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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF ARIZONA

Jane Doe #1; Jane Doe #2; Norlan Flores, on behalf of themselves and all others similarly situated,

Plaintiffs,

v.

Jeh Johnson, Secretary, United States Department of Homeland Security, in his official capacity; R. Gil Kerlikowske, Commissioner, United States Customs & Border Protection, in his official capacity; Michael J. Fisher, Chief of the United States Border Patrol, in his official capacity; Jeffrey Self, Commander, Arizona Joint Field Command, in his official capacity; Manuel Padilla, Jr., Chief Patrol Agent-Tucson Sector, in his official capacity,

Defendants.

Case No. 4:15-cv-00250-TUC-DCB

DECLARATION OF ROBERT W. POWITZ IN SUPPORT OF PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

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** Admitted pursuant to Ariz. Sup. Ct. R. 38(a)*
*** Admitted pursuant to Ariz. Sup. Ct. R. 38(f)*

I, ROBERT W. POWITZ, hereby declare:

I. INTRODUCTION

1. I have personal knowledge of the facts stated herein and, if called as a witness, could and would competently testify thereto.

2. I am a practicing forensic sanitarian with almost 50 years of professional experience in corrections. I hold a master's degree in public health with a specialty in institutional practice and a doctorate in environmental health, both from the University of Minnesota.

3. I am registered as a sanitarian and certified food safety professional with the National Environmental Health Association and licensed as a sanitarian in the State of Connecticut.

4. I have served as an expert witness on correctional public health on behalf of the U.S. Department of Justice, Civil Rights Division and the Federal Bureau of Prisons, and in the following jurisdictions: First, Second, Third, Fourth, Sixth and Eleventh Federal Circuit Courts of Appeals; the states of Alabama, California, Delaware, District of Columbia, Florida, Georgia, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Dakota and Vermont; and the cities of Baltimore, Los Angeles, New Orleans, New York, Philadelphia and Washington, DC. Correctional public health encompasses food service, sanitation (including maintenance and hygiene), shelter (including space, lighting, ventilation, living conditions, housekeeping, etc.), and safety (both general and fire safety) in prisons, jails and other types of custodial institutions.

5. I am certified by National Sanitation Foundation ("NSF") International and the National Environmental Health Association as a food safety and Hazard Analysis Critical Control Point ("HACCP") instructor.

6. I have served on the editorial boards of and as a contributing author for *Food Safety Magazine* and *Corrections Managers' Report*. I also authored a regular column in *American Jails* between 2004 and 2007. I have regularly appearing columns

that focus on topical issues in public and environmental health and safety specific to corrections.

7. I am a member of the National Environmental Health Association and American Jail Association.

8. I have authored various articles that were published in *American Jails* and *Correction Managers' Report*.

9. A true and correct copy of my current resume is attached as Attachment A to this declaration.

II. ASSIGNMENT

10. I have been asked by Plaintiffs' counsel to offer my opinions regarding the conditions of confinement in Tucson Sector Border Patrol Station Hold Rooms (hereafter, "hold rooms").

III. MATERIALS RELIED UPON

11. I personally inspected all four of the Border Patrol Stations made available to Plaintiffs for inspection—Tucson, Casa Grande, Douglas and Nogales—on September 8 through September 11, 2015. At each station, I was accompanied by corrections expert Eldon Vail and a photographer. I was also accompanied at each station by two of Plaintiffs' attorneys: Colette Mayer and Nora Preciado at Tucson; Louise Stoupe and Nora Preciado at Casa Grande; and Kevin Coles and James Lyall at Douglas, Nogales, and an abbreviated second visit to Tucson.

12. I have read the declaration of Eldon Vail and believe his account of our inspections and descriptions of the various facilities to be accurate.

13. I have read the declaration of Joseph Gaston and have based my opinions on reports he prepared at the request of Plaintiffs' counsel, which analyze the "e3DM" data produced by Defendants. I understand that the e3DM data purports to reflect certain records logged by Defendants with respect to the detention of individuals at each of the eight Border Patrol Stations within the Tucson Sector.

14. I have been provided with all documents produced by Defendants in this case.

15. I have reviewed the declarations of individuals who were detained in U.S. Customs and Border Protection ("CBP") facilities within the Tucson Sector of the U.S. Border Patrol submitted in support of Plaintiffs' Motion for Class Certification.

16. I have also reviewed screenshots from surveillance video produced by Defendants and photographs taken during my Border Patrol station inspections.

17. I have been provided with certain declarations and other documents filed in this case and in *Flores v. Lynch*, No. CV 85–4544–RJK–Px (C.D. Cal. filed July 11, 1985), that relate to the hold rooms.

IV. OBSERVATIONS AND OPINIONS

18. It is my opinion that the hold rooms operated by Defendants do not comply with CBP's own standards let alone the national standards for correctional facilities, with respect to hygiene.

19. There are a number of relevant standards that I have referred to in order to form my opinion in addition to the standards outlined by Eldon Vail in his declaration (Vail Decl. ¶¶ 16-20).

20. These standards include the Performance-Based Standards for Adult Local Detention Facilities issued by the American Correctional Association ("ALDF Standards") that describe mandatory standards for the hygienic operation of detention facilities. A true and correct copy of excerpts from the ALDF Standards is attached to the Appendix of Exhibits as Exhibit 195.

21. Similarly, the American Public Health Association issues Standards for Health Services in Correctional Institutions.

22. In addition, the U.S. Department of Justice has issued ICE Detention Standards that relate to sanitary issues, a true and correct copy of which is attached to the Appendix of Exhibits hereto as Exhibit 200.

A. The Hold Rooms Are Unsanitary

23. In my opinion, the hold rooms operated by CBP are not regularly and professionally cleaned and sanitized. During my inspections, I observed and assessed hold room cleanliness, including floors, walls, benches, drains, toilets, sinks, stalls, and other fixtures. Almost all of these areas were badly soiled.

24. CBP's own standards require all facilities or hold rooms to be regularly and professional cleaned and sanitized. (Ex. 95, 4.7.)

25. In addition, National standards for correctional facilities require general cleanliness and garbage removal. Both the Core Jail Standards for Housekeeping and the ALDF Standards require that: "The facility is clean, in good repair." (Ex. 199, 1-CORE-1A-04 (Ref. 4-ALDF-1A-04) at 2; Ex. 195, 4-ALDF-1A-04 at 3.)

26. The ICE Detention Standards further state that:

> Garbage and refuse shall be collected and removed from common areas at least daily to maintain sanitary conditions and to avoid creating health hazards.

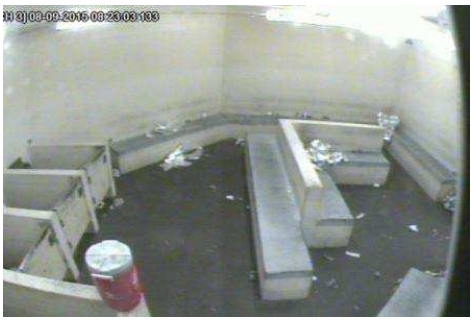
(Ex. 200, Sec. 1.2.III.7.b at 25.)

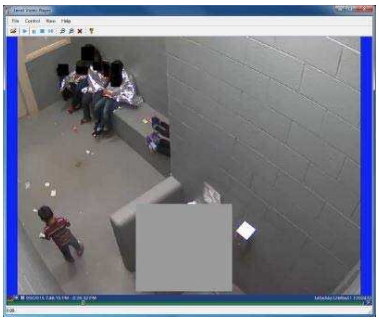
B. Trash in Hold Rooms

27. Hold rooms often lacked waste bins. At Tucson Station, for example, waste bins were kept outside the hold rooms in the processing area. (Ex. 59.)

28. Even more commonly, toilet stalls lacked waste receptacles for used toilet paper or sanitary napkins or diapers. (Exs. 20; 21; 56.)

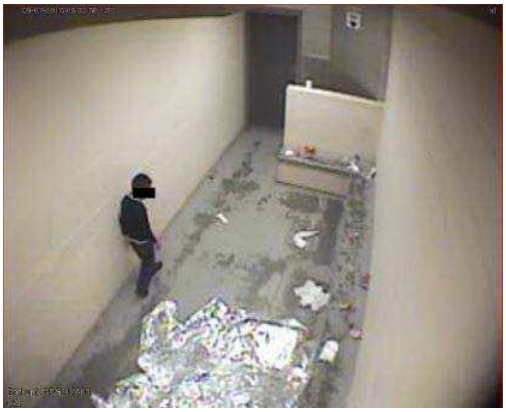
29. Surveillance videos produced by Defendants show that hold rooms frequently accumulate excessive amounts of trash:





(Exs. 189, 153, 156.)

30. Screenshots of surveillance video from Douglas station show a child walking by trash scattered around the hold room, while his mother and a young toddler lie beneath Mylar sheets heaped on the floor:



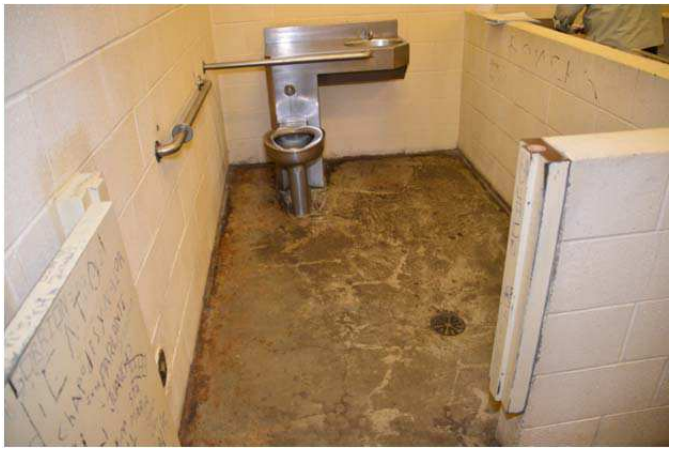
(Ex. 149.) Earlier, the mother can be seen changing her child's diaper on top of the same Mylar sheets:

(Ex. 148.)

