EPA Registration # 61178-1-88903
Bad Axe ONSLAUGHT Disinfectant
Revised Date: June 12, 2009

1. **Acinetobacter calcoaceticus var anitratus:** causes bacterial meningitis, fulminating septicaemia, pulmonary and ophthalmic infections, chronic synovitis (joint pain/inflammation), skin diseases, wound infections and postoperative urinary tract infections. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

2. **Acinetobacter calcoaceticus var lwoffii:** causes bacteremia, pneumonia, meningitis, abdominal inflammation, endocarditis, and infections of the urinary tract and skin. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

3. **Actinobacillus pleuropneumoniae:** causes a bacterial upper respiratory disease in pigs, resulting in lethargy, cough, and other breathing difficulties. The organism is most problematic in intensive pig production operations. **Category and/or Source:** ATCC 27088 **Contact Time:** 10 minutes

4. **Actinomyces pyogenes:** causes severe bacterial mastitis in cattle, characterized by thick, purulent (pussy) secretion. **Category and/or Source:** ATCC 19411 **Contact Time:** 10 minutes

5. **Adenovirus type 2:** causes nonspecific viral respiratory illness, diarrhea, conjunctivitis (eye inflammation), cystitis, and rashes. **Category and/or Source:** ATCC VR-846 **Contact Time:** 10 minutes

6. **Aspergillus candidus:** causes a rare infection of the lungs and is associated with asthma. This fungus is prevalent in the environment. **Category and/or Source:** Environmental fungus **Contact Time:** 10 minutes

7. Aspergillus niger: causes a rare infection of the lungs and is associated with asthma. **Category and/or Source:** AIDS patient isolate GBL # M459 **Contact Time**: 10 minutes

8. Aspergillus niger: causes a rare infection of the lungs and is associated with asthma. This fungus is common in the environment. The fungus is characterized by dense growth of black spores. Category and/or Source: Environmental fungus |ATCC 16404 |Contact Time: 10 minutes

9. **Avian Influenza/Turkey Wisconsin Virus:** causes influenza infection of birds. The virus is very similar to the avian influenza H5N1 virus, which is thought to have potential for human crossover as a pandemic strain. **Category and/or Source:** ATCC VR-798 **Contact Time:** 10 minutes

10. **Bacillus cereus:** causes gastrointestinal infection and intoxication. The spores of B. cereus bacteria commonly contaminate raw foods and food materials, particularly foods that have been in contact with soil. The spores survive cooking and can subsequently germinate and grow under favorable conditions. Consumption of foods contaminated with B. cereus may result in disease either by the consumption of pre-formed toxin or by toxins produced by these bacteria in during growth the gut. **Category and/or Source:** ATCC 11778 **Contact Time:** 10 minutes

11. **Bacteroides fragilis:** causes various abscesses, mostly in the human gut. These opportunistic anaerobic bacteria may also cause bed sores, pressure sores, aspiration pneumonia, chronic otitis media (ear infection), chronic sinusitis, and osteomyelitis (bone infection). **Category and/or Source:** ATCC 43859 **Contact Time:** 10 minutes

12. **Bordetella bronchiseptica:** causes bronchitis in humans and can cause kennel cough in dogs. This bacterium infects the airway, and is closely related to the causative agent of whooping cough, Bordetella pertussis.

    Category and/or Source: Gram negative clinical isolate | ATCC 19395 **Contact Time:** 10 minutes

13. **Bordetella bronchiseptica:** causes bronchitis in humans and can cause kennel cough in dogs. This bacterium infects the airway, and is closely related to the causative agent of whooping cough, Bordetella pertussis.

    Category and/or Source: Gram negative bacteria | ATCC 19395 **Contact Time:** 10 minutes

14. **Bovine viral diarrhoea virus (BVDV):** causes diarrhea in cattle and can cause reproductive problems in pigs. This virus is in the same group of pest viruses as the virus of swine fever (hog cholera). **Category and/or Source:** X-800 strain **Contact Time:** 10 minutes

15. **Brevibacterim ammoniagenes:** causes diaper rash. These bacteria are now known as Corynebacterium ammoniagenes, and are thought to be associated with diaper rash due to their ability to convert urine to ammonia. **Category and/or Source:** GBL strain **Contact Time:** 10 minutes

16. **Brevundimonas diminuta:** causes opportunistic infections and fever. This bacterium is of relatively low clinical significance, but is used frequently to test water filters due to its very small size. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

17. **Burkholderia cepacia:** causes severe respiratory infections in the immunocompromised. These bacteria also have natural resistance to many antibiotics. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

18. **Burkholderia pickettii:** causes opportunistic infections in the hospital environment. Also known as Ralstonia pickettii, these bacteria have been isolated from contaminated disinfectant formulations, and are known to infect the blood and tissue around indwelling medical devices. The organism is particularly problematic in patients with cystic fibrosis. **Category and/or Source:** ATCC 49729 **Contact Time:** 10 minutes

19. **Campylobacter jejuni:** causes severe diarrhea. These bacteria cause abdominal pain, nausea, vomiting, diarrhea, and fever. They are found in undercooked meat (especially poultry), unpasteurised milk, and untreated water as a result of contamination by wild fowl. It has been linked with subsequent development of **Guillain-Barré syndrome** (GBS), which usually develops two to three weeks after the initial illness. **Category and/or Source:** ATCC 29428 **Contact Time:** 10 minutes

20. **Candida albicans:** causes opportunistic oral and genital infections in humans. This fungus exists primarily as yeast in the oral cavity, but can infect tissues through the production of invasive filaments called hyphae. **Category and/or Source:** AIDS patient isolate **Contact Time:** 10 minutes

21. **Canine Coronavirus:** causes upper respiratory and gastrointestinal infections in dogs. The virus is related to the human SARS virus. **Category and/or Source:** ATCC VR-809 | Strain 1-71 **Contact Time:** 10 minutes

