



Thermo-Hydraulic Analysis & Flow Assurance  
Consultancy  
Pipeline Process  
Technical Support for Pipeline Services  
Multidisciplinary Engineering



# MISSION

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Streamline is a young and dynamic Pipeline Engineering Company with Offices in Milan, Italy.

Our Mission is to give the support to Oil & Gas Companies through the Engineering & Services activities to ensure the pipelines are designed, built and operated in the safest and most efficient way throughout their life.

Streamline staff has over 15 years of experience in the Pipeline Design and Services.

Our strength is the Thermo-Hydraulic Analysis, both in the Upstream (Flow Assurance) and Downstream;

always adopting the most advanced technologies available on the market.

Company's core business is the Process Engineering, Technical Support for Pipeline Services and Multidisciplinary Projects starting from Feasibility Study, through FEED up to the Detailed Engineering and Follow up.

Streamline Engineering is a part of Simeco Group; this allows to Streamline the operation in the entire Engineering field by integrating its staff with dedicated and skilled people.

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## CORE BUSINESS DESCRIPTION

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Over the years, Streamline has been engaged in various Oil & Gas Projects, in Italy and on international level.

Our Company supplied procedures for liquid pipelines' displacement with Nitrogen, as well as for their refilling; we issued Pipeline Pigging Philosophies for Multiphase Flow Sealines in the North Sea. Moreover, we assisted the preparation of the FEED documentation for largediameter Liquid, Gas and LPG Pipelines. For all these Projects we carried out detailed simulations running our Software or, when their effectiveness has not been proven, generating customized models.

When it comes to the calculation tools, they enable the development of all the common calculations required by a Pipeline Thermo - Hydraulic Analysis. The software used for the multiphase liquid calculations is a semidynamic CFD software, able to handle the variations in fluid state over the time and along the pipeline length. The software is capable of simulating Pipeline Slug Formation, Pigging, Start-up and Cool-down, as well as the Pipeline Filling and Emptying and Corrosion Inhibitor Tracking.

However, Liquid Pipelines' waterhammer and surge transient events are analysed by means of another specialized tool, able to handle pipelines having various characteristics, incorporating an integral steady-state solver to calculate the initial conditions and seamlessly transfer these to the transient solver.



## OUR CLIENTS



Italiana Energia e Servizi spa



# SIGEMI

# IPLOM

# ExxonMobil

## OUR SERVICES

### Thermo-Hydraulic Analysis & Flow Assurance

In the area of Thermo Hydraulic Analysis & Pipeline Flow Assurance, the transport of the multiphase fluid is studied from the reservoir to the point of sale.

Simulations are carried out in steady & transient condition for all kinds of transported fluids.



Our studies cover the pipelines carrying various fluids, having a wide range of diameters and diverse lengths. Both flat and hilly-terrain pipelines have been covered by our studies.

When it comes to the transported fluids, our staff has experience in the pure liquid, gas and multiphase pipelines, as well as the LC02 & SCC02 installations.

Simulations are performed in the steady-state condition for single & multiphase fluids, with the aim of define flowrates, diameter operating pressure and temperature.

When it comes to the transient-state, Gas and Multiphase Pipelines dynamic analysis, including pipeline start-up, pigging, ramp-up and turn down operations, is provided.

In addition, pipeline filling and blow down make part of the analysis.

The software used for the multiphase calculations is a semi-dynamic CFD software, able to handle the variations in fluid state over the time and along the pipeline length. Liquid Pipelines' water hammer and surge transient events are analyzed by means of another specialized tool,

able to handle pipelines having various characteristics, incorporating an integral steady-state solver to calculate the initial conditions and seamlessly transfer these to the transient solver.

The analysis covers valves' closure and safety system verification, as well.



### Pipeline Process

The area of Pipeline Process comprises the definition of the entire pipeline process, starting from the Pump/Compressor Station and ending with the Receiving Tank or the tie-in with the sale point. Process definition activities include PFD and P&IDs' drawing, definition of diameters, valves and equipment to be installed, and machinery specification.

Furthermore, it brings together departments of process engineering and instrumentation, resulting in development of operating philosophies, whose aim is to guide management of plants and pipelines in a safe way.

Moreover, we assisted the preparation of the FEED documentation for large-diameter Liquid, Gas and LPG Pipelines





### Consultancy

Our staff is experienced in the On-site management and supervision for Decommissioning and Commissioning Activities and pipeline services (Cleaning, Inspection, Nitrogen displacement and special operations).

Moreover, we provide continuous support to Oil & Gas Companies in all their Operational and Management activities, for plant upgrading, rationalization and revamping. Technical Support for Pipeline Services



The area covering the Support to Pipeline Services includes calculations, specification and preparation of procedures for Pipeline Cleaning, Nitrogen Displacement and pipeline refilling, as well as special operation i.e. stuck pig recovery or line conditioning for ILI (In-Line Inspection).

Our technical support include the pig and other equipment definition, design and specification, the operation philosophy and strategy as well as the scheduling of the activities.

If required by the operations, we can specify the plant modification and revamping preparing PFDs, P&IDs and Mechanical Drawing.

