

Case Study

Achieving 70% Cake Solids: Advanced Slurry Management for Iron Clad Sand Mine

Application:

- Iron Clad Sand Mine.
- Treated liquid clay slurry out of clarifiers
- Had incoming slurry between 250-350 gal/minute at 20-25% solids using the clarifier

Objective:

To create a more cost effective dewatering solution for the sand mine. The customer's previous land application process was constrained by limited on-site capacity, significantly impacting operational efficiency. Sludge management was highly labor intensive, with roughly 50% of total labor hours devoted to handling clay materials. In addition, the mine continued to incur substantial costs related to liquid transport, solidification, and disposal. Despite holding sand delivery contracts valued at \$80 million, production limitations created a growing backlog of material and placed the operation at risk of contract noncompliance. To mitigate these risks and maintain contractual obligations, a solution was required to streamline sludge handling, reduce costs, and restore production throughput.

Solution:

Sebright Products conducted a comprehensive analysis of the customer's slurry and issued a report confirming that 60–70% cake solids can be achieved using our Belt Filter Press.

Solution cont.

To validate these findings, Sebright Products performed on-site pilot testing at the customer's facility, successfully confirming the lab results and establishing real-world operating parameters for system design and sizing. In collaboration with the mine owner and engineering team, Sebright Products developed a custom 1.7XL skid-mounted belt press and control system capable of processing up to 400 gallons per minute. Additionally, Bright provided valuable process and operational guidance to optimize the overall dewatering system performance.

Results:

- The installation of Sebright Products' 1.7-meter Belt Filter Press significantly improved the plant's dewatering performance. Compared to the previous equipment, the new system delivered:
- Throughput Increase:
 - Clarifier: 250-350 GPM
 - Sebright 1.7M Belt Filter Press: 400 GPM
- Improved Cake Solids:
 - Clarifier: 20-25% solids
 - Sebright 1.7M Belt Filter Press: 67-72% cake solids
- Automated Conveyor: The "cake" was also able to be transported by a Sebright Products automated conveyor, reducing overall mine labor hours.
- These results reflect more than double the throughput and enhanced solids capture, reducing disposal costs and easing the operational burden on plant staff. The upgraded system allowed the facility to meet processing demands.



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Conclusion:

The implementation of Sebright Products' 1.7-meter Belt Filter Press provided Iron Clad Sand Mine with a transformative improvement in dewatering efficiency, operational cost reduction, and production reliability. By replacing a labor-intensive and capacity-limited land application process with a fully integrated, high-performance belt press system, the mine achieved more than double its previous throughput and reached cake solids of up to 72%. The automated conveying system further minimized manual handling requirements, freeing up labor resources and reducing overall operating costs.

Through collaborative engineering, on-site testing, and process optimization, Sebright Products delivered a custom, turnkey solution that not only resolved the mine's immediate sludge management challenges but also safeguarded long-term contract commitments and production goals. The result is a more sustainable, cost-effective, and efficient operation that positions Iron Clad Sand Mine for continued growth and profitability.

