BUFFER TANK SEPARATION AND HOMOGENIZATION SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of and priority to U.S. Provisional Application No. 63/222,726, titled "BUFFER TANK SEPARATION AND HOMOGENIZATION 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 buffer tank separation system, comprising:

at least one inlet;

a liquids collection tank comprising a liquids outlet;

a solids collection tank comprising a solids outlet;

a belt separator comprising a perforated belt looped between two rollers, the belt separator positioned to receive an input stream via the at least one inlet onto the belt of the belt separator, the input stream comprising at least one of: solids and liquids, the belt separator configured to deliver a solids portion of the input stream to the solids collection tank and to deliver a liquids portion of the input stream to the liquids collection tank; and

a homogenizer connected to the solids outlet, the homogenizer configured to receive a collected solids portion output and form a uniform and homogenized slurry.

[0004] According to a second aspect of the present invention, there is provided a method for separating human waste using the buffer tank separation system of claim 1, the method comprising:

receiving, onto a belt separator, an input stream comprising at least one of: solids and liquids;

separating, by the belt separator, the input stream into a solids portion and a liquids portion;

delivering the liquids portion to a liquids collection tank for sedimentation;

delivering the solids portion to a solids collection tank;

forming, in a homogenizer, a uniform and homogenized slurry from a collected solids portion output from the solids collection tank.

[0005]

[0006]

[0007] 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