pipeflo 7

Neotec's **PIPEFLO** has been used by the international Oil and Gas industry for almost 3 decades. **PIPEFLO 7** brings Neotec's multiphase pipeline analysis and PVT behaviour modelling software to the Windows platform.

MODEL

- Single and Multiphase Gas, Gas Condensate, Crude Oil, Refined Product, Water, and Steam systems
- Non-compositional fluid systems
- Compositional and Black Oil fluids
- Pipeline Networks: Gathering and Distribution Systems
- Transmission Lines

COMPUTE

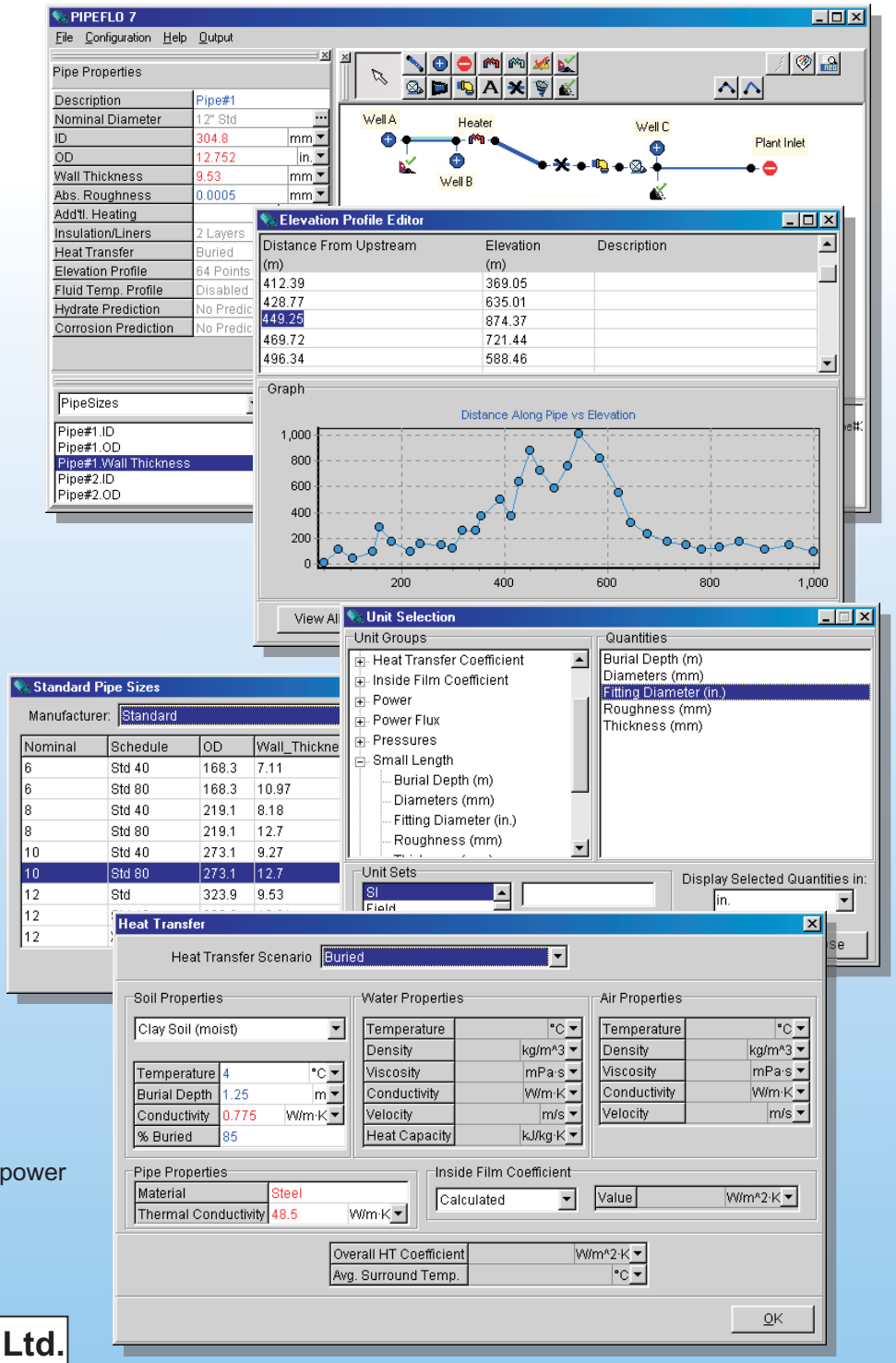
- Pressure Loss
- Heat Transfer
- Liquid Holdup
- Flow rates
- Pigging slug size
- Hydrate formation
- Erosion velocity