22. **Canine Distemper Virus:** causes distemper in dogs. This virus is particularly problematic in non-vaccinated populations, including free-living African wild dogs, as well as other carnivores, both free-living and captive. **Category and/or Source:** Onderstepoort strain **Contact Time:** 10 minutes

23. **Canine Herpesvirus:** causes an infection in dogs that can result in various symptoms. The virus is known to cause weakness, depression, discharge from the nose, soft, yellow feces, and a loss of certain motor functions (reflexes). The virus can also cause keratitis, uveitis, optic

neuritis, retinitis, and retinal dysplasia. There is a high mortality rate, approaching 80 percent in puppies less than one week old, and death usually occurs in one to two days. **Category and/or Source:** ATCC VR-522 **Contact Time:** 10 minutes

24. **Chryseomonas luteola:** *causes rare opportunistic infections in humans. These bacteria have a propensity to infect hospital* patients with health or indwelling medical devices. Most reported cases involve septicemia (blood infection), meningitis (inflammation of nerves or brain tissue), heart infection, or inflammation of the abdominal wall.

    Category and/or Source: ATCC 43273 **Contact Time:** 10 minutes

25. **Corynebacterium ammoniagenes:** causes diaper rash. These bacteria are thought to be associated with diaper rash due to their ability to convert urine to ammonia. **Category and/or Source:** ATCC 6872 **Contact Time:** 10 minutes

26. **Corynebacterium pseudotuberculosis:** causes a severe infection of the lower limbs in horses and cattle. This bacterium is also associated with large, ulcerative skin lesions in about 2-5% of cases. **Category and/or Source:** ATCC 19410 **Contact Time:** 10 minutes

27. **Cryptococcus neoformans:** causes meningitis in the immunocompromised. This fungus recently has also been recognized as a source of pulmonary and general disseminated disease. Many infections with Cryptococcus neoformans are asymptomatic. **Category and/or Source:** AIDS patient isolate **Contact Time:** 10 minutes

28. **Cytomegalovirus:** causes infection of the eyes, throat, and salivary glands. This virus is particluarly risky to the immunocompromised, where it can cause a latent infection that further depresses the immune system. **Category and/or Source:** ATCC VR-284 **Contact Time:** 10 minutes

29. **Enterobacter aerogenes:** causes opportunistic, frequently healthcare-associated infections of the skin and skin tissue. The bacterium is problematic because it may become resistant to medical treatments in patients over time. **Category and/or Source:** ATCC 13048 **Contact Time:** 1 minute

30. **Enterobacter agglomerans:** causes relatively rare gastrointestinal infections in humans. The bacterium is now called Pantoea agglomerans, and is a recognized plant pathogen. **Category and/or Source:** Gram negative clinical isolate | Antibiotic resistant gram negative rod **Contact Time:** 10 minutes

31. **Enterobacter cloacae:** causes bacteremia, lower respiratory tract infections, skin and soft tissue infections, urinary tract infections, endocarditis (heart infections), intra-abdominal infections septic arthritis, bone infection, and eye infections. This bacterium is most commonly found in healthcare settings, where it is highly associated with invasive medical devices such as catheters. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

32. **Enterobacter gergoviae:** causes infections associated with indwelling medical devices. These bacteria are rare among Enterobacter infections. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

33. **Enterobacter liquefaciens:** causes infections associated with indwelling medical devices. These bacteria are rare among Enterobacter infections. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

34. **Enterococcus aerogenes:** causes opportunistic infections that are generally associated with the immunocompromised or with indwelling medical devices. These bacteria are of fairly small clinical importance, but are very similar to Enterococcus faecalis, which is of major clinical imporance. **Category and/or Source:** GBL strain**Contact Time:** 10 minutes

35. **Enterococcus faecalis:** causes opportunistic, but often severe infections of the skin, skin tissues, gastrointestinal tract, and bloodstream. These bacteria are especially problematic in recent years due to their demonstrated propensity to acquire resistance to multiple antibiotics. **Category and/or Source:** ATCC 1786-2 VANCOMYCIN resistant -VRE Antibiotic resistant gram positive rod | Gram positive clinical isolate **| Contact Time:** 10 minutes

36. **Enterococcus faecalis:** causes opportunistic, but often severe infections of the skin, skin tissues, gastrointestinal tract, and bloodstream. These bacteria are especially problematic in recent years due to their demonstrated propensity to acquire resistance to multiple antibiotics. **Category and/or Source:** ATCC 51299 **| Contact Time:** 10 minutes

37. **Enterococcus faecalis:** causes opportunistic, but often severe infections of the skin, skin tissues, gastrointestinal tract, and bloodstream. These bacteria are especially problematic in recent years due to their demonstrated propensity to acquire resistance to multiple antibiotics. **Category and/or Source:** ATCC 1786-2 **|** Gram positive bacteria **| Contact Time:** 10 minutes

38. **Enterococcus faecium:** causes opportunistic, but often severe infections of the skin, skin tissues, and bloodstream. These bacteria are very similar to Enterococcus faecalis, and the genus is thought to account for greater than 10% of hospital-acquired infections. **Category and/or Source:** ATCC 6569 **Contact Time:** 10 minutes

39. **Enterococcus hirae:** causes a rare infection of heart valves in humans, as well as other opportunistic infections. It is not as problematic as other members of the genus Enterococcus. These bacteria are not known to become resistant to antibiotics at the current time. **Category and/or Source:** ATCC 10541 **Contact Time:** 10 minutes

40. **Equine Herpesvirus:** causes a respiratory disease of young horses. This virus is primarily associated with coughing, and is thought to require close contact from animal-to-animal for transmission. **Category and/or Source:** ATCC VR-700 **Contact Time:** 10 minutes

41. **Equine Influenza Virus A:** causes a major respiratory disease of horses. Infection with this virus produces flu-like symptoms in horses, but may also prevent horses for drinking for days. **Category and/or Source:** ATCC VR-297 **Contact Time:** 10 minutes

42. **Escherichia vulneris:** causes infection of human wounds. This bacterium was discovered fairly recently, in the early 1980ôs. Since then, it has also been associated with osteomyelitis (bone infection) and meningitis. **Category and/or Source:** Wildtype isolate **Contact Time:** 10 minutes

