outdoor levels. The maximum concentration of airborne spores measured inside the subject property 2063-N Evans Road was 40,467 spores/m^3 in the basement (as reported for sampling done February 7, 2002 by the Department of the Army Department of Preventative Medicine; Reynolds Army Community Hospital). The maximum concentration of airborne spores measured outside the building on this date was 800 spores/m^3. By this comparison alone, the indoor spore concentration might be initially considered elevated compared to outdoor concentrations. However, the level measured in the basement was 5 – 12 times higher than measurements collected in the actual living and sleeping areas of the house.

Furthermore, the spore concentration in an outdoor sample collected on June 11, 2002 was 53,836 spores/m^3 illustrating the natural variability in spore concentrations. A wide range of indoor and outdoor measurements is often a natural variation from changing indoor or outdoor conditions. Outdoor variation may be due to any number of environmental factors such as proximity to bodies of water (or other sources of humidity), wind patterns around the sampling area, vegetation, or variability of sunlight. Spore concentrations may vary by season and are typically highest in the autumn and summer. Spores may be transported indoors through ventilation systems, or on the shoes or clothing of individuals. The most common airborne fungi, both indoors and outdoors and in all seasons and regions were *Cladosporium*, *Penicillium*, and *Aspergillus*. (Shelton BG, Kirkland KH, Flanders WD, Morris GK. Profiles of airborne fungi in buildings and outdoor environments in the United States. Appl Environ Microbiol. 2002 Apr;68(4):1743-53; Burge HA, Pierson DL, Groves TO, Strawn KF, Mishra SK. Dynamics of Airborne Fungal Populations in a Large Office Building. Current Microbiology. 2000 40:10-16).

Were mycotoxins present?

Mycotoxins are fungal metabolites that may be toxic to humans and/or animals. They are sometimes be produced by molds as by-products of mold's biological processes and are not required to maintain the life of the mold.

No data provided for review indicated that any mycotoxins were present at the subject property. An exhaustive review of the scientific literature indicates there is agreement that mycotoxins are only sometimes produced by molds; they are not always produced (Tuomi T, et al. (2000). Mycotoxins in crude building materials from water-damaged buildings. Appl. Evn. Microbiol., 66(5):1899-1904; Burge HA. (2001). The Fungi -Chapter 45. In: Indoor Air Quality Handbook (Eds: Spengler JD, Samset JM, McCarthy JS). McGraw Hill, P.45-11); Rao CY. (2001). Toxigenic Fungi in the Indoor Environment (Chapter 46). In: Indoor Air Quality Handbook (Eds: Spengler JD, Samset JM, McCarthy JS). McGraw Hill. Pp. 46-2 and 46-4; Ren P. Ahearn DG, Crow SA. (1999). Comparative study of *Aspergillus* mycotoxin production on enriched media and construction material. J. Ind. Microbiol. 209-213).

Thus, exposure to molds does not mean exposure to mycotoxins.

b) <u>Are mycotoxins in a home environment capable of causing the adverse effects claimed by the plaintiff?</u>

The plaintiffs must establish that mycotoxins are capable of causing the health effects claimed to be caused by exposure to mycotoxins. The members of the Mitchell family identified the following injuries:

The Mitchell Family – Brenda, Dominique, Jennifer, SDM, and CAM (as identified in Email from Calvin Mitchell to Ms. Spencer on 5/21/02 (Bates #00033); Plaintiffs' Response to Defendant United States' First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, page 8; Deposition of Brenda Mitchell - 99:5-99:21, 103:2-103:13; Deposition of Calvin Mitchell - 29:21-30:20; Claim for Damage, Injury, or Death - Defendant's Exhibit 3):

- Aches
- Bronchitis
- Chest pains
- Colds
- Congestion
- Depressed immune system
- Dizziness
- Fatigue
- Eye irritation
- Gastroenterological inflammation and "problems"
- Headaches
- Infections
- Nausea
- Pneumonia
- Respiratory problems
- Respiratory infections
- Runny nose
- Shortness of breath
- Sinus infections
- Soreness in the leg
- Vomiting
- Weakness

The following injuries were specifically identified for each family member:

Brenda Mitchell (Plaintiffs' Response to Defendant United States' First Set of Interrogatories, Requests for Production of Documents, and Requests for Admissions, page 8; Deposition of Brenda Mitchell - 99:5-99:21, 101:3-102:1, 110:6-110:22, 157:25-158:15; Deposition of Calvin Mitchell - 90:24-91:21, 107:12-107:15):

- Breathing difficulty
- Chest pain
- Memory loss
- Headaches
- Dizziness
- Nausea

- Side pain
- Tiredness
- Deterioration of tissue around heart

Dominique Mitchell (Deposition of Brenda Mitchell -103:14-105:8; Deposition of Calvin Mitchell - 107:16-107:21; Deposition of Dominique Mitchell 14:2-14:15, 17:22-18:1; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Breathing difficulty
- Cough
- Sinus problems
- Bronchitis
- Runny nose
- Headaches
- Nausea
- Wheezing
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

Jennifer Mitchell (Deposition of Brenda Mitchell -103:14-105:8; Deposition of Calvin Mitchell - 107:22-108:6; Deposition of Jennifer Mitchell -15:1-16:3, 31:18-32:20; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Breathing difficulty
- Sinus infections
- Headaches
- Nausea
- Fatigue
- Cough
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

SDM (Deposition of Brenda Mitchell -103:14-105:8, 161:11-161:20; Deposition of Calvin Mitchell - 89:21-90:23, 108:7-108:15; Claim for Damage, Injury, or Death - Defendant's Exhibit 3-):

- Breathing difficulty
- Sinus problems
- Tiredness
- Cough
- Runny nose
- Nausea
- Vomiting
- Dizziness
- Headaches
- Weakness
- Aches
- Depressed immune system

CAM (Deposition of Brenda Mitchell - 103:14-105:8, 160:1-161:1; Deposition of Calvin Mitchell -108:18-108:21; Claim for Damage, Injury, or Death (Defendant's Exhibit 3)):

- Coughing
- Wheezing
- Congestion
- Sinus infections
- Bronchitis
- Headaches
- Nausea
- Vomiting
- Dizziness
- Weakness
- Aches
- Depressed immune system

Based on an exhaustive review of the scientific literature, these illnesses claimed by the plaintiff are not consistent with what is known about the effects of mycotoxins from exposure via inhalation in a residential environment.

Specifically, the symptoms claimed by members of the Mitchell family have not been shown to be caused by exposure to mycotoxins of any kind under any circumstances. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing an association between inhalation of mycotoxins in a residential environment and these claimed symptoms:

- Bronchitis
- Chest Pain
- Congestion
- Eye Irritation
- Headaches
- Pneumonia

- Dizziness
- Fatigue
- Runny Nose
- Depressed immune system
- Shortness of Breath
- Sinusitis

Coughing, nausea, vomiting, weakness, or immune suppression has been shown to be caused by exposure to specific mycotoxins under specific exposure conditions such as contaminated feed in livestock or accidental ingestion of contaminated food by humans. These are not relevant exposures to the claims being made in this case. Additionally, these symptoms are non-specific, and cannot be attributed to mycotoxins in the absence of specific signs of mycotoxicosis. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed report showing mycotoxins cause coughing, nausea, vomiting, weakness, or immune suppression in the absence of toxin-specific signs of mycotoxicosis. There are no peer-reviewed reports showing inhalation of mycotoxins in a residential environment causes coughing, nausea, vomiting, weakness, or immune suppression.

Allergy induced asthma is a possible outcome of mold exposure in allergic individuals. The presence of asthma alone, however, is not indicative of an environmental allergy, as there are numerous other factors that can cause or trigger asthma including irritants (such as tobacco smoke or strong odors) changes in weather, viral or sinus infections, exercise, medications, food, emotional anxiety, and reflux disease (AAAAI, http://www.aaaai.org/patients/resources/fastfacts/asthma.stm, accessed 2/15/2006).

If a individual's asthma is allergic, allergy testing must be conducted in order to determine what allergens the patient is reacting to. Typical allergy tests screen for dust mites, pet dander, molds, trees, grasses, weeds, and cockroach droppings (AAAAI, http://www.aaaai.org/patients/publicedmat/tips/whatisallergytesting.stm).

An allergy test is necessary to support a claim of allergy to a specific antigen. This information is not available for the Mitchell family. Although we have a records for

Brenda Mitchell who was tested for trees and weeds on March 17, 2004 (Medical Records of Brenda Mitchell, RACH 129), there are no test results showing that any member of the Mitchell family is allergic to molds.

I am a co-author of the American College of Occupational & Environment Medicine Fact-Based Position Statement entitled: Adverse Human Health Effects Associated with Molds in the Indoor Environment (Hardin, B.D., B.J. Kelman, and A. Saxon. 2003. Adverse Human Health Effects Associated with Molds in the Indoor Environment. Evidence-Based Statement, American College of Occupational and Environmental Medicine, J Occupation Environ Med. 45:470-478) which represents the current medical position of the American College of Occupational and Environmental Medicine as to the issue of alleged "toxic mold." This position can be summarized as follows:

1. Mold growth in the home, school, or office environment should not be tolerated because mold physically destroys the building materials on which it grows, mold growth is unsightly and may produce offensive odors, and mold is likely to sensitize and produce allergic responses in allergic individuals.
2. Except for persons with severely impaired immune systems, indoor mold is not a source of fungal infections.
3. Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in home, school, or office environments.

Additionally, I direct regular searches of the scientific literature for research and reviews investigating possible effects of mycotoxin inhalation on human health effects, and I personally read and review relevant literature. There are many researchers and a great number of experts, publications, and learned bodies that draw the same conclusions and opinions from available data on mycotoxin inhalation and effects in humans.

Most independent researchers and all learned bodies have reached the conclusion that exposure to mycotoxins in residential, office, or school environments has not caused

adverse effects in occupants.

- Assoulin-Dayan, Y et al. 2002. Studies of sick building syndrome. IV. Mycotoxicosis. J Asthma 39(3):191-201.
  - "Although exposure to molds can produce significant mucosal irritation, there are very few data to suggest long-term ill effects. More importantly, there is no evidence in humans that mold exposure leads to nonmucosal pathology."
- Bardana, EJ, Jr. (2003). Indoor air quality and health -- Does fungal contamination play a significant role? Immunol Allergy Clin North Am. 23(2):291-309.
  - "Because fungi are encountered indoors and outdoors, there is no way to ascribe development of sensitivity or adverse health effects to a specific indoor exposure."
  - "A number of investigators have associated subjective complaints of headache, memory loss, lack of concentration, and other nonspecific symptoms as evidence of brain damage caused by mycotoxins or other fungal products. There is no scientific evidence that *Stachybotrys* or other fungal species detected in indoor air or present on building materials cause brain damage."
  - "Fungal contamination in buildings can vary greatly, and their presence in a dwelling does not necessarily constitute exposure. ... The presence of a specific immune response to a fungal antigen only connotes that exposure to one or more related species has occurred, but not that there is a symptomatic clinical state. ... When disease occurs, it more likely is related to transient annoyance or irritational reactions. ... Building-related disease caused by mycotoxicosis has not been proved in the medical literature."
- Bennett JW, Klich M. 2003. Mycotoxins. Clinical Microbiology Reviews 16(3):497-516.
  - "Toxic-mold fears have precipitated a spate of lawsuits. In particular, a Texas case against Farmers Insurance Group has attracted a lot of publicity, and the number of mold damage cases, especially in water-damaged homes, is growing at a rapid rate. Unfortunately, much of the evidence is conjectural. Mycotoxins and other microbial products have been implicated as causative agents, but the

range of symptoms attributed to toxic molds exceeds what can be explained rationally in terms of toxicological mechanisms."

- Burge HA. 2001. Fungi: toxic killers or unavoidable nuisances? Ann Allergy Asthma Immunol. 87:52-56.
  - "The review led to the conclusion that the primary result from fungal exposure is allergic disease, and that the evidence for inhalation disease resulting from mycotoxin exposure in residential and office settings is extremely weak."
- Chapman JA. 2003. *Stachybotrys chartarum* (chartarum = atra = alternans) and other problems caused by allergenic fungi. Allergy Asthma Proceedings 24(1):1-7.
  - "... I have reviewed the literature concerning *Stachybotrys chartarum* and have not found scientific data to support the current public concern about health effects."
- Chapman JA et al. 2003. Toxic mold – phantom risk vs science. Annals of Allergy Asthma and Immunology. 91(3):222-232.
  - "When mold-related symptoms occur, they are likely the result of transient irritation, allergy, or infection. Building-related illness due to mycotoxicosis has never been proved in the medical literature. Prompt remediation of water-damaged material and infrastructure repair should be the primary response to fungal contamination in buildings."
- Fung F, Hughson WG. 2003. Health effects of indoor fungal bioaerosol exposure. Appl Occup Environ Health 18:535-544.
  - "... specific human toxicity due to inhaled fungal toxins has not been scientifically established."
  - "Specific human toxicity due to inhaled mycotoxins is not well understood, and the likelihood that sufficient mycotoxins are airborne despite visible indoor mold remains unproven and controversial."
- Fung F, Clark RF. 2004. Health effects of mycotoxins – A toxicological overview. J Toxicol Clin Toxicol 42:217-234.
  - "Currently, there is no supportive evidence to imply that inhaling mold or

mycotoxins in indoor environments is responsible for any serious health effects other than transient irritation and allergies in immunocompetent individuals."

- Gots RE et al. 2003. Indoor health – Background levels of fungi. AIHAJ 64:427-438.
  - "The data gathered in this review of the literature strongly suggest that current recommendations do not reflect concentrations reported in non-complaint structures or those detected in outdoor environments, nor do they reflect levels that reasonably could be associated with adverse health outcomes." (p 436)
- Khun DM, Ghannoum MA. 2003. Indoor mold, toxigenic fungi, and *Stachybotrys chartarum*: infectious disease perspective. Clinical Microbiology Reviews. 16(1):144-172.
  - "...we have not found supportive evidence for serious illness due to *Stachybotrys* exposure in the contemporary environment."
- Lees-Haley PR. 2004. Toxic mold and mycotoxins in neurotoxicity cases – *Stachybotrys*, *Fusarium*, *Trichoderma*, *Aspergillus*, *Penicillium*, *Cladosporium*, *Alternaria*, *Trichothecenes*. Psychological Reports. 93(2):561-584.
  - "At present there is no scientific basis for claiming that individuals have suffered mental and emotional injuries by inhalation of mold, mold spores or mold metabolites, including mycotoxins in residential or office environments. To the extent that experts express conclusions that mold inhalation in residences or offices caused mental or emotional injuries or brain injury, their opinions are speculation, possibilities, and guesses." (p 579)
- Page EH, Trout DB. 2001. The role of *Stachybotrys* mycotoxins in buildings related illness. Am Ind Hyg Assoc J. 62:644-648.
  - "The literature review indicates that currently there is inadequate evidence supporting a causal relationship between symptoms or illness among building occupants and exposure to mycotoxins."
- Robbins CA et a. 2000. Health effects of mycotoxins in indoor air: a critical review. Appl Occup Environ Hyg. 15:773-84.
  - "...the current literature does not provide compelling evidence that exposure at

levels expected in most mold-contaminated indoor environments is likely to result in measurable health effects."

- Terr AI. 2001. *Stachybotrys*: relevance to human disease. Ann Allergy Asthma Immunol. 87:57-63.
  - "The current public concern for adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is not supported by published reports in the medical literature."
- Terr AI. 2004. Are indoor molds causing a new disease? J Allergy Clin Immunol. 113:221-226.
  - "There is no current body of clinical data defining a disease or pathology in those who claim illness from indoor mold growth because of water intrusion."
  - "Guidelines for the concentration of indoor molds have been published by a number of governmental and nonpublic entities, but to date, *none* of these guidelines are based on scientific data regarding the effects on human health or any specific disease." [emphasis in the original]

Notably, no learned body has reached the conclusion that exposure to mycotoxins in residential, office, or school environments has caused adverse effects in occupants:

- Centers for Disease Control and Prevention (CDC). 2000. Update: pulmonary hemorrhage/hemosiderosis among infants – Cleveland, Ohio, 1993-1996. MMWR 49:180-84.
  - "The reviews led CDC to conclude that a possible association between acute pulmonary hemorrhage/hemosiderosis in infants and exposure to molds, specifically *Stachybotrys atra*, was not proven."
- Texas Council on Scientific Affairs. 2002. Report of Council on Scientific Affairs: Black Mold and Human Illness. CSA Report 1-I-02.
  - "After reviewing available data, the council has concluded that public concern for adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is generally not supported by published reports in medical literature."