31. Direct exposure to garbage contributes to the risk of disease and the presence of vermin, as well as contributing to psychologically stressful conditions due to foul odors and eating and sleeping amidst filth. Also the inability to properly dispose of sanitary napkins and diapers significantly increases the risk of transmission of blood borne diseases and/or gastrointestinal infections. Any blood spill, including menstrual blood, can pose a risk of transmission of disease.

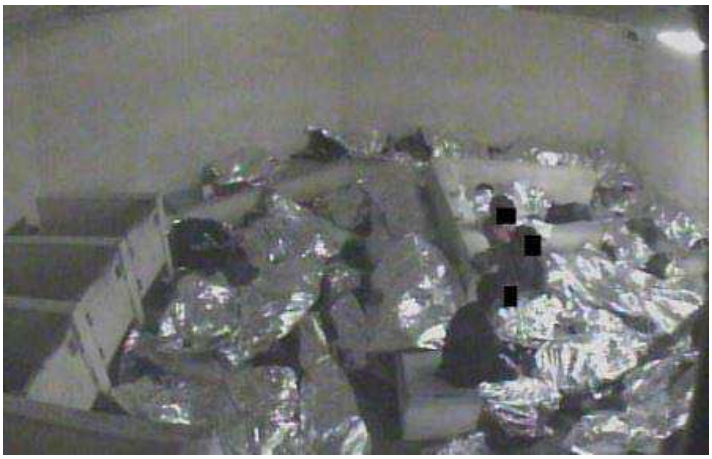
C. Filth on Floors and Walls

32. The hold room floors are made of concrete, and each cell has at least one floor drain. During my inspection, I observed that the floors in many of the hold rooms were filthy, stained, and in some instances moldy:



(Ex. 64; *see also* Exs. 9, 30, 34, 45, 53, 58, 63, 66, 69.)

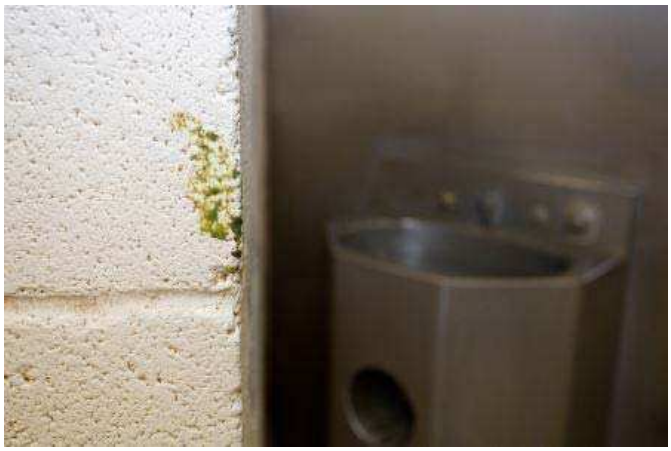
33. Detainees are frequently seen lying down and sleeping on these same floors:



(Ex. 178.)

34. The floor drains were often packed with filth and trash. (Exs. 16, 24, 36.) The perimeter walls were often filthy: Some were coated in what appeared to be human excrement:

35. The perimeter walls were often filthy: Some were coated in what appeared to be human excrement:



(Ex.14; *see also* Exs. 22, 37, 46, 65, 71, 72, 73.)

36. Detainees are frequently seen sitting or lying against these same walls:

(Ex. 185; *see also* Exs. 173, 174, 177, 178, 180, 151, 152.)

37. Such filth, including bodily fluids, on the floor and the walls significantly increases the likelihood that infectious diseases common to prisons and other custodial institutions—including E. Coli, Hepatitis A, and MRSA (an antibiotic-resistant staph infection)—will be transmitted among detainees.

D. Filth on Toilets and Sinks

38. I observed numerous instances of stained and streaked toilets and sinks at each station I inspected. The directional spigots that are designed for use as water

fountains were not maintained in a clean and sanitary condition. (Exs. 11, 12, 13, 17, 43, 44, 57, 67, 76, 77.)

39. Unclean toilets and drinking fountains, especially when mounted so close to one another, significantly increase the risk that drinking fountains will be infected with fecal matter and other human waste—not to mention bodily fluids like saliva—increasing the risk that disease will spread among detainees.

40. The absence of clean hold rooms, toilets, sinks and drinking fountains serves no legitimate purpose and creates an unjustified risk to detainees.

41. The unclean environment significantly contributes to the risk of cross contamination and contracting a dermatological disease or condition, gastrointestinal infection, as well as contributes to psychologically stressful conditions.

E. The Sleeping Areas and Sleeping Mats Are Unsanitary

42. In addition to the general lack of cleanliness of the hold rooms, in my opinion the sleeping areas of the hold rooms are unsanitary.

43. National standards for correctional facilities also require clean bedding and linens. The Core Jail Standards require that:

> Inmates are issued suitable, clean bedding and linens. There is provision for linen exchange, including towels, at least weekly."

(Ex. 199, 1-CORE-4B-01 (Ref. 4-ALDF-4B-02) at 25.)

44. The DOJ NIC Jail Standards further state that:

> Inmates must be provided with clean clothes and bedding. Clothing, towels, and bedding must be exchanged, laundered, and inspected on a regular basis. Failing to do so will result in an unhygienic facility for both the inmates and the staff.

(Ex. 196 at 4.)

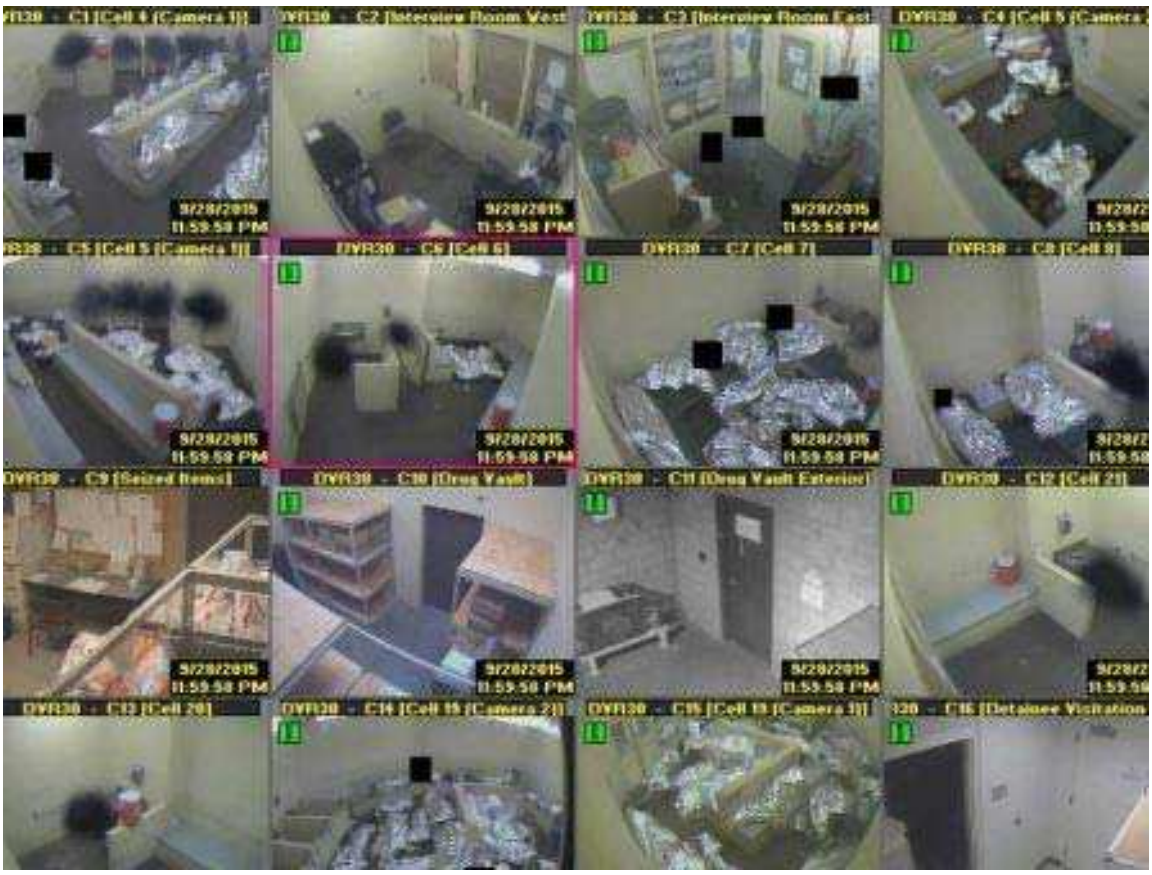
45. The United Nations Standard Minimum Rules for the Treatment of Prisoners state:

> Every prisoner shall, in accordance with local or national standards, be provided with a separate bed, and with separate and sufficient bedding which shall be clean when issued, kept

> in good order and changed often enough to ensure its cleanliness.