43. **Escherichia coli:** causes a variety of gastrointestinal infections. There are many types of E. coli bacteria, the majority of which are non-pathogenic and live commensally in the gut. The most problematic E. coli are those that produce enterotoxins when growing in the human gut. These extraordinarily powerful toxins act directly on intestinal cells, reversing the flow on ions and causing severe diarrhea. E. coli is also a major hospital pathogen, responsible for greater than 10% of all hospital infections. One particular strain, E. coli O157:H7, causes hemorrhagic intestinal infection and sometimes causes kidney failure. **Category and/or Source: ATCC** 8739 **| Contact Time:** 10 minutes

44. **Escherichia coli:** causes a variety of gastrointestinal infections. There are many types of E. coli bacteria, the majority of which are non-pathogenic and live commensally in the gut. The most problematic E. coli are those that produce enterotoxins when growing in the human gut. These extraordinarily powerful toxins act directly on intestinal cells, reversing the flow on ions and causing severe diarrhea. E. coli is also a major hospital pathogen, responsible for greater than 10% of all hospital infections. **Category and/or Source: ATCC 11229 | Contact Time:** 10 minutes

45. **Escherichia coli:** causes a variety of gastrointestinal infections. There are many types of E. coli bacteria, the majority of which are non-pathogenic and live commensally in the gut. The most

problematic E. coli are those that produce enterotoxins when growing in the human gut. These extraordinarily powerful toxins act directly on intestinal cells, reversing the flow on ions and causing severe diarrhea. E. coli is also a major hospital pathogen, responsible for greater than 10% of all hospital infections. **Category and/or Source: |** Gram negative clinical isolate **# 1786-01-** Wound **| Contact Time:** 10 minutes

46. **Escherichia coli:** causes a variety of gastrointestinal infections. There are many types of E. coli bacteria, the majority of which are non-pathogenic and live commensally in the gut. The most problematic E. coli are those that produce enterotoxins when growing in the human gut. These extraordinarily powerful toxins act directly on intestinal cells, reversing the flow on ions and causing severe diarrhea. E. coli is also a major hospital pathogen, responsible for greater than 10% of all hospital infections. **Category and/or Source: |** Gram negative clinical isolate **# 1888 –** Urinary **| Contact Time:** 10 minutes

47. **Escherichia coli:** causes a variety of gastrointestinal infections. There are many types of E. coli bacteria, the majority of which are non-pathogenic and live commensally in the gut. The most problematic E. coli are those that produce enterotoxins when growing in the human gut. These extraordinarily powerful toxins act directly on intestinal cells, reversing the flow on ions and causing severe diarrhea. E. coli is also a major hospital pathogen, responsible for greater than 10% of all hospital infections. **Category and/or Source:** GBL 101 strains **|** Antibiotic resistant gram negative rod **|** Gram negative clinical isolate (Ampicillin, Tetracycline, Penicillin, and Sulfa Resistant) **| Contact Time:** 10 minutes

48. **Escherichia coli 0157:H7:** causes a severe, hemorrhagic intestinal infection with profuse, bloody diarrhea. These bacteria are commonly found in contaminated ground beef. Once infection is established, they invade intestinal cells and produce toxins that can result in kidney injury. Kidney disease associated with E. coli infection is called Hemolytic Uremic Syndrome (HUS). **Category and/or Source:** ATCC 35150 **Contact Time:** 10 minutes

49. **Feline Calcivirus:** causes a flu-like infection of cats, but is primarily significant because of its similarity to human noroviruses. This virus is recognized by the United States Environmental Protection Agency (USEPA) as a surrogate for noroviruses. Thus, disinfection of feline calicivirus virtually ensures disinfection of human norovirus, which cannot currently be grown or tested in the laboratory. **Category and/or Source:** Upjohn Company strain **Contact Time:** 10 minutes

50. **Feline Infectious Peritonitis Virus:** causes a mild, self-limiting diarrhea in cats. This virus predominantly infects cats that are very young or very old. The virus is thought to be highly

transmissible from cats to kittens. **Category and/or Source:** ATCC VR-990 **Contact Time:** 10 minutes

51. **Flavobacterium meningosepticum:** causes meningitis in humans. This bacterium is particularly problematic in children, where infections can be very serious and may result in death. **Category and/or Source:** ATCC 10211 **Contact Time:** 10 minutes

52. **Haemophilus influenzae:** causes bacteremia, and acute bacterial meningitis. It is known as an opportunistic bacterial pathogen. Occasionally, it causes cellulitis, osteomyelitis (bone infection), sore throat, and joint infections. A vaccine (HiB) is available that can prevent infections with this bacteria. **Category and/or Source:** ATCC 10211 **Contact Time:** 10 minutes

53. **Hafnia alvei:** causes diarrhea in humans. This member of the group of bacteria called Enterobacteriaceae is not well understood at this time but is rarely considered to be pathogenic. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

54. **HCV (Hepatitis C Virus):** causes a blood and fluid-borne infection of the liver in humans. This virus is especially problematic for intravenous illicit drug users and recipients of transfused blood and blood products. No vaccine currently exists for hepatitis C virus, but many are under development. Infection with this virus is associated with decreased liver function and increased likelihood of liver cancer. **Category and/or Source:** BVDV Surrogate **Contact Time:** 10 minutes

55. **Herpes Simplex Virus type 1:** causes small, painful ulcers on the human lips, mouth, and occasionally the ears and genital areas. This virus is known to integrate its DNA into that of the human body and infections are known to occur regularly as cycles. At this time it is not well understood what initiates acute infection or remission. The virus is transmitted by close contact, such as kissing and touching. **Category and/or Source:** ATCC VR-260 **Contact Time:** 30 seconds

56. **Herpes Simplex Virus type 2:** causes small, painful ulcers primarily around the human genital area. This virus is very similar to herpes simplex virus type 1, and symptoms from one virus may often be mistaken for symptoms of the other. The virus is sexually transmitted. **Category and/or Source:** ATCC VR-734 **Contact Time:** 30 seconds

