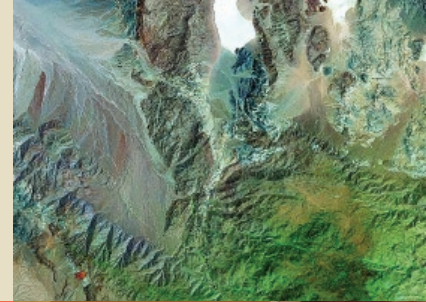


FEATURES

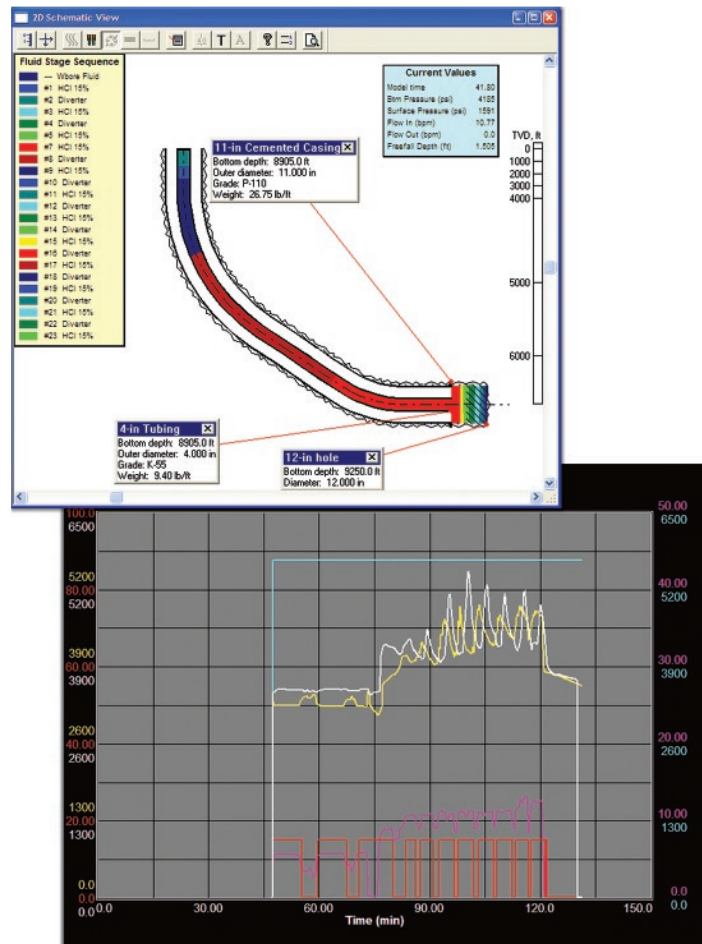
- Complete matrix acid design, simulation and scheduling for multi-layer reservoir and for deviated/horizontal wells.
- Matching of real-time pressure data.
- Transient pressure and skin calculation.
- Treatment monitoring using Paccaloni plots.
- Complex clays/HF reactions modeling in sandstone formations.
- Carbonate acidizing and wormhole modeling.
- Complete acid/additive library.
- Formation damage and skin characterization.
- Filter cake modeling, foam modeling and scheduling.
- Foam and particulate diverting.
- Preloaded libraries of stimulation fluids, lithologies and formations.
- Online graphics and reports.
- ReservoirPT interface for production forecasting/matching and economic analysis.
- Use these unique real-time analysis capabilities to redesign your job on the fly.
- Simple candidate selection capabilities.



StimPT™ is CARBO software system for the design, simulation and analysis of matrix acidizing treatments, that is, acid injection below fracture initiation pressure. It is an easy to use, Windows® based, fully integrated acidizing model used in both carbonates and sandstones. As in CARBO's fracture simulator, FracproPT, practical utilization of actual treatment data is easy, and can be done during or after the job. The advantage of using real data is that the user gains a better understanding of the well's response to stimulation, and this facilitates the optimization of future treatments.

In carbonates, the purpose of acidizing is to dissolve the matrix, forming new channels (wormholes) that bypass the damaged areas and lead to the wellbore. In sandstone, acidizing emphasizes dissolving particles that clog existing pore channels rather than creating new ones. Please see the sidebar on page 2 for more information on acidizing strategies.

StimPT's advanced software technology and multi-tasking architecture provides the user with a responsive and flexible interface. The results can be displayed while the model runs in the background, giving the ability to produce reports and plots during job execution. Another important feature in StimPT is the ability to monitor the evolving skin factor during job execution with transient pressure analysis theory using a Paccaloni plot. This specialized plot depicts the changes in skin as pumping proceeds, graphically showing the predicted clean-up.



A screen shot of StimPT

StimPT models wellbore hydraulics, complicated geochemical reactions and heat transfer between the wellbore, reservoir and fluids. It can be used to simulate multi-layered reservoirs in deviated or horizontal wells. StimPT can be used with a separate program, DataAcqPT (included with StimPT), to collect treatment data in real-time for job analysis. A built-in reservoir simulator is used for design optimization, production forecasting and economic analysis.

Operating Modes

Acidizing Design mode produces treatment designs to mitigate any combination of these four damage types:

- Emulsions and wettability change
- Asphaltene and Paraffin deposition
- Perforation and gravel pack damage
- Deep wellbore damage

Users select any or all of the four damage types and StimPT will generate an appropriate pump schedule. For the damage caused by Emulsions and Wettability Change, mutual solvent flush is needed instead of matrix acidizing. For the damage caused by Asphaltene and Paraffin Deposition, aromatic solvent flush is needed instead of matrix acidizing. Perforation and Gravel Pack Damage is considered to mainly result from zone compaction around perforations and the plugging of perforation tunnels or gravel packs by solids deposited from drilling or completion fluids. For this type of damage, well productivity can often be restored by an acidizing treatment with small acid volumes. Deep Wellbore Damage is considered as permeability reduction in the near wellbore region caused by drilling or completion fluid solids, scales, clays, and fines. This type of damage occurs deeper than the perforation and gravel pack damage.

Acidizing Analysis mode is used before, during and after the job when the treatment schedule is known. It allows the user to refine the treatment prior to pumping, monitor progress during the job and history match observed well response after pumping. StimPT contains many reports, plots and investigative tools for matrix acid operations. Acidizing Analysis Mode is intended for detailed pre-treatment design and also for real-data analysis and history matching. The real-data analysis may be either in real-time, or post-job with previously acquired treatment data.

Reservoir Simulation mode can be used to predict or history match the production behavior of stimulated or unstimulated wells. StimPT passes the information from its acidizing model to the reservoir simulator where the effects of changing skin on well productivity are modeled. This is essential for evaluating success of past treatments and relevant economics of future treatments.

The unique features and powerful capabilities of StimPT allow quick design, analysis and optimization of acid jobs. StimPT facilitates modifications during job execution and assists in performing a complete post-job analysis. This results in lower treatment costs, increased production, and improved economics for your acidizing treatments. Please contact us to learn more about CARBO's StimPT.

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