Vertical Shaftless Screw Conveyor with Pivoting Load-Out Conveyor for Biosolids for Deltona WWTP in Florida

General Description of the Application

The Eastern Wastewater Reclamation Facility in Osteen, FL is a new wastewater treatment plant that will accommodate the expanded residential and commercial development that planners expect in the coming years in the Deltona/Osteen area. The new plant will meet the demands of more commercial activity in the Osteen vicinity, and will enable sewer connections along more of Deltona’s existing commercial corridors. KWS Environmental provided a shaftless screw conveyor system to elevate dewatered biosolids from a centrifuge to a loading bay and evenly distribute the biosolids in a truck. The proximity of the Centrifuge to the loading area and limited headroom represented a special problem and a unique solution.

Design Parameters of Application

- **Material:** Dewatered Biosolids
- **Solids Content:** 20-percent by weight
- **Material Density:** 55 to 65-Lbs. per Cubic Foot
- **Maximum Design Capacity:** 3 Wet Tons per Hour

Advantages Provided by KWS

BCR Environmental and KWS Environmental worked closely together to design a conveying system that utilized the limited space available to transfer and load biosolids from a centrifuge to a truck loading bay. Initially, it was thought that the centrifuge would need to be elevated which would require a platform, stairways and railing. KWS designed a conveyor system so the centrifuge could be installed at ground elevation and still distribute biosolids to trucks without the need for a screw conveyor mounted over the truck bay. The solution was a very compact and cost effective system that provided savings in terms of building construction and performance.

Special Features of KWS Design

KWS designed and delivered a shaftless vertical screw conveyor, an automatic pivoting shaftless screw conveyor and a control system that provided fully automatic loading of trucks. The vertical shaftless screw conveyor was also the primary structural support for the pivoting shaftless screw conveyor. A unique, powered swivel joint was located at the discharge of the vertical shaftless screw conveyor and directly conveyed biosolids to the pivoting shaftless screw conveyor. The swivel joint allowed sludge to pass through the inside diameter yet had the strength to support the overhead conveyor while providing little resistance to the required pivoting movement.

KWS provided BCR Environmental with a complete design and engineering package that assured them that we could build a new system that ideally met their unique needs. KWS demonstrated that we could take this design from concept to fabrication and delivery and that we have the resources to fully support each step of the process including commissioning, field testing and start-up.
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Special Features of KWS Design (continued)

As an ISO 9001-2008 registered designer and manufacturer of engineered equipment, KWS has the processes to control and archive designs and equipment configuration information so customers can rest assured that their system will be fully supported after start-up, through the warranty period and for the life of the equipment.

“We appreciated the experience and unique products available from KWS and hope that we can develop our relationship further after this positive experience.”

Joe Costello, Project Manager - BCR Environmental