For all these Projects, we carried out detailed simulations running our Software or, when their effectiveness has not been proven, generating customized models.

### Multidisciplinary Engineering

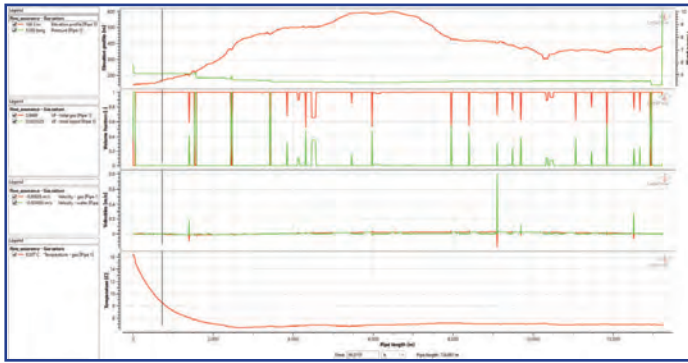
Streamline's personnel is able to develop Multidisciplinary Engineering combining the various disciplines part of the project.

Process Civil, Mechanical, Piping and Instrumentation in order to fulfill the requirement of Feasibility, Basic as well as FEED Engineering activities.

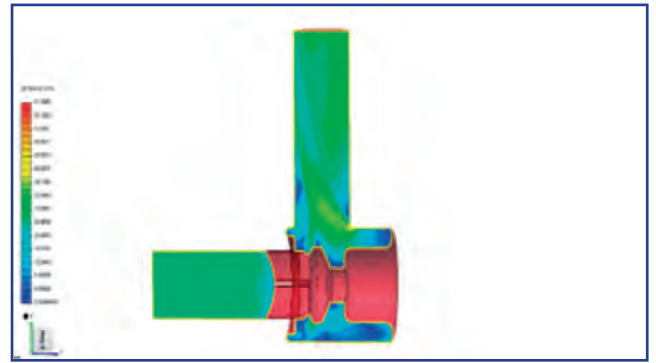
Within the described contest, we are able to follow, internally, the activities for each discipline as well as manage external resources.

Otherwise, our capabilities cover pipeline specific activities like Leak Detection and SCADA System Optimization, MLV, launching and receiving area design, pipeline crossings definition as well as cathodic protection and pipeline stress analysis.





LedaFlow



SimScale

## SOFTWARE

Streamline Engineering can help you adopting the most advanced technologies on the market. Following a list of the major Software adopted by our staff:



**Kongsberg - LedaFlow:** It is a semi - CFD Software; its powerful can allow to cover all the calculations required by a Pipeline Flow Assurance Study. The software can model, Dynamically, all kind of fluid in any kind of state (Gas, Liquid or Multiphase).



**KBC – Multiflash:** It is a PVT and EOS modelling software package dedicated to modelling of reservoir fluids phase behaviour and evaluation of fluids’ physical properties.



**AFT – Impulse:** It is a liquid systems dynamic simulation tool used to analyse the pipeline and piping systems in terms of pressure surges and transients. Differential equations are solved adopted the Characteristics Method.



**AFT – Fathom:** It is an incompressible flow analysis tool, with thermal analysis capabilities including piping heat transfer, heat exchanger modelling and variation of fluid properties.



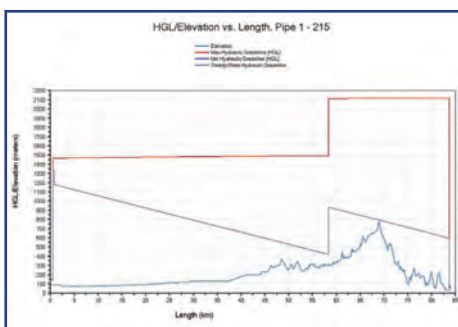
**AFT – Arrow:** It is an compressible flow analysis tool, with thermal analysis capabilities including piping heat transfer, heat exchanger modelling and variation of fluid properties.



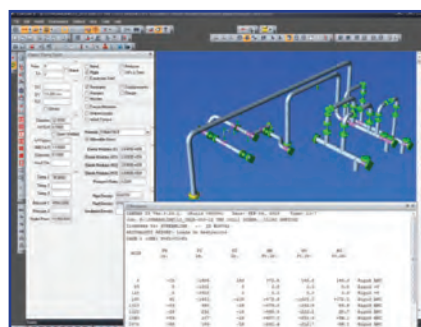
**COADE – Caesar II:** It is a CFD Software for Piping and Pipeline Stress Analysis.



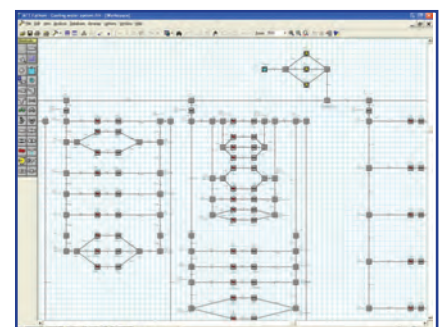
**SIMSCALE – SimScale:** It is a full-cloud CAE software that helps you perform simulations of CAD models.



Impulse



Caesar



Fathom





Management System  
ISO 9001:2015



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