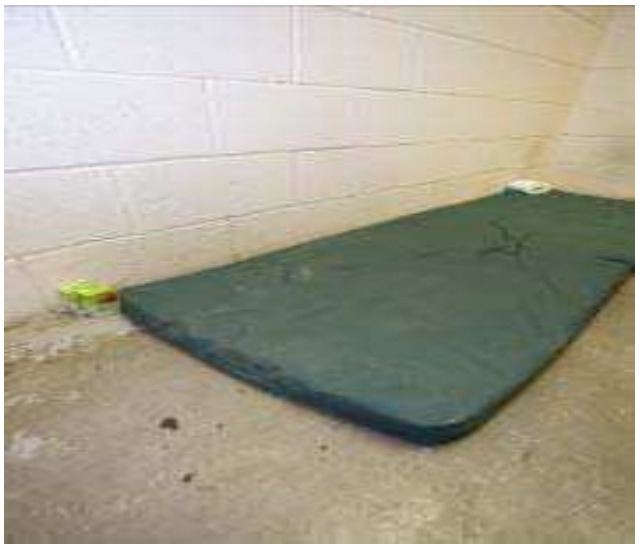
(Ex. 198, at 3, ¶ 19.)

46. Pervasive hygiene failures concerns at these facilities is exacerbated by the fact that, as surveillance video shows, detainees are often held overnight in overcrowded hold rooms without beds or mattresses. This forces them to sleep on the floors near and sometimes in toilet stalls and other unsanitary areas:



(Ex. 186; *see also* Exs. 146, 178.)

47. Although most detainees sleep on the floor, a very small percentage are provided mats to sleep on. (Declaration of Joseph Gaston ("(J. Gaston Decl."), ¶ 25.) However all of the mats that we saw during the inspection were dirty:



(Ex. 25; *see also* Exs. 28, 29.) Mats in hold rooms were usually placed directly on the concrete floors which, as described above, were also filthy and occasionally moldy. (Exs. 15, 25.)

48. Detainees are not provided with beds and clean bedding, even when held for periods exceeding 24 hours. Instead, the vast majority are forced to sleep on the dirty floor, while a small number—often children—are given dirty mats. Under either circumstance, these conditions are certain to interfere with a detainee's ability to sleep.

49. The detainees' inability to sleep is compounded by the continuous illumination in multiple-occupancy hold rooms that interrupts circadian rhythms which results in injury and depression and compromises alertness, plasma melatonin, body temperature, and sleep/wakefulness of the detainees.

50. The lack of clean beds and clean bedding serves no legitimate purpose and represents a potential safety hazard to the detainee, compromises health maintenance and promotes the acquisition of illness or infection. At a minimum, the unsanitary and inappropriately lit sleeping arrangements impede the detainees' ability to sleep. Sleep deprivation can result in inordinate stress and ill health – making detainees more susceptible to disease.

F. Unclean Hold Rooms Have Insufficient Numbers of Toilets Based on the Stated Capacity

51. The current rated capacities of the multiple-occupancy cells exceeds the toilet and washbasin to detainee ratios for both females and males. The ALDF Standard 4-4137 requires one toilet for every twelve male prisoners and one toilet for every eight female prisoners. (Ex. 195, 4-ALDF-2C-08 (Ref. 3-ALDF-2C-08, 2C-09) at 48.) In most cases, the number of toilets in a hold room was inadequate for the contemplated occupancy numbers posted or produced by Defendants.

52. Some especially large hold rooms at Nogales Station with purported capacities of up to 88 individuals per hold room had only one functioning toilet. The only other toilet in that cell would not flush.

53. In my opinion, detainees should not be held in hold rooms where the capacity exceeds one functioning toilet for every twelve male detainees and one toilet for every eight female detainees. Exceeding accepted standards for the ratio of toilets to detainees serves no legitimate purpose and creates an unjustified risk to detainees.

54. Aside from leading to an increased likelihood of accumulated filth and malfunctioning toilets, exceeding the recommended ratios could also result in detainees suffering adverse health effects—e.g., voluntary urinary retention and concomitant urinary tract infections, as well as more serious medical conditions if toilets are not available when needed.

G. Poor Group and Individual Hygiene in the Hold Rooms

55. During my inspections, I observed several issues with respect to the hygiene of group and individual detainees.

56. During my inspection of Casa Grande Station, there was no soap available anywhere for detainees to clean themselves. At other stations, I observed soap dispensers mounted on the walls of many hold rooms, but these were typically broken or empty.

57. Although we were shown shower facilities at Tucson, Douglas and Nogales stations (*see* Ex.47), we were also told that detainees were generally not provided access

to showers. At Nogales Station, we were told that detainees were never provided access unless there were concerns about contamination or infectious diseases (scabies was mentioned specifically). Casa Grande had no shower facilities whatsoever.

58. During our inspections, we found various personal hygiene items stored at each facility, including towels, washcloths and toothbrushes (Exs. 39, 40, 41), but we found no evidence that any of these supplies were made available to detainees, nor did our inspection of Defendants' refuse reveal that used (or unused) personal hygiene items had been discarded by detainees.

59. Declarations by former detainees confirm that they were never given personal hygiene items. (*See, e.g.*, ECF No. 2-3, Ex. 38 ¶ 21 (no toothbrushes, toothpaste, soap, or towels); *id.*, Ex. 41 ¶ 12 (same); *id.*, Ex. 43 ¶ 16 (same).)

60. Defendants' e3DM data demonstrated that detainees are routinely denied dental care, feminine hygiene, and other personal hygiene items. (J. Gaston Decl. ¶ 32.)

61. During our inspections, we were shown laundry facilities at the Tucson Station. We were told that neither Nogales nor Casa Grande nor Douglas station had laundry facilities.

62. Detainees have no opportunity to change out of their soiled clothing or to have their soiled clothing laundered.

63. I also inspected the sinks and toilets at all four stations. Most hold rooms had between one or two metal toilet/lavatory fixtures behind a low brick privacy wall or stall. (Exs. 10, 23.) A few of the larger hold rooms in Tucson station had three or four of these fixtures in toilet stalls. (Ex. 55.) Occasionally the sink and toilet were separate units positioned close together (Ex. 44.)

64. In many instances, detainees housed in the multiple-occupancy hold rooms had little to no opportunity to wash their hands. Many of the combination toilet/lavatory fixtures did not have metered faucets that provided an uninterrupted water flow of at least 10 seconds, which is the minimal flow required for minimally adequate hand washing.

65. Only one hold room—out of the dozens we inspected—had hot water available.

66. The Core Jail Standards require showers and hygiene products to be available:

> Inmates, including those in medical housing units or infirmaries, have access to showers, toilets, and washbasins with temperature controlled hot and cold running water twenty-four hours per day. Inmates are able to use toilet facilities without staff assistance when the year confined in their cells/sleeping areas. Water for showers is thermostatically controlled to temperatures ranging from 100 degrees to 120 Fahrenheit.

(Ex. 199, 1-CORE-4B-04 (Ref. 4-ALDF-4B-08, 4B-09, 4C-10) at 26.)

> Articles and services necessary for maintaining proper personal hygiene are available to all inmates including items specifically needed for females.

(Ex. 199, 1-CORE-4B-03 (Ref. 4-ALDF-4B-06) at 26.)

67. The DOJ NIC Jail Standards further state that clean clothes must be provided:

> Inmates must be provided with clean clothes and bedding. Clothing, towels, and bedding must be exchanged, laundered, and inspected on a regular basis. Failing to do so will result in an unhygienic facility for both the inmates and the staff.

(Ex. 196 at 4.)

68. The ALDF Standards state that:

> Sufficient bathing facilities are provided in the medical housing unit or infirmary area to allow inmates to bathe daily. At least one bathing facility is configured and equipped to accommodate inmates who have physical impairments or who need assistance to bathe. Water for bathing is thermostatically controlled to temperatures ranging from 100 degrees Fahrenheit to 120 degrees Fahrenheit.

(Ex. 195, 4-ALDF-4C-11 (Ref. New) at 54.)

69. The ICE Detention Standards further state that:

> At no cost to the detainee, all new detainees shall be issued clean, laundered, indoor/outdoor temperature-appropriate, size appropriate, presentable clothing during intake. . . . Each

> detainee shall receive, at minimum, the following items: 1) one bar of bath soap, or equivalent; 2) one comb; 3) one tube of toothpaste; 4) one toothbrush; 5) one bottle of shampoo, or equivalent; and 6) one container of skin lotion.

(Ex. 200, Secs. 4.5.IV.B & D at 310-11.)

70. CBP's failure to provide basic products to allow detainees to clean themselves creates an unhygienic facility for both detainees and CBP agents. Defendants' failure to maintain basic levels of group and individual hygiene in these facilities serves no legitimate interest, and unjustifiably increases the risk of harm to detainees.

71. The lack of personal hygiene significantly contributes to a lack of well-being and poor health. For example, soiled clothing has been implicated in the spread of MRSA—a disease common in communal institutions—as well as other infectious diseases and skin ailments. Soiled garments may also compromise thermal comfort.

H. Unhygienic Provision of Food and Water

72. CBP agents that distribute food to detainees pay no regard to personal hygiene.

73. During our inspections, we were only permitted to observe one instance of food being delivered to detainees. This occurred at Nogales Station. We did not observe any hand washing or use of disposable gloves prior to and during the distribution of food.

74. We were not able observe how much time passed between food being "prepared," included heating of the microwave burritos which form the bulk of detainees' diet while in custody, and delivery to detainees.