  - "...the proposition that molds in indoor environments may lead to adverse health effects through mechanisms other than infection and allergic/immunologic reactions is an untested impression."
  - "Adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is not supported by available peer-reviewed reports in medical literature."
- ACOEM. 2003. Evidence-Based Statement. Adverse Human Health Effects Associated with Molds in the Indoor Environment. JOEM 45(5):470-478.
  - "Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in the home, school, or office environment."
- AAAAI. Position Paper. Environmental and occupational respiratory disorders. J Allergy Clin Immunol 117(2):326-333.
  - "The occurrence of mold-related toxicity (mycotoxicosis) from exposure to inhaled mycotoxins in nonoccupational settings is not supported by the current data, and its occurrence is improbable.

Further, in an extensive analysis, the Institute of Medicine did not conclude that any adverse health outcomes are caused by the presence of mold or other agents in damp indoor environments. The Institute did find sufficient evidence to conclude that there is an association between certain symptoms (upper respiratory (nasal and throat) tract symptoms, cough, hypersensitivity pneumonitis in susceptible persons, wheeze, and asthma symptoms in sensitized persons) and mold or damp indoor environments, but the Institute makes it clear that "associated with" does not mean "caused by." The Institute also found that the evidence is not sufficient to show even an association between the presence of mold or other agents in damp indoor environments and any other agents in damp indoor environments and any other symptom. (Institute of Medicine; Committee on Damp Indoor Spaces and Health. 2004. Damp Indoor Spaces and Health. National Academies Press Washington, D.C.).

c) Did the plaintiffs have an opportunity for contact with mycotoxins, and if so, did the exposure result in a sufficient dose to cause the claimed adverse effects?

Although there are no data showing that any mycotoxins were present at the subject property, if they were, the mycotoxins would have to gain access to the biological receptor (here, the individuals of the Mitchell family) in sufficient quantities to cause an effect.

The dose-response relationship is the most fundamental and pervasive concept in toxicology and an understanding of this relationship is essential for the study of toxic materials. The fundamental basis of the quantitative relationships between exposure to an agent and the incidence of an adverse response is the dose-response assessment (Casarett and Doull's Toxicology: The Basic Science of Poisons, Fifth Edition. CD Klaassen, ed. McGraw-Hill. 2001). All chemicals have toxic properties that become apparent as increasing quantities are consumed or absorbed. It follows that there are "safe" levels of exposure to even the most toxic substances (Occupational Medicine, Third Edition. C Zenz, ed. Mosby-Year Book, Inc. 1994).

A particularly important term in toxicology is threshold, which means the level of exposure at which an effect is first observed (Occupational Medicine, Third Edition. C Zenz, ed. Mosby-Year Book, Inc. 1994; Casarett and Doull's Toxicology: The Basic Science of Poisons, Fifth Edition. CD Klaassen, ed. McGraw-Hill. 1996). The erroneous opinion that exposure to "toxic chemicals" at any dose produces deleterious effects abounds in the lay public and is prevalent in the medical profession. The fact that dose defines toxicity for all chemicals has been recognized for centuries (Montgomery MR, Reasor MJ. (1994). A Toxicologic Approach for Evaluating Cases of Sick Building Syndrome or Multiple Chemical Sensitivity. J Allergy Clin. Immunol., 94 (2): 371-375).

Exposure-response relationships are among the most important criteria for inferring causality (Patty's Industrial Hygiene and Toxicology, Volume 1, Part B, Fourth Edition. GD Clayton and FE Clayton, eds. John Wiley & Sons, Inc. 1991). Characterizing the

dose-response relationship involves understanding the importance of the intensity of exposure, the concentration × time relationship, a chemical threshold, and the shape of the dose-response curve. The metabolism of a chemical at different doses, its persistence over time, and an estimate of the similarities in disposition of a chemical between humans and animals are also important aspects of a dose-response evaluation (Principles and Methods of Toxicology, Third Edition. AW Hayes, ed. Raven Press. 1994).

Neither documented exposure nor odor detection necessarily dictates adverse responses to any chemical. To repeat an overused but often ignored truism: the dose of a chemical determines whether that chemical is toxic or nontoxic. Appreciation and application of this basic tenet of toxicology, the dose-response relationship, are necessary when objectively evaluating chemically mediated effects (Montgomery MR, Reasor MJ. (1994). A Toxicologic Approach for Evaluating Cases of Sick Building Syndrome or Multiple Chemical Sensitivity. J Allergy Clin. Immunol., 94 (2): 371-375).

Mycotoxins are not volatile, and do not evaporate from the mold spore or substrate particles (Schiefer H. 1990. Mycotoxins in Indoor Air: A Critical Toxicological Viewpoint. *In:* Indoor Air '90, Proceedings of the Fifth International Conference on Indoor Air and Climate. pp. 167-172. Toronto, Canada; World Health Organization, 1978. Selected Mycotoxins: Ochratoxins, Trichothecenes, Ergot. *In:* Environmental Health criteria 105. pp. 73-76. WHO, Geneva. WHO, 1990).

In order to determine whether sufficient quantities of mycotoxins have gained access to the biological receptor, I calculated the maximum dose that would have been possible from the residence of the plaintiffs using the following factors. Each factor represents a condition far in excess of any condition actually pertaining to the plaintiffs so that resulting calculations are *certain* to over-estimate actual exposure.

- the highest concentration of mycotoxin in spores reported in pertinent scientific literature
- the highest measured airborne spore concentration in the basement at 2063-N

Evans Road (40,467 spores/m^3 as reported for sampling done February 7, 2002 by the Department of the Army Department of Preventative Medicine; Reynolds Army Community Hospital)

- the average breathing rate of an individual (varies depending on age and gender of the individual), as reported by the EPA (Exposure Factors Handbook, Update of May 1989 EPA/600/P-95/002Fa. Office of Research and Development, US Environmental Protection Agency (EPA), Washington, DC 20460, Washington, DC)). The average over-estimates breathing rate since it includes both vigorous exercise and resting conditions.
- the greatest possible fraction of the spores that individuals retain by inhalation (100% is assumed although the actual retained dose is not directly proportional to the exposure concentration) (Muhle H. and McClellan RO. (1999). Respiratory Tract (Ch. 15). In: Toxicology (Eds. Marquardt H., Schafer SG, McClellan RO, Welsch F). Academic Press, P. 339)
- the greatest possible length of time for the exposure or the exposure duration (24 hours per day is assumed)
- the body weight of the exposed individual

Using these figures, I calculated a maximum possible dose in a worst-case scenario for a selection of mycotoxins produced by organisms which are known to grow indoors (See Appendix D).

In order to evaluate whether there is a possibility of adverse effects, I compared the maximum possible dose that the plaintiffs could have received from the indoor environment to the lowest dose that is known to produce an effect in animals via inhalation. The maximum doses of mycotoxin exposure calculated for each member of the Mitchell family are very low (See Appendix E).

Since there are no human studies for tremorgens, satratoxins, or trichoverrols (some of the mycotoxins I selected for the calculations), I considered the mycotoxin aflatoxin B1

which is far more toxic than any of the tremorgens, and is of comparable toxicity to the satratoxins, although it is not found in organisms growing on building materials. It is also the only mycotoxin for which exposure is regulated in the U.S. by the Federal government. Given that the FDA has determined that it is safe for someone of the weight and age of CAM (the most sensitive receptor) to consume 0.0000373 mg/kg/day of Aflatoxin B1, CAM would have to be exposed to 152,312 spores/m^3 for 24 hours per day, with the highest concentration of aflatoxin B_1 per spore reported, with 100% retention of these inhaled spores in order to inhale the amount of aflatoxin considered to be *safe* by the FDA. Environmental testing results provided show that the highest measurement of mold spore concentration from the home to be 40,467 spores/m^3. If CAM were to spend 24 hours per day in the basement containing hypothetical "mycotoxin-containing" spores at the levels measured at the residence, she could only inhale 1/3 the amount of mycotoxin the FDA has determined to be safe (See Appendix F). If she were to spend the whole day in the living area or sleeping area, she could only inhale 1/12 to 1/5 of the amount considered to be safe.

Thus, calculations indicate that the maximum amount of mycotoxin to which the plaintiffs could have been exposed is too small to have caused any adverse effect.

d) Does the exposure precede the claimed injuries? *AND*

e) What alternative causes of the observed adverse effect were considered?

Brenda Mitchell (DOB: July 27, 1962)

Brenda Mitchell has an ongoing history of non-cardiac chest pain since 1987 (Medical Records of Brenda Mitchell, ADMIN 272), headaches since 1982 (Medical Records of Brenda Mitchell, RACH 348), abdominal pain since 1986 (Medical Records of Brenda Mitchell, RACH 234), and back pain since 1982 (Medical Records of Brenda Mitchell, ADMIN 194/192). In 1994, she was diagnosed with spondylolysis (Medical Records of Brenda Mitchell, ADMIN 157), and in 1996 was diagnosed with degenerative disc disease (Medical Records of Brenda Mitchell, RACH 367).

Brenda Mitchell has been in three motor vehicle accidents since 1985 (1985, 1988, and 1995), the last of which occurred while she was pregnant (Medical Records of Brenda Mitchell, RACH 169-170, 247, 312, ADMIN 165, 212).

Brenda Mitchell was also diagnosed with anemia in 2002 (ADMIN 58, 74-74) and again in 2003 (RACH 107-108), which is a common cause of headaches and fatigue.

A review of her medical records shows that between April 1983 and June 1999 (16 years), she had 2 respiratory diagnoses. The period from June 1999 to March 2005 (6 years) she had only 1 respiratory diagnoses. Similarly, between April 1983 and June 1999 (16 years), she had 11 headache diagnoses. The period from June 1999 to March 2005 (6 years) she had 4 headache diagnoses. These comparisons indicate that Brenda did not experience an increase in respiratory or headache diagnoses when she moved into the home in question in 1999.

Dominique Mitchell (DOB April 1, 1983)

Dominique Mitchell claims that prior to moving into the home at 2063 North Evans Road he was never sick. (Deposition of Dominique Mitchell, 10:6-20), and his medical records between 1983 and 1999 support this assertion.

In August 25, 2002 he was 5'8" with a bodyweight of 189 lbs. (Medical Records of Dominique Mitchell, RACH 00495). In October 19, 2005, he had a BMI of 37, and was undertaking dietary counseling pertaining to obesity (Medical Records of Dominique Mitchell, RACH 00778). In November 22, 2005 his documented weight was 258 lbs. (Medical Records of Dominique Mitchell, RACH 00782). Mounting evidence implicates obesity as a major risk factor for asthma (Shore SA, Fredberg JJ. Obesity, smooth muscle, and airway hyperresponsiveness. J Allergy Clin Immunol. 2005 May;115(5):925-7.) As he also has a strong family history of asthma, Dominique's respiratory symptoms cannot be causally linked to environmental mold or mycotoxin exposure.

Additionally, obese children have more respiratory symptoms than their normal weight

peers and respiratory related pathology increases with increasing weight. Obesity produces mechanical effects on respiratory system performance. (Deane S, Thomson A. Obesity and the pulmonologist. Arch Dis Child. 2006 Feb;91(2):188-91.) Dominique's complaints of breathing difficulties and wheezing cannot be causally linked to environmental mold or mycotoxin exposure.

Dominique reports headaches (8/99, 8/00, 3/02, 11/03). His medical records indicate he was experiencing a deterioration of visual acuity in December 1997 (Medical Records of Dominique Mitchell, ADMIN 0000497), and in August 8, 2000, his records note that he gets headaches without vision correction (NOLAN 00003).

Dominique's claim of vomiting appears to be a single incidence of acute gastroenteritis in January 2004 (RACH 00453-455). This does not appear to be a chronic problem.

Jennifer Mitchell (DOB October 11, 1984)

Jennifer has a history of asthma/reactive airway disease since 3/18/1997 (Medical records of Jennifer Mitchell, ADMIN 00536). She has possible allergic rhinitis. Although she did report congestion and upper respiratory infections after 1999, she had 3 respiratory diagnoses in the period between Dec 1996 and June 1999 (2.5 years) and 4 respiratory diagnoses in the period between June 1999 and January 2004 (4.5). Her rate of diagnosis of respiratory ailments was lower when she lived in the residence in question. Jennifer's claims of breathing difficulty, sinus infections, cough, runny nose are likely related to respiratory conditions that pre-existed the claimed exposure and do not appear to be caused by an exposure event beginning in 1999.

A motor vehicle accident in 2003 resulted in headaches, neck and back pain. Her claims of headaches, aches, and possibly fatigue and dizziness are likely related to this incident.

Claims of nausea, vomiting, and depressed immune system are not supported by her medical records.

SDM (DOB April 15, 1990)

SDM has a history of asthma that dates back to at least 1992 when it was identified as a "chronic" disease by Dr. Mark Watkins (Medical records of SDM, RACH 00589). She also has a history of recurring pneumonia (12/92, 9/93, 4/94, 9/94, 5/02), upper respiratory infections (1/94, 2/95, 9/95), and bronchitis (2/95; 12/96, 11/97) prior to 1999.

SDM's claims of breathing difficulty, sinus problems, cough, runny nose are likely related to respiratory conditions that pre-existed the claimed exposure and do not appear to be caused by an exposure event beginning in 1999. A review of her medical records shows that between June 1990 and June 1999 (9 years), she had 20 respiratory diagnoses. The period from June 1999 to March 2005 (6 years) she had only 6 respiratory diagnoses, suggesting that the rate of respiratory incidence may have actually decreased.

A single reported incidence of gastritis and headache on December 23, 2002 (records of SDM, RACH 00669) at the Reynolds Army Community Hospital (James Hapka, PA) appears to be an isolated event and does not support her claim of ongoing nausea, vomiting, dizziness and headache. Similarly, claims of tiredness, weakness, aches, and depressed immune system are not supported by the medical records.

CAM (DOB: February 23, 1996)

CAM has a history of respiratory problems such as bronchitis (12/96), congestion (12/96, 9/97), cough (12/96, 5/02, 8/02, 9/02, 11/02, 1/04), eye problems (red – 7/96, watery – 9/02), in addition to a history of fever (12/96, 2/97, 9/97, 11/02, 3/03, 1/04) and vomiting (2/97, 9/97, 4/01, 8/02, 1/04), many incidents of which predate any potential environmental exposure from the residence in question.

A review of her medical records shows that between February 1996 and June 1999

(2.3 years), she had 2 respiratory diagnoses. The period from June 1999 to April 2004 (4.75 years) she had 7 respiratory diagnoses. Thus, suggesting that the rate of respiratory incidence was not significantly increased.

Plaintiffs' Environmental Report

Dr. George Graham, whose analysis formed the bulk of plaintiff's expert report, appears to have relied on four indoor samples using a settled plate method on January 25, 2006. Although Dr. Graham is identified as the Chief Mycologist of Mold Lab Int'l on the Tennessee Mold Consultants website (http://www.themoldlab.com/mycologist.shtml), he is not a Certified Industrial Hygienist (CIH), and there is no indication that his training or experience qualifies him to sample for mold, recommend remediation techniques, or make claims of related health effects.

Furthermore, as of February 14, 2006, Mold Lab Int'l is not accredited through the Environmental Microbiology Laboratory Accreditation Program (EMLAP) of the American Industrial Hygiene Association (AIHA) or any other recognized accrediting organization.

Samples were collected using a settled plate method which is neither quantitative nor representative of airborne mold spores. He further invalidates his use of a non-standard method by not collecting control or comparison samples.

Estimating Exposure

The sampling and analysis conducted by Mold Lab Int'l is not useful for estimating exposure because of inappropriate sampling techniques, lack of controls, a lack of laboratory accreditation.

