



Increasing Capacity in Sulfur Production Using Sulsim™ Modeling

“Thanks to this technology, we can propose to our client how to increase production almost 100% just by upgrading a few pieces of equipment.”

— Diego Scilla, Senior Process Engineer,
Siirtec Nigi

Increased sulfur
production per day

50 to **90**
ton/day **ton/day**

CHALLENGE

Find optimal level of oxygen enrichment and set up controls to increase sulfur recovery unit capacity.

SOLUTION

Used Aspen HYSYS® to simulate case study, conduct sensitivity analysis and define a window of operating condition

BENEFITS

- Sulsim allowed Siirtec Nigi to validate the existing operation and simulate their proprietary technology
- The new process called for minimal equipment changes
- Adjustments can be executed during turnaround with no additional downtime



Siirtec Nigi is an engineering and contracting company providing a range of services around oil and gas treatment, sulfur recovery and acid gas removal. Their customers include many oil and gas companies and other international EPC contractors, both onshore and offshore.

Creating an Accurate Simulation to Test Design

One of Siirtec Nigi's customers wanted to nearly double sulfur production capacity. Aspen HYSYS validated the original heat and material balance created using a different tool. Sulsim was able to reproduce the results within the acceptable tolerance levels and is the only tool that allowed Siirtec Nigi to simulate O₂ enrichment and O₂ injection within their customer's confidence level.

Based on the HYSYS model, Siirtec Nigi proposed an increase from 50 ton/day to 90 ton/day in sulfur production capacity that required only minor equipment upgrades. The upgrades can be completed during a normal turnaround, rather than scheduling an additional, costly shutdown because the simulation showed the minimal changes required to achieve the desired outcome.

Maximizing Production with Minimal Cost and Impact

One of the key challenges Siirtec Nigi and their customer faced was determining an operating envelope for optimal operations. The Aspen HYSYS case study feature allowed Siirtec Nigi to complete a sensitivity analysis, which helped define the optimal range for controlling the new operation. The case study also simulated upset conditions and gave a snapshot of the worst-case scenario.

Aspen HYSYS Sulsim allowed Siirtec Nigi and their customer to accurately simulate the new process and design the changes needed to double production. Siirtec Nigi customer was anticipating expensive changes with a huge impact to equipment and processes, but with Aspen HYSYS Sulsim simulation, Siirtec Nigi was able to design a process with minimal changes which could be implemented quickly during a turnaround.



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