75. At Tucson and Nogales stations, we observed 5-gallon "Igloo" water coolers in many of the hold rooms, which were used to provide detainees with access to drinking water. But there were no facilities—no sinks, kitchens, or anything else—in any station we inspected where these water coolers could routinely be cleaned and sanitized. I have also seen video surveillance footage showing detainees drinking from the same water jug because cups have not been provided.

76. The ICE Detention Standards require that:

> Detainees, staff and others shall be protected from injury and illness by adequate food service training and the application of sound safety and sanitation practices in all aspects of food service and dining room operations.

(Ex. 200, Sec. 4.1.II.3 at 241)

77. The ICE Detention Standards define "Sanitation" as:

> The creation and maintenance of hygienic conditions; in the context of food, involves handling, preparing, and storing items in a clean environment, eliminating sources of contamination.

(Ex. 200, Sec. 7.5 at 461.)

78. In my opinion, food and water is not handled or delivered to detainees in an appropriately hygienic or sanitary way. This places both CBP agents and detainees at risk of the spread of disease, particularly gastrointestinal illnesses.

79. As noted above, we were not able to observe how much time passed between the preparation of food and its delivery. If foods are held outside of a "safe temperature" range (hot food over 140° F when served and the cold foods colder than 45°F), pathogenic organisms will reproduce, resulting in a dose significant to cause infection. Additionally, delay between food preparation and delivery gives pathogenic bacteria the opportunity to multiply to a number great enough to overwhelm the body's natural defenses and cause disease.

80. Failure to clean and sanitize the water coolers or jugs and to provide clean, individual drinking containers greatly elevates the risk of spreading water-borne diseases as well as communicable diseases.

81. The absence of a hygienic food and water distribution process serves no legitimate purpose and creates an unjustified risk to detainees.

I. Lack Of Regular Maintenance Program and Policies

82. I understand that Defendants were ordered to produce current detainee policies and procedures. I saw no policies or procedures regarding the routine and adequate maintenance of hold rooms in these facilities.

83. Defendants appear to complete daily Processing Inspection Forms for each of its stations. For at least the Casa Grande and Nogales stations, these forms appear to be filled out inconsistently and, in the case of Case Grande, occasionally not completed at all. (Ex. 104 at USA000706-708, USA000718-719, USA000722-724, USA000728-749; Ex. 107 at USA001021, USA001029; Ex. 112 at USA001570-1571.)

84. According to CBP's own logs, sinks and toilets at Tucson Station frequently malfunction and often do not work for weeks at a time. (Ex. 114 at USA001758-1776; Ex.115 at USA001872-1898 (sinks); Ex. 114 at USA001758-1776, USA001843-1854; Ex. 115 at USA001873-1902; Ex. 116 at USA001968-1987 (toilets).)

85. Likewise for Casa Grande Station (Ex. 104 at USA000764-777 (drinking fountains and toilets); Ex. 104 at USA000780-785, Ex. 105 at USA000862-866; Ex. 106 at USA000972-974 (toilets)), Douglas Station (Ex. 109 at USA001201, 1228, 1262-1264; Ex. 110 at USA001281; Ex. 111 at USA001504-1555 (toilets)), and Nogales Station (Ex. 112 at USA001570-1571, 1574-1597, 1601-1603-1606, 1608, 1610-1619, 1621, 1641-1657, 1659-1660, 1668; Ex. 113 at USA001671-1672, 1674, 1683-1685, 1688-1694, 1729, 1731-1733, 1735, 1750 (drinking fountains)).

86. Former detainees' declarations also show that toilets and sinks were frequently malfunctioning. (*See, e.g.*, ECF No. 2-1, Ex. 16 ¶ 12 (broken toilet); ECF No. 2-2, Ex. 34 ¶ 11 (same); *id.*, Ex. 36 ¶ 19 (same); ECF No. 2-3, Ex. 43 ¶ 16 (broken sink).)

87. Given the fact that some problems identified by CBP agents remain unfixed for weeks, I believe Defendants do not have a regular or appropriate maintenance program.

88. We were shown janitor supply closets at each station and found various haphazard collections of brooms, dust pans, wet mops, buckets, and a variety of

household chemical cleaners. (Ex. 6; Ex. 38.) There was no indication that different brooms, wet mops, and buckets were used to clean different areas. As a result, the same mop or broom might be used to clean toilet areas and food storage/preparation areas alike. Cleaning equipment such as mops heads, mop pads, mop handles, and wipe cloths should not be used interchangeably for cleaning toilet and food storage/handling areas. They should be separated in storage and recognizable by color. Defendants' failure to sequester and separate cleaning utensils and supplies violates universally recognized sanitary practices.

89. Unsanitary conditions favor the growth and survival of disease-causing microorganisms. Clean environments—and, in particular, clean common-touch points—help prevent illness spread by indirect contact. Crowding increases the chance that contagion is deposited on common-touch objects such as seats, barrier partitions seats, toilet flush handles, lavatory faucets, door push-plates, water coolers' recessed spigots, and so forth. There was no evidence in any facility that a concerted effort was made to frequently clean and sanitize the common-touch points in detainee areas. Unsanitary conditions increase the risk that disease will be spread by indirect contact.

90. It is my professional opinion that, in light of the duration and manner in which individuals are detained, the hold rooms are not adequately cleaned or maintained. CBP's failure to implement a regular system to ensure the cleanliness of these hold rooms serves no legitimate purpose and creates an unjustifiable risk to detainees.

J. Inadequate Ventilation and Temperature

91. Temperature and ventilation are interrelated. In my opinion, the hold rooms do not have adequate ventilation and the detainees are not held in a room that has an adequate temperature because detainees' outer clothing is removed upon detention.

92. The detainees surrender their outer garments when admitted to the facilities. During our inspection, CBP agents informed us that all detainees' outer layers of clothing were confiscated, and in all but a few instances, detainees were not given replacement clothing.

93. The amount of thermal insulation worn by a person has a substantial impact on thermal comfort, because it influences heat loss and, consequently, thermal balance. Layers of insulating clothing prevent heat loss and can either help keep a person warm or lead to overheating.

94. Surveillance video confirms that individuals are ordinarily detained wearing only t-shirts or other short-sleeved shirts. (Exs. 126, 129, 165.)

95. Surveillance video also shows detainees huddled together under Mylar sheets, even during the summer months. (Exs. 187, 188; Ex. 191.)

96. Temperature logs from Douglas Station in September (Ex. 111 at USA001427-1569) show that temperature readings were in the low to mid-60s on a regular basis, even reaching as low as 58.8 degrees Fahrenheit (Ex. 111 at USA001461). No hold room temperatures were produced from winter, spring, or late fall months.

97. At Nogales Station, we were shown several thermostats, which controlled temperatures in the different areas. (Exs. 48, 49.) Defendants later confirmed that two units condition the processing area, while three other units are specifically for the hold rooms, so that temperatures can be adjusted in each area as desired.

98. We were told during the inspections that temperatures for the other three stations were controlled remotely from a different facility located in Tucson. This was later confirmed in writing. Attached to the Appendix of Exhibits as Exhibit 100 is a true and correct copy of a document produced by Defendants on or about October 20, 2015 and Bates labeled USA000675-676, which purports to be a signed declaration from George Allen, Assistant Patrol Agent for the United States Border Patrol, Tucson Sector describing Border Patrol's access to the thermostat and temperature control at Tucson, Nogales, Douglas and Casa Grande stations.

99. I also understand that Defendants confirmed that the air conditioning systems at Tucson and Douglas Stations are broken down into zones so that different temperatures can be set in different zones, including the processing area and detainee hold rooms. At Casa Grande Station, each holding room has a sensor connected to a

Variable Air Box which opens and closes proportionately to control the room temperature and fan speed.

100. Former detainee declarations overwhelmingly complain of being subjected to cold temperatures. There are even accounts of Border Patrol agents using cold temperatures to punish inmates. (*See, e.g.*, ECF No. 2-1, Ex. 4 ¶ 6; *id.*, Ex. 6 ¶ 9.) CBP's ability to alter temperatures in different zones is consistent with these claims.

101. During our inspections, I also observed the ventilation systems relative to the air movement from the intakes and exhausts within all of the holding rooms inspected. I also measured the air quality of each holding room inspected; specifically the WBGT (Wet Bulb Globe Temperature that measures evaporative cooling/heat stress), TA (Ambient Air Temperature), RH% (Relative Humidity) and TG (Black Globe Temperature that measures radiant heat) where it was deemed applicable. I noted that air flow in the hold rooms was variable within a given facility and inconsistent throughout the system. The findings ranged from no detection of air movement to a distinct noticeable draft that was felt throughout the room; where the air velocity was greater than 25 lfpm (linear feet per minute). The WBGT combines the effects of radiation, humidity, temperature and wind speed on the perception of temperature. In virtually all rooms, the WBGT was below 71° F; with measurement as low as 66.3°F and median range between 67 to 69°F. To most individuals, and particularly those detainees who were sedentary, this results in discomfort and chill. For the most part, the ambient air temperature and slightly lower black globe temperature were in the mid-70 degree range. However, the concrete benches and floors served as a heat-sink, thereby exacerbating the discomfort level of the detainees. The heat-reflective, emergency Mylar blankets issued to the detainees, do not effectively serve as a barrier to the radiant cooling of the concrete.