One of the roles of sampling is to provide information that will allow health professionals to determine whether or not there is a possibility of injury due to exposure.

In an exposure scenario such as proposed in this situation, exposure would occur through inhalation of spores. Non-quantitative sampling such as interpreted by Dr. Graham does not allow such a determination to be made, and is of no value as a tool for exposure assessment. Any statements relating to exposure and health effects attributed to the results of such sampling are irrelevant.

Health Effects

Dr. Graham states the mold can cause a variety of symptoms and that the air that is breathed must be "healthy" to allow occupants to become "healthier." The files provided for my review (PLF 00613-00623) contains alarmist, unreferenced statements about "Effects on Human Health," "Symptoms Include," "Methods of Transmission," and "Clinical Information." These statements are reflected in the mold references posted at www.tennesseemold.com/mold_ref.shtml (accessed 2/14/06). These statements are not relevant to airborne exposure to molds in indoor environments. Specifically, they provide no context of dose, route of exposure, or other mitigating factors, and suggest that exposure to molds poses a far greater risk than it actually does, as we routinely encounter these mold spores in both indoor and outdoor environments (Solomon WR. 1975. Assessing fungus prevalence in domestic interiors. J Allergy Clin Immunol 56(3):235-242).

As previously discussed, most researchers and learned bodies have reported that current evidence does not support the proposition that molds in indoor environments cause allergies or result in toxicosis. The records provided for my review suggest that Dr. Graham's understanding of molds and mycotoxins, basic mycology, and toxicology is extremely limited.

Dr. Graham relies on his invalid sample results to suggest that the air in the Mitchell home is not healthy and incorrectly indicates that his botanical solutions are the only products recommended.

Personal Property

Dr. Graham makes inappropriate recommendations regarding personal property damage. Specifically, he recommends replacing the car if there is a water leak as "spraying will not be adequate."

The Evidence Based Statement on mold by the American College of Occupational and Environmental Medicine (ACOEM) states, "Colonized porous materials, e.g., clothing or upholstery, can be cleaned using appropriate routine methods, e.g., washing or dry cleaning clothing, and need not be discarded unless cleaning fails to restore an acceptable appearance." Property that has visible mold growth on its surface and/or has a strong, musty odor should be cleaned or discarded. This is due to cosmetic or aesthetic reasons only. Failure to discard these items does not necessarily result in excessive exposure to mold spores.

Unless items are shown to be structurally damaged by mold, contain strong odors of mold, or are shown to give rise to sufficient aerosolization to potentially cause illness, the items need not be discarded and no cleaning other than routine housekeeping is indicated. In the absence of visible mold growth or a moldy odor, the only basis for cleaning or discarding property unfounded perception of risk.

Conclusions

I conclude, to a reasonable degree of scientific certainty, the following opinions:

- Mold and mold spores are ubiquitous, and the maintenance of a mold-free home environment is not possible.
- Sampling and analysis presented in the report by Mold Lab Int'l is not useful for estimating exposure because of inappropriate sampling techniques, lack of controls, and a lack of laboratory accreditation.
- There are no data showing that mycotoxins were present in the indoor air of the residence at 2063-N Evans Road.

- There are no data showing that there was a sufficient amount of mycotoxin present in the indoor air of the residence at 2063-N Evans Road to have caused any injury to occupants.
- There could not have been sufficient amounts of mycotoxin present at the subject property to cause any injuries to occupants.
- The symptoms identified by the Mitchell family have many possible causes and cannot be attributed to mycotoxin exposure during their occupancy of the residence at 2063-N Evans Road.

This report is based on the materials received and analyzed by me to date. Should additional information become available, I reserve the right to amend my opinions accordingly.

Sincerely,

VERITOX, INC.

Bruce J. Kelman, PhD, DABT
Principal

Encl. Appendices A-F

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Project Number 8067

January 8, 2008

Chip E. Williams, Esq.
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Beckley, WV 25802

Expert Report of Dr. Bryan D. Hardin in the matter of
Boone et al *v.* State of West Virginia, Department of Health and Human Services

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I have been asked to provide an expert opinion regarding the claims of adverse human health effects from alleged exposure to molds in the matter of Boone et al *v.* State of West Virginia, Department of Health and Human Services. I have extensive general knowledge in the field of toxicology and specific knowledge of the effects of mycotoxins from mold in indoor environments. The following report outlines my relevant qualifications and opinions.

QUALIFICATIONS

I am a Fellow of the Academy of Toxicological Sciences and a member of the American College of Occupational and Environmental Medicine, the American College of Toxicology, the American Industrial Hygiene Association, the Society of Toxicology, and the Teratology Society. I received a Bachelor of Science degree in Mathematics in 1966, a Bachelor of Science degree in Zoology in 1970, and a Master of Science degree in Zoology in 1972, all from the University of Oklahoma; in 1983 I received a Ph.D. in Environmental Health Sciences from the University of Cincinnati, Division of Graduate Studies and Research. I served 28 years as a commissioned officer in the United States Public Health Service (USPHS) assigned to the National Institute for Occupational Safety and Health (NIOSH), including nine years research experience in the NIOSH Experimental Toxicology Branch. At the time I left the USPHS in July 2000, I was the Deputy Director of NIOSH and Assistant Surgeon General in the USPHS. Currently, I am a Principal of Veritox, Inc., which is a health-based consulting company focusing on toxicology and industrial hygiene. I have attached a true and correct copy of my curriculum vitae to this report in Appendix A.

RECORDS REVIEWED

I reviewed the following case-specific materials in support of the preparation of my opinions relating to the claims in this matter:

- Summons
- Complaint
- Plaintiff's Preliminary Designation of Expert Witnesses
- Deposition of Bill Adamy 9/27/05 and exhibits
- Deposition of Blair Thrush
- Deposition of Dominic Gaziano and exhibits
- Deposition of David Goetz
- Deposition of Melissa Abbott
- Deposition of John Keeling
- Deposition of Edward N. Light
- Deposition of Jonathan Bernstein (Volumes 1 & 2)
- Reta L. Boone Medical Record Summary
- Elizabeth Cochran Medical Record Summary & Selected Records
- Sally Conley Medical Record Summary & Selected Records
- Mary Hall Medical Record Summary & Selected Records
- Evelyn Jordan Medical Record Summary & Selected Records
- Arletta Mathes Medical Record Summary & Selected Records
- Margaret McCourt Medical Record Summary & Selected Records
- Joy Skeens Medical Record Summary & Selected Records
- Linda Smith Medical Record Summary & Selected Records
- "Plaintiff Doctor's Depositions" September 2007 (Likely exhibits from the depositions of Drs Thursh, Gaziano, Guberman, Grady, Goetz, and Dee. Includes IMEs for Elizabeth Cochrane, Sally Conley, Mary Hall, Evelyn Jordan, Arletta Mathes, Joy Skeens, and Linda Smith.)
- Department of Health and Human Resources Indoor Air Quality Evaluation of DHHR Office Webster Springs, Report dated 8/2/02 (inspection 6/27/02)
- Letter from Rock Branch Mechanical, Inc. regarding HVAC inspection dated 10/16/02
- Report of Findings, Indoor Air Quality Investigation of Department of Health and Human Resources (Webster Springs, WV) by MSES Consultants, dated 10/22/02 (inspection 10/2/02)
- Follow-up Report, Site Investigation of Basement Area and Attic Area of Department of Health and Human Resources (Webster Springs, WV) by MSES Consultants, dated 11/27/02 (inspection 10/31/02 and 11/11/02).

- American Clean Air Report on air duct cleaning project at Webster Springs DHHR Offices, dated 2/3/03
- INX Laboratories Yeast/Mold/Bacteria Screening Results, dated 4/28/03 and 5/2/03 (collection date 4/21/03)
- Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/9/03)
- Final Report, Follow-up Canister Analysis Results of Department of Health and Human Resources (Webster Springs, WV) by MSES Consultants, dated 7/2/03 (samples collected by DHHR personnel on 6/2/03)
- Columbia Analytical Services, Inc., VOC sample report (non-dated)
- NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04).

BASIS OF OPINIONS

The basis for my opinions in this case includes my education, training in basic science, experience in toxicology in general and as specifically related to mycotoxin exposure, ongoing review and analysis of published literature on the effects of mycotoxins on a broad range of mammalian species including humans, and general knowledge of the adverse effects of chemicals on mammalian species including humans. This training, experience, and study of the published literature include in-depth knowledge of inhalation toxicology, which includes normal respiration and adverse respiratory effects resulting from exposure to chemicals.

COMPLAINT

Based on my review of the above records, it is my understanding that the plaintiffs in this matter (Reta Boone, Elizabeth Cochrane, Sally Conley, Mary Hall, Evelyn Jordan, Arletta Mathes, Lynn McCourt, Joy Skeens, and Linda Smith) claim to have been "injured and/or made ill" as a result of "toxic environmental conditions" at their workplace at the Webster Springs DHHR office, 110 North Main Street, Suite 201.[1]

ANALYSIS OF TOXICOLOGICAL ISSUES

Toxicologists have reached a generally-accepted consensus on the methodology and criteria that must be taken into account in reaching any conclusions as to whether exposure to a chemical has caused an injury to an individual. There are several criteria that must be

[1] Complaint

met in order to establish that exposure to a chemical has caused an injury. If any one of the following criteria is not met, causation cannot be established.[2]

a. The chemical(s) in question must first be present.
b. Toxicological or epidemiological studies must show that the chemical(s) in question are able to cause the claimed adverse effect.
c. Exposure of an individual to the chemical(s) must be in sufficient quantities and for a sufficient length of time to cause the claimed adverse effect.
d. Exposure to the chemical(s) must precede the claimed adverse effect within an appropriate time frame specific to the development of the individual chemical's effect.
e. If the above criteria are met then alternative known causes of the claimed adverse effect must be considered and weighed against the probability that the chemical(s) in question caused or contributed to the adverse effect.

As a toxicologist, I used the above criteria to determine whether or not the plaintiffs could have been adversely affected mold or by other claimed "contaminants" at the Webster Springs DHHR office.

a. Were the chemicals in question present?

Mold and Mycotoxins

Molds are fungi, part of the Kingdom Mycota, which comprises a diverse group of organisms that evolved over 400 million years ago.[3] Mold and mold spores are everywhere around us, and have always been a part of our environment. The air we breathe is a virtual jungle of fungal spores, and we routinely encounter mold spores as part of everyday life both indoors and outdoors.[4] Spore levels may vary seasonally, but some spores are always present. In one large national dataset of cultured air samples collected from 1996 to 1998, median seasonal counts outdoors in the northeastern United States (a sampling region including West Virginia) ranged from about 200 CFU/m^3 (winter) to about 600 CFU/m^3 (summer); peak spore concentrations were as high as 3000 CFU/m^3 (winter) and 6000 CFU/m^3.[5] In another survey of background spore levels, outdoor spore trap counts in

[2] Federal Judicial Center (2000). Reference Manual on Scientific Evidence, Second Edition. (Federal Judicial Center), 639 pages. Federal Judicial Center.
[3] Sherwood-Pike, M. A. and Gray, J. Silurian fungal remains: probable records of the class Ascomycota. Lethaia 18, 1-20. 1985. 1985.
[4] Solomon, W. R. Assessing fungus prevalence in domestic interiors. J Allergy Clin Immunol 56(3), 235-242. 1975.
[5] Shelton, B. G., Kirkland, K. H., Flanders, W. D., and Morris, G. K. Profiles of airborne fungi in buildings and outdoor environments in the United States. Appl Environ Microbiol 68(4), 1743-1753. 2002.

Washington, DC, ranged from 90 to 3,690 spores/m^3 in March-June 2001, and from 787 to 13,678 spores/m^3 in September-December 2001.[6]

The DHHR office was inspected and sampled for mold by various agencies over a multi-year period:

- On October 2, 2002, MSES Consultants conducted a site inspection at the DHHR offices and collected surface wipe samples for bacteria and mold; samples were analyzed by Pure Earth Environmental Lab, Inc. The primary spores found were *Pseudomonas, Bacillus,Yeasts,* and *Cladosporium*.[7]
- MSES Consultants conducted follow up evaluations of the basement on October 31, 2002, and of the attic spaces and air handling system on November 11, 2002. Water stains were identified on the rubber roof seal. Resealing was recommended. No visible mold growth was seen in the attic or crawlspace. A wipe sample was collected above the ductwork following visual inspection of the return air plenum. Sample analysis found the presence of *Actinomycetes* bacteria and *Penicillium* and *Ulocladium* fungi [8]
- On April 21, 2003, American Clean Air collected samples for mold and bacteria analysis by INX Laboratories.[9] Sampling results indicated the presence of the fungi Cladosporium (10 CFU/plate), *Aurobastidium pullulans* (3 CFU/plate), and *Acremonium* (1 CFU/plate) and the bacteria *Bacillus* (2 CFU/plate) and *Staphylococcus* (5 CFU/plate).
- On April 30, 2003, MSES conducted a follow-up site inspection and collected cultured air samples for mold and bacteria .[10] The maximum indoor spore concentration was 364 CFU/m^3 in the social services area; the outside concentration was 6,026 CFU/m^3. The maximum indoor bacterial count was 116 CFU/m^3; the outdoor bacterial concentration was measured 232 CFU/m^3.
- On September 11-12, 2003, NIOSH conducted a walkthrough of the building and collected non-cultured air samples for mold. No obvious sources of mold or water intrusion were observed. The maximum indoor spore concentration measured by NIOSH during sampling conducted on September 11, 2003, was 386 spores/m^3 in the cubicle near the computer room. The primary indoor species were *Alternaria* (267 spores/m^3) *Penicillium* (107 spores/m^3), and *Cladosporium* (107 spores/m^3). The measured outside concentration was 12,608 spores/m^3 on the same day. [11]
- On April 12-14, 2004, NIOSH conducted a walkthrough of the building and collected a Bio-Tape surface sample (Zefon). Water incursion, visible mold, and

[6] Gots, R. E., Layton, N. J., and Pirages, S. W. Indoor health: background levels of fungi. American Industrial Hygiene Association Journal 64(4), 427-438. 2003.
[7] Report of Findings, Indoor Air Quality Investigation of Department of Health and Human Resources by MSES Consultants, dated 10/22/02 (inspection 10/2/02.
[8] Follow-up Report, Site Investigation of Basement Area and Attic Area of Department of Health and Human Resources (Webster Springs, WV), by MSES Consultants, dated 11/27/02 (inspection 10/31/02 and 11/11/02)
[9] INX Laboratories Yeast/Mold/Bacteria Screening Results, dated 4/28/03 and 5/2/03
[10] Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/9/03)
[11] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)

> musty odors were noted in the basement. Musty odors were noted in the entry area of the building, the elevator, and the south stairwell. Odors from the restrooms were noted on the second floor.[12]

The ubiquitous presence of mold in air and on building materials makes it impossible to construct or maintain a building that is mold-free using standard building design and construction techniques. Even if construction of a mold-free building space were possible, the maintenance of a mold-free environment under normal conditions would be impossible, as many species of mold are naturally present in the air and on and in human bodies, potted plants, and on foods such as fresh fruit and cheeses. The most significant source of mold spores indoors is the outdoor air[13] and a mold-free building will no longer be mold-free once a door or window is opened or a person enters. The question is whether there is an increased risk of adverse health effects from indoor levels as opposed to outdoor levels.

Mycotoxins are fungal metabolites that in sufficient dose may be toxic to humans or animals. They are sometimes produced as by-products of mold's biological processes but they are not required to maintain the life of the mold. Furthermore, an exhaustive review of the scientific literature demonstrates agreement that mycotoxins are only sometimes produced by molds; they are not always produced and cannot be assumed to be present based on the fungal species present.[14] No records of mycotoxin sampling at the property were provided for my review.

Additionally, as discussed in section (c) of this report, dose-response is the most fundamental principal of toxicology. A toxic response follows only if a sufficiently high dose is absorbed, and there are no data to suggest that the plaintiffs could have received a toxic dose of any mycotoxin while working at DHHR.

