ENGINEERING SOFTWARE

ERDPRO®

HXR Drilling Services, in partnership with Pegasus Vertex, Inc., has developed ERDPro®, the industry's newest, most advanced modular well design and field engineering software suite tailored to horizontal and extended reach drilling (ERD) operations both on and offshore.

ERDPro® combines advanced drilling engineering and well design planning modules with calibrated field data inputs, allowing both client personnel as well as our own on-site Drilling Specialists to make not only accurate modeling predictions for wells in the planning stages, but also to use actual parameters seen on the rig during the drilling operation itself to predict upcoming well conditions. In addition, this ability to calibrate torque and drag as well as SPP and ECD on the rig allows for baseline trends to be calculated and monitored, real-time, by our on-site Drilling Specialists, and any deviation from the trends can be quickly identified, evaluated and addressed before a minor problem becomes a major issue.

ERDPro® Specifications

Unlike many drilling software suites available on the market today, ERDPro® offers multiple depth-based friction factor and flow rate outputs to allow the user to easily visualize ECD, SPP, torque and hook loads at any point in the wellbore. This allows the operator to be able to prepare for upcoming changes that will need to be made in the well, such as the need to decrease flow rate at a certain depth to keep ECD below FG or to stay below liner rating, or the need to rotate the string to bottom due to the inability to slack off any further. In addition, ERDPro® allows for the torque and drag modeling of casing rotation and mud-over-air operations, as well as surge and swab ECD calculations while pumping and rotating. Centralizer and downhole friction-reduction tool effects can be modeled, as well as the effect those tools will have on ECD. ERDPro® also takes into account ROP and RPM on ECD and swab/surge, as well as hole cleaning times.

Key Software Elements:

- Simple field data input allows for the planning model to be adjusted to show actual conditions
- Multiple torque and drag friction factors
- Straightforward data trend evaluation allows for any variation from expected parameters to be easily recognized and evaluated
- Fixed or variable flow rate analysis for SPP and ECD calculation at any depth
- Takes into account ROP and RPM for ECD and swab/surge calculations
- Provides rheology percent adjustment to allow the user to model thinner/thicker mud effects than entered values
- Compatible with additional, stand-alone engineering modules provided by HXR/PVI
- 3-D graphical output
- Copy/paste functions allow for simple input of BHAs, surveys, etc.
- Effect of downhole tools (centralizers, NRDPPs, etc.) on T&D
- Modeling of specialized casing running operations, such as rotation and mud-over-air
- Swab/surge modeling while rotating and pumping for multiple running speeds
- Multiple flowrate models
- "Split Flow" modeling (underreamers, etc.)
- Enhanced MPD backpressure modeling
- Fatigue/stress analysis
- Max WOB/TOB calculations
- FF reduction/increase calculations for rollers, NRDPP's, etc.
- Soft and stiff string models