102. The ventilation system operated at the Nogales Station did not maintain an adequate temperature level for sedentary detainees. I noted that the ventilation system shuts down when the ambient pre-set air temperature was reached, and reactivates when

the temperature rose. The static air temperature throughout the facility was 73°F (± ~ 1°F). The range of the WBGT was between 62.4° to 66.5°F; making each hold room unduly cool, and particularly when the intake blowers were activated resulting in a perceptible draft.

103. I found that the mechanical ventilation systems in all facilities cannot be adjusted to meet the health and comfort needs of the detainees. As such, there is a constant rate of air movement as well as temperature maintenance that is independent of the number of detainees housed in the multiple-occupancy cells.

104. Even CBP's own standards require hold rooms to be maintained as a "temperature within a reasonable and comfortable range." The standards also state that "[u]nder no circumstances will officers/agents use temperature controls in a punitive manner." (Ex. 95, 4.6.)

105. One of the most consistent complaints of detainees, however, is that the hold rooms are too cold, hence the nickname in Spanish for the hold rooms is "las hieleras" or the freezers. (ECF No. 2-1, Ex. 11¶ 13.)

106. In general, standards require hold rooms to be kept at a comfortable temperature. The Core Jail Standards also require ventilation to be adequate and for temperature to be maintained at an comfortable level:

> *A ventilation system supplies at least 15 cubic feet per minute of circulated air per occupant, with a minimum of five cubic feet per minute of outside air.* Toilet rooms and cells with toilets have no less than four air changes per hour unless state or local codes require a different number of air changes. Air quantities are documented by a qualified independent source and are checked not less than once per accreditation cycle. *Temperatures are mechanically raised or lowered to acceptable comfort levels.*

(Ex. 199, 1-CORE-1A-10 (Ref. 4-ALDF-1A-19, 1A-20) at 4; *see also* Ex.195, 4-ALDF-1A-19, at 7; Ex. 200, Sec. 2.6.V.A.3 at 27.)

107. Similarly, standards generally require adequate clothing to be provided. For example, the Core Jail Standards Require:

> Inmates are issued clothing that is properly fitted and suitable for the climate. There are provisions for inmates to exchange clothing at least twice weekly.

(Ex. 199, 1-CORE-4B-02 (Ref. 4-ALDF-4B-03) at 25.)

108. The DOJ NIC Jail Standards also require adequate clothing to be provided:

> Inmates must be provided with clean clothes and bedding. Clothing, towels, and bedding must be exchanged, laundered, and inspected on a regular basis. Failing to do so will result in an unhygienic facility for both the inmates and the staff.

(Ex. 196 at 4; *see also* Ex. 200, Sec. 2.6.V.D.4 at 57.)

109. Defendants' practice of confiscating detainee clothing, failing to replace it, and maintaining hold rooms at temperatures far below comfort levels serves no legitimate purpose. It violates nationally recognized standards including CBP's own standards and creates an unjustifiable risk of harm to detainees.

110. There are four effects resulting from human occupancy of poorly ventilated areas and rooms:

A. The oxygen content is reduced;

B. The amount of carbon dioxide is increased;

C. The relative amount of organic matter shed and odors spread from occupants' skin, clothing, and mouths increases; and,

D. The humidity is increased by the moisture in the breath and evaporation from the skin.

111. Poor indoor air quality also exacerbates chronic respiratory health conditions such as asthma.

112. Similarly, when the adaptive comfort temperature levels of the detainees are exceeded, there is a potential for behavioral and psychological changes. Continuous exposure to low WBGT temperatures also creates a health risk as most bodily function, such as circulation, appetite, and brain activity, are impaired when a person is cold for long periods of time.

K. Public Health Risks

113. The space afforded to inmates in the multiple-occupancy hold rooms—and mandated by Defendants policy (Exhibit 81)—is less than the space recommended for inmates in all acceptable correctional standards. In fact, the space afforded inmates in these hold rooms is less than the space allowed for laboratory animals of similar size and body mass. (See *Guide for the Care and Use of Laboratory Animals*, Eighth Edition, National Research Council National Academies Press, Washington, DC. 2011, Table 3.6, http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-of-Laboratory-Animals.pdf.) This lack of space has direct implications on health, safety, and wellbeing.

114. Multiple cell occupancies pose the greatest risk of communicable disease spread. This is because the full health status of newly admitted detainees is unknown. These individuals can be in the prodromal stages of illness. While not manifesting symptoms of disease, they can spread contagion to others in close proximity through direct and indirect contact, particularly by contact with contaminated fomites in the detainees' immediate environment, and/or via airborne contagion.

115. To the extent detainees are held in hold rooms for 12 hours or more, their exposure experience is significantly increased through prolonged close contact with other detainees. This exposure experience becomes the confounding variable and a significant factor in the spread of communicable diseases amongst an institutionalized population. Since space is severely abridged in multiple occupancy rooms, the risk factors for institutionally acquired illnesses that are associated with crowding become more significant. The space restriction also increases the risk of unintentional injury because of limited free movement by detainees confined therein.

116. The seating areas in most multiple-occupancy cells are insufficient to accommodate the number of detainees at rated occupancy capacity. This may result in back and body pain, muscular-skeletal injuries, emotional stress and breathing problems, particularly if detainees are forced to use the floor for seating. The use of the floor also limits the availability of unencumbered space and movement.

117. The overcrowding of hold rooms serves no legitimate purpose and creates an unjustified risk to detainees.

V. CONCLUSION

118. Based on my experience, inspections, and review of documents and surveillance footage, it is my opinion that the unclean, unhygienic, and unduly cold conditions in which people are held at these stations serves no legitimate purpose and creates an unjustifiable risk of harm to detainees.

119. Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 4th day of December, 2015.

ROBERT W. POWITZ

Attachment A

ROBERT W. POWITZ April 2015

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Old Saybrook, Connecticut 06475-0502

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Web: http://www.sanitarian.com

CURRICULUM VITAE

PERSONAL DATA

Born: August 29, 1942, New York City, NY
Bilingual: English / German
Married: Alexandra Eva Fenczyn-Kip

EDUCATION

Ph.D. Environmental Health, 1978. University of Minnesota, Minneapolis, MN
Supporting Minors: Epidemiology and Environmental Microbiology
Thesis: Some Administrative and Microbiological Considerations in the Maintenance of the Sterile Integrity of Prepackaged, Disposable Items for use in Health Care Facilities.

M.P.H. Environmental Health, 1974. University of Minnesota, Minneapolis, MN
Major: Institutional Environmental Health
Supporting Minors: Industrial Hygiene; Epidemiology and Public Health Administration

B.S.A. Agriculture, 1964. University of Georgia, Athens, GA
Major: Plant Pathology (Nematology); Minor: Agronomy

A.A.S. AgriculturalProduction, 1962. State University of New York, Cobleskill, NY
Major: Agronomy; Minor: Animal Husbandry (Dairy)

Diploma - Wildlife, Forestry and Fishery Conservation, 1967,
North American School of Conservation, Newport Beach, CA

Regents Diploma (Science), 1960, Stuyvesant High School, New York, NY

PROFESSIONAL EXPERIENCE

1994 - present R.W.POWITZ & ASSOCIATES, P.C.
Old Saybrook, Connecticut
PRINCIPAL ASSOCIATE: FORENSIC SANITARIAN
Provide consultation and expert witness services in environmental health, safety and environmental protection to attorneys, governmental agencies, institutions and private industry.
Primary work emphasis: Litigation support with public health issues.

1992 – 1994 UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service, Plum Island Animal Disease Center
Greenport, New York
DIRECTOR: BIOLOGICAL SAFETY AND ENVIRONMENT, and, BIOSAFETY OFFICER
Established biological safety, environmental health, safety and environmental conservation policy and provided contractual oversight of all activities relating to these policies. Directed biological, chemical, environmental protection and radiological safety programs.

1980 - 1992 WAYNE STATE UNIVERSITY
Office of Environmental Health and Safety
Detroit, Michigan
DIRECTOR & BIOSAFETY OFFICER
Established and directed research support service unit with nine professional employees and a support budget in excess of $ 250,000.00. Served as adjunct professor in the College of Engineering, Pharmacy and Allied Health and Biological Sciences.

1979 - 1981 SAMARITAN HEALTH CENTER
St. Joseph Mercy Hospital Unit
Detroit, Michigan
EPIDEMIOLOGIST (1980 - 1981)
INFECTION CONTROL COORDINATOR (1979 - 1980)
Directed epidemiological and infection control activities in a 450 bed acute care community hospital.

1979 - HEALTH CARE RISK MANAGEMENT, INC.
Ann Arbor, Michigan and Rennselaer, New York
VICE PRESIDENT, and, DIRECTOR OF OPERATIONS
Managed the technical operations of a consulting firm. Served as environmental health and safety expert.

1978 - NATIONAL ENVIRONMENTAL HEALTH ASSOCIATION
Denver, Colorado
POST DOCTORAL RESEARCH ASSOCIATE
Developed performance and knowledge criteria document for the environmental health sanitarian profession.

1975 - 1978 UNIVERSITY OF MINNESOTA
School of Public Health
Minneapolis, Minnesota
GRADUATE RESEARCH ASSISTANT, and, DOCTORAL CANDIDATE
Conducted thesis research on passive contamination of sterile medical supplies.

1974 - 1975 RINGWOOD HEALTH DEPARTMENT
Ringwood, New Jersey
HEALTH OFFICER
Established and directed a full service municipal health department.