Finally, the musty odor associated with mold comes from volatile compounds generated as the mold grows. The odor of these compounds, which are not mycotoxins, may be

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[12] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)

[13] Solomon,W.R. 1975. *loc. cit.*

[14] ACMT . American College of Medical Toxicology Comment -- Institute of Medicine Report on Damp Indoor Spaces and Health. 2006. 2006. ; Burge,H.A. (2001). The fungi. In Indoor Air Quality Handbook (Spengler, J. D., Samet, J. M., and McCarthy, J. F.), 45.1-45.33. McGraw Hill.; Fung, F. and Clark, R. F. Health effects of mycotoxins: a toxicological overview. J Toxicol Clin Toxicol 42(2), 217-234. 2004. ; Halsall,W.J., Isham,N.C., and Ghannoum,M.A. (2007). Mycotoxins. (Murray, P. R., Baron, E. J., Jorgensen, J. H., Landry, M. L., and Pfaller, M. A.), 9th ed., 1928-1935. ASM Press, American Society for Microbiology, 1752 N Street, NW, Washington DC 20036-2904.; Rao,C.Y. (2001). Toxigenic fungi in the indoor environment. In Indoor Air Quality Handbook (Spengler, J. D., Samet, J. M., and McCarthy, J. F.), 46.1-46.17. McGraw Hill, New York, NY.; Ren, P., Ahearn, D. G., and Crow, S. A. Comparative study of *Aspergillus* mycotoxin produced on enriched media and construction material. J Industrial Microbiol Biotechnol 21, 209-213. 1999. ; Tuomi, T., Reijula, K., Johnsson, T., Hemminki, K., Hintikka, E. L., Lindroos, O., Kalso, S., Koukila-Kahkola, P., Mussalo-Rauhamaa, H., and Haahtela, T. Mycotoxins in crude building materials from water-damaged buildings. Appl Environ Microbiol 66(5), 1899-1904. 2000.

annoying, but they are not toxic at concentrations encountered in the indoor built environment.[15]

Other Compounds

Worker complaints of runny eyes and noses apparently began in the spring of 2002.[16] Over succeeding months, additional symptoms were mentioned and attributed to freon leaks and various odors.[17] In addition to the sampling previously described for mold, the DHHR office was inspected and sampled for environmental conditions and chemicals by various agencies over a multi-year period:

- On June 27, 2002, the State of West Virginia, Department of Health and Human Resources conducted an indoor air quality evaluation at the DHHR office and measured carbon dioxide (870 ppm maximum), relative humidity (51.3% maximum), temperature (90.5F maximum) and carbon monoxide (not detected).[18]
- October 2, 2002, MSES consultants conducted a site inspection at the DHHR offices on and measured carbon dioxide (608 ppm maximum), temperature (73.3 maximum), and relative humidity (52.6%).[19]
- On October 13, 2002, Rock Branch Mechanical inspected the HVAC systems and found no evidence of a Freon leak or other source of contamination.[20]
- On April 30, 2003 and May 9, 2003, MSES conducted a site inspection and collected air samples for VOC analysis (including formaldehyde) by Columbia Analytical Services.[21] However, all air sampling results for VOCs were well below established criteria levels or the level of detection.
- On June 2, 2003, DHHR Personnel collected air samples for VOC analysis by Columbia Analytical Services. MSES reviewed the analysis results. All air sampling results for VOCs were well below established criteria levels or the level of detection .[22]
- On September 11-12, 2003, NIOSH conducted a walkthrough of the building and measured temperature (74.5F maximum), relative humidity (45.2% maximum), and carbon dioxide measurements (1095 ppm maximum, average 550-650 ppm) and

[15] Korpi, A., Kasanen, J. P., Alarie, Y., Kosma, V. M., and Pasanen, A. L. Sensory irritating potency of some microbial volatile organic compounds (MVOCs) and a mixture of five MVOCs. Arch Environ Health 54(5), 347-352. 1999.
[16] Deposition of Bill Adamy (5:4-5:16)
[17] Report of Cologne/Perfume-Cleaning procedures for Webster County District, dated 10/4/02
[18] Department of Health and Human Resources Indoor Air Quality Evaluation of DHHR Office Webster Springs, report dated 8/2/02 (inspection 6/27/02)
[19] Report of Findings, Indoor Air Quality Investigation of Department of Health and Human Resources by MSES Consultants, dated 10/22/02 (inspection 10/2/02)
[20] Letter from James Clark of Rock Branch Mechanical, Inc. to Randy of City of Webster Springs, dated 10/16/02
[21] Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/9/03)
[22] Final Report, Follow-up Canister Analysis Results of Department of Health and Human Resources (Webster Springs, WV) by MSES Consultants, dated 7/2/03 (samples collected by DHHR personnel 6/2/03)

collected air for VOC analysis. Odors from cleaning supplies were reportedly apparent. All air sampling results for VOCs were well below established criteria levels or the level of detection [23]

- On April 12-16, 2004, NIOSH conducted a walkthrough of the building and collected temperature, relative humidity, carbon dioxide, and total particulate measurements, and air samples for VOC analysis. Odors from the restrooms were noted on the second floor. All air sampling results for VOCs were well below established criteria levels or the level of detection. [24]

b. Do toxicological or epidemiological studies show that the chemicals in question are able to cause the claimed adverse effect?

I reviewed the medical records and independent medical examinations provided for the plaintiffs:

Reta Lorene Boone

Ms. Boone reported a workers' compensation injury on 9/27/02. She reported that at the time of the injury, she became severely ill with eye irritation, body aches, throat irritation and sinus infection.

In two Independent Medical Evaluations, dated 5/11/05 and 8/3/05, Ms. Boone complained of sinus infection since fall 2002, burning and watering eyes, nasal drainage, sore throat, sinus pressure, body aches, bleeding and recurrent bronchitis, poor memory and concentration (which she states may be due to age), headaches (which she said may be due to stress at work), fatigue, blurry vision, shortness of breath, chest pain or pressure at night, dizzy spells when standing up, long-standing dry skin (which she associates with winter weather), and emotional symptoms. Ms. Boone was reportedly vague about respiratory symptoms.[25,26]

The IME physical exam on 5/11/05 and an additional physical exam on 7/21/05 reported no abnormalities and the chest and lungs were normal.[27] No allergy testing was reported.

Dr. Martin does not believe that "any work-related condition can be alleged for this claimant." Dr. Gaziano identifies her as having "sick building syndrome" but believes she

[23] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)
[24] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)
[25] Independent Medical Evaluation of Reta Boone: Christopher Martin, MD, MSc, WVU Dept. of Occupational Medicine 5/11/05 Exhibit 5 (4 pages)
[26] Independent Medical Evaluation of Reta Boone: D. Gaziano, MD, Chest Medical Services, Inc. 8/3/05 (000590-591)
[27] Medical Records of Reta Boone: D. Gaziano, MD, Chest Medical Services, Inc. 7/21/05 (000592-599)

can continue working and does not believe there is any permanent impairment related to her exposure.

Elizabeth Cochran

According to her Independent Medical Exam, Ms. Cochran reported that in the fall of 2002, she started developing symptoms such as shortness of breath, headaches, chest discomfort, muscular cramping, nausea, and rashes. During the physical exam portion of her IME on 8/10/05, no abnormalities or signs of impairment were noted. No allergy testing was reported. [28]

Sally Conley

According to her Independent Medical Examination, Ms. Conley reported that in the first week after returning to work at the DHHR building on 3/17/03 she experienced itching skin without rash, non-productive cough, dry mouth, shortness of breath, wheezing, chest tightness, and awakening from sleep with shortness of breath. In 5/03 she was reportedly diagnosed with occupational asthma by Dr. Osborne (records not provided). In the IME physical exam on 9/21/05, no physical abnormalities were noted, although Ms. Conley reported she still had intermittent shortness of breath and chest tightness with exertion when she is around truck fumes, and especially while in the DHHR building. She reported she had no further pruritus or rash since the first month after the exposure. No allergy testing was reported. [29]

A pulmonary function test on 9/26/05 found lung volumes close to 100% predicted with no evidence of bronchospasm or acute respiratory illness present.[30] A chest X-ray on 9/26/05 also indicated a normal chest.[31]

Mary Hall

According to her Independent Medical Exam, Ms. Hall reported that symptoms of nose and mouth irritation, burning sensation in eyes, sinus congestion, and runny nose began in summer 2002. During the physical examination portion of her IME on 2/1/06, no abnormalities were reported, although Ms. Hall reported she has had problems with

[28] Independent Medical Evaluation of Elizabeth Cochran: Joseph E Grady II, MD, CIME,Tri-State Occupational Medicine, Inc., 8/10/05 (000009-013)
[29] Independent Medical Evaluation of Sally Conley: Bruce Guberman, MD, Tri-State Occupational Medicine, Inc. 9/21/05 (000530)
[30] Pulmonary Function Test of Sally Conley: Bruce Guberman, MD, Tri-State Occupational Medicine, Inc., 9/26/05 (000535-536)
[31] Chest X-ray of Sally Conley: Eli Rubenstein, MD, Eli Rubenstein, MD, Inc. 9/26/05 (000538)

recurrent sinus and ear infections, as well as runny nose and congestion that she attributes to environmental exposure in her workplace. No allergy testing was reported.[32]

Evelyn Jordan

According to her Independent Medical Exam, Ms. Jordan's chief complaint was exposure to molds at work. Ms. Jordan moved into the DHHR building in November 1994 and reported that she began to experience "non-stop" sinus infections beginning in the mid to late 1990s. Ms. Jordan reported a workers' compensation claim on 9/25/02. She reported that at the time of the injury, she experienced shortness of breath, wheezing, and a rash. In addition, she stated her tongue appeared scalded for 1 year beginning in 2002, which was treated for infection. In 9/02 she was reportedly diagnosed with allergic rhinitis, non-allergic rhinitis, environmental allergies, and asthma. During the IME physical exam on 9/21/05, Ms. Jordan reported that she continues to have sinus problems with intermittent ear infections and still experiences wheezing and shortness of breath with exertion or upper respiratory illnesses, when the weather is cold, hot, or humid, and when she is around dust or perfumes. Ms. Johnson indicated that episodes of lip burning and tingling that occurred while working resolved after she retired (August 2005) The IME physical exam on 9/21/05 noted no physical abnormalities. No allergy testing was reported.[33]

Arletta Mathes

According to her Independent Medical Exam, Ms. Mathes reported that she began having symptoms of burning sensation in her eyes and runny nose and sinus and facial pain, beginning sometime around September 2002. Symptoms seemed to be associated with work. Ms. Mathes reported that she has current problems with facial pain and some reddish discoloration of her face and rare cases of oral blistering. Other symptoms include bloodshot eyes, headaches, enlargement of lymph nodes in her neck, dizziness, some visual problems, eye itching and some neck pain. The IME physical exam on 2/1/06 found no abnormalities. No allergy testing was reported.[34]

[32] Independent Medical Evaluation of Mary Hall: Joseph E Grady II, MD, CIME,Tri-State Occupational Medicine, Inc., 2/1/06 (000009-013)

[33] Independent Medical Examination of Evelyn Jordan: Bruce Guberman, MD, Tri-State Occupational Medicine, Inc., 9/21/05 (000060-065)

[34] Independent Medical Examination of Arletta Mathes: Joseph Grady II, MD, CIME, Tri-State Occupational Medicine, Inc. 2/1/06

Margarette McCourt

In April 2001, Ms. McCourt's internist indicated a history of allergic rhinitis and a CT scan that showed pneumatized sinuses; therefore, she was referred to an allergist.[35] Upon evaluation in May 2001, Ms. McCourt reported sinus congestion and headaches "all her life", post nasal drip year round, and frequent sinus infections. Her medical exam revealed acne scars, some palmar erythema, slightly inflamed nasal mucosa, slightly decreased breath sounds, dry eyes, congested ears, post nasal drip and occasional cough. Ms. McCourt's allergy skin tests were negative (including those for mold) except for histamine (2+) and "Tree 5" and "Tree 6" (which were marked with an "X"). Ms. McCourt was diagnosed with facial pain, headaches, and nasal congestion. [36]

Joy Skeens

Ms. Skeens reported a workers' compensation injury on 10/30/02. According to her Independent Medical Exam, Ms. Skeens reported that after 1.5 weeks of working at DHHR in Webster Springs she experienced shortness of breath, cough, runny/sore nose, rash with hives primarily from her waist up, blistering of her lips, and yeast infection on her tongue and in her ear. She also reported that she saw a nurse practitioner two weeks later regarding her symptoms and was told she had asthma. Ms. Skeens reported she developed wheezing by June 2003. During the IME physical exam on 8/15/05 Ms. Skeens complained of breathing problems and reported that she still feels short of breath walking up stairs or a hill, or when waking from sleep. She also reported mild pedal edema, chronic non-productive cough, and increased wheezing when weather is hot or damp, when she is around smoke or cleaning products, or when she has an upper respiratory illness. Ms. Skeens stated that the yeast infection resolved and the rash improved one month after she stopped working at the facility (October 2003). The IME exam of 8/15/05 noted no physical abnormalities.[37]

A pulmonary function test on 8/18/05 indicated normal pulmonary function with no evidence of bronchospasm or respiratory illness.[38]

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[35] Medical Records of Margarette McCourt: Paul Conely, DOSummersville Outpatient Center, 4/5/01 (000150)
[36] Medical Records of Margarette McCourt: Blair Thrush, MD, Thrush Clark Allergists, PLLC 5/4/01 (000144-149)
[37] Independent Medical Examination of Joy Skeens: Bruce Guberman, MD, Tri-State Occupational Medicine, Inc.
[38] Pulmonary Function Test of Joy Skeens Bruce Guberman, MD, Tri-State Occupational Medicine, Inc. 8/18/05 (RBM 0440-441)

Dr. Guberman indicated she required "ongoing medical treatment and medication because of her occupational illness of occupational asthma".

Linda Smith

Ms. Smith reported a workers' compensation injury on 9/5/02 as a result of an injury while working at DHHR in Webster Springs. Her complaints included chest pain, headache, pharyngitis, a burning sensation in her face, eyes and throat, and a rash on her face. After following up with a doctor, Ms. Smith states she was told she has asthma, chronic sinusitis, and allergies to various insects, plants, and dusts.

The available medical records for Ms. Smith begin in 2003. IgE tests on 6/6/03 indicate allergy for *Dermatophagoides pteronyssinus* and *D. farinae* (dust mites), but not *Penicillium notatum, A. Alternata,* or other substances tested.[39]

On 8/26/03, Ms. Smith saw David Goetz, MD for evaluation of environmentally induced bronchospasm, rhinitis, arthralgias, as well as low IgM on laboratory studies. She reported that seven years ago she developed rhinorrhea, itchy nose, itchy watery eyes, sneezing, nasal congestion, post nasal drainage, sinus pressure, throat clearing, and headache. She reported that 1 year ago she began to experience nighttime cough, exercise associated cough and wheezing, as well as "work associated cough and chest discomfort". Skin tests on 8/26/03 were reported to be strongly positive for cockroach, house dust mites, and lady bug and positive for several tree pollens. Dr. Goetz reported the results from the pulmonary function test, which indicated mixed restrictive and obstructive pulmonary disease that significantly improved with Albuterol. On 8/26/03, LabCorp America reported lab results (lab follow-up and review by Dr. Goetz on 9/4/03 and 9/30/03) indicated the CBC panel with differential was within normal range, the allergen profile for 13 molds were all negative, the hypersensitivity pneumonitis panel was all negative, the immunoglobulins IgA, IgE and IgG were normal but IgM was low, the Rheumatoid arthritis factor was within normal range and that antibodies for *Aspergillus niger* and *Aspergillus flavus* were negative. The results also indicated a Class IV allergy for shrimp. Dr. Goetz diagnosed Ms. Smith with new onset asthma that developed one year ago, perennial and seasonal allergic rhinitis, low IgM, shrimp intolerance, multiple medication intolerances (Bactrim, Erythromycin, and Prednisone), and reported that Ms. Smith's work environment was associated with increases in upper and lower respiratory symptoms, including asthma, restrictive pulmonary disease, and rhinitis. Dr. Goetz suggested

[39] Medical Record of Linda Smith: Davis Memorial Hospital, 6/6/03(000571)

hypersensitivity pneumonitis as one possible mechanism for the patient's respiratory symptoms. This was not confirmed by follow-up testing. [40,41]

Pulmonary function tests reported by Dr. Goetz at the Exemplar Allergy and Asthma Clinic on 9/30/03, 12/23/03, and 2/1/05 indicated flow volumes close to 100% predicted.[42] Dr. Goetz reported that Ms. Smith had boggy or pink turbinates on 8/26/03, 9/30/03, 10/23/03, and 12/23/03. Ms. Smith's turbinates were reportedly not enlarged on 2/1/05. Dr. Goetz diagnosed Ms. Smith with possible chronic sinusitis on 9/30/03. A CT scan of Ms. Smith's sinuses on 10/08/03 found minimal soft tissue density at the left maxillary sinus may represent chronic sinusitis. Ms. Smith repeatedly had low IgM levels on numerous occasions. [43]

Are molds and mycotoxins in the office environment capable of causing the claimed adverse effects?

