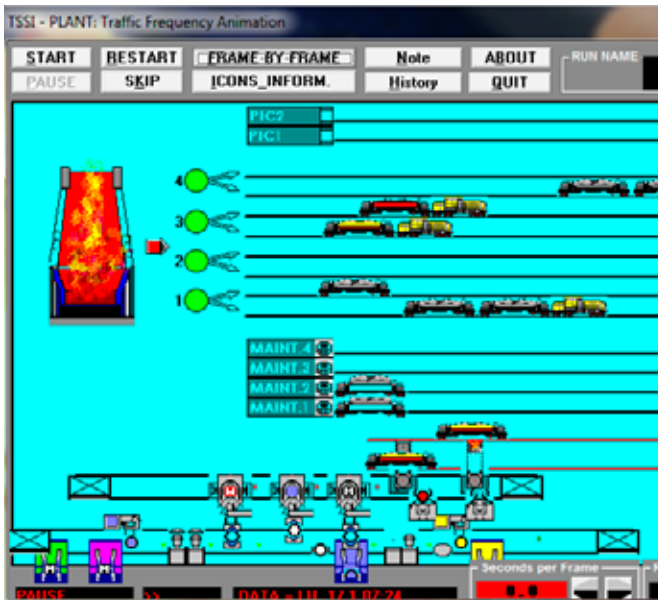


PAUL WURTH SERVICING

OPERATIONAL SIMULATION



Typical Hot Metal Transportation Simulation Frame

DISCRETE-EVENT SIMULATION

The services Paul Wurth offers in the field of operational simulation encompass advanced analytical methods for decision support in Blast Furnace plants.

These operational simulation services are a precious support for:

- **Hot Metal Transportation & Processing Analysis**
- **Logistics Planning and Raw Material Yard Design & Study**

Our operation simulation services

Paul Wurth offers its customers:

- The analysis of the hot metal transportation in the area embracing the blast furnace and the steelmaking shop, according to the project layout, in order to detect and eliminate possible bottlenecks due to torpedo cars, locomotives, pig casting machines and railroad tracks layout.
- The analysis of the complex handling of the blast furnace burden materials from the harbour facilities to the main charging conveyor in order to point out the plant limits and elaborate the possible optimal solutions.

Why to choose Paul Wurth for your discrete-event simulation?

- To best optimise hot metal transportation, Paul Wurth first carefully analyses the hot metal transportation between BF - PIC - BOF in a specific iron and steel plant, studying the torpedo ladle cars logistics, including their availability in connection with their maintenance.
- In the assessment of raw material logistics, operational simulation is used to compare the operating performances of alternative designs, thus becoming a valid support in the refinement and optimisation phase of the project.





OPERATIONAL SIMULATION

Areas of application

In the field of logistics planning, operational simulations can be realised for:

- Bulk unloading areas
- Stockyard and stockhouse areas
- Combined stacker/reclaimers and belt conveyors
- Integrated operation of blast furnace including coking plants, sintering plant and pelletizing plant, if any

In the field of hot metal transportation, operational simulations can be realised for:

- BF casthouse
- Torpedos
- Hot Metal Treatment Stations
- Pig Casting Machines
- Steel Shop

Typical machine data considered in the simulation are:

- Operation time and moving time
- Planned maintenance
- Statistical breakdown distribution

Main inputs required for the simulations

- Desired hot metal production and charging materials data
- Plant layout with available areas for raw materials unloading, stock and products loading
- Considered vessel size classifications and lightening plans, if any
- Torpedo size
- Equipment operating data

Main results obtained from the operational simulation method:

- Layout design and definition of equipment features
- Setting up of the operation rules for the correspondent solutions



Typical Raw Material Yards Simulation Frame