1966 - 1974 STATE OF NEW JERSEY
Department of Health, Metropolitan Health District, Newark, NJ
Department of Institutions and Agencies, Trenton, NJ
SENIOR SANITARIAN: Department of Institutions & Agencies (1969- 1974)
SANITARIAN: Department of Health (1967- 1969)
INDUSTRIAL HYGIENIST: Department of Health, Air Pollution Control (1966- 1967)

Provided on-site environmental health and safety services for the State agency. Conducted law and health regulation enforcement activities, and, served as resource consultant to local health agencies, departments and boards.

OTHER PROFESSIONAL ACTIVITIES

2003 – present	Health Director: Towns of Franklin and Lebanon, CT
2003 – 2014	Health Director: Town of Salem, CT
2003 – 2005	Health Director: Town of Sprague, CT
2000 – 2003	Special Consultant to the Commissioner, Philadelphia Department of Corrections
2000 – 2002	Associate: Risk Associates, LLC, Old Saybrook, CT
1998 – 2005	Health Director: Town of Westbrook, CT
1996 – present	Member, Chairman, Asst. Chairman: Old Saybrook Water Pollution Control Authority
1992 - present	Member/Manager: Terry Plum's, LLC, Old Saybrook, CT
1990 - 1992	Biological Safety Officer: Henry Ford Hospital, Detroit, MI
1981 - 1988	President: Biosafety Systems, Inc., Detroit, MI
1978 - 1980	President: Burns Park Condominium Association, Ann Arbor, MI

CREDENTIALS

LICENSES

State of Connecticut: Registered Sanitarian, #543
State of Michigan: Registered Sanitarian, #733 (inactive)
Certified Pesticide Applicator, AG0023082 (expired)
State of New Jersey: Health Officer, #A194 (inactive);
Sanitary Inspector, First Grade, #B-489 (inactive);
Public Health Laboratory Technician, #Ie-258 (inactive);
State of Ohio: Registered Sanitarian, #1870 (inactive)

CERTIFICATIONS

The American College of Forensic Examiners: Diplomate: Forensic Technology, #19025
State of Pennsylvania: Registered Sanitarian, #259I
State of California: Registered Environmental Assessor I, #01983 (expired)
State of Connecticut: Notary Public, #102136
National Environmental Health Association: Registered Sanitarian, #70095;
Certified Specialist - Food Safety, #181
Registered Food Safety Trainer, #18
New York State Registry of Sanitarians: Registered Sanitarian, #00415 (inactive)
National Registry of Food Safety Professionals: Trainer #1429
National Recreation and Park Association: Certified Playground Inspector, #4502 (expired)
American Biological Safety Association: Registered Biological Safety Professional, #016 (retired)
Professional Certification Board: Certified Hazard Control Manager, #1398 (inactive)
Cert. Hazardous Materials Mgr.,#0506 (inactive)
Certified Healthcare Safety Professional, #0017 (inactive)
National Registry of Environmental Professionals:
Registered Environmental Laboratory Analyst, #837I (inactive)
Certified Environmental Auditor, #623 (inactive)
Registered Environmental Property Assessor, #1504 (inactive)
Environmental Assessment Association: Certified Environmental Inspector, CEI 9235 (expired)
Water Quality Association: Certified Water Specialist – V (retired)

HONORS

Diplomate Laureate: American Academy of Sanitarians, Certificate # 001
Diplomate: American Academy of Sanitarians, Certificate # 336
Davis Calvin Wagner Award, 1996, American Academy of Sanitarians
Distinguished Service Award, 2004, American Academy of Sanitarians
Harry Bliss Journal Technical Editor's Award, 1999, National Environmental Health Association
Harry R.H. Nicholas Award, 2006, New Jersey Environmental Health Association
Honorable Order of Kentucky Colonels: 1987
President's Award, 1990, Academy of Certified Hazardous Materials Managers
Phi Theta Kappa
Walter F. Snyder Award: 2001, NSF & NEHA

PROFESSIONAL AFFILIATIONS

American Association of Sanitarians
American Biological Safety Association (Emeritus)
American Jail Association
Cleaning Industry Research Institute
Connecticut Environmental Health Association
International Association for Food Protection
International Executive Housekeepers Association
National Environmental Health Association
Water Quality Association (retired)

ORGANIZATIONAL ACTIVITIES

KaiScience Advisory Board: 2007 – 2010
Cleaning Industry Research Institute: 2006 – present, Institutional Review Board
Conference for Food Protection
    Vice Chairman – Plan Review Committee: 2004
Underwriter Laboratories, Inc.,
    Consumer Advisory Council: 1990-present;
    Corporate Council: 1993; 2001-present.
    Member: Standards Joint Committees
Academy of Certified Hazardous Materials Managers,
    Board of Directors: 1990-1991
    Connecticut Chapter: Board of Directors: 1994 - 2004
    CHMM-Michigan, President: 1988-1990; Member, Board of Directors:1988-1991.
American Academy of Sanitarians, Inc.
    Chairman: 2001 – 2004; 2010 - 2012
    Vice Chairman: 2000 – 2001; 2008 - 2010
    Board of Directors: 1990 - present
    Chairman, Credentialing Committee: 1992 - 2012
Water Pollution Control Authority, Old Saybrook, CT, Member: 1995 – 2011
    Chairman: 2004 – 2009; Vice Chairman: 2009 - 2011
Wayne County (Michigan):
    Commission, Hazardous Waste Facility Site Review Board: 1987 - 1988.
State of Michigan:
    Agricultural Advisory Comm. - Occupational Health Standards Commission: 1985-1987
Institute of Hazardous Materials Management
    Member, Board of Examiners: 1985 - 1990
Institute of Environmental Sciences

Vice Chairman: Michigan Section, 1986
Wayne State University: 1980 - 1992
Chairman & Member, Institutional Biosafety Committee
Chairman, Laboratory Safety Committee
Member, Radiation Safety and Radioisotope Committee
Member, Loss Control Committee
Member (ex officio), Animal Care Committee I
National Environmental Health Association: 1969 - present
Chairman, Institutional Section: 1987 - 1991
Chairman, Correctional Facilities Section: 1992
Member, Scholarship Committee: 1998 – present
Member, Credential Development Committee: 2006
National Safety Council: 1978 - 2004
Executive Committee Member, Health Care Section
Executive Committee Member, Campus Safety Association
Member, Environmental Health Committee, R & D Section
National Sanitation Foundation International, 1978 – present
Council of Public Health Consultants: 2001 – present;
Vice Chairman: 2007 – 2008
Chairman: 2008 - 2009
Member, Standards 42, 49, 53, 54, 55, 330 and 376 Joint Committees
Joint Committee Chairman: Standards 14, 24, 49, 330 and 376
University of Minnesota, Member, Biohazard Advisory Committee: 1976 - 1977
Health Officers of Passaic County, Chairman, 1974 - 1975
New Jersey Environmental Health Association, 1967 - 1973
Corresponding Secretary and Treasurer;
Chairman, Registration Committee

TEACHING EXPERIENCE

Wayne State University
Adjunct Associate Professor, College of Engineering: 1986 - present
CHE 551 Introduction to Hazardous Waste Management
CHE 556 Transportation and Emergency Spill
CHE 557 Introduction to Safety Assessment
CHE 651 Public Issues of Hazardous Waste
CHE 726 Waste Management Internship
CHE 727 Hazardous Waste Laboratory
Adjunct Assistant Professor, College of Pharmacy and Allied Health: 1982 - 1992
OEH 762 Control of Industrial Wastes
Adjunct Assistant Professor, Department of Biological Sciences: 1980 - 1992
BIO 523 Environmental Microbiology
Adjunct Assistant Professor, Division of Health and Physical Education: 1988 - 1991
HEA 232 Environmental Health
Additional Activities:
Assisted in the development of the Graduate Certificate in Hazardous Waste Management and Environmental Auditing; the Masters Degree in Hazardous Materials Management and the Degree in Environmental Hazards Management within the College of Engineering.
Ferris State University
Adjunct Associate Professor, Allied Health Sciences, Environmental Health: 1981 - 1992
EHN 230 Epidemiology
EHN 302 Communicable Disease Control
EAH 320 Institutional Environmental Health

EAH 101 Environmental Health Practice
EAH 315 Occupational Health Practice
EAH 330 Industrial Hygiene
EAH 400 Industrial Toxicology

St. Clair College, Windsor, Ontario, Instructor, Division of Continuing Education: 1990 - 1992
OH 223 Fundamentals of Occupational Toxicology

NSF International: 2000 - 2006
Food Safety in Retail Operations
Plan Review for Retail Food Operations
HACCP

CONTRACTS AND AWARDS

2007	Charm Science: Development of ATP Systems Use Instructions
2007 - present	Kaivac Systems: CMI Consultant
2004	NSF International: Training and Course Development, $2,000 per month.
2003 – present	Special Consultant to Bucks County Department of Corrections
2001	ASPH Project #S1404-20/20 (University of Oklahoma, Health Sciences Center), Contributing author: Sanitarian's Desk Reference; $11,100.
1988 - 1989	U.S. Department of Health and Human Services, Contract No. 240-88-0069 Evaluation of Hazardous Waste Education and Training, $180,000.
1984	Ultrasonix Research, Inc. Development of Ultraviolet Light Water Purification Technology, $20,000.
1975 - 1978	U.S. Veterans Administration, Doctoral Research Contract, $56,000

