VOLUME REDUCTION SOLIDS TREATMENT SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of and priority to U.S. Provisional Application No. 63/222,740, titled "VOLUME REDUCTION SOLIDS TREATMENT SYSTEM," filed on July 16, 2021, the entire contents of which are hereby incorporated herein by reference.

BACKGROUND

[0002] An estimated 4.5 billion people worldwide do not have access to safe, affordable sanitation systems. High levels of child death and disease have been linked to oral fecal contamination where pathogen laden fecal matter enters the food or water supply. Non-sewered sanitation systems are needed where traditional sanitary sewer systems are unavailable or impractical.

SUMMARY

[0003] According to a first aspect of the present invention, there is provided a solids waste treatment system, comprising:

a pasteurizer configured to receive a slurry batch and heat the slurry batch at an elevated temperature for a time period to produce a pathogen free slurry, the slurry batch comprising at least feces;

a mechanical dewatering press configured to compress the pathogen free slurry to separate a liquid phase from a volume reduced solid waste, the volume reduced solid waste being formed into a feces cake;

an outlet to remove the liquid phase; and

a drying tunnel comprising a conveyor housed in an air duct system, the air duct system configured to propel forced air over the feces cake in the drying tunnel.

[0003a] According to a second aspect of the present invention, there is provided a process for treatment of human waste, the process comprising:

receiving, into a pasteurizer, a slurry batch comprising feces;

heating the slurry batch at an elevated temperature for a time period, the time period sufficient to kill pathogens producing a pathogen reduced slurry;

transferring the pathogen reduced slurry to a mechanical dewatering press;

compressing the pathogen reduced slurry in the mechanical dewatering press to separate a liquid phase from a volume reduced solid waste;

removing the liquid phase;

forming a feces cake from the volume reduced solid waste;

ejecting the volume reduced solid waste onto a conveyor; and

removing moisture from the feces cake in a drying tunnel.

[0004] Other systems, methods, features, and advantages of the present disclosure will be or become apparent to one with skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional systems, methods, features, and advantages be included within this description, be within the scope of the present disclosure, and be protected by the accompanying claims. In addition, all optional and preferred features and modifications of the described embodiments are usable in all aspects of the disclosure taught herein. Furthermore, the individual features of the dependent claims, as well as all optional and