

Dynamic Simulation/Scheduling

Dynamic simulation is the time-based simulation of an operating plant or process such as a copper smelter. Computer-based dynamic simulation has become an increasingly powerful tool over the last two decades aimed at optimization of complex industrial operations. The ability to dynamically simulate a given plant or process over time, such as a week or a year of operation including running times and potential downtimes, can provide invaluable insight to the understanding of a plant. This can help in projects to increase throughput, plant de-bottlenecking exercises or in brownfield expansion projects (**discrete event modelling**).

Combining XPS expertise in metallurgical processing along with the dynamic modelling capability of the Arena software, the Extractive Metallurgy Group at XPS now has full dynamic modelling capability. XPS is now using this capability to completely model a given plant, such as mineral processing, hydrometallurgical or pyrometallurgical operations. User-friendly interfaces are used to allow effective presentation and interpretation of the results.

Combining thermodynamic modelling (Factsage), heat and mass balance modelling (Metsim) and now dynamic simulation (Arena), the Extractive Metallurgy Group at XPS can be considered a leader in metallurgical modelling.

Key Capabilities...

Arena software is a commercial software package, which along with plant knowledge, allows for effective dynamic simulation of complex processes. It is well adapted to the modeling of a complete metallurgical plant having a number of complex and interacting operations. All types of unit operations can be incorporated into the model. This can range, for example, from systems for materials handling - feed conveyors, slurry pumping or crane and ladle transfers - to individual unit operations such as a high temperature smelting furnace, a leach tank or a milling operation.

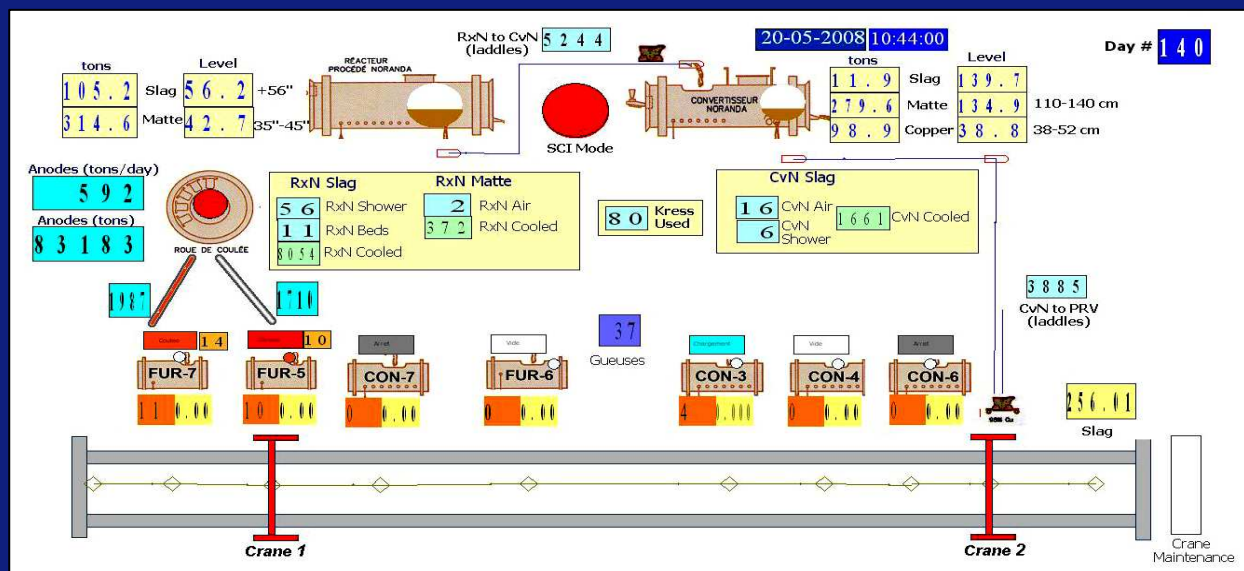
Arena has been applied in the following situations:

- Understanding and resolving a number of plant bottlenecks to allow full plant entitlement to be reached.
- Determining plant capacity under certain upset conditions (such as maintenance situations, unexpected shutdowns, etc.).
- Optimizing operating schedules.
- Overall flow-sheet optimization

Recent projects successfully completed by XPS using Arena include:

- Xstrata Nickel smelter, Sudbury, Ontario - Model to examine alternative expansion options.
- Xstrata Copper smelter, Rouyn-Noranda, Quebec - Model to evaluate a brownfield expansion situation.

Example of a Copper Smelter Dynamic Model for a Converter Aisle



Contact Us...

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