

This paper reviews the history of disinfection practices, emphasizing their application to human fecal material and the residuals from wastewater treatment. It discusses development of the current US sewage sludge disinfection regulations and their associated practices; discusses the limitations of the practices; discusses the criteria employed in evaluating a new (innovative or alternative) disinfection process and both notes some processes recently evaluated and ones that are currently being evaluated. The US regulations are designed to protect human health by minimizing the contact of humans with pathogenic microorganisms. Two types of disinfection processes are employed. Processes like pasteurization are employed to reduce pathogens below their analytical detection limits, while processes like mesophilic anaerobic digestion are combined with requirements for organic matter reduction and access restrictions. Issues with the present disinfection alternatives such as their only being concerned with the presence or absence of certain pathogens like enteric viruses or *Ascaris* sp. are discussed and remedies suggested. Innovative and alternative methods for disinfection are frequently proposed and it is important to understand how the stressors employed by the process contribute to its reduction of pathogenic bacteria, viruses, protozoa and parasites. For example with an alkaline disinfection process it may be possible to utilize the beneficial effects of time, temperature, pH, chemical agents like ammonia, and pressure. A two phase and batch thermophilic anaerobic digestion system, however, is able to utilize the benefits of high temperature, high levels of volatile fatty acids and free ammonia to accomplish a large reduction of pathogens.