**CRITERION DIRECTIONAL GUIDANCE SYSTEM**

**Criterion**
- A highly advanced directional guidance system developed by RigMinder
- Automates the directional drilling process providing consistent repeatable results, ultimately