PLOT

- Phase Envelope
- Pressure and Temperature Profiles
- Liquid Holdup
- Elevation
- Velocities
- Numerous other parameters

FEATURES

- User customizable unit sets, supporting mixed units
- Interactive procedure recommendation
- Databases for pipe sizes, soil and insulation thermal conductivities, and pressure-loss coefficients for fittings
- Model compressors, pumps, heaters, coolers, valves, and fittings
- **OLGAS** mechanistic model from Scandpower and **DBR Hydrate** model are optional
- Fly-by display of calculated output or customizable HTML formatted reports
- Excel spreadsheet output (of results)



TRAINING AND USER SUPPORT BY PETROLEUM HYDRAULIC EXPERTS

- Regularly scheduled no-charge software training seminars in the Neotec Training Centre
- On-site training available
- Software support

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PIPEFLO 7 Features and Applications

New Graphical User Interface (GUI) and Convenient Self-Guiding Data Entry

A new Windows GUI has been implemented for ease of data entry. Drag and drop pipeline items onto the schematic and connect them. Windows Explorer type layout allows easy inspection of properties for each item. Fly-by display for calculated results allows for fast efficient modelling.

Handles Compositional, Black-oil, Non-compositional and Steam Systems

For Compositional systems, **PIPEFLO 7** models the required fluid P-V-T behaviour according to the user-selected equation of state which are provided under special license from Hyprotech. Phase envelopes can be requested at any point in the pipeline system. Additional equations and correlations are available to determine transport properties. As with selection of the pressure loss technology, **PIPEFLO 7** provides recommended choices based on the user's specified fluid system. For non-compositional systems (when detailed fluid composition or characteristic data are not available),the fluid behaviour can be modelled by a selection of black-oil correlations developed from regional-based oils or using a simplified approach in which it is assumed that no phase change occurs between the liquids and gases. This is especially useful for low liquids systems when detailed fluid analyses are not available or preliminary work is being performed. Single component multiphase systems such as saturated steam, can also be handled, based on a pressure-enthalpy balanced algorithm.

Perform Calculations with an Assigned Temperature Profile

This a particularly useful option to assess the sensitivity of the pipeline model to flowing fluid temperatures.

Perform pressure and temperature profile calculations simultaneously in pipelines and networks

The **PIPEFLO 7** solution procedure allows the user to calculate both pressure and temperature profiles and thus evaluate heat transfer effects on liquid drop-out and other P-V-T behaviour. The overall heat transfer coefficient can either specified or can be computed continuously by the program based on changing parameters (submerged, buried or above-ground).

Hydrate Predictions and OLGAS Model

Neotec has partnered with the best-in-class to provide access to hydrate predictions (**Hydrate** from DBR) and the **OLGAS** mechanistic pressure drop model (Scandpower) from within **PIPEFLO 7**. Future plans include a corrosion model.

Check for Erosion Velocities or Severe Slugging

Graphical Entry and Display of Elevation Profile

PIPEFLO 7 can accept elevation profile data (including vertical sections) in a variety of ways. Import from spreadsheets, type your elevation data, or point and click with your mouse to enter a profile. The display immediately updates and shows angle of inclination. Fly-bys show the calculated results at each point on your profile such as pressure, temperature, gas and liquid velocities, liquid hold-up and flow pattern.

Perform multiphase flow calculations using choice of numerous mechanistic models and correlations for flow pattern, liquid hold-up, and pressure drop

Many options are included in **PIPEFLO 7** to give maximum flexibility for matching actual field data. Years of multiphase flow research and consulting experience of the authors of **PIPEFLO 7** ensure that the available options include all up-to-date methods and procedures once they have been tested and verified.

Automatic flow rate calculation

The pressure can be fixed at either end of the pipeline and the unknown pressure will be calculated. However, if the pressure is specified at both ends of a pipeline, **PIPEFLO 7** can use a rigorous iterative procedure to compute the corresponding capacity. This option can be selected for any fluid system.

Provision for numerous in-line facilities

Rigorous calculations can be performed to determine horsepower and performance of compressors and pumps. Theoretical heating and cooling requirements, effect of sidestreams, and valves or regulators can also be considered.

Estimate liquid slug size when pigging

PIPEFLO 7 uses an approximation technique for estimating this important parameter that should be sufficiently accurate for most slug catcher sizing calculations.

Plotting & Output Processing

Select a path through the pipeline system on screen and right click to plot any of the calculated gradients along that path. Use the output generator to choose the calculated results required in the report. The resulting HTML output file can then be browsed using a standard browser within interior links which give direct access to the component details in the pipeline system.

Additional features exist, but are too numerous to list. Please contact Neotec to arrange for a demonstration of the software.