

Compass Minerals success story

A new crystallizer and compaction plant
in Ogden, Utah, USA



The challenge: Integrate new and existing processes

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“ANDRITZ took a lot of the headaches, design, and details, a lot of risk, off our hands. They took the entire automation package and implemented it like [they] understood our plant from day one.”

Hardesty Grover, Senior Project Engineer,
Compass Minerals



Compass Minerals’ sulfate of potash (SOP) project included a new crystallizer and compaction plant. Compass Minerals wanted its new SOP operation ready for production with minimum start-up delays, a quick ramp-up to full production, and minimal impact to existing operations.

Commissioning new equipment alongside the existing operation required finding innovative ways to program the controls, train operators, and provide power. The aggressive schedule and need to integrate equipment from several vendors led Compass Minerals to ANDRITZ.

ANDRITZ AUTOMATION had previous experience dynamically modeling crystallizers and demonstrated this capability to Compass Minerals’ management team. Based on this and on ANDRITZ’s record of

Benefits

- Minimized errors, reduced risks, costs, and project uncertainty
- Optimized SOP process
- Successful plant start and ramp-up to full production
- Simulation-based training of operators before start-up
- Engineered for minimal impact to existing operations

successfully delivering simulation, advanced process control, power distribution, and training solutions to its clients, ANDRITZ was awarded the contract.



Our solution: Simulation-driven engineering that reduces project risks

Drawing on its prior potash experience and focus on simulation-driven engineering, ANDRITZ offered an innovative way to minimize start-up risks, reduce implementation costs, and predict impact on the existing operation. In addition to modeling the compaction process, ANDRITZ AUTOMATION proposed simulating the SOP crystallizer (including the saturation curves) using the IDEAS process simulator in order to accurately predict the crystallizer's behavior.

The simulator was also used for P&ID validation, operator training, and development of the process controls. The latter included configuration of the BrainWave advanced control system. Operators were trained on

the new equipment and control system using the simulator before start-up, effectively minimizing the impact to existing operations.

ANDRITZ AUTOMATION validated the process design, designed and supplied the control system, supplied the power distribution (E-house), motor control equipment, patented BrainWave advanced controller for the SOP crystallizer, and developed a simulation-based operator training program.

The total scope of the project included:

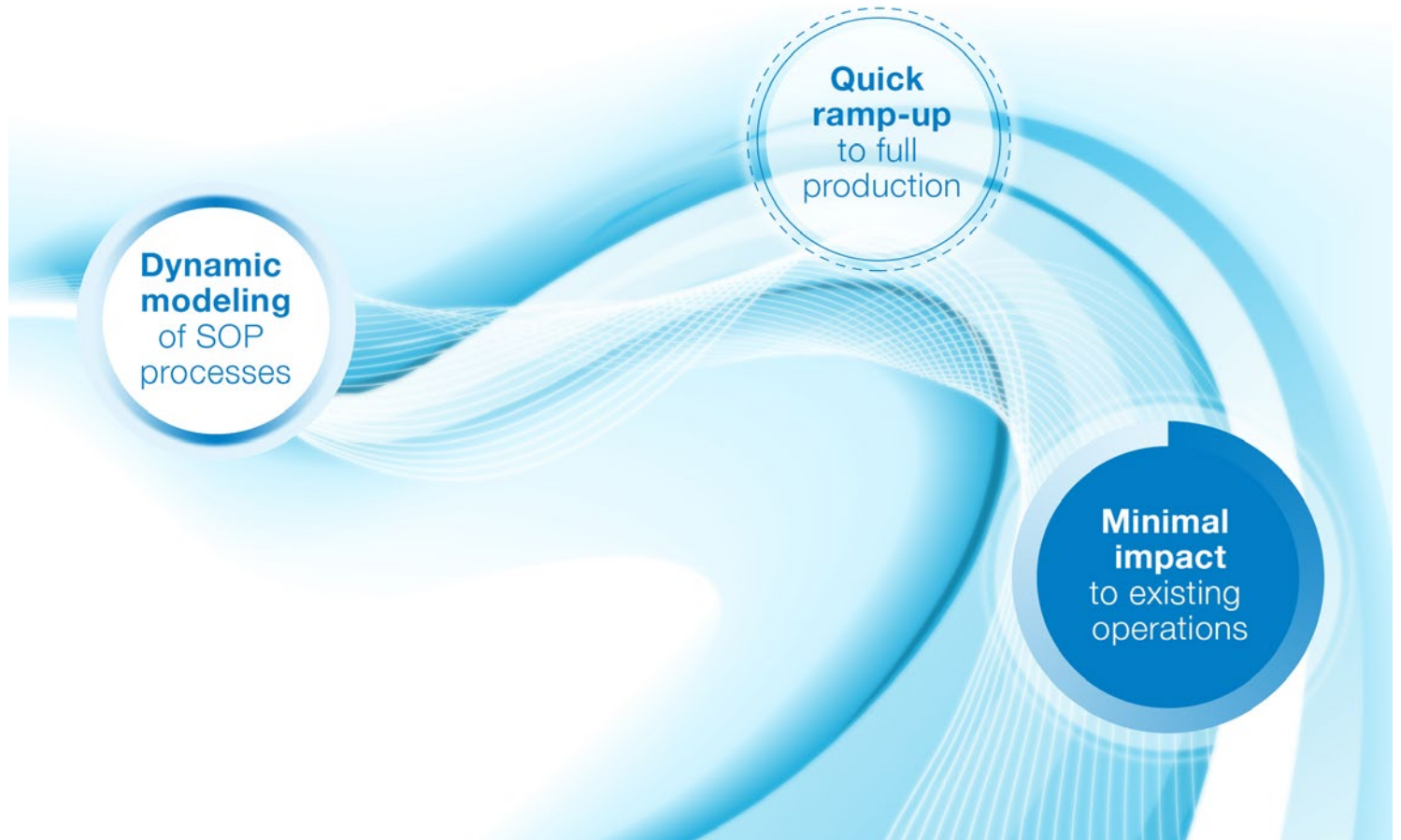
- Dynamic modeling of SOP processes using the IDEAS simulator
- P&ID validation of processes and control concepts

- Simulation-based operator training
- Complete control system supply
- Model-based control logic staging
- BrainWave advanced control of the new crystallizer
- Power distribution center (E-House)
- On-site commissioning and start-up support

“There is payback after payback with the ANDRITZ simulation-based engineering approach.”

Hardesty Grover, Senior Project Engineer,
Compass Minerals

Results: Accurate prediction and fully automated integration



ANDRITZ' IDEAS simulator predicted how the new SOP plant (and crystallizer) would behave from a dynamic process and control standpoint. The simulation was

interfaced with the control system to test all control logic, and the control system was later debugged with difficult control loops in automatic control. Upon start-up,

Compass Minerals had a fully integrated control system that was ready for operation from day one.

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