57. **Human Coronavirus @ 98% Organic Soil Load Tolerance/400 ppm Hard Water:** causes gastrointestinal infections in humans and is responsible for about 30% of common colds. This virus is very similar in terms of size and shape to the virus that causes SARS. All age groups can

be infected, and severity of infection varies from mild to severe. **Category and/or Source:** ATCC VR-740, Strain 229E **Contact Time:** 10 minutes

58. **Human Hepatitis B Virus (HHBV):** causes cirrhosis or liver cancer in humans. The virus is transmitted by contaminated bodily fluids, with the exception of urine, saliva, and stool. Infection of the liver with the virus lasts from one month to many decades. Long-term infections increase the risk of liver cancer by approximately 50-fold. There is significant geographic variation in infection rates, but it is estimated that 300 to 350 million people worldwide have chronic HBV infection. In Southeast Asia, Africa, and China, >50% of the population is infected, and 8% to 15% become chronically infected. **Category and/or Source:** New York Blood Center: Dr. Fred Princeôs laboratory **Contact Time:** 10 minutes

59. **Human Immunodeficiency Virus (HIV-1) AIDS Virus:** causes a long term infection that depresses the immune system. Infection with this virus resembles the common cold or flu, with symptoms appearing for 1-2 weeks and then becoming very mild and often undetectable for years after. During this first phase of infection, a person is said to be HIV positive. After some years (typically 3-10), the virus overrides the hosts immune system and kills T4 helper T cells, rendering the host susceptible to a variety of opportunistic infections. The stage of HIV infection when T cells are substantially depleted is called acquired immunodeficiency syndrome, or AIDS. Death from HIV infection is always due to infection by another, usually opportunistic, pathogen. HIV infection is very common and is increasing globally, though rates of infection in the United States have declined in the last decade. Currently, it is estimated that approximately 25 million people are infected with HIV. **Category and/or Source:** UMDNJ: Dr. James Oleskeôs laboratory **Contact Time:** 30 seconds

60. **Infectious Bovine Rhinotracheitis (IBR) Virus:** causes a respiratory disease of cattle. Infection with this virus can cause secretions from the eyes, nose, and reproductive organs. It is now recognized as a cause of complex disease in cattle. **Category and/or Source:** ATCC VR-188 **Contact Time:** 10 minutes

61. **Influenza A/Brazil (H1N1) Virus:** causes the flu in humans. Influenza viruses are known to mutate on an approximately annual basis and have potential for pandemic spread. H1N1 specifies the antigens present on the surface of the virus for that particular season/strain. **Category and/or Source:** New Jersey Department of Health strain **Contact Time:** 10 minutes

62. **Influenza A/Victoria (H3N2) Virus:** causes the flu in humans. Influenza viruses are known to mutate on an approximately annual basis and have potential for pandemic spread. H3N2 specifies the antigens present on the surface of the virus for that particular

season/strain. **Category and/or Source:** ATCC VR-822, Hoffman-LaRoche, Pool # 28 **Contact Time:** 10 minutes

63. **Influenza A2/Japan/305 (H2N2) Virus:** causes the flu in humans. Influenza viruses are known to mutate on an approximately annual basis and have potential for pandemic spread. H2N2 specifies the antigens present on the surface of the virus for that particular season/strain.causes the flu in humans. **Category and/or Source:** ATCC VR-100 **Contact Time:** 10 minutes

64. **Influenza B Virus:** causes the flu in humans. This virus evolves much more slowly than closely related Influenza A virus, and as such is not as significant a source of seasonal disease in humans. **Category and/or Source:** Allen strain VR-102 **Contact Time:** 10 minutes

65. **Influenza C Virus:** causes the flu in humans. This is the most slowly evolving of the influenza viruses, and is know to infect both humans and pigs. **Category and/or Source:** Taylor strain VR-104 **Contact Time:** 10 minutes

66. **Klebsiella oxytoca:** causes high fever, chills, flu-like symptoms and a cough productive of a lot of mucous in humans. This bacterium is considered opportunistic, but can be deadly once infections are established. **Category and/or Source:** Gram negative clinical isolate | Antibiotic resistant gram negative bacteria rod (Ampicillin, Sulfanilimide, and Tetracycline Resistant) | **Contact Time:** 10 minutes

67. **Klebsiella oxytoca:** causes high fever, chills, flu-like symptoms and a cough productive of a lot of mucous in humans. This bacterium is considered opportunistic, but can be deadly once infections are established. **Category and/or Source:** Gram negative clinical isolate # 1737 | **Contact Time:** 10 minutes

68. **Klebsiella pneumoniae:** causes high fever, chills, flu-like symptoms and pneumonia. It can also cause gastrointestinal symptoms. This bacterium is considered opportunistic and is highly associated with hospital settings and with invasive procedures involving the airway. It is also a common cause of disease in alcoholics, presumably from aspiration of the bacteria. **Category and/or Source:** Gram negative clinical isolate # 1786-3 | **Contact Time:** 10 minutes

69. **Klebsiella pneumoniae:** causes high fever, chills, flu-like symptoms and pneumonia. It can also cause gastrointestinal symptoms. This bacterium is considered opportunistic and is highly associated with hospital settings and with invasive procedures involving the airway. It is also a common cause of disease in alcoholics, presumably from aspiration of the bacteria. **Category and/or Source:** ATCC 4352 | **Contact Time:** 10 minutes

70. **Klebsiella Pneumoniae type 1:** causes high fever, chills, flu-like symptoms and pneumonia. It can also cause gastrointestinal symptoms. This bacterium is considered opportunistic and is highly associated with hospital settings and with invasive procedures involving the airway. It is also a common cause of disease in alcoholics, presumably from aspiration of the bacteria. **Category and/or Source:** ATCC 700603 Antibiotic resistant gram negative rod | ATCC 4352 **Contact Time:** 10 minutes

