San Diego Experienced Benefits Beyond Contaminant Reduction

Because inadequate filtering was allowing hair, fiber and sand contaminants to work their way through its treatment process, The City of San Diego Public Utilities Department Wastewater Branch (the Branch) sought out sludge cleaning technology that could integrate into its existing system.

In an interview with Senior Plant Technology Supervisor, Ted Taylor, Huber Technology learned how its sludge screening technology helped Ted and his crews realize benefits that reached far beyond simply reducing contaminants.

By putting six HUBER STRAINPRESS® Sludgecleaner SP units in place, the Branch realized benefits far beyond digester efficiencies.

In addition to heightened performance, Ted and his crews have experienced:

- **Reduced downtime.**
- **Reduced maintenance demands.**
- **Extended equipment life cycles.**
- **Fewer replacement parts.**
- **Higher quality sludge end-product.**
- **More efficiently burning methane gas.**

Challenge:

The Branch noticed heating and mixing problems as well as a significant build-up of sand at the bottom of its six digesters that was resulting from the inadequate screening of raw sludge. They were regularly cleaning a 10 to 15 foot layer of hair, plastic and grease from the top of the digester contents. These issues contributed to inadequate mixing within the digesters.

Faltering digester performance manifested in:

1. Reduced gas production.
2. Quality issues with end-product sludge.
3. Frequent need for cleaning and repair.

Accompanying the performance issues were maintenance issues that consumed significant technician man hours and increased the department's replacement parts costs.

A new screen system was tested using temporary piping outside of the digesters. The success of the test resulted in a $300 million to upgrade to the treatment plant that included the installation of integrated HUBER STRAINPRESS® Sludgecleaner SPs as feature of the plan.

Solution:

The Branch originally put five HUBER STRAINPRESS® Sludgecleaner units from Huber Technology in place in its Point Loma facility. The technology was so beneficial that the five existing units were upgraded and an additional unit purchased, bringing the Branch's grand total of Strainpress Sludgecleaners to six.

Huber Technology's STRAINPRESS® systems screen sludge in-line without breaking line pressure. It is implemented within the existing structure to keep the process working very smoothly. No extra filtering is added at the end of the line and – because the screenings are filtered out along the way – the equipment down the entire line endures less stress and is less prone to breakage.

Less matted hair & fiber = Improved process efficiencies

With less contaminant making its way through the process, performance indicators immediately showed improvements.

Less matted hair & fiber = Less maintenance & repair

After the STRAINPRESS® implementations, the maintenance team was able to reduce the frequency with which it cleans its twelve heat exchangers from a monthly to a quarterly schedule.

Additionally, fair fewer repairs are needed - resulting in decreased parts and manpower costs and less process downtime. For example, chopper pumps are used to recirculate sludge during the treatment process. Because almost all contaminants are extracted by the HUBER STRAINPRESS® Sludgecleaner SP before the sludge reaches the chopper pumps, their lifecycles have been extended.

Less matter hair & fiber = Higher quality end-product

The quantity and quality of the methane gas and the sludge end-products have improved.

Methane gas produced in the digesters is used to internally to generate electricity. The Branch sells its surplus methane gas end-product – enough to supply 2000 homes per month – to the electric grid. The unwanted buildup of useless material in the digester tanks prohibits the maximum amount of gas to be produced.

Sludge is pumped to the metro bio-solid facility and used in soil augmentation. Improving the quality of its sludge enables the Branch to keep its sludge end-product graded at the Class B level required for soil additive use.

Senior P.T. Supervisor Ted Taylor Quotes

"Strainpress technology helps us reduce the burden on our pumps, our heat exchangers and our maintenance crews. We've significantly reduced costs that go along with these factors – and we haven't even included cost reductions in plant energy use and saved downtime."

"The removal of contaminants or screenings – such as hair, fiber and sand – from raw sludge was crucial to ensuring maximum efficiency within our digesters and throughout our treatment process."

"We noticed stark increases in the performance of treatment equipment – such as the digesters – and increased efficiency across our entire process."

"A reduction from 12 to 4 may not sound like much, but when you multiply the frequency by our dozen exchanges it is significant. 144 yearly cleanings are reduced to 48 – that is a tremendous 67% reduction in workload and costs."

"Making sure that we do the best possible job in removing contaminant screenings before they reach the anaerobic digestion phase helps us maximize our potential for generating end-product. Without the Strainpress® Sludgecleaner SP technology, we would not produce the quantity or the quality methane gas and soil additive that we produce from our bio-solids today."

Related Products:

- HUBER Sludgecleaner STRAINPRESS®

Related Solutions:

- Systems Concept for Sludge Screening

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