For mycotoxin exposure to be considered the possible cause of any health effect, a mycotoxin capable of causing that health effect must be present. No sample results show that mycotoxins were present at the DHHR office. Additionally, the following health effects alleged by the plaintiffs have not been shown to be caused by exposure to mycotoxins of any kind under any circumstances.

- *Inhalation of mycotoxins does not cause* ***allergies to various insects, plants, and dusts***. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes allergies to various insects, plants, and dust.
- *Inhalation of mycotoxins does not cause* ***fatigue or body aches***. I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes fatigue or body aches.
- *Inhalation of mycotoxins does not cause* ***breathing problems*** *or* ***respiratory difficulties*** *(allergic rhinitis, asthma, bronchitis, pharyngitis, cough, postnasal drip, stuffiness, congestion, sinus infection, sinus irritation, sinus pressure, chest tightness or pain, shortness of breath, or wheezing).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes breathing problems or respiratory difficulties. The Institute of Medicine (IOM) and the American Academy of Allergy, Asthma and Immunology (AAAAI) have concluded that damp indoor environments and molds or other agents in the

[40] Medical Record of Linda Smith: David Goetz, MD, Exemplar Allergy and Asthma, 8/26/03 (000580-583)
[41] Medical Record of Linda Smith: Laboratory Corp. of America, 8/26/03 (000573)
[42] Pulmonary Function Test of Linda Smith: Exemplar Allergy Clinic, 9/30/03 (000568); 12/23/03 (000587); 2/1/05(000590)
[43] Medical Record of Linda Smith: David Goetz, MD, Exemplar Allergy and Asthma, 8/26/03 (000580-583); 9/30/03 (000568); 10/23/03 (000586); 12/23/03 (000587); 2/1/05 (000590)

environment are associated with some upper and lower respiratory symptoms, including exacerbation of existing asthma and allergies. However, both the IOM and the AAAAI found the scientific evidence was not adequate to conclude that mold can cause these conditions.[44]

- *Inhalation of mycotoxins does not cause **skin problems** (irritation, itching, rash, dryness, erythema, discoloration).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes skin problems.
- *Inhalation of mycotoxins does not cause **pain** (facial, neck).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes pain.
- *Inhalation of mycotoxins does not cause **ocular problems** (eye itching, irritation, and burning; blurry vision).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes ocular problems.
- *Inhalation of mycotoxins does not cause **nausea**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes nausea.
- *Inhalation of mycotoxins does not cause **headache**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes headache.
- *Inhalation of mycotoxins does not cause **muscle cramps**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes muscle cramps.
- *Inhalation of mycotoxins does not cause **poor memory and concentration**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes poor memory and concentration.
- *Inhalation of mycotoxins does not cause **yeast infections**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes yeast infections.
- *Inhalation of mycotoxins does not cause **face, ear, throat, nose, or mouth irritation/soreness/infection** (burning, tingling, or blistering).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-

[44] AAAAI . Position Paper -- The medical effects of mold exposure. J Allergy Clin Immunol 117(2), 326-333. 2006. ; Assoulin-Dayan, Y., Leong, A., Shoenfeld, Y., and Gershwin, M. E. Studies of sick building syndrome. IV. Mycotoxicosis. J Asthma 39(3), 191-201. 2002. ; Bardana, E. J., Jr. Indoor air quality and health -- Does fungal contamination play a significant role? Immunol Allergy Clin North Am 23(2), 291-309. 2003. ; IOM (04). Damp Indoor Spaces and Health. Institute of Medicine (IOM), National Academy Press, Washington, DC.

reviewed literature showing that inhalation of mycotoxins in an indoor environment causes face, ear, throat, nose, or mouth irritation/soreness/infection.

- *Inhalation of mycotoxins does not cause **dizziness**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes dizziness.
- *Inhalation of mycotoxins does not cause **emotional symptoms**.* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes emotional symptoms.
- *Inhalation of mycotoxins does not cause **dryness** (eyes, mouth, and skin).* I conducted an exhaustive search of the scientific literature and was unable to find any peer-reviewed literature showing that inhalation of mycotoxins in an indoor environment causes dryness.

I am a co-author of the American College of Occupational & Environmental Medicine Evidence-Based Position Statement entitled: Adverse Human Health Effects Associated with Molds in the Indoor Environment which represents the current medical position of the American College of Occupational and Environmental Medicine (ACOEM) as to the issue of alleged health effects of indoor mold. This position can be summarized as follows:

- Mold growth in the home, school, or office environments should not be tolerated because mold physically destroys the building materials on which it grows, mold growth is unsightly and may produce offensive odors, and mold is likely to sensitize and produce allergic responses in allergic individuals.
- Except for persons with severely impaired immune systems, indoor mold is not a source of fungal infections.
- Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in home, school, or office environments.

Additionally, I direct regular searches of the scientific literature for research and reviews investigating possible effects of mycotoxin inhalation on human health effects, and I personally read and review relevant literature. Most independent researchers have reached the conclusion that exposure to mycotoxins in residential, office, or school environments has not caused adverse effects in occupants.

- "...the current literature does not provide compelling evidence that exposure at levels expected in most mold-contaminated indoor environments is likely to result in measurable health effects."[45]
- "The review led to the conclusion that the primary result from fungal exposure is allergic disease, and that the evidence for inhalation disease resulting from mycotoxin exposure in residential and office settings is extremely weak."[46]

[45] Robbins, C. A., Swenson, L. J., Nealley, M. L., Gots, R. E., and Kelman, B. J. Health effects of mycotoxins in indoor air: a critical review. Appl Occup Environ Hyg 15(10), 773-784. 2000.

- "The literature review indicates that currently there is inadequate evidence supporting a causal relationship between symptoms or illness among building occupants and exposure to mycotoxins."[47]
- "The current public concern for adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is not supported by published reports in the medical literature."[48]
- "Although exposure to molds can produce significant mucosal irritation, there are very few data to suggest long-term ill effects. More importantly, there is no evidence in humans that mold exposure leads to nonmucosal pathology."[49]
- "There is no scientific evidence that *Stachybotrys* or other fungal species detected in indoor air or present on building materials cause brain damage."[50]
- "Toxic-mold fears have precipitated a spate of lawsuits. … Unfortunately, much of the evidence is conjectural. Mycotoxins and other microbial products have been implicated as causative agents, but the range of symptoms attributed to toxic molds exceeds what can be explained rationally in terms of toxicological mechanisms."[51]
- "... I have reviewed the literature concerning *Stachybotrys chartarum* and have not found scientific data to support the current public concern about health effects."[52]
- "... specific human toxicity due to inhaled fungal toxins has not been scientifically established." and "Specific human toxicity due to inhaled mycotoxins is not well understood, and the likelihood that sufficient mycotoxins are airborne despite visible indoor mold remains unproven and controversial."[53]
- "...we have not found supportive evidence for serious illness due to *Stachybotrys* exposure in the contemporary environment."[54]
- "At present there is no scientific basis for claiming that individuals have suffered mental and emotional injuries by inhalation of mold, mold spores or mold metabolites, including mycotoxins in residential or office environments. To the extent that experts express conclusions that mold inhalation in residences or offices caused mental or emotional injuries or brain injury, their opinions are speculation, possibilities, and guesses."[55]

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[46] Burge,H.A. (2001). *loc. cit.*

[47] Page, E. H. and Trout, D. B. The role of *Stachybotrys* mycotoxins in building-related illness. American Industrial Hygiene Association Journal 62(5), 644-648. 2001.

[48] Terr, A. I. *Stachybotrys*: relevance to human disease. Ann Allergy Asthma Immunol 87(6 Suppl 3), 57-63. 2001.

[49] Assoulin-Dayan,Y. et al. 2002. *loc. cit.*

[50] Bardana,E.J., Jr. 2003. *loc. cit.*

[51] Bennett, J. W. and Klich, M. Mycotoxins. Clin Microbiol Rev 16(3), 497-516. 2003.

[52] Chapman, J. A. *Stachybotrys chartarum* (*chartarum = atra = alternans*) and other problems caused by allergenic fungi. Allergy Asthma Proc 24(1), 1-7. 2003.

[53] Fung, F. and Hughson, W. G. Health effects of indoor fungal bioaerosol exposure. Appl Occup Environ Hyg 18(7), 535-544. 2003.

[54] Kuhn, D. M. and Ghannoum, M. A. Indoor mold, toxigenic fungi, and *Stachybotrys chartarum*: infectious disease perspective. Clin Microbiol Rev 16(1), 144-172. 2003.

[55] Lees-Haley, P. R. Toxic mold and mycotoxins in neurotoxicity cases: *Stachybotrys, Fusarium, Trichoderma, Aspergillus, Penicillium, Cladosporium, Alternaria,* Trichothecenes. Psychol Rep 93(2), 561-584. 2003.

- "Currently, there is no supportive evidence to imply that inhaling mold or mycotoxins in indoor environments is responsible for any serious health effects other than transient irritation and allergies in immunocompetent individuals."[56]
- "The current model illustrates that delivery of mycotoxins via inhalation of mold spores is inefficient and suggests that mycotoxin intoxication does not follow inhalational mold spore exposure in indoor environments due to the requirement for extremely high airborne spore levels and extended periods of exposure. The comparison data indicate that it is highly unlikely that the dose of mycotoxin received in an indoor home, office, or school environment could approach levels that would produce an acute toxic response, even under the extreme conditions modeled. Under the exposure conditions commonly encountered in a visibly moldy indoor environment, the potential for inhaling a toxic dose of mycotoxins is remote."[57]
- "There is no current body of clinical data defining a disease or pathology in those who claim illness from indoor mold growth because of water intrusion."[58]

Notably, no learned body has reached the conclusion that exposure to mycotoxins in residential, office, or school environments has caused adverse effects in occupants:

- "The reviews led CDC to conclude that a possible association between acute pulmonary hemorrhage/hemosiderosis in infants and exposure to molds, specifically *Stachybotrys atra*, was not proven."[59]
- "After reviewing available data, the council has concluded that public concern for adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is generally not supported by published reports in medical literature." and "...the proposition that molds in indoor environments may lead to adverse health effects through mechanisms other than infection and allergic/immunologic reactions is an untested impression" and "Adverse health effects from inhalation of *Stachybotrys* spores in water-damaged buildings is not supported by available peer-reviewed reports in medical literature." [60]
- "Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in the home, school, or office environment."[61]

[56] Fung,F. and Clark,R.F. 2004. *loc. cit.*
[57] Kelman, B. J., Robbins, C. A., Swenson, L. J., and Hardin, B. D. Risk from inhaled mycotoxins in indoor office and residential environments. Int J Toxicol 23(1), 3-10. 2004.
[58] Terr, A. I. Are indoor molds causing a new disease? J Allergy Clin Immunol 113(2), 221-226. 2004.
[59] CDC . Update: pulmonary hemorrhage/hemosiderosis among infants--Cleveland, Ohio, 1993-1996. MMWR Morb Mortal Wkly Rep 49(9), 180-184. 2000.
[60] Texas Medical Association, Council on Scientific Affairs . Black mold and human illness. Texas Medical Association . 2002.
[61] American College of Occupational and Environmental Medicine ACOEM . Evidence-Based Statement -- Adverse human health effects associated with molds in the indoor environment. J Occup Environ Med 45(5), 470-478. 2003.

- "The occurrence of mold-related toxicity (mycotoxicosis) from exposure to inhaled mycotoxins in non-occupational settings is not supported by the current data, and its occurrence is improbable."[62]
- "In recent years, increased concern has arisen about exposure to specific molds that produce substances called mycotoxins. Health effects related to mycotoxins are generally related to ingestion of large quantities of fungal-contaminated material. No conclusive evidence exists of a link between indoor exposure to airborne mycotoxin and human illness."[63]

In an extensive analysis, the Institute of Medicine was unable to conclude that any adverse health outcomes are caused by the presence of mold or other agents in damp indoor environments. The Institute did find sufficient evidence to conclude that there is an association between mold or damp indoor environments and certain symptoms (upper respiratory (nasal and throat) tract symptoms, cough, hypersensitivity pneumonitis in susceptible persons, wheeze, and asthma symptoms in sensitized persons), but the Institute makes it clear that "associated with" does not mean "caused by." The Institute also found that the evidence is not sufficient to show even an association between the presence of mold or other agents in damp indoor environments and any other symptom.[64] All of the Institute's findings are summarized in Appendix B.

Subsequent to the 2004 Institute of Medicine (IOM) report, two medical societies produced position statements in 2006 dealing with the health effects of exposure to moldy indoor environments. With the advantage of an additional two years of scientific investigations, conclusions reached by the American Academy of Allergy Asthma and Immunology (AAAAI)[65] and the American College of Medical Toxicology (ACMT)[66] were in complete agreement with the earlier positions taken by the ACOEM and IOM. The AAAAI and ACMT both expressed agreement with the ACOEM and IOM statements and both reiterated that indoor molds may exacerbate pre-existing allergies but are not the source of fungal infections. With respect to health hazards attributable to mycotoxins from indoor molds, the AAAAI concluded that "The occurrence of mold-related toxicity (mycotoxicosis) from exposure to inhaled mycotoxins in non-occupational settings is not supported by the current data, and its occurrence is improbable."[67] Similarly, with respect to mycotoxins indoors the ACMT concluded that "… the available scientific evidence does not provide any compelling data to conclude that they pose significant health risks via

[62] AAAAI. 2006. *loc. cit.*
[63] CDC . Mold prevention strategies and possible health effects in the aftermath of hurricanes and major floods. MMWR Morb Mortal Wkly Rep 55(RR-8), 1-27. 2006.
[64] IOM. 2004. *loc cit.*
[65] AAAAI. 2006. *loc. cit.*
[66] ACMT. 2006. *loc. cit.*
[67] AAAAI. 2006. *loc. cit.*

inhalation in these settings. The risks from inhalation exposure are minimal in comparison to other sources and pathways, including the diet, which in themselves are rarely of health consequence in the United States."[68]

Are volatile organic compounds (VOCs) capable of causing the claimed adverse effects?

At sufficiently high levels and durations of exposure, volatile organic compounds (VOCs) have the potential to cause some of the health effects claimed by the plaintiffs. For example, common health problems caused by VOCs include eye, nose, or throat irritation (e.g., burning or tingling sensations), respiratory irritation, shortness of breath, chest tightness, wheezing, rhinitis, nasal congestion, headaches, nausea, vomiting, fatigue, dizziness, allergic skin reaction, rash, pruritus, and epistaxis.[69] However, all air sampling results for VOCs, including formaldehyde, collected by MSES Consultants and by NIOSH were well below established criteria levels or the level of detection.[70,71]

Environmental Surveys

According to environmental survey results, all temperature and humidity determinations were in the recommended comfort range and all carbon monoxide determinations were low—well below the occupational exposure limit—indicating no source of combustion gases. Carbon dioxide levels were also below recommendations (with two minor excursions on 4/30/03 following high occupancy of the spaces sampled) indicating adequate fresh air was being supplied. Finally, all airborne mold measurements found similar distributions of genera indoors and outdoors, with airborne concentrations indoors well below those outdoors.[72,73,74,75] This series of extensive environmental surveys consistently found that the Webster Springs offices of the DHHR were neither damp nor moldy.