71. **Listeria monocytogenes:** causes a gastrointestinal infection in humans. This bacterium is particularly problematic as a contaminant of food. It commonly contaminates sausages and other preserved meat products. It causes diarrhea and has a tendency to infect the very old or immunocompromised. **Category and/or Source:** ATCC 984 **Contact Time:** 10 minutes

72. **Malassezia pachydermatis:** causes a rare but often life-threatening fungal infection in immunocompromised humans. The fungus is common on the skin of dogs, and dogs are thought to be the major reservoir of the organism. **Category and/or Source:** AMMRL (canine origin) **Contact Time:** 10 minutes

73. **Measles Virus:** causes a severe infection of humans that is characterized by cough, runny nose, and red eyes. A skin rash is also common. Spots inside the mouth are also indicative of this infection, but many people do not develop the spots or they are visible only briefly. Most people infected with measles recover fully, but infections are rare since vaccinations against the virus are common. **Category and/or Source:** ATCC VR-24 **Contact Time:** 30 seconds

74. **Micrococcus luteus:** causes opportunistic infections in the immunocompromised in hospital settings. These bacteria are generally considered to be contaminants, but cause disease in rare instances. Notably, the bacterium is well adapted to living in or on dry environments such as the skin. **Category and/or Source:** Gram positive clinical isolate **Contact Time:** 10 minutes

75. **Morganella morganii:** causes urinary tract infections, sepsis, pneumonia, wound infections, musculoskeletal infections, central nervous system infections, pericarditis, and spontaneous bacterial inflammation of the abdominal lining. This bacterium is a normal part of human flora and is considered to be an opportunistic pathogen. **Category and/or Source:** Gram negative clinical isolate # 1747 | **Contact Time:** 10 minutes

75-76.

76. **Morganella morganii:** causes urinary tract infections, sepsis, pneumonia, wound infections, musculoskeletal infections, central nervous system infections, pericarditis, and spontaneous bacterial inflammation of the abdominal lining. This bacterium is a normal part of human flora

and is considered to be an opportunistic pathogen. **Category and/or Source:** Antibiotic resistant gram negative rod (Penicillin, and Tetracycline Resistant) | **Contact Time:** 10 minutes

77. **Newcastle Disease Virus:** causes a highly contagious disease in birds and occasionally causes eye infection and flu-like symptoms in highly exposed humans. This virus ranges in virulence from highly to mildly infective. **Category and/or Source:** ATCC VR-109 **Contact Time:** 10 minutes

78. **Parainfluenza Virus type 1:** causes a disease in humans resembling a cold or the flu. This virus infects the upper airway, causing production of mucous, fever, and runny nose. In children the virus is also associated with bronchitis. **Category and/or Source:** ATCC VR-105 **Contact Time:** 30 seconds

79. **Pasteurella haemolyticus:** causes a respiratory disease in cattle. Infections by this bacterium are rare. **Category and/or Source:** ATCC 43823 **Contact Time:** 10 minutes

80. **Penicillium chermesinum:** this fungus is thought to be a pathogen of social wasps. **Category and/or Source:** Environmental fungus **Contact Time:** 10 minutes

81. **Penicillium oxalicum:** this fungus is a pathogen of corn that can cause allergy in humans. **Category and/or Source:** Environmental fungus **Contact Time:** 5 minutes

82. **Penicillium spinulosum:** this fungus is a pre-harvest pathogen of sorghum. **Category and/or Source:** Environmental fungus **Contact Time:** 5 minutes

83. **Poliovirus type 1:** causes a severe nerve infection in humans. The virus is spread by contaminated water or food by the fecal-oral route. After gastrointestinal infection, nerves are negatively affected in a percentage of cases, often resulting in paralysis. Although once common, the disease has been virtually eradicated by a successful vaccination program and by treatment of water and wastewater with disinfectants. **Category and/or Source:** Chat strain **Contact Time:** 10 minutes

84. **Porcine Parvovirus:** causes infectious infertility in pigs. The virus infects virtually all pig herds, but infection is typically asymptomatic. **Category and/or Source:** ATCC VR-742 **Contact Time:** 10 minutes

85. **Porcine Respiratory & Reproductive Syndrome Virus:** causes respiratory tract infection in young pigs and infertility in older pigs. The virus appeared suddenly in the Midwestern United

States but has since spread worldwide. **Category and/or Source:** GBL strain **Contact Time:** 10 minutes

86. **Porcine Rotavirus:** causes gastrointestinal infections in pigs. The virus is very similar to human rotavirus, which primarily infects children and is a major cause of diarrhea in the United States. **Category and/or Source:** ATCC VR-893 **Contact Time:** 10 minutes

87. **Proteus mirabilis:** causes urinary tract problems in humans as well as bloodstream and wound infections. The bacterium produces large amounts of urease, which hydrolyzes to ammonia and makes the urine more alkaline. This can cause the kidney stones, which can lead to renal failure. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

88. **Proteus vulgaris:** causes many different types of infection including urinary tract infections and wound infections, and is a common cause of sinus and respiratory infections. The bacterium is particularly difficult to eradicate in sinus and respiratory tissues. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

89. **Pseudomonas aeruginosa:** causes many different types of infections, most of which are acquired in hospitals. Due to the ubiquitous nature of the bacterium in the environment, it is a common contaminant of environmental surfaces. It is also problematic because it has natural resistance to many disinfectants and can form biofilms on medical devices. Infection with Pseudomonas aeruginosa in patients with cystic fibrosis is often deadly over long periods of time. **Category and/or Source:** AIDS patient isolate | **Contact Time:** 10 minutes

90. **Pseudomonas aeruginosa:** causes many different types of infections, most of which are acquired in hospitals. Due to the ubiquitous nature of the bacterium in the environment, it is a common contaminant of environmental surfaces. It is also problematic because it has natural resistance to many disinfectants and can form biofilms on medical devices. Infection with Pseudomonas aeruginosa in patients with cystic fibrosis is often deadly over long periods of time. **Category and/or Source: |** Gram negative clinical isolate **| Contact Time:** 10 minutes

