Improving productivity in Metal Fines production

Pangea

OVERVIEW

- A $75M USD alumina manufacturer was living with inconsistent production schedules due to constraints in measuring a key process
- The plant had to either wait for data or make preemptive adjustments that ended up over-correcting
- An ML model backed with engineering theory and deployed to the client's servers with a user-friendly interface, put the measure at the operators' fingertips leading to significant impact on the bottom line.

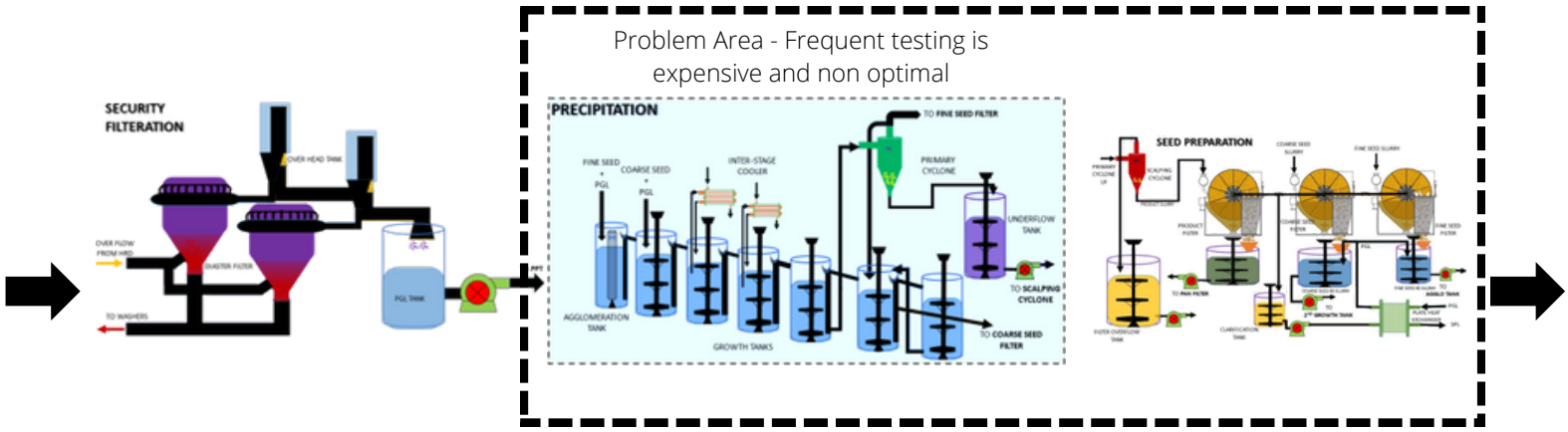
CHALLENGE

- The primary challenge was identifying all parameters that affected particle growth. While the process team was aware of the textbook factors, real world conditions added many more complications.
- Data was widely fragmented. There were data in network-gapped production machines, in laboratory databases, and several excel files where manual interventions were noted daily.
- The new interface had to be made highly user-friendly to keep the learning curve very short for operators and to ensure no interruption in production.

APPROACH

- Significant time was given to exploration of the production process. With our experience, we revealed over 30 additional plant actions and process parameters that directly affected growth.
- Data engineering worked with current structures and ensured minimum operational changes.
- Over 200 experiments and iterations resulted in an XGBoost machine learning model with 94% accuracy.
- Our proprietary Explainability module reveals the reasoning behind the model's predictions. This enables the plant to zero in on the root cause and take effective corrective and preventive actions.

Lack of visibility into a core process due to operational constraints was solved with an explainable ML model



75% reduction in decision turnaround time

90% reduction in process change errors

Increase in bottom line with reduced rejection/rework

CONTACT US

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