Therma-Flite
The Screw Heat Exchanger Company

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Therma-Flite IC Biosolids Dryer System

For many reasons the disposal of Class B has become a problem that is the concern of any wastewater utility district. With the limited landfill capacities and the high cost of tipping fees not to mention the high cost of transportation, simply getting the sludge off site is an expensive undertaking. Then of coarse there is the record keeping and liability of the Class B sludge. Or possibly there is a public relations problem with the disposal of Class B sludge.

Under 40 CFR, part 503 the United States Environmental Protection Agency has published regulations for technologies to further reduce pathogens in Municipal biosolids, to reach Class A, Excellent Quality, biosolids that is safe for the environment. With the publishing of these regulations Municipalities now have new choices in the safe disposal of biosolids as opposed to the regulations addressing Class B biosolids. One of the requirements under 40CFR, part 503 is that any heavy metals in the wastewater or bio solids are severely limited to low levels under EPA guidelines.

Therma-Flite has designed the Therma-Flite IC series biosolids dehydration system with design criteria to address the needs of the small and medium size municipality, keep operator attention and maintenance cost at a minimum with the automated indirect heated dryer system.

The Therma-Flite IC sludge dryer system is an automated design. All operating parameters are under the control of the PLC system. With PLC control the IC system operates on a continuous basis, through continuous feeding of the wet sludge and dehydration and discharge of the dried material in a continuous flow. This automated process operates continuously, all with out operator attention.

The heat energy for dehydration, or evaporation, is indirect. Thermal fluid is circulated through the hollow disk rotor and the outer jacket of the drying chamber. The drying process operates under a slight negative pressure with only the cfm created by the expansion of the steam and air entrapped in the sludge being drawn off of the chamber. The Therma-Flite IC process delivers biosolids to the drying chamber where the material exposed to the Holo-Scru rotor and outer shell of the drying chamber heated by the thermal fluid circulated through the system at 425 to 450 degrees. The biosolids are heated to a minimum of 212 degrees Fahrenheit, surpassing requirements of the EPA rules and held at that temperature for a minimum of 1 hour while the moisture is driven off, raising the solids concentration to 90 %.

A scrubber/condenser is an integral part of the Therma-Flite IC system. As an integral component the scrubber/condenser is also under PLC control, so that the system will not operate unless the scrubber/condenser is in operation. Both the flow of water and air through the scrubber/condenser are monitored by the PLC. If flow through either stream is reduced or stopped, the PLC will shutdown the entire Therma-Flite IC drying process and not allow restart until the malfunction has been corrected. The scrubber/condenser insures that the minor amount

of particulate that could be in the air stream is removed as well as condensing the steam from the drying chamber. Condensing the steam insures a reduced odor level as well as eliminating a steam plum and the condensation of the steam as it is released to atmosphere.

Because of the control maintained with the PLC controlled process, Therma-Flite is able to guarantee meeting the Class A requirements as specified under 40 CFR, part 503.