91. **Pseudomonas aeruginosa:** causes many different types of infections, most of which are acquired in hospitals. Due to the ubiquitous nature of the bacterium in the environment, it is a common contaminant of environmental surfaces. It is also problematic because it has natural resistance to many disinfectants and can form biofilms on medical devices. Infection with Pseudomonas aeruginosa in patients with cystic fibrosis is often deadly over long periods of time. **Category and/or Source: ATTC 15442 | Contact Time:** 10 minutes

92. **Pseudomonas aeruginosa:** causes many different types of infections, most of which are acquired in hospitals. Due to the ubiquitous nature of the bacterium in the environment, it is a common contaminant of environmental surfaces. It is also problematic because it has natural resistance to many disinfectants and can form biofilms on medical devices. Infection with Pseudomonas aeruginosa in patients with cystic fibrosis is often deadly over long periods of time. **Category and/or Source:** Multiple (8) Antibiotic resistant gram negative rods (Sulfa, Cefatoxime, Nitrofurantoin, Tetracycline, Amikacin, Ampicillin, Cephalothin, and Bactine Resistant) | **Contact Time:** 10 minutes

93. **Pseudomonas fluorescens:** causes infections related to blood transfusions and is a common environmental contaminant. These bacteria also have beneficial uses ï they can be grown in culture to produce an antimicrobial compound called mupirocin which is effective against MRSA. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

94. **Pseudomonas pseudomallei:** causes an infectious illness called melioidosis or Whitmoreôs disease that is most frequent in Southeast Asia and Northern Australia. Meliodosis is a lung infection that may involve a cavity of pus. The bacterium can also spread through the bloodstream to other parts of the body. Pseudomonas pseudomallei is found in soil, rice paddies and stagnant waters. Humans catch the disease by inhalation of contaminated dust or when soil contaminated by the bacteria comes in contact with abraded (scraped) skin. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

95. **Pseudomonas putida:** causes spoilage of consumer products and grows robustly in a variety of environments. This bacterium is not known to be a human pathogen.

96. **Pseudomonas stutzeri:** causes primarily bacteremia (blood infection) in patients undergoing invasive medical procedures such as dialysis. These bacteria are considered to be opportunistic pathogens, and infection is quite rare. **Category and/or Source:** Gram negative clinical isolate **Contact Time:** 10 minutes

97. **Pseudorabies Virus:** causes abortion, coughing, sneezing, fever, constipation, depression, seizures, and various other symptoms in piglets and mature pigs. Mortality in piglets less than one month of age is close to 100 percent. The virus is a type of porcine herpesvirus. **Category and/or Source:** ATCC VR-135 **Contact Time:** 30 seconds

98. **Respiratory Syncytial Virus (RSV):** causes fever, runny nose, cough, and sometimes wheezing in young children. In general, symptoms of infection are flu-like. The virus is the

most common cause of bronchitis in infants under 1 year old. By the time children reach 4 years of age, nearly all have been infected at least once with respiratory syncitial virus. Infections with this virus are rarely life-threatening. **Category and/or Source:** Gram ATCC VR-26,Strain Long **Contact Time:** 10 minutes

99. **Rhodococcus equi:** causes a persistent bacterial pneumonia in young horses, and may become established as an endemic disease on some breeding farms. These bacteria are also a normal part of the bacterial flora of adult horses. **Category and/or Source:** ATCC 6939 **Contact Time:** 10 minutes

100. **Rotavirus:** causes an acute, self-limiting gastrointestinal disease in humans that primarily affects children. Disease is characterized by watery diarrhea, nausea, vomiting and fever. Infections typically last for 3-8 days. In developed countries, the virus is rarely associated with mortality, but in the developing world rates of death can be quite high. Death from rotavirus infection in children is usually a result of dehydration from voluminous diarrhea. **Category and/or Source:** Strain WA ,obtained from the University of Ottawa, Canada **Contact Time:** 10 minutes

101. **Salmonella choleraesuis @ 98% Organic Soil Load Tolerance/791 ppm Hard Water:** causes severe gastrointestinal disease in humans. This genus of bacteria was recently reclassified to include two main species, S. enterica and S. typhi. As such, S. choleraesuis is now referred to as S. enterica serovar choleraesuis. This microorganism is a problematic contaminant of food products and most disease is transmitted by food. Undercooked poultry is a major source of infection with this bacterium. **Category and/or Source:** ATCC 10708 | Antibiotic resistant gram negative rod | **Contact Time:** 10 minutes

102. **Salmonella choleraesuis:** causes severe gastrointestinal disease in humans. This genus of bacteria was recently reclassified to include two main species, S. enterica and S. typhi. As such, S. choleraesuis is now referred to as S. enterica serovar choleraesuis. This microorganism is a problematic contaminant of food products and most disease is transmitted by food. Undercooked poultry is a major source of infection with this bacterium. **Category and/or Source:** ATCC 10708 | **Contact Time:** 10 minutes

103. **Salmonella typhi:** causes typhoid fever in humans, which is a severe and often deadly infection that includes sustained fever as high as 40°C (104°F), profuse sweating, gastroenteritis, and diarrhea. In some cases, a rash of flat, rose-colored spots may also accompany infection. These bacteria are spread most commonly in developing countries through

contaminated food or drinking water. **Category and/or Source:** Gram ATCC 6539 **Contact Time:** 10 minutes

104. **Salomonella schottmuelleri:** causes enteric infection and fever in humans, characterized by profuse diarrhea, nausea, and vomiting. These bacteria are spread predominantly by contaminated food and water. **Category and/or Source:** GBL strain **Contact Time:** 10 minutes

105. **Serratia marcescens:** causes conjunctivitis, keratitis, endophthalmitis, and tear duct infections in humans, where it is a normal part of the bacterial flora of the urinary tract and gastrointestinal system. This bacterium is easy to isolate and recognize in the laboratory because it grows as large, bright red colonies. It has been recognized as a contaminant of vaccines and may be resistant to some antibiotics, depending on the strain. **Category and/or Source:** Gram negative clinical isolate **Contact Time:**10 minutes

