Wastewater Newsletter

Jail Waste streams provide unusual challenges to typical industry equipment

Arlat 'TS' Filter Screen proves itself equal to the challenge.

Unusually high volume of solids and the wide variety of materials in waste streams from correctional institutions provide unique challenges to today's typical wastewater equipment.

ARLAT 'TS' Filter Screen installed at Fluvanna Correctional Center near Charlottesville, VI. This site is one of five Virginia state correctional facilities that rely on ARLAT Filter Screens.

35 Elm Street, Walkerton, ON N0G2V0
800-485-7101 | www.arlat.com | info@arlat.com

Wastewater Newsletter

Virginia Corrections Screen Installations.

In recent years, the state of Virginia has installed five ARLAT 'TS' Filter Screens in correctional institutions. They use the screens to remove non-biological solids from their waste streams.

In some cases, such as Fluvanna, the screen protects an on-site SBR treatment plant. While in others, such as Red Onion, the sewage is pre-screened prior to discharge through a gravity fed main to a local municipal facility.

These municipal facilities are not prepared to accept the raw products as it contains a much higher proportion of untreatable solids than typical domestic wastewater. These solids fall into three categories; 1) plastic items commonly encountered in municipal wastewater, 2) vast amounts of coated paper, correspondence, rags and plastic wrapping, 3) contraband items which are hastily jettisoned prior to, or during, cell-block inspection.

In the past, it was common to use a comminutor to chop up solids in jail waste stream. Today, with the high proportion of plastics present, this is no longer a suitable solution. The plastics will travel through the complete sewage treatment process, and be present when the final sludge product is spread on farm fields, or burned in an incinerator, neither of which is environmentally acceptable.

The ARLAT 'TS' Filter Screen traps this variety of debris in the continuous belt, which with its interspersed teeth, perform a double filtration action. The belt is then activated on cue from a timer, or differential level probes, which sense solids on the screen. Solids are carried up to be dealt with out of the waste stream and the action of the flowing water. This process is an improvement over the rake action of a traditional bar screen installation.

The travel of the belt is routed through three bends, where the intermeshed teeth act with the adjacent teeth in a self-cleaning action. The waste is ejected off the belt and down a chute into a dumpster container or screw press for further processing.

The basic material used in the screen construction is 304 Stainless Steel. The main frame is coated to eliminate attack from hydrogen sulphide which may be present in the channel. The stainless steel is augmented with the use of bronze roller bushings and UHMW-PE wear strips and belt links. This is done to eliminate stainless running on stainless and the resulting wear patterns, thus significantly reducing maintenance costs.

The elements or teeth are made of high impact nylon composite, resilient to shock loading and bending which would cause the belt to seize if the teeth were to be made, say, of Stainless Steel. The machine is protected by three separate overload sensors to minimize damage from any really ugly debris received during storm conditions.

Where the local solids waste facilities are willing to accept moist screenings, they are trucked directly to the dump. Most installations, however, have added the ARLAT 'SPD' Screw Press Compactor. The compactor effectively reduces the screenings volume, thereby limiting the number of trips to the dump. It also squeezes out moisture, which is returned to the channel, thus eliminating odour.

35 Elm Street, Walkerton, ON N0G2V0
800-485-7101 | www.arlat.com | info@arlat.com