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[68] ACMT. 2006. *loc. cit.*

[69] EPA (94). Indoor air quality -- an introduction for health professionals, GPO Publication No. 1994-523-217/81322, 1994. Environmental Protection Agency (EPA).

[70] Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/9/03)

[71] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)

[72] Department of Health and Human Resources Indoor Air Quality Evaluation of DHHR Office Webster Springs, Report dated 8/2/02 (inspection 6/27/02)

[73] Report of Findings, Indoor Air Quality Investigation Department of Health and Human Resources by MSES Consultants, dated 10/22/02 (inspection 10/2/02)

[74] Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/9/03)

[75] NIOSH Health Hazard Evaluation Report, dated March 2006 (inspection 9/03 and 4/04)

c. Did the plaintiffs have an opportunity for contact with the chemicals, and if so, did the exposure result in a sufficient dose to cause the claimed adverse effects?

Mold and Mycotoxins

As previously discussed in this report, there is no evidence that mycotoxins were ever present at the DHHR office. If mycotoxins were present, they would have to gain access to the biological target (here, the plaintiffs) in sufficient quantities to cause an effect.

The dose-response relationship is the most fundamental and pervasive concept in toxicology and an understanding of this relationship is essential for the study of toxic materials. The fundamental basis of the quantitative relationships between exposure to an agent and the incidence of an adverse response is the dose-response assessment.[76] All chemicals have toxic properties that become apparent as increasing quantities are consumed or absorbed. It follows that there may be "safe" levels of exposure to even the most toxic substances.[77]

A particularly important term in toxicology is threshold, which means the level of exposure at which an effect is first observed.[78] The erroneous opinion that exposure to "toxic chemicals" at any dose produces deleterious effects abounds in the lay public and is prevalent in the medical profession. The fact that dose defines toxicity for all chemicals has been recognized for centuries. [79]

Exposure-response relationships are among the most important criteria for inferring causality.[80] Characterizing the dose-response relationship involves understanding the importance of the intensity of exposure, the concentration × time relationship, whether a chemical has a threshold, and the shape of the dose-response curve. The metabolism of a chemical at different doses, its persistence over time, and an estimate of the similarities in disposition of a chemical between humans and animals are also important aspects of a dose-response evaluation.[81]

Neither documented exposure nor odor detection necessarily dictates adverse responses to any chemical. To paraphrase an overused but often ignored truism: the dose of a chemical determines whether that chemical is toxic or nontoxic. Appreciation and

[76] Klaassen, C. D. (2001). McGraw-Hill.
[77] Zenz, C. (1994). Moseby-Year Book, Inc..
[78] Hayes, A. W. (1994). Raven Press.; Schiefer, H. B. Mycotoxins in indoor air: a critical toxicological viewpoint. Indoor Air '90 , 167-172. 1990.
[79] Montgomery, M. R. and Reasor, M. J. A toxicologic approach for evaluating cases of sick building syndrome or multiple chemical sensitivity. J Allergy Clin Immunol 94(2 Pt 2), 371-375. 1994.
[80] Clayton, G. D. and Clayton, F. E. (1991). John Wiley & Sons, Inc..
[81] Hayes, A. W. (1994). *loc. cit.*

application of this basic tenet of toxicology, the dose-response relationship, are necessary when objectively evaluating chemically mediated effects.[82]

Mycotoxins are not volatile, and do not evaporate from the mold spore, colony, or growth substrate.[83] Therefore, if mycotoxins are present, they can gain access to the biological target (the plaintiffs) only by being carried on and inhaled with spores.

In order to determine whether sufficient quantities of mycotoxins (if present) could have gained access to the biological target, I used a published, peer-reviewed methodology[84] to estimate the highest possible mycotoxin exposure inside the subject property. To calculate the maximum dose that is possible from the plaintiffs' residential environment, I used the following factors:

- the highest measured airborne fungal count in the office: 386 spores/m^3 in the cubicle near the computer room in spore trap sampling conducted by NIOSH during sampling conducted on 9/11/2003. The total spore count outside the building on the same day was 12,608 spores/m^3.
- the presence of mycotoxins was assumed at the highest concentrations per spore that have been reported in the scientific literature
- the average breathing rate of each individual (average breathing rates provided in the EPA Exposure Factors Handbook[85])
  - 0.47 cubic meters per hour - adult female
- 100% retention of inhaled spores with 100% availability of mycotoxins was assumed
- exposure was assumed for a 24-hour occupancy
- the lowest reported body weight of the exposed individuals.
  - 124 lbs Reta Lorene Boone[86]
  - 181 lbs Elizabeth Cochran[87]
  - 200 lbs Sally Conley[88]
  - 141 lbs Mary Hall[89]

[82] Hayes, A. W. (1994). *loc. cit.*; Schiefer,H.B. 1990. *loc. cit.*
[83] Schiefer,H.B. 1990. *loc. cit.*; WHO (90). Selected mycotoxins: ochratoxins, trichothecenes, ergot, Environmental Health Criteria 105. World Health Organization (WHO), Geneva, Switzerland.
[84] Kelman,B.J. et al. 2004. *loc. cit.*
[85] EPA (97). Exposure Factors Handbook, EPA/600/P-95/002Fa. Office of Research and Development, US Environmental Protection Agency (EPA), Washington, DC 20460, Washington, DC.
[86] Medical records of Reta Lorene Boone: D. Gaziano, MD, Chest Medical Services, Inc. 7/21/05 (000592-599)
[87] Medical records of Elizabeth Cochran: Joseph E Grady II, MD, CIME, Tri-State Occupational Medicine, Inc. 8/10/05 (000009-013)
[88] Medical records of Sally Conley: Bruce Guberman, MD Tri-State Occupational Medicine, Inc. 9/21/05 (000530-534)
[89] Medical records of Mary Hall: Joseph E Grady II, MD, CIME, Tri-State Occupational Medicine, Inc. 5/4/05

- 249 lbs Evelyn Jordan[90]
- 136 lbs Arletta Mathes[91]
- unknown body weight Margarette McCourt. (EPA Exposure Factors Handbook average adult female body weight is 65.4 kg or 144 lbs)
- 190 lbs Joy Skeens[92]
- 158 lbs Linda Smith[93]

Each factor represents a condition far in excess of any condition actually pertaining to the plaintiffs so that resulting calculations are *certain* to over-estimate actual exposure.

In order to evaluate whether there is a possibility of adverse effects, I compared the maximum possible dose that the plaintiffs could have received from the indoor environment to the lowest dose that is known to produce an effect in animals. These calculations (see Appendices C to E) show that even with a 24-hour exposure to the highest spore concentration reported inside the DHHR office (386 spores/m^3), the plaintiffs could not be exposed to the lowest reported toxic dose of any of the modeled mycotoxins (fumitremorgens, satratoxins, and trichoverrols), and that the maximum possible dose of aflatoxin B1 could not exceed the daily dietary dose permitted by US FDA food regulations. Therefore, it is clear that if any mycotoxins were present, exposure could not have been sufficient to cause any injuries to the plaintiffs.

VOCs

Air sampling results for VOCs collected on May 9, 2003 by MSES Consultants identified the presence of 10 compounds; however, all of the concentrations were well below established criteria levels published by OSHA and NIOSH presented in Appendix F.[94] Therefore, exposure could not have been sufficient to cause any injuries to the plaintiffs.

d. Did exposure to the chemicals precede the claimed adverse effects?

The Department of Health and Human Resources (DHHR) leased a portion of the premises located at 110 North Main Street, suite 201, Webster Springs, West Virginia

[90] Medical records of Evelyn Jordan: Bruce Guberman, MD Tri-State Occupational Medicine, Inc. 9/21/05 (000060-065)
[91] Medical records of Arletta Mathes: Joseph E Grady II, MD, CIME, Tri-State Occupational Medicine, Inc. 4/12/06
[92] Medical records of Joy Skeens: Bruce Guberman, MD Tri-State Occupational Medicine, Inc. 8/18/05 (RBM 0440-441)
[93] Medical records of Linda Smith: David Goetz, MD Exemplar Allergy and Asthma 8/26/03 (000580-583)
[94] Report of Findings, Follow-Up Investigation of Webster Springs Department of Health and Human Resources by MSES Consultants, dated 6/2/03 (inspection 4/30/03 and 5/09/03)

beginning in 1993 or 1994.[95] In 2000, the DHHR space was renovated.[96] In the spring of 2002, complaints of runny eyes and noses began.[97] Medical records for the plaintiffs for the period preceding 2002 were not provided for my review; however, some reported medical histories in the records and IME reports indicate long-standing prior conditions.

CONCLUSIONS

Based on a review of the records provided to me in this matter, and a review of the literature, my opinions are as follows:

- Mold and mold spores are ubiquitous, and the maintenance of a mold-free residential environment is not possible.
- There are no data showing that any mycotoxins were ever present in the indoor air at 110 North Main Street, Suite 201.
- There are no data showing that there could have been a sufficient amount of mycotoxin present to cause any injury to the plaintiffs. Furthermore, the above review of toxicity of various mycotoxins indicates that it is nearly impossible to inhale sufficient mycotoxins in an indoor environment to produce toxic effects.
- Inhalation of molds or mycotoxins in an indoor environment is not known to cause any of health effects claims by the plaintiffs.
- There are no data showing that there could have been a sufficient amount of VOCs present to cause any injury to the plaintiffs.
- Therefore, it is my opinion that none of the injuries claimed by the plaintiffs could have been caused by mycotoxins, VOCs, or other environmental conditions at the DHHR office.

I hold all of the foregoing opinions to a reasonable degree of scientific certainty. This report is based on the materials received and analyzed by me to date. Should additional information become available, I reserve the right to amend my opinions accordingly.

Bryan D. Hardin, PhD, Fellow, A.T.S. Date
Principal

Enclosures: Appendices A-F

[95] Deposition of Bill Adamy (93:1-93:23); Complaint
[96] Deposition of Bill Adamy (123:13-124:3)
[97] Deposition of Bill Adamy (5:4-5:16)

Appendix A: Dr. Hardin – CV

Appendix B: Institute of Medicine Findings

Appendix C: Known Effects Levels

Appendix D: Known Effects Levels

Appendix E: Regulatory Levels

Appendix F: VOC Air Sampling

Response to Mold Issues Raised by Captain McVay (July 2, 2003) and CH_2MHill (July 25, 2003) In Regard To Housing Under Construction at Bolling Air Force Base

Ed Light, CIH
Building Dynamics, LLC
for Harkins Builders, Inc.
September 8, 2003

1. What is the significance of mold types found on the party wall surfaces?

Captain McVay expresses concern for several mold species identified in surface tests, citing potential hazards listed in an unspecified OSHA reference.

The molds listed are commonly found in indoor and/or outdoor environments (Shelton 2002; Gots 2003). Mold spores are found on all building surfaces, and this presence cannot be related to occupant exposure. The molds identified by McVay are considered normal background exposure with health concerns limited to very sensitive individuals who may experience allergic reactions or opportunistic infections (ACOEM 2002). The unreferenced OSHA discussion on fungal toxicology clearly does not pertain to Indoor Air Quality.

2. Is building mold toxic to occupants?

Captain McVay alleges a variety of toxic effects caused by indoor molds including adverse pregnancy outcomes.

While much research research has addressed the potential toxic effects of mold, verified problems continue to be limited to massive doses in agricultural settings, and do not involve building exposures (ACOEM 2002). Some of the toxic reactions listed by Captain McVay in this category are “Alzheimer-like symptoms,” seizures, coughing up blood, and open skin sores. Comprehensive reviews of demonstrated mold effects in building occupants do not include miscarriages or birth defects (ACOEM, 2002).

3. Does the presence of previously treated mold growth increase susceptibility to future mold?

CH_2MHill implies that elevated humidity or plumbing leaks in the future will re-activate remediated mold, (no reference provided).

Excessive moisture is the critical factor which triggers mold growth, whether or not prior mold growth is present. Spores are always available to initiate growth from the outside environment or as a routine component of house dust (Foarde 1996). Treated mold growth (e.g., cleaned, dried and encapsulated) is generally not available for re-growth. The key to preventing mold growth in both remediated homes and houses without a moisture history is ongoing maintenance.

4. Does encasement provide protection for occupants?

CH_2MHill implies that occupants are fully exposed to mold growth behind walls (no references provided).

Although no wall is absolutely airtight, protection against internal mold growth is provided in two ways. First, the outer wall will help protect the mold from direct contact and physical disturbance. Second, even with minor penetrations (e.g., electrical outlets), airborne mold will tend to remain in the cavity. In the past, I have conducted air sampling in several rooms where extensive mold growth was present inside walls (dry, but not treated). In each case, airborne mold concentrations were low (normal background range). Encased growth which has been cleaned, dried and treated would offer a further degree of protection.

5. Do EPA Mold Remediation Guidelines allow only removal as the solution to mold growth on party walls (e.g., no bleach treatment allowed)?

CH_2MHill states that EPA Guidelines for mold in schools and commercial buildings must be applied verbatim to multi-family housing.

The EPA Guidelines (EPA 2001) are based on schools and commercial buildings and do consider unique aspects of multi-family housing such as party walls. The Guidelines are clearly intended to be flexible. This was confirmed in an August 22, 2003 phone conference with the EPA official responsible for the Guidelines, Laura Kolb, who verified that mold growth did not have to be removed and that alternative procedures which included bleach might be acceptable. The attached 2000 CDC publication on residential mold remediation recommends using bleach (National Center For Environmental Health 2000).

References

ACOEM, 2002. "Evidence-Based Statements – Adverse Human Health Effects Associated with Molds in the Indoor Environment." American College of Occupational and Environmental Medicine.

EPA, 2001. Mold Remediation in Schools and Commercial Buildings, U.S. Environmental Protection Agency EPA 402-K-0-001.

Foarde et al., 1996. "Amplification of *Penicillium Chrysogenum* on Three HVAC Duct Materials." Indoor Air '96, Vol. 3, p. 197, Nagoya, Japan.

Gots et al., 2003. "Indoor Health: Background Levels of Fungi." AIHA Journal (64) 427.

National Center for Environmental Health, 2000. "Questions and Answers on *Stachybotrys Chartarum* and Other Molds." Centers for Disease Control, Atlanta, Georgia.

Shelton et al., 2002. "Profiles of Airborne Fungi In Buildings and Outdoor Environments in the U.S." Applied and Environmental Microbiology (68) 4:1743.

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February 22, 2011
This letter may be read online at:

US Attorney General Eric Holder
U.S. Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530-0001

US Attorney Laura Duffy
Federal Office Building
880 Front Street, Room 6293
San Diego, California 92101-8893

RE: Corruption in the California Legal System Aiding An Interstate Insurer Fraud Scheme Of Epic Proportion On Behalf Of The Affiliates Of The US Chamber Of Commerce; Eggregious Civil and First Amendment Rights Violations To Silence A Whistleblower Of The Fraud And Of The Courts' Aiding And Abetting.

Attorney General Holder and Ms. Duffy,

In the late 70's we changed construction standards in the US to promote energy efficiency. At the same time, we began using manmade materials such as particle board and dry wall that easily wick when water is added. This caused our homes, schools and offices to act as gigantic petri dishes making a perfect environment for microbial contaminants to grow when water is added by leaks or floods. Over the years as water damage occurred in the buildings, citizens and workers began to become ill and even die from the exposures to microbes at a rate never seen before in the history of man.

Instead of doing the right thing and warning the public; in the early 2000's United States decision makers took deceptive measures to limit the financial liability for the causation of illnesses and death. They mass marketed a fraud into health policy that was meant to miseducate physicians and the courts by selling doubt of causation based on phony science being given an air of legitimizing authority.

My name is Sharon Kramer. I am a 34 year resident of San Diego county, wife of 30 years and mother of two grown, college educated daughters. I also hold a degree in marketing and I am a whistle blower of how it became a fraud in US and California health policy that moldy buildings pose no harm to human health. This occurred under the Bush Administration in 2002/2003 and Governor Schwarzenegger in 2005.

Although the phony science has been discredited by a Federal GAO Report in 2008; its impact on policy and private sector medical practices is still maiming and killing people today, six years after I first blew the whistle.

In 2002, the American College of Occupational and Environmental Medicine ("ACOEM") brought in a tobacco scientist, Bruce ("Kelman"); a newly retired high level NIOSH employee, Bryan ("Hardin"); and a physician from UCLA, Andrew ("Saxon"); to author a policy paper on illness caused by mold. Kelman and Hardin are two of the six owners of the corporation, VeriTox, Inc, formerly known as ("GlobalTox"). ACOEM writes the "Workers Comp Reform" guidelines California occupational physicians must follow under Senate Bill 899. Saxon is now retired from UCLA, but still uses its letterhead when testifying as a defense witness, interstate, in mold litigation. The legal counsel of the Regents of the UC have been made aware of this interstate insurer fraud violation that is against the policies for the university and its employees. They do nothing.

None of the three men had any research backgrounds into the health effects of mold. All three of the men have served extensively as expert witnesses for the defense in mold litigation. ACOEM is not a college. It is a trade association made up of occupational physicians who evaluate injured workers on behalf of insurers and employers.

The fraudulent concepts that were established in policy by ACOEM are that i.) it was scientifically proven the toxic components of contaminants found in water damaged buildings ("WDB") could never reach a level to harm humans; and ii.) mold is not a source of fungal infections except for severely immunocompromised people.

There is zero scientific foundation to support these false concepts. It has aided many an insurer to shift their financial responsibility off of themselves and onto the taxpayers via state and federal social disability funds and social service programs.

This has left the sick nowhere to turn for medical help, which has caused illness to become more severe; adding further to the fraud causing exobanent costs for taxpayers. Lives of US citizens, workers and children have been unnecessarily ruined. Shamefully, the courts and medical communities have treated the sick and injured as suspect criminals for stating the buildings are harming workers and families.

What has been allowed to happen to people made ill from the buildings is a national disgrace and a blight on the recent history of the moral character of our country. The adverse implications of this issue for democracy as a whole are collosal.

In 2003, the US Chamber of Commerce and the Manhattan Institute think-tank, paid Kelman and Hardin to author their policy paper on mold induced illnesses. They were given specific direction that something should be written that judges could understand.

On behalf of the affiliates of the US Chamber to mislead and instill hatred against the sick in the courts, the two men wrote: *"Thus the notion that toxic mold is an insidious secret killer as so many media and trial lawyers would claim, is Junk Science unsupported by actual scientific study"*

The US Chamber paper cites false authorship of also being written by Saxon, the only physician among the three. Saxon has stated under oath that he did not author the US Chamber's mold policy and had not even read it three years after publication. So not only is it a fraud in science and policy adverse to public interest; it is a fraud of authorship by the world's most powerful lobbying organization, the US Chamber of Commerce, for the purpose of misleading the courts. Their paper was only authored by two PhD's who are prolific expert witnesses for the insurance industry in mold litigation and are co-owners of the corporation, VeriTox, Inc..

Between 2004 and 2008, the US DOJ paid GlobalTox (VeriTox) approximately $800,000 in expert defense witness fees. Some of these monies were to defeat federal liability for claims of illness in sick military families living in moldy military housing. The ACOEM Mold Statement was held out as the authoratative source of science and primary reason to deny liability for these claims, while many mold injured military families lives were ruined.

A video of Kelman discussing his work for the US DOJ in deposition, July 2008, may be viewed at. http://www.blip.tv/file/1179698?utm_source=player_embedded

A video of Kelman discussing the false authorship of the US Chamber paper under oath, may be viewed at: http://www.blip.tv/file/2877610/

A video of Kelman literally laughing at the thought that the US Congress would investigate this, even when asked by thousands to do so may be viewed at: http://www.blip.tv/file/1179464/

In March of 2005, I was the first to publicly write of how the US Chamber was able to get their unclean hands into this issue with the assistance of the Manhattan Institute, GlobalTox and a US congressman from California. I was the first to write of how the fraud was closely connected to that of the policy established by ACOEM.

From my March 2005 writing as posted on PRWeb:

> Upon viewing documents presented by the Hayne's attorney of Kelman's prior testimony from a case in Arizona, Dr. Kelman altered his under oath statements on the witness stand. He admitted the Manhattan Institute, a national political think-tank, paid GlobalTox $40,000 to write a position paper regarding the potential health risks of toxic mold exposure. Although much medical research finds otherwise, the controversial piece claims that it is not plausible the types of illnesses experienced by the Haynes family and reported by thousands from across the US, could be caused by "toxic mold" exposure in homes, schools or office buildings. In 2003, with the involvement of the US Chamber of Commerce and ex-developer, US Congressman Gary Miller (R-CA), the GlobalTox paper was disseminated to the real estate, mortgage and building industries' associations. A version of the Manhattan Institute commissioned piece may also be found as a position statement on the website of a United States medical policy-writing body, the American College of Occupational and Environmental Medicine.

In May of 2005, Kelman and GlobalTox sued me, claiming my phrase *"altered his under oath statements"* was a maliciously false accusationa of perjury. No other words were challenged as being incorrect.

THIS IS WHERE THE TALE TURNS EVEN MORE INSIDIOUS

For six years, I have been evidencing for all courts to oversee this litigation that Kelman committed perjury to establish needed reason for my malice, claiming he gave a testimony in my own mold litigation of long ago that caused me to "launch into an obsessive campaign" to destroy his reputation. Never made to corroborate this claim by any court, he never even gave the purportedly malice causing testimony and the courts have been evidenced of this at nausium.

The undisputed evidence may be found extensively in the court record file proving Kelman never even gave the purported malice causing testimony, but this is never mentioned in any opinion or ruling of this case. .The perjury used to establish malice in a libel litigation over public health, was suborned by his legal counsel, Keith ("Scheuer") even as late as September 2009 in his reply brief to the Fourth District Division One

Appellate Court.. The court was again for the upteenth time irrefutably evidenced of the criminal perjury by author of policy for the US Chamber of Commerce.. No mention of the undisputed evidence is found in the Opinion. If fact, it was rewarded.

A video of Kelman and myself in depositions discussing the perjury, the damage to me caused by the perjury and how they attempted to use this case to force me to endorse the US Chamber's fraudulent science may be viewed at: http://www.blip.tv/file/2063366/

For six years, I have been evidencing that Hardin (sixth owner of GlobalTox, retired high level NIOSH employee, and author of policy for the US Chamber and ACOEM) is an improperly undisclosed party to this litigation. No mention of this irrefutable evidence is found in the Opinions.

In six years time, the courts cannot even state what is incorrect of my writing. It is irrefutably evidenced that Kelman *"altered his under oath statements"* and trying to say the Chamber paper was not connected to ACOEM's, but had to admit they were when a prior testimony of his from another case was permitted into the Oregon trial, the subject litigation of my writing. No mention of this undisputed truth being extensively in the court records is found in the Opinions.

The CA legal system has been playing politics. With opinions that could only be described as wickedly deceptive, the San Diego courts have done everything they can to try to discredit and silence me. It has cost my family everything we own for me not to be silenced of this fraud in health policy that has harmed and continues to harm so many Americans; with the Chair of the California Commission on Judicial Performance being the primary judicuary best evidenced to be driving the train.

I REFUSE TO BE SILENCED WHEN PEOPLE ARE DYING FROM THIS FRAUD..

Now, Kelman is seeking an injunctive relief that I be gagged from ever writing of this shameful period in US and California health policy and the California legal system, ever again.

Although I was only sued for the words *"altered his under oath statements"*; Kelman is now seeking an injunctive relief that I be gagged from *"stating, repeating, publishing or paraphrasing, by any means whatsoever, any statement that was determined to be libelous in the action titled Kelman v Kramer, San Diego Superior Court Case No. Gin 044539"* from ever writing again:

> "The libelous passage of the press release states: 'Dr. Bruce Kelman of GlobTox, Inc, a Washington based environmental risk management company, testified as an expert witness for the defense, as he does in mold cases through the country. Upon viewing documents presented by the Hayne's [sic} attorney of Kelman's prior testimony from a case in Arizona, Dr. Kelman altered his under oath statements on the witness stand. He admitted the Manhattan Institute, a national political think tank, paid GlobalTox $40,000 to write a position paper regarding the potential health risks of toxic mold exposure."

The California courts and the state of California itself are now the stealth beneficiaries of seeing me illegally gagged; as are the California legal system policing agencies that have turned a blind eye in incestuous Deliberate Indifference while US and CA citizens and workers are dying.

If even ONE person in a decision making capacity in the State of California would acknowledge what the courts have done in this malicious litigation, i.e, reward criminal perjury in a strategic litigation by authors of policy for the US Chamber of Commerce; the fraud of the US Chamber would come to a screeching halt.

Thus far, none have and none will. **It is not acceptable in the United States of America to do this to a person who went above and beyond for her fellow man. It is not acceptable to allow this fraud to continue in health policy on behalf of the affiliates of the US Chamber and adverse to public health. It is a dangerous precedence that the First Amendment of the Constitution could be so violated on behalf of the interests of industry and the US Chamber, by the State of California.**

Irrefutable evidence of my above statements may be found in the courts records file in San Diego, CA. Many of the relevant documents may be read online in links at:

http://katysexposure.wordpress.com/2010/04/30/truth-out-sharon-kramer-letter-to-andrew-saxon-mold-issue/

and

http://katysexposure.wordpress.com/2010/10/27/presiding-justice-candidate%C2%A0judith-mcconnell-nine-subordinate-san-diego-judicuariesassisting-with-strategic-litigation-by-criminal-means-by-an-author-of/

As such, I am asking the US Attorney General to intercede to stop the rampant corruption in the California legal system and stop the fraud in policy regarding illnesses caused by water damaged buildings. If the State of California can do this to me while using the courts to play politics; they can and most likely will, do it to anyone who challenges the direction of the US Chamber of Commerce in the future. Dangerous precedence is being set of instilling fear of retribution for speaking the truth in America.

Please let me know how the US DOJ will be addressing this gravely serious matter. One only needs to look at the court records file in San Diego county under Kelman v Kramer to verify that I am telling the truth of the courts rewarding criminal perjury by author of fraudulent health policy on behalf of the affiliates of the US Chamber and to silence, demean, discredit and financially cripple a whistleblower of the fraud. Courts cannot simply choose to ignore irrefutable evidence of criminal perjury just because someone authors policy for the US Chamber of Commerce. You do not treat people like this in the democracy. If this is where democracy is headed in the United States of American, then God help us all.

Sincerely,

Mrs. Sharon Noonan Kramer

CC:
President of the United States of America, Barak Obama
Governor of California, Jerry Brown

Attached:

February 10, 2011 Letter to Justices Judith McConnell and Patricia Benke, cc'd to many along with attachments and detailing their willful aiding and abetting insurer fraud by aiding with a strategic litigation carried out by criminal means. .

Billing records for the US Chamber of Commerce paper that was written specifically to influence the courts with phoney science. This shows only Kelman and Hardin, two owners of the litigation defense firm VeriTox with PhD's, authored the fraudulent US Chamber paper that cites false University of California physician authorship. (Not mentioned in the opinion, this is all part of the court record on Appeal in the case of Kelman v. Kramer)

Evidence the California courts turned a blind eye to criminal perjury by an author of policy for the US Chamber, Bruce J. Kelman, in a malicious litigation for SIX YEARS.

Evidence that I was only sued for words *"altered his under oath statements."*

Evidence that "They" are now seeking I be gagged from ever writing again of how it became a fraud in US public health policy that moldy buildings do not harm; and gagged from writing of the CA legal system shamelessly aiding and abetting it by aiding and abetting a strategic litigation carried out by criminal means by authors of policy for the US Chamber of Commerce.

GLOBALTOX

SEATTLE • PORTLAND • GUELPH

March 28, 2003

Our ref: 6257

Paul Howard
The Manhattan Institute
52 Vanderbilt Avenue
New York, NY 10017

RE: Manhattan Institute Project

Dear Mr. Howard:

We are pleased to confirm The Manhattan Institute has retained GLOBALTOX, Inc. to investigate the above-referenced matter on an hourly rate-plus-expenses basis, unless otherwise specified. GLOBALTOX's retention on this case is solely with your firm and, as such, all fees and expenses incurred by GLOBALTOX will be the responsibility of The Manhattan Institute.

GLOBALTOX's services are offered only in accordance with our current Terms and Conditions agreement. Our charges will be billed according to our current Schedule of Rates and Charges, with professional fees at our current commercial rates. To ensure that you are apprised of the technical efforts expended on your project, periodic invoices will be provided. Payment of each billing is due upon receipt.

GLOBALTOX's charges for this activity will not exceed $25,000 without prior approval of The Manhattan Institute.

Please indicate your acceptance and understanding of the contents of this letter by signing and returning the enclosed copy. Copies of our current Terms and Conditions and Schedule of Rates and Charges are enclosed and made a part hereof by reference. If you have any questions regarding any of the above terms, please do not hesitate to contact me.

Thank you again for your interest in GLOBALTOX, Inc. We look forward to working with you.

Sincerely,

GLOBALTOX, INC.

Bruce J Kelman

Bruce J. Kelman, Ph.D., DABT
Principal

Accepted by: Lawrence Moss

Date: 4/8/03

BJK/bmw

Enclosures

032803bjk1.doc

18372 Redmond-Fall City Road • Redmond, WA 98052 • Tel 425-556-5555 • Fax 425-556-5556 • www.globaltox.com

A. No. I mean -- no, I did not. I made them aware of it, and then when they publish it, I mean, they published it.

Q. When the lay version of the ACOEM paper was printed by the Institute For Legal Reform, the ACOEM again did not have any conflict-of-interest waiver on your part, did it?

A. I have no idea. I've never seen that version. I'll call it the nonscientific piece that has my name on it.

Q. From your view, did you make any efforts, despite anyone calling you or anything else, to make sure that a conflict-of-interest waiver was included with the lay version put out by the Institute For Legal Reform?

A. No, because I didn't even know my name was on it.

Q. The ACOEM paper was also given an iteration in the Manhattan Institute document. You were aware of that?

A It didn't occur to us.

Q Did you get Dr. Saxon's permission to list him as a co-author in the Manhattan Institute paper?

11:00:42 A We did.

Q You asked for it and he said yes?

A He said he had no objection.

Q So when Dr. Saxon testified in a separate matter that he did not know his name was on it, do

11:01:00 you believe he was not testifying truthfully?

MR. SCHEUER: Objection; assumes a fact not in evidence. There's no evidence at all that Dr. Saxon said that.

MS. KRAMER: This is testimony from

11:01:36 Mr. Saxon saying he didn't know his name was on it.

BY MR. BANDLOW:

Q I'm looking at trial testimony from the case, looks like it was in Nevada, involving Dr. Saxon. He was -- and I will represent for the

11:01:52 record, based on this transcript, he was asked a question, quote, "When the lay version of the ACOEM paper was printed by the Institute for Legal Reform, the ACOEM again did not have any conflict of interest waiver on your part, did it?"

11:02:08 And he answered, quote, "I have no idea.

GlobalTox, Inc.

18372 Redmond-Fall City Road
Redmond, WA 98052
EIN 91-1877454

Invoice

DATE	INVOICE #
4/30/2003	5258

DUE DATE	TERMS
5/30/2003	Net 30

FOR PERIOD ENDING
April 18, 2003

BILL TO

The Manhattan Institute
Paul Howard
52 Vanderbilt Avenue
New York, NY 10017

PROJECT

6257 - Manhattan Institute Project

DESCRIPTION	SERVICE	HOURS OR UNITS	TYPE	AMOUNT
Write article; teleconferences with client and other authors	Kelman, B	5.5	Labor	1,925.00
	Hardin	8	Labor	2,800.00
	Admin Support	1	Labor	60.00
Copying Fee	Copy	5	Non-labor	0.75

Tel: (425) 556-5555
Fax: (425) 556-5556

This invoice may not include other project expenses unavailable at invoice date. Interest of 2% per month charged on accounts outstanding.

Total	$4,785.75

PLEASE REMIT PAYMENT TO:
GLOBALTOX, INC.

2 of 11

EXH 0053

GlobalTox, Inc.

18372 Redmond-Fall City Road
Redmond, WA 98052

EIN 91-1877454

Invoice

DATE	INVOICE #
5/30/2003	5412

DUE DATE	TERMS
6/29/2003	Net 30

FOR PERIOD ENDING
May 16, 2003

BILL TO

The Manhattan Institute
Paul Howard
52 Vanderbilt Avenue
New York, NY 10017

PROJECT

6257 - Manhattan Institute Project

DESCRIPTION	SERVICE	HOURS OR UNITS	TYPE	AMOUNT
Compose and edit paper; consultations with Dr. Hardin	Kelman, B	5	Labor	1,750.00
	Admin Support	0.25	Labor	15.00

Tel: (425) 556-5555
Fax: (425) 556-5556

This invoice may not include other project expenses unavailable at invoice date. Interest of 2% per month charged on accounts outstanding.

Total	$1,765.00

PLEASE REMIT PAYMENT TO:
GLOBALTOX, INC.

3 of 11

GlobalTox, Inc.

18372 Redmond-Fall City Road
Redmond, WA 98052

EIN 91-1877454

Invoice

DATE	INVOICE #
6/12/2003	5493

DUE DATE	TERMS
7/12/2003	Net 30

FOR PERIOD ENDING
May 30, 2003

BILL TO

The Manhattan Institute
Paul Howard
52 Vanderbilt Avenue
New York, NY 10017

PROJECT

6257 - Manhattan Institute Project

DESCRIPTION	SERVICE	HOURS OR UNITS	TYPE	AMOUNT
Revise and edit manuscript	Kelman, B	4	Labor	1,400.00
Revise and edit draft manuscript	Hardin	27	Labor	9,450.00
Find references; review paper	Technical Spt	4.75	Labor	405.50
Library services	Library Spt	6	Labor	600.00
	Admin Support	1.75	Labor	105.00
Copying Fee	Copy	48	Non-labor	7.20

Tel: (425) 556-5555
Fax: (425) 556-5556

This invoice may not include other project expenses unavailable at invoice date. Interest of 2% per month charged on accounts outstanding.

Total	$11,967.70

PLEASE REMIT PAYMENT TO:
GLOBALTOX, INC.

4 of 11

EXH 0053

GlobalTox, Inc.

18372 Redmond-Fall City Road
Redmond, WA 98052

EIN 91-1877454

Invoice

DATE	INVOICE #
7/24/2003	5759

DUE DATE	TERMS
8/23/2003	Net 30

FOR PERIOD ENDING
July 11, 2003

BILL TO

The Manhattan Institute
Paul Howard
52 Vanderbilt Avenue
New York, NY 10017

PROJECT

6257 - Manhattan Institute Project

DESCRIPTION	SERVICE	HOURS OR UNITS	TYPE	AMOUNT
Edit manuscript; write biosketches	Kelman, B	6.25	Labor	2,187.50
Assist manuscript edit; verify references	Technical Spt	7	Labor	580.50
Library services	Library Spt	8	Labor	800.00
	Admin Support	0.25	Labor	15.00
Copying Fee	Copy	6	Non-labor	0.90

Tel: (425) 556-5555
Fax: (425) 556-5556

This invoice may not include other project expenses unavailable at invoice date. Interest of 2% per month charged on accounts outstanding.

Total	$3,583.90

PLEASE REMIT PAYMENT TO:
GLOBALTOX, INC.

5 of 11

GlobalTox, Inc.

18372 Redmond-Fall City Road
Redmond, WA 98052

EIN 91-1877454

Invoice

DATE	INVOICE #
8/6/2003	5869

DUE DATE	TERMS
9/5/2003	Net 30

FOR PERIOD ENDING
July 25, 2003

BILL TO

The Manhattan Institute
Paul Howard
52 Vanderbilt Avenue
New York, NY 10017

PROJECT

6257 - Manhattan Institute Project

DESCRIPTION	SERVICE	HOURS OR UNITS	TYPE	AMOUNT
Prepare for and attend Chamber of Commerce meeting	Hardin	7	Labor	2,450.00
Consultation with Dr. Hardin	Kelman, B	0.25	Labor - NC	0.00
Library services	Library Spt	4	Labor	400.00
	Admin Support	0.25	Labor	15.00
Postage	Postage		Non-labor	6.96
Document retrieval	Other		Non-labor	25.30
Travel expenses - airfare	Travel		Non-labor	692.30
Travel expenses	Travel		Non-labor	401.07
Credit given for travel expenses	Travel		Non-labor	-1,092.98

Tel: (425) 556-5555
Fax: (425) 556-5556

This invoice may not include other project expenses unavailable at invoice date. Interest of 2% per month charged on accounts outstanding.

Total	$2,897.65

PLEASE REMIT PAYMENT TO:
GLOBALTOX, INC.

6 of 11

EXH 0053

MANHATTAN INSTITUTE FOR POLICY RESEARCH, INC.
52 VANDERBILT AVENUE
NEW YORK, NY 10017

THE CHASE MANHATTAN BANK
NEW YORK, NY 10021

1-2/210

0006724
Check No.

PAY TO THE ORDER OF

GLOBALTOX, INC
Four Thousand Seven Hundred Eighty-Five Dollars and 75/100-------

DATE
06/01/03

AMOUNT
$4,785.75

Michael Barnes
Lawrence Mone

⑈006724⑈ ⑆021000021⑆ 621501045865⑈

MANHATTAN INSTITUTE FOR POLICY RESEARCH, INC.
52 VANDERBILT AVENUE
NEW YORK, NY 10017

THE CHASE MANHATTAN BANK
NEW YORK, NY 10021

1-2/210

0006890
Check No.

GLOBALTOX, INC
Thirteen Thousand Seven Hundred Thirty-Two Dollars and 70/100---

DATE 07/01/03

AMOUNT $13,732.70

PAY TO THE ORDER OF

Michael Barnes
Laurence Moss

⑈006890⑈ ⑆021000021⑆ 6215010458 65⑈

ORIGINAL DOCUMENT PRINTED ON CHEMICAL REACTIVE PAPER WITH MICROPRINTED BORDER • SEE REVERSE SIDE FOR COMPLETE SECURITY FEATURES

MANHATTAN INSTITUTE FOR POLICY RESEARCH, INC.
52 VANDERBILT AVENUE
NEW YORK, NY 10017

THE CHASE MANHATTAN BANK
NEW YORK, NY 10021

1-2/210

0007170
Check No.

GLOBALTOX, INC.
Six Thousand Four Hundred Eighty-One Dollars and 55/100----------

DATE 09/01/03

AMOUNT $6,481.55

PAY TO THE ORDER OF

Michael Barone
Laurence Mone

THIS DOCUMENT CONTAINS HEAT SENSITIVE INK • TOUCH OR PRESS HERE • RED IMAGE DISAPPEARS WITH HEAT

⑈007170⑈ ⑆021000021⑆621501045865⑈

The Growing Hazard of Mold Litigation

Papers commissioned by the U.S. Chamber Institute for Legal Reform and the Center for Legal Policy at The Manhattan Institute

Released July 17, 2003

About The Authors

Dr. Bryan D Hardin
GLOBALTOX

Bryan D. Hardin, Ph.D., holds positions as a senior consultant with GlobalTox and Adjunct Assistant Professor at the Rollins School of Public Health, Emory University. He was commissioned into the US Public Health Service and began his public health career with the National Institute for Occupational Safety and Health (NIOSH) in 1972, where he served in research, policy, and management roles, culminating as Deputy Director of NIOSH and Assistant Surgeon General in the Public Health Service.

Dr. Hardin holds a Ph.D. in Environment Health Sciences from the University of Cincinnati. Dr. Hardin is a full member of the American Association for the Advancement of Science, the American Industrial Hygiene Association, the American Public Health Association, and the Teratology Society. He has served on working groups of the World Health Organization, the International Labor Office, and the International Agency for Research on Cancer.

Coreen A. Robbins, Ph.D., C.I.H.
GLOBALTOX

Coreen A. Robbins, M.H.S., Ph.D., CIH, holds a position with GlobalTox, Inc. as a consulting Industrial Hygienist for projects in field investigations and in litigation support activity. She has approximately 13 years of experience in industrial hygiene and has served as a consultant in many investigations throughout the U.S.

Dr. Robbins holds a master's degree in Occupational Safety and Health (1989), and a Ph.D. (1995) in Environmental Science from the Johns Hopkins University. Dr. Robbins is also a Certified Industrial Hygienist (CIH). Dr. Robbins has extensive practical experience in conducting industrial hygiene surveys in areas including indoor air quality, mold, asbestos and man-made mineral fibers, chemical exposure assessment and industrial noise exposure. Dr. Robbins is a full member of the American Academy of Industrial Hygiene and the American Industrial Hygiene Association (AIHA), and an affiliate member of the American Conference of Governmental Industrial Hygienists. She is currently serving on the AIHA's Task Force on Microbial Growth as the representative for the AIHA Toxicology Committee.

Andrew Saxon
Chief, Division of Clinical Immunology and Allergy
UCLA School of Medicine

Andrew Saxon, MD, is a professor and Chief of the Division of Clinical Immunology and Allergy at the UCLA School of Medicine. Dr. Saxon has over 25 years of experience in immunology, he has published approximately 165 peer-reviewed research articles, and he has three patents in the immunology field. Since 1999, Dr. Saxon has served as editor-in-chief of the journal Clinical Immunology.

Dr. Saxon received his MD from Harvard Medical School. He is board-certified in Internal Medicine, Allergy and Immunology, and Diagnostic Laboratory Immunology. He is a member of the American Academy of Allergy and Immunology, where he serves on the Research Awards Committee, the Nominating Committee, the Primary Immunodeficiency Disease Committee and the Clinical and Diagnostic Immunology Committee; and where has served in the past as Chairman of the Basic and Clinical Immunology Section.

Dr. Bruce J. Kelman
GLOBALTOX

Bruce J. Kelman, Ph.D., D.A.B.T., holds positions as Principal and President of GlobalTox, Inc. Dr. Kelman has approximately 25 years experience in toxicology and has served as a consultant and expert in numerous investigations across North America. He has evaluated numerous claims of personal injury and health impacts from many chemicals and drugs, and has presented a variety of health risk concepts to policy makers, government regulators, citizen groups, and individuals involved in all aspects of the legal process.

Dr. Kelman holds a Ph.D. from the University of Illinois (1975) and is certified in toxicology by the American Board of Toxicology (original certification in 1980 with recertifications in 1985, 1990, 1995 and 2000).Dr. Kelman is a member of the Society of Toxicology, American College of Occupational and Environmental Medicine, American College of Toxicology, American Society for Experimental Pharmacology and Therapeutics, Society for Experimental Biology and Medicine, and Teratology Society.

Nevertheless, except for persons with severely impaired immune systems, indoor mold is not a source of fungal infections, and current scientific evidence does not support the idea that human health has been adversely affected by inhaled mold toxins in home, school, or office environments. Thus, the notion that “toxic mold” is an insidious, secret “killer,” as so many media reports and trial lawyers would claim, is “junk science” unsupported by actual scientific study.

U.S. Chamber Institute for Legal Reform

The U.S. Chamber Institute for Legal Reform was founded in 1998 as a 501(c)(6) tax-exempt, separately incorporated affiliate of the U.S. Chamber of Commerce. The mission of ILR is simple: to make America's legal system simpler, fairer and faster for everyone. ILR's multi-faceted program seeks to promote civil justice reform through legislative, political, judicial and educational activities at the national, state and local levels.

Center for Legal Policy at the Manhattan Institute

The Center for Legal Policy at the Manhattan Institute is a leading voice for reform of America's civil justice system. The Center's mission is to communicate thoughtful ideas on civil justice reform to real decision-makers through books, publications, conferences and public or media appearances. Founded in 1986, hundreds of news reports have cited the Center's work, with The Washington Post going so far as to call Senior Fellows Peter Huber and Walter Olson the "intellectual gurus of tort reform."

LAW OFFICES OF KEITH SCHEUER
Keith Scheuer, Esq. Cal. Bar No. 82797
4640 Admiralty Way, Suite 402
Marina Del Rey, CA 90292
(310) 577-1170
Attorney for Plaintiffs
BRUCE J. KELMAN and GLOBALTOX, INC.

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN DIEGO, NORTH DISTRICT

BRUCE J. KELMAN, GLOBALTOX, INC., Plaintiffs, v. SHARON KRAMER, and DOES 1 through 20, inclusive, Defendants.	CASE NO. BC Assigned for All Purposes to: HON. DEPARTMENT UNLIMITED CIVIL CASE COMPLAINT FOR LIBEL

Plaintiffs BRUCE J. KELMAN (hereafter "KELMAN") and GLOBALTOX, INC. (hereafter "GLOBALTOX") complain against Defendants as follows:

FIRST CAUSE OF ACTION
(Libel Against All Defendants)

1. Plaintiff BRUCE J. KELMAN (hereafter "KELMAN") is an individual who resides in the State of Washington.

2. Plaintiff GLOBALTOX, INC. (hereafter "GLOBALTOX") is a corporation organized and existing under the laws of the State of Washington, with its principal place of business in

8. Commencing on or about March 9, 2005, Defendants published and distributed written press releases that falsely implied that KELMAN and GLOBALTOX provided perjurious testimony in lawsuits and stated that KELMAN, while working for GLOBALTOX, "altered his under oath statements" while testifying on the witness stand in an Oregon lawsuit. Defendants posted these statements on various online message boards and internet sites, including ToxLaw.com and ArriveNet.com.

9. Such statements are false, and are libelous on their face. They expose Plaintiffs to hatred, contempt, ridicule, and obloquy, and tend to injure Plaintiffs in their business, in that such statements accuse Plaintiffs of providing false testimony under oath, and engaging in dishonest and criminal conduct.

10. These defamatory statements were seen and read by persons across the United States and elsewhere who visited the above-referenced message boards and internet sites.

11. As a proximate result of Defendants' wrongful publication, Plaintiffs have suffered loss to their reputation, shame and mortification, all to their general damage in an amount to be proved at trial.

12. In addition, as a further proximate result of the above-described publication, Plaintiffs have suffered special

SCHEUER & GILLETT, a professional corporation
Keith Scheuer, Esq. Cal. Bar No. 82797
4640 Admiralty Way, Suite 402
Marina Del Rey, CA 90292
(310) 577-1170
Attorney for Plaintiff
BRUCE J. KELMAN

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN DIEGO, NORTH DISTRICT

BRUCE J. KELMAN, Plaintiff, v. SHARON KRAMER, and DOES 1 through 20, inclusive, Defendants.	**CASE NO.:** **37-2010-00061530-CU-DF-NC** **Assigned for All Purposes to:** **HON. THOMAS P. NUGENT** **DEPARTMENT: N-30** UNLIMITED CIVIL CASE **[PROPOSED] PRELIMINARY INJUNCTION** **Hearing Date: March 25, 2011** **Time: 1:30 p.m.** **Department: N-30**

On proof made to the Court's satisfaction, and good cause appearing:

IT IS HEREBY ORDERED that, during the pendency of this action, the above-named Defendants, and each of them, and all persons acting under their instructions or in concert with them or any of them, are enjoined and restrained from stating, repeating, publishing or paraphrasing, by any means whatsoever, any statement that

was determined to be libelous in an action titled Kelman v. Kramer, San Diego Superior Court case no. GIN 044539. The libelous passage of the press release states:

> "Dr. Bruce Kelman of GlobalTox, Inc., a Washington based environmental risk management company, testified as an expert witness for the defense, as he does in mold cases throughout the country. Upon viewing documents presented by the Hayne's [sic] attorney of Kelman's prior testimony from a case in Arizona, Dr. Kelman altered his under oath statements on the witness stand. He admitted the Manhattan Institute, a national political think-tank, paid GlobalTox $40,000 to write a position paper regarding the potential health risks of toxic mold exposure."

IT IS FURTHER ORDERED that, before this order may take effect, Plaintiff must file a written undertaking in the sum of $_____, as required by C.C.P. § 529, for the purpose of indemnifying Defendants for the damages they may sustain by reason of the issuance of this preliminary injunction if the Court finally decides that Plaintiff is not entitled to it. The preliminary injunction shall issue on Plaintiff's filing of such written undertaking.

The Court reserves jurisdiction to modify this injunction as the ends of justice may require.

_____
Judge of the Superior Court