106. **Shigella dysenteriae:** causes severe gastrointestinal disease in humans, characterized by watery diarrhea, intestinal cramps, and fever. Infections with these bacteria usually last 5-7 days and can be spread easily to others via contamination of environmental surfaces. Shigella dysenteriae have a very low ñinfectious dose,ò meaning that only a few cells need be ingested to produce disease. **Category and/or Source:** Gram GBL strain **Contact Time:** 10 minutes

107. **Sphingomonas paucimobilis:** causes a range of mostly hospital-related, non-life-threatening infections that typically are easily treated by antibiotic therapy. These strictly aerobic bacteria are naturally present in many land and water habitats. **Category and/or Source:** Gram positive clinical isolate **Contact Time:** 10 minutes

108. **Staphylococcus aureus @ 98% Organic Soil Load Tolerance/791 ppm Hard Water:** causes infections and intoxication in humans. This bacterium can infect the skin, intestinal tract, wounds, and many other parts of the body, occasionally causing very serious meningitis, heart infections, and toxic shock. In addition to infections, humans can be harmed by S. aureus as a result of the toxins it produces when it is allowed to grow in food that is not refrigerated. Disease resulting from Staphylococcus enterotoxin intoxication is primarily gastrointestinal and involves profuse diarrhea, nausea, and vomiting with rapid onset for a brief period (usually 4-12 hours). In high doses, Staphylococcus enterotoxin is deadly. S. aureus is commonly part of the nasal flora of healthy individuals. **Category and/or Source:** Gram positive clinical isolate | Toxic shock strain **Contact Time:** 10 minutes

109. **Staphylococcus aureus (antibiotic resistant):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. Methicillin-resistant S. aureus or MRSA is a critical pathogen, and some strains are now resistant to virtually all clinically available antibiotics. MRSA is responsible for a great deal of morbidity and mortality in the United States, especially among hospital patients. **Category and/or Source:** ATCC 33591 METHICILLIN resistant **| Contact Time:** 10 minutes

110. **Staphylococcus aureus (antibiotic resistant):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. Vancomycin-resistant S. aureus or MRSA is a critical pathogen, and some strains are now resistant to virtually all clinically available antibiotics. VISA is responsible for a great deal of morbidity and mortality in the United States, especially among hospital patients. **Category and/or Source:** CDC # HIP-5836 VISA resistant **| Contact Time:** 10 minutes

111. **Staphylococcus aureus (toxic shock strains):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. **Category and/or Source:** Gram Toxic shock strain | ATCC 33591 **| Contact Time:** 10 minutes

112. **Staphylococcus aureus (antibiotic resistant):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. Vancomycin-resistant intermediate S. aureus or VRSA is a critical pathogen, and some strains are now resistant to virtually all clinically available antibiotics. MRSA is responsible for a great deal of morbidity and mortality in the United States, especially among hospital patients. **Category and/or Source: |** ATCC 14154 Vancomycin resistant (NARSA VRS1) **| Contact Time:** 10 minutes

113. **Staphylococcus aureus (antibiotic resistant):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. CA-MRSA resistant S. aureus or CA-MRSA is a critical pathogen, and

some strains are now resistant to virtually all clinically available antibiotics. CA-MRSA is responsible for a great deal of morbidity and mortality in the United States, especially among hospital patients. **Category and/or Source:** ATCC 33592 METHICILLIN resistant PVL Positive (NARSA # NRS 192 | **Contact Time:** 10 minutes

114. **Staphylococcus aureus (antibiotic resistant):** cause infections and intoxications similar to antibiotic sensitive strains, but are much more problematic from a clinical perspective because the organisms either produce more/more potent toxins or resist the effects of a range of antibiotics. CA-MRSA resistant S. aureus or CA-MRSA is a critical pathogen, and some strains are now resistant to virtually all clinically available antibiotics. CA-MRSA is responsible for a great deal of morbidity and mortality in the United States, especially among hospital patients. **Category and/or Source:** ATCC 33592 METHICILLIN resistant PVL Positive (NARSA # NRS 123 Genotype USA 400 | **Contact Time:** 10 minutes

115. **Staphylococcus auricularis:** causes infections of the skin, intestinal tract, wounds, and many other parts of the body, but infections are not generally as severe as with its close relative, S. aureus. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** ATCC 33753 **Contact Time:** 10 minutes

116. **Staphylococcus capitis:** causes infections of the heart valves of adult humans and is commonly associated with bacteremia in neonates. Infections with this organism are often difficult to eradicate. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** Clinical isolate **Contact Time:** 10 minutes

117. **Staphylococcus epidermidis:** causes infection in people who are immunocompromised and in people who have indwelling catheters. Many strains produce a biofilmthat allows them to adhere to the surfaces of medical prostheses. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin and as such are the most common contaminant in clinical laboratory tests. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** Gram positive clinical isolate | **Contact Time:** 10minutes

118. **Staphylococcus epidermidis:** causes infection in people who are immunocompromised and in people who have indwelling catheters. Many strains produce a biofilmthat allows them to adhere to the surfaces of medical prostheses. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin and as such are the most common contaminant in clinical laboratory tests. These bacteria are members of the

group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** Antibiotic resistant gram positive bacteria (Ampicillin, and Drug Resistant) **Contact Time:** 10 minutes

119. **Staphylococcus epidermidis:** causes infection in people who are immunocompromised and in people who have indwelling catheters. Many strains produce a biofilmthat allows them to adhere to the surfaces of medical prostheses. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin and as such are the most common contaminant in clinical laboratory tests. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** ATCC 51625 Antibiotic resistant gram positive bacteria (Methicillin Resistant) **Contact Time:** 10 minutes

120. **Staphylococcus hominis:** causes infection in people who are immunocompromised and in people who have indwelling catheters. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin are generally considered to be non-pathogenic or opportunistically pathogenic. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** Gram ATCC 29885 **Contact Time:** 10 minutes

