

# Pipeline Thermo-Hydraulic Simulation Group

## Numerical Simulation of Oil Pipelines

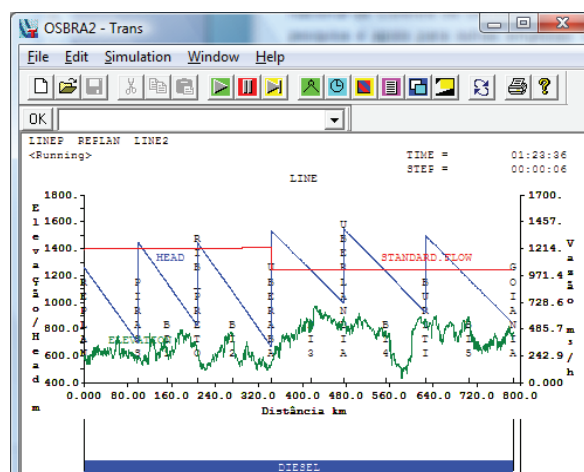
SIMDUT – Pipeline Thermo-Hydraulic Simulation Group – is a laboratory of the Department of Mechanical Engineering of PUC-Rio, working on the oil pipeline simulation field. The laboratory has a strong collaboration with TRANSPETRO developing specialized software tools. This partnership resulted in the development of software, the elaboration of simulators for training operators, and the analysis of operation conditions of existing pipelines.

### Application Areas

- Development of software to calculate drained or leaked volumes;
- Safety analysis of oil pipelines subjected to hydraulic transients;
- Development of automated spreadsheet to calculate steady states pipeline operation;
- Optimization of batch operations
- Training on thermo hydraulic pipeline simulation
- Development of simulators for pipeline operator training;

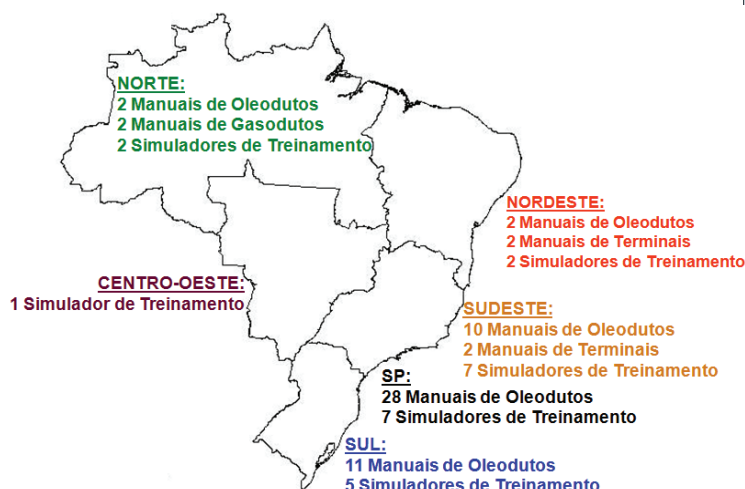
### Simulation Tools

Besides the softwares developed in house, like the one created for training of operators, SIMDUT also utilizes commercial softwares that have broad international acceptance, like Stoner Pipeline Simulator (SPS, GL Noble Denton) and Pipeline Studio (Energy Solutions)



### Dynamic Simulator of Delivery Stations

SIMDUT researchers participate in the main conferences in the area of pipeline engineering. Publications can be found at the laboratory website. One of its publications was awarded the Petrobras Technology Prize of 2005, in the Logistic Technology and Transport of Gas, Oil, and products area.



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