PUBLICATION ACTIVITIES

2004 - 2007	Contributor: American Jails Magazine
2003 - present	Contributor and Editorial Advisory Board: Food Safety Magazine
1995 - 2008	Contributing Editor: Corrections Managers' Report
1997 - 2003	Contributor, Journal of Environmental Health (NEHA)
1978 - present	Reviewer, Journal of Environmental Health (NEHA)
1989 - 1992	Editor, ABSA Newsletter
1986 - 1987	Editor, Current Topics In Campus Health and Safety
1982 - 1987	Contributing Editor, Canon Communications: Microcontamination; Pharmaceutical Manufacturing; Particulate and Microbial Control
1982 - 1986	Editor, National Safety Council, Campus Safety Newsletter Health Care Newsletter

PUBLICATIONS: Non-peer reviewed Trade Publications

Journal of Environmental Health: Tools for Environmental Health
Published by: National Environmental Health Association

April 1997	Introduction
April 1997	The Dial and Temperature Standard Thermometer
May 1997	The Hand-Held Infrared Thermometer
June 1997	An Inexpensive Sound Level Meter
July/August 1997	Measuring Illuminance – the Type 217 Light Meter
September 1997	The LCD Light Meter
October 1997	The Biotest Reuter Centifugal Air Sampler
November 1997	Basic Testing Equipment for Electrical Circuits and Receptacles
December 1997	Disabled Access Survey Tools

Jan/Feb 1998	Some Simple Field Tests for Use in Food Inspections
March 1998	Easy Lead-Screening Kits for Use in the Field
April 1998	The Millipore Sanitarian's Kit
May 1998	A Practical Ultraviolet Inspection Light for the Detection of Rodent Urine Contamination: The Blak-Ray ULV-26P
June 1998	Audit and Inspection Tools for Children's Play Areas
July/August 1998	The "Lollypop" Thermometer
September 1998	Disposable Indicating Thermometers
October 1998	More on Handheld Infrared Thermometers
November 1998	The Germ Detective Kit
December 1998	Doing it by the Numbers: ANSI/ASQC Z1.4
Jan/Feb 1999	The Basic Inspection Kit: Some Not-So-Random Thoughts on Stuff We take for Granted
March, 1999	Would You Believe - Another Thermometer?
April 1999	Moisture Detection Meters: Tools for all Occasions
May 1999	Swimming Pool Test Kits
June 1999	On Buying Tools for the Sanitarian
July/August 1999	The Dog Days of Summer: Humidity-Measuring Devices
September 1999	Need Definitive Answers? Go to the Standards.
October, 1999	Infrared Thermometers Again: Temperature Verification, Other Useful Information, and a New Model
November, 1999	Two Credentialing Courses for the Professional Sanitarian
December, 1999	Measuring Thermal Comfort
Jan/Feb, 2000	Two Great Little Tools: A Probe Thermometer and a Pocket Scale for Institutional Suicide Prevention
March, 2000	A Simple, Scruffy Device for Measuring Water Pressure and Flow
April, 2000	Tracking Air Movement
May, 2000	Good Tools for Preventing Slips and Falls
June, 2000	The Yin and Yang of the Sure Temp Temperature-Sensing Device
July/August 2000	Books as Tools
September 2000	A Proposed Standard for Infrared Thermometers Intended for Food Safety and, Two New Portable IR Thermometers with Unique Features
October 2000	Two by Dwyer: 460 Air Meter and Wind Meter
November 2000	The APC Plus Airborne Particle Counter
December 2000	Calibration, Calibration Logs and the Check-Temp
Jan/Feb 2001	The Best of the Best – An Update on Our Basic Inspection Kit
March 2001	Measuring Water Activity in Foods: the Pawkit AquaLab
April 2001	Safety, Septics and Scholarly Pursuits: Web sites and Mirrors
May 2001	The KD451 Indoor Air Quality Monitor
June 2001	A Thermometer Update and Other Valuable Information
July/August 2001	The Long-Forgotten Refractometer
September 2001	The Zylux Rapid Hygiene System for Measuring Cleanliness of Food Contact Surfaces
October 2001	Thermometrics
November 2001	The Atkins HACCP Kit + One
December 2001	A Thermometer Editorial
Jan/Feb 2002	A Superbly Accurate Motorized Psychrometer
March 2002	At Last, an Affordable Thermocouple Calibrator
April 2002	A Unique UV Penlight and the Latest Information on Hand Hygiene
May 2002	A Primer on Sampling for Biological Contaminants, Part One: Science and Theory
June 2002	A Primer on Sampling for Biological Contaminants, Part Two: Air Sampling Instrumentation

July/August 2002	A Primer on Sampling for Biological Contaminants, Part Three: Surface Sampling Techniques
September 2002	An IR Calibrator; A garage Door Safety Stop Pressure Gauge
October 2002	Thermometer Forks
November 2002	Radiation Monitor
December 2002	Monitoring pH
Jan/Feb 2003	The Best of the Best '03
Jan/Feb 2015	A History of the American Academy of Sanitarians

Published tutorials presented at the National and Affiliate Annual Educational Conferences

- Portable Instrumentation Workshop
- The Art and Science of Inspection
- Being an Expert Witness
- Establishing a Consulting Practice as a Sanitarian
- Principles of Biological Safety
- A Brief History of the Sanitarian Profession
- Fundamentals of Water Activity
- ATP Monitoring Systems: Measuring Cleanliness
- The Role of the Sanitarian in Disaster Response
- Sampling and Enumeration of Environmental Microbes
- Update to the 2005 Food Code: Implications to Inspections
- What Constitutes a Foodborne Outbreak?
- A Quick Guide to Field Sampling
- History of the Sanitarian Profession
- Integrated Cleaning and Measurement
- Effective Use of ATP Monitoring
- How Clean is Clean?
- Best of the Best: Field Instrumentation
- Street HACCP
- Green Housekeeping
- Field Instrumentation for Food Code Compliance Activities
- Measuring Cleanliness

Corrections Managers' Report: **The Corrections Advisor** 1995 - 2003
A Sanitarian's Notebook 2006 - 2007

Published by: Civic Research Institute, Inc.

August/September 1995	Prisons and Jails from an Environmental Health Perspective
October/November 1995	Life Safety in Correctional Facilities
February/March 1996	Facility Management: Sanitation and Noise
April/May 1996	Rating Cell Space; Improving Ventilation Quality
June/July 1996	Reducing Infection Risk: TB Isolation and Effective Use of Face-Masks
August/September 1996	Reducing Infection Risk: TB and Jail Intake Facilities
October/November 1996	Use Lighting to Improve Security in Older Prisons and Jails; Barber Shop Sanitation
December/January 1997	Keeping Inmates and Staff Healthy; TB Screening and Commissary Sanitation
February/March 1997	Proper Hand-Washing Facilities Protects Staff and Inmate Health; Maintaining a Comfortable Humidity
April/May 1997	Key Environmental Health Considerations for Food Service Providers; Debunking the Fluorescent lamp Health Risk Myth
August/September 1997	New FDA Food Code Emphasizes Safe-Handling Practices;

	Cross Connections
October/November 1997	What Steps should be taken when a CO Is Exposed to Hepatitis?; Control of House Flies
February/March 1998	Take Steps to Avoid Staff Problems with Latex Allergies; Return-to-Work Assessments
April/May 1998	Effective TB Prevention and Control; Nosocomial Infections in the Correctional Setting
August/September 1998	A Simple and Quick Self-Inspection Program
October/November 1998	How to Prevent Slip-and-Fall Injuries; Non-Health Consequences of Environmental Tobacco Smoke
December/January 1999	Tips for Designing a Safe and Comfortable Visiting Area; Odor Control
February/March 1999	Tips on Flashlight Safety; Hand Washing Policy and Guidelines
June/July 1999	Purchasing and Maintaining Small Equipment; Maintaining the Sanitary Integrity of Ice
August/September 1999	Handling Lead Contamination on the Firing Range; Introducing "HACCP" to the Correctional Kitchen
October/November 1999	Regulating Building Temperatures; Controlling Mice
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Aug/Septe 2007: 13(2) Drinking Water Safety
Oct/Nov 2007: 13(3) Washcloths and MRSA
Dec/Jan 2008: 13(4) Lessons Learned: Histrionics and Environmental Health in Corrections

CleanRooms: The Magazine of Contamination Control Technology
Published by: PennWell Publishing Company

January 1997 Microbial Contamination
Biological Contaminants: Strategies of Investigation and Control
June 2002 Unfiltered – Principles of Biological Safety

CleanRooms: Life Sciences Supplement
January 1998 Biotech Safety Factors: Biological safety principles enhance contamination control
January 1999 A Rational Approach to Disinfectants
1997 - 2003: CleanRooms Published Tutorials

- Principles, Practices and Management of Biological Safety in Clean Room Environments
- Principles of Clean Room Disinfection, Sterilization and Biological Validation
- Detection, Enumeration and Control of Biological Contaminants in Clean Room Environments
- HACCP – A Scientific Approach to Compliance Monitoring

A^2C^2
Published by: Vicon Publishing, Inc.

February 2000 5(2): Sampling for Airborne Biological Contaminants: A Rational Approach

Food Safety Magazine: The Sanitarian's File
Published by: The Target Group, Inc.