121. **Staphylococcus saprophyticus:** causes infection in people who are immunocompromised and in people who have indwelling catheters. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin are generally considered to be non-pathogenic or opportunistically pathogenic. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** Gram positive clinical isolate **Contact Time:** 10 minutes

122. **Staphylococcus simulans:** causes infection in people who are immunocompromised and in people who have indwelling catheters. In addition, these bacteria are often resistant to many antibiotics. They live predominantly on the skin are generally considered to be non-pathogenic or opportunistically pathogenic. These bacteria are members of the group called ñcoagulase-negative Staphylococci.ò **Category and/or Source:** ATCC 11631 **Contact Time:** 10 minutes

123. **Stenotrophonas maltophilia:** causes colonization of the skin and skin tissues of hospital patients and occasionally causes infections. Infections with this bacterium are usually of a result of growth of the organism to high levels in medical fluids. **Category and/or Source:** Clinical isolate **Contact Time:** 10 minutes

124. **Streptococcus hemolyticus:** causes scarlet fever and rheumatic fever, which are both a result of the action of the bodyôs immune system after the infection has been cleared. This bacterium is an infrequent human pathogen. It is considered to be ñGroup A strep.ò **Category and/or Source:** Gram positive clinical isolate **Contact Time:**10 minutes

125. **Streptococcus equi var equi:** causes a disease called strangles in horses, donkeys, and mules. In humans, infections are limited to a mild sore throat. This bacterium infects the respiratory tract of the animals, resulting in white discharge from the nose and further complications in about 10-20% of cases. Difficulty of breathing and inflamed lymph nodes are hallmarks of this disease. **Category and/or Source:** Gram ATCC 33398 **Contact Time:** 10 minutes

126. **Streptococcus equi var zooepidermicus:** causes strangles in horses, but this variant may have greater transmissibility than the equi variant. **Category and/or Source:** ATCC 43079 **Contact Time:** 10 minutes

127. **Streptococcus pneumoniae:** causes a variety of infections in humans, including pneumonia, bronchitis, ear infections and more seriously, brain abcesses, meningitis, septic arthritis, and heart infections. These bacteria were the major cause of pneumonia in the early 1900ôs. **Category and/or Source:** AIDS patient isolate **Contact Time:**10 minutes

128. **Streptococcus pneumoniae (PRSP):** causes infections similar to those of antibiotic-sensitive S. pneumoniae, but treatment is made much more difficult by the organismôs resistance to antibiotics. **Category and/or Source:** ATCC 51915 **Contact Time:** 10 minutes

129. **Streptococcus pyogenes:** causes ñStrep Throatò and skin infections in humans. If untreated by antibiotics, strep throat can cause Scarlet Fever, which is an autoimmune disease that can affect the heart. In addition, this bacterium can infect the skin, occasionally producing what is commonly referred to as ñflesh eating disease,ò or necrotizing fasciitis. **Category and/or Source:** Bird M3 Clinical Isolate **Contact Time:** 10 minutes

130. **Streptococcus pyogenes:** causes ñStrep Throatò and skin infections in humans. If untreated by antibiotics, strep throat can cause Scarlet Fever, which is an autoimmune disease that can affect the heart. **Category and/or Source:** ATCC 19615 **Contact Time:** 10 minutes

131. **Streptococcus salivarius:** causes blood infections in people who have neutropenia, or depressed immune systems. This bacterium is similar in terms of size and shape

to S. pyogenes but is much less pathogenic. **Category and/or Source:** GBL strain **Contact Time:** 10 minutes

132. **T1 bacteriophage:** is a virus that infects bacteria. Phages are sometimes involved in the transfer of genes that encode toxins from one bacterium to the next. **Category and/or Source:** ATCC 11303-B1 **Contact Time:** 10 minutes

133. **T4 bacteriophage:** is a virus that infects bacteria. Phages are sometimes involved in the transfer of genes that encode toxins from one bacterium to the next. **Category and/or Source:** ATCC 11303-B4 **Contact Time:** 10 minutes

134. **Transmissible Gastroenteritis (TGE) Virus:** causes vomiting and diarrhea in pigs with a high rate of mortality. The virus initiates infection by destroying the villi (small finger-like structures) of the small intestine. After infection, pigs may shed the virus for 2-3 weeks. **Category and/or Source:** ATCC VR-763 **Contact Time:** 10 minutes

135. **Trichophyton mentagrophytes @ ~100 % Organic Soil Load Tolerance/395 ppm Hard Water:** causes skin infections in humans. This fungus is responsible for ñathletes foot,ò a persistent infection of the skin near the toes that can also infect the hair, skin, and nails. **Category and/or Source:** ATCC 9533 **Contact Time:** 10 minutes

136. **Ulocladium sp.:** causes cutaneous infections in immunocompromised individuals and has also caused infections of the eyes. This fungus is a rare human pathogen. **Category and/or Source:** Environmental fungus **Contact Time:** 5 minutes

137. **Vaccinia Virus:** causes cowpox in humans. Cowpox is a relatively mild skin infection that provides protective immunity against the much more serious (but recently eradicated) infection smallpox. The two viruses are very similar in terms of their size, shape, and genetic makeup. **Category and/or Source:** Hoffmann LaRoche, Pool 57 **Contact Time:** 10 minutes

138. **Vesicular Stomatitis Virus:** causes Influenza-like symptoms including headache, fever, pain on motion of eyes, malaise, nausea, pain in the limbs and back, as well as possible vesicular lesions in the mouth and on the lips and hands. The virus primarily infects cattle, but has a wide host range including humans, deer, and insects. **Category and/or Source:** GBL strain **Contact Time:** 10 minutes

139. **Yersinia enterocolitica:** causes plague. Though once a major source of epidemics, outbreaks of this bacterium are now limited to transmission of the bacteria from the

fleas of prarie dogs and other animals to humans. Approximately 10-100 cases of plague are recognized in the United States each year.**Category and/or Source:** ATCC 23715 **Contact Time:** 10 minutes