512 listens

Exceeding Expectations

- Decreased Production Cost
- Improved Product Throughput
- 50% Reduction in Fiber Losses
- Tenfold Reduction in Water Usage

We Need To Improve Our Stock Preparation Process In Order To Reduce Fiber Loss And Downtime During Stock Grade Changes."

What Our Client Said

We operate a specialty pulp mill that produces a line of products that is expensive and in high demand. Lately, we have been facing extended periods of downtime due to our stock preparation process. Each tank must be completely emptied and cleaned out prior to moving a new grade of pulp through. Cleaning these tanks by hand can take hours, significantly slowing down production. We need a new automated system that reduces downtime, fiber loss and labor costs.

What We Heard

Our existing single-line system is inefficient in the recycling and purification process. As a result, operators have developed inconsistent shortcuts that have caused further complications. We need more than just additional automation; we need an experienced team like LSI to redesign this process so that we can minimize our downtime. Our current setup and process is wasteful and costly, and we need to move forward so we are prepared for the future.

What We Did

LSI's team began by observing every tank and piece of equipment used in the stock preparation process while it was in action. This gave LSI's engineers a better understanding of what aspects of the system were slowing down production. Blend tanks used throughout the process posed issues with consistency control, product loss, draining and cleanliness. LSI redesigned these tanks and installed sloped bottoms that allowed stock to drain efficiently while minimizing the impact on tank capacity. Cleaning systems were installed in the form of multiple TankJet[®] nozzles. The specific pressure and flow of these nozzles ensured that all interior tank and agitator surfaces were covered. The system's second round of tanks, the "broke tanks," were also modified in this fashion, but required LSI to engineer a roof support system to meet the new sloped-bottom design. LSI automated all aspects of the new stock preparation system, resulting in minimal operator input outside the control room. The new system dramatically decreased downtime, minimized fiber loss and cut production costs.

LSI provided:

- Systems integration
- Engineers with experience in the specialty pulp processing industry
- Mechanical engineering and design
- Construction management and coordination
- Flowsheet and P&ID development
- Capital estimation for funding
- IFC package design and discipline
- Procurement of owner purchases, including valves, instruments, devices, agitators, nozzles and equipment
- Procurement of subcontractor contracts, including mechanical, tile tank work, piping, civil and power and controls
- Spraying Systems TankJet[®] nozzle technology
- Agitator modifications
- Complete system automation
- PLC configuration
- Flow meter
- Fluid dynamics
- Ratio control
- Instrumentation controls
- Consistency control
- Startups
- Project performance validation versus deliverables
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- Operator training

LSIE[®] listens

The Results Speak For Themselves

- Reduced operator interaction during tank cleaning by 90%
- Reduced water usage during grade change by 90%
- Reduced fiber loss by 50%

Downtime reduced significantly

Tank drainage systems were improved significantly through the incorporation of a new sloped-bottom design. This new feature eliminated the possibility of materials being trapped and reduced the time required to empty the tanks prior to the cleaning process. In addition, LSI designed and installed a state-of-the-art, high-pressure cleaning system that significantly reduced overall cleaning time and operator effort.

Reduction in water usage and fiber loss

Water usage was decreased greatly, from thirty thousand gallons per day down to three thousand gallons used per day. This not only cut down on fiber loss, but also greatly decreased production costs.

Increased budget and production

The new upgrades in the stock preparation system cut production costs significantly, allowing the customer's operating budget to increase from 191 tons to 204 tons, allowing them to produce 13 more tons of product per day.

Cleaner tanks with less labor cost and time

LSI knew about Spraying Systems' automatic TankJet[®] nozzles from previous experience and decided to bring this technology to the client's new system. Automatic washout nozzles were installed in all nine stock prep chests. These nozzles ensured that each tank underwent a complete cleaning during stock prep changes while minimizing the need for operators to be hands-on.

Automation improves performance and consistency

Valves that were previously operated manually were replaced with automated gate valves and limit switches, allowing operators to focus on the key process control. Alarms, stock supply from tanks, machine recycling and interlocks to prevent fiber loss are now all controlled automatically.

Let LSI listen to your challenges today, no matter how complex they may be or where they happen in the world. Together, we'll improve your productivity and write a success story that will make you proud.

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LSI listened,

then we got to work. Our experienced team of engineers planned out the entire improvement plan in stages. Each step was taken at the correct time to ensure that daily operations were not interrupted. LSI integrated automation and design changes throughout the entire stock preparation system. LSI exceeded customer expectations not only in results, but in time as well. Every goal for the end result of this project was met. In fact, LSI completed the project two months early.

LSI constructed a plan and found a way to incorporate it throughout the client's entire system. The new stock preparation system integrated by LSI instantly improved the downtime needed to manually clean out tanks by 90%. Goals were exceeded and a partnership for future projects was formed.