August/September 2002 8(4):
A Rational Approach to Using and Selecting Hard Surface Disinfectants and Sanitizers
April/May 2003 9(2):
Getting on the Same Page: Glossary Useful in Defining Industry Terms
June/July 2003 9(3):
A Practical Perspective on Hand Washing
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A Simple Introduction to Thermometry and Basic Calibration
October/November 2003 9(5):
Hot Tips for Using and Selecting Portable Thermometers
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Inspections, Part 1: The Professional Sanitarian
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Inspections, Part 2: Expectations of the Regulator
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Inspections, Part 3: Compliance
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The Food Establishment Plan Review
August/September 2004 10(4):
Successful Sampling, Part I: Essential Approaches

October/November 2004 10(5):
Successful Sampling, Part II: A Brief Primer on Biological Sampling

December 2004/January 2005 10(6):
Successful Sampling Program, Part III: Environmental Air and Surface Techniques
February/March 2005 11(1):
The Cold Hard Facts about Refrigeration Equipment
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Street HACCP: Paving the Way for Small Retail Operations
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7 Simple Rules for Effective and Hygienic Dry Goods Storage
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Top 7 Processing and Foodservice Equipment Standards
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Shedding Light on the Art and Science of Lighting
December 2005/January 2006 11(6):
Is Your Kitchen Certifiable? A Case for the Sanity of Food Protection Manager Programs
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The 2005 Food Code: A Regulator's Reading and Perspective
April/May 2006 12(2):
The Best of the Best: A Critical Look at Basic Inspection Tools
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Complaints and Crisis Management
August/September 2006 12(4):
Green Housekeeping: Strategies and Sanitation Tools
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Infrared Thermometry
December 2006/January 2007 12(6):
Food Security for the Small Retail Food Operation
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Regulatory Credentialing in Food Safety
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Ensuring Water Quality and Safety in Food Operations
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ATP Systems Help Put Clean to the Test
August/September 2007 13(4):
Creating a Great Cutting Board and Wipe Rag Program
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Water Activity: A New Food Safety Tool
December 2007/January 2008 13(6):
Egg Safety: Avoiding Shell Shock at Retail
February/March 2008 14(1):
The Best of the Best: Portable Tools for the Food Sanitarian
April/May 2008 14(2):
The Five W's of Food Safety Forensics
June/July 2008 14(3):
"Allergy Consciousness" for the Retail Food Industry
August/September 2008 14(4):
SSOPs for the Retail Food Industry
October/November 2008 14(5):
Bioaerosols
December 2008/January 2009 14(6):
Cross-connections' Contamination Woes
February/March 2009 15(1):

Integrated Cleaning and Measurement: A New Approach to Housekeeping and Sanitation
April/May 2009 15(2):
The "M" in ICM: Using ATP to Evaluate Sanitation
June/July 2009 15(3):
Taking a Closer Look at Inspections
August/September 2009 15(4):
Ethnic Foods and the Sanitarian
October/November 2009 15(5):
Sanitation in the Deli: Contamination-prone Equipment
December/January 2009 15(6):
What "Bugs" Sanitarians About IPM
April/May 2010 16(2):
Sampling, Part 1: The Basics
June/July 2010 16(3):
Sampling, Part 2: Sampling Strategies
August/September 2013 19(4):
The Sanitation of Ice Making Equipment
October/November 2014 20(5):
Chemical Free Cleaning Revisited

Organic Processing
Pubished by The Target Group, Inc.

October-December 2006 3(4). Toward Greener Housekeeping

American Jails: Sanitarian Files
Published by: American Jail Association

March/April 2004	Introduction and Jail Lighting
May/June 2004	Determining Out-of-Service Cells
July/August 2004	Controlling Firing Range Hazards
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March/April 2007	Keeping it Green: Purchasing Safe Housekeeping Products
May/June 2007	Sanitation and Inmate Medications
July/August 2007	Safe Jail Water Systems
Sept./Oct. 2007	Noise Control
Nov,/Dec. 2007	Lessons Learned: A Rational Approach to Correctional Public Health

KaiScience: www.kaiscience.com 2007 – 2009

- A Rational Approach to Hard Surface Disinfectants
- Remove It and Prove It: Better Cleaning Through Scientific Validation
- ATP Systems Help Put Clean to the Test
- Learning from B.F. Skinner
- The Science and Technology of ATP
- Bioaerosols
- Integrated Cleaning and Measurement for Retail Food Operations

Executive Housekeeping Today
Published by the International Executive Housekeepers Association

March 2009: Integrated Cleaning and Measurement: A New Approach to Housekeeping and Sanitation
March 2012: Measuring Cleanliness

Gluten-Free Living

Number 1, 2010: A Clean Sweep for your GF Kitchen: Food Safety Expert's Tips for Controlling Cross-contamination

Rental Management

May 2013: Helping Customers Eliminate Bedbugs: Vacuums and Steamers can Help do the Job.

The Journal of Cleaning, Restoration & Inspection

August 2014: 1(4): Measuring Cleanliness

PUBLICATIONS: PEER REVIEWED

J. McMicking, Kummler, R. and Powitz, R., 1990. Wayne State University programs in hazardous waste education. Proceedings of the Fourth Annual National Meeting, Academy of Certified Hazardous Materials Managers, Ann Arbor, Michigan.

R. Kummler, Powitz, R. and Witt, C., 1990. USDHHS evaluation of hazardous waste training in the United States. Proceedings of the Fourth Annual National Meeting, Academy of Certified Hazardous Materials Managers, Ann Arbor, Michigan.

R. Powitz, R. Kummler and Hughes, C., 1990. Hazardous waste professional credentialing. Proceedings of the Fourth Annual National Meeting, Academy of Certified Hazardous Materials Managers, Ann Arbor, Michigan.

C. Miller, Kummler, R., Powitz, R. and McMicking, J., 1990. Education Program for hazardous waste management. ASCE Journal, April 1990.

R. Powitz, Kummler, R. and McMicking, J., 1990. A graduate certificate program: Education and training for hazardous waste specialist. Journal of Environmental Health, 52: 230.

R. Kummler, Powitz, R. and McMicking, J., 1990. The USDHHS study of hazardous waste education. Proceedings of the National Forum on Education and Continuing Development for the Civil Engineer, American Society of Civil Engineers, New York.

R. Kummler, Powitz, R., Witt, C. and Stern, B., 1990. DHHS evaluation of the hazardous waste education and training in the United States. Proceedings of the HAZMAT '90 Conference, Rosemont, Illinois.

R. Kummler, Powitz, R., Witt. C. and Stern, B., 1990. A comprehensive survey of graduate education and training in hazardous waste management. J. Air and Waste Management Assoc., (40): 32.

J. McMicking, Kummler, R. and Powitz, R., 1989. Graduate programs for the 90's in hazardous waste management - Dealing with the shortage of professionals. Proceedings of the International Specialty Conference on Hazardous Waste Management in the 90's. Banff, Alberta, Canada.

Powitz, R.W. 1989. A cross-disciplinary approach to the control of microbial fouling in ultrapure water systems. Conference Transcripts: Eighth Annual Semiconductor Pure Water Conference. Santa Clara, California, 11 pages.

J. McMicking, Powitz, R. and Kummler, R., 1987. Continuing education in hazard waste management: The graduate certificate. Proceedings of International Congress on Hazardous Materials Management. Pudvan Publishing Co. pp.596-604

Powitz, R.W. 1986. A comprehensive program for the management of hazardous wastes on a medical campus. Proceedings of the Second Annual Hazardous Materials Management Conference. West Tower Conference Management Co. Wheaton, IL. pp. 402-406.

Powitz, R.W. and Hunter, J. 1986. The development of Simple and Inexpensive devices to control microbial contamination in laboratory water systems. Proceedings of the Twenty-ninth Biological Safety Conference, Lexington, KY. (Abstracts only).

Powitz, R.W. and Hunter, J. 1985. Design and performance of single-lamp, high flow ultraviolet disinfectors. Ultrapure Water 2(1): 32-34.

Powitz, R.W. and Hunter, J. 1985. Design and performance of single lamp, high flow ultraviolet disinfectors. Conference Transcripts: Fourth Annual Semiconductor Purewater Conference. San Francisco, CA. pp. 37-46.

Powitz, R.W., Hunter; J. and Layton, L.E. 1984. Contamination in high purity laboratory water production systems. Proceedings of the XXVII Biological Safety Conference. Raleigh, NC. (Abstracts only).

Powitz, R.W. 1983. Managing hazardous wastes on campus: the evolution of a comprehensive program. Monograph No. 46, Thirtieth National Conference on Campus Safety. National Safety Council, Chicago, IL. 1983.

Powitz, R.W. 1982. An inexpensive needlestick prevention program. Proceedings of the XXV Biological Safety Conference. Boston, MA. pp. 105-107.
Poster Session: A safe needle disposal program., 25th Annual Biological Safety Conference. Boston, Massachusetts.

Krone, L.J., Powitz, R.W. and Worrell, L.F. 1978. Identification of the role performed by the sanitarian as a health professional: final report. National Environmental Health Association. Denver, CO.

Powitz, R.W., Hinden, M.N. and McComb, R.C. 1978. The safe use of tap water in bubble style humidifiers. Prepared for the Department of Respiratory Therapy, University of Minnesota, Minneapolis, MN.

Powitz, R.W., Vesley, D. and Greene, V.W. 1977. Some administrative an microbiological considerations in maintenance of the sterile integrity of prepackaged, disposable items for use in health care facilities: final report. Contract V101 (134) pA475, Veterans Administration, Washington, DC.

Powitz, R.W. 1976. Are microbiological air quality standards for hospitals realistic? Journal of Environmental Health, 39(3): 196-197.

Contributing author. 1976. Standards for Health Services in Correctional Institutions. American Public Health Association, Washington, DC.