



Innovative S-Disc Thickener Technology Replaces Gravity Thickener, Improves Performance of Digester.

"With our Gravity Thickeners we were lucky to get 2.3 % DS concentration on the thickened sludge. Our Digesters were too thin. Now with our Disc Thickener, we are consistently producing 5.5% DS" -Tracy Wallace, Plant Superintendent

The Santa Margarita Water District's Chiquita Water Reclamation Facility began planning and implementing a series of upgrades and improvements to their facilities. One of the areas of focus was upgrading of their existing gravity thickeners to improve performance of their anaerobic digester. The activated sludge (WAS) and the Waste Sludge (WSL) from Trickling filter and Solid Contact Basin is combined right before it enters the existing Gravity Thickener. Chiquita WRF adds water to be able to convey the sludge to the thickener. This technique creates different parameters than is typically found in other similar type installations. Feeding at a rate ranging from 0.4 – 0.8% DS, the gravity thickener was only able to achieve a maximum result of 2.7% DS resulting in an under loaded digester.

Goals and Objectives

Evaluations of various mechanical thickening technologies indicated that output results from the thickener of 5 – 6% DS were possible. In the consideration of the technologies it was also important that the systems evaluated be easy to retrofit, install, energy efficient, operate, and maintain. In the evaluation, Gravity Belt Thickeners, Drum Thickeners, and Disk Thickener were evaluated.



Solution

After careful evaluation the Huber Technology S-Disc Thickener was selected for further evaluation. Design of the equipment began in early 2008 with an order to build the unit in December 2008. The S-Disc Thickener Size 2 was delivered installed and started up in the Fall of 2009.

The design of the new thickener at Chiquita is located on the edge of the existing gravity thickener. This allows the thickener output to be conveyed from the thickener to the storage tank by gravity. The thickened sludge will drop into a pipe that will convey the sludge into the old gravity thickener (storage tank) which is at a lower elevation

Performance

The sludge disk thickener was required to achieve the following performance of sludge thickening

- *Accept 0.4-0.9% DS inlet feed rate of sludge*
- *Produce 3-6% DS Thickened consistency (with an inlet of about 0.1-0.5%)*
- *Produce 5% DS output if supplied a 0.3% DS or better feed of activated sludge.*

After two years operation the plant reports that S-Disc Thickener is consistently producing a 5.5% DS average with an ~0.6% DS average feed at a steady flow of 107 gpm (60 gpm activated, 7 gpm trickling, 40 gpm service water) running 24 hours a day. Earlier in the operation different combinations were tested. Operating at the factory set angle of inclination and feeding the unit at a rate of 170 gpm with an incoming sludge concentration 0.8% DS the S-Disc Thickener produced a 6.5% DS average / 7% DS maximum output from the machine. In order to serve the production needs of the plant the staff experimented with a shallower angle to produce their current 5.5% DS.

"Sure, we would add another machine if capacity needed to be increased, without any further thought."

Concluding Thoughts

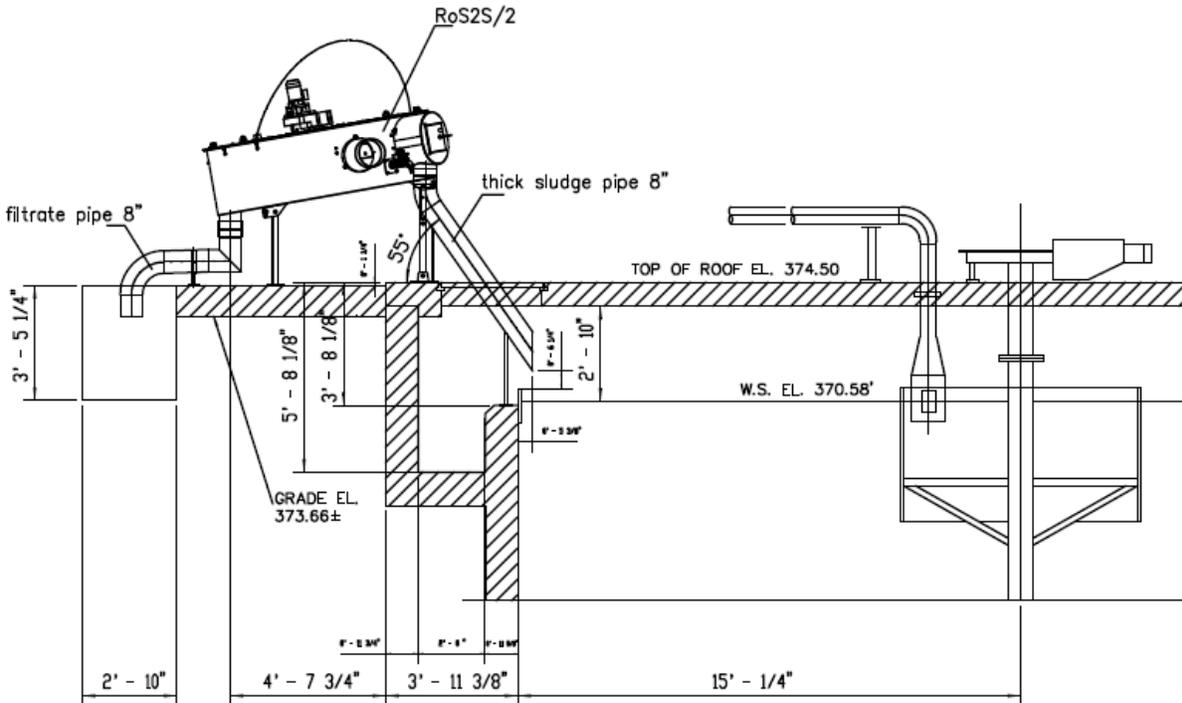
During our visit with Tracy we asked him a couple of key questions about his experience with Huber Technology:

[Huber] "After your experience with Huber would you buy from them again?"

[Tracy] "Sure, we would add another machine if capacity needed to be increased, without any further thought."

[Huber] "Are you happy with Huber overall?"

[Tracy] "The machine, the people, and service responded well."



The supporting cast

Huber’s experience with municipalities and with wastewater processes is extensive as is its knowledge of the technologies it provides. This industry-technology insight allows Huber to work with organizations to ensure that systems are geared to perfectly match up to immediate tactical challenges and long-term strategic goals.

Chiquita Waste Water Treatment Plant Location: Rancho Santa Margarita, CA

The plant, located near Ortega Highway just east on San Juan Capistrano, treats 7.5 million gallons of wastewater each day. Of that amount, 5 million gallons are treated, recycled and used for irrigation purposes throughout the district’s 62, 674-acre service area.

The Chiquita plant allows SMWD to turn wastewater into a valuable resource, reducing demand for imported portable (drinking) water and also reducing the amount of effluent released to the ocean.



Huber serves the municipal and industrial wastewater treatment market with high quality liquid-solid separation technology. Huber Technology offers the complete chain of screening, grit and sludge handling processes. The company is an original source manufacturer specializing in stainless steel fabrication of technologies for water and wastewater. Headquartered in 35,640 sq. ft. of office and manufacturing space in Huntersville, N.C., Huber Technology, Inc. Huber proven experience and expertise with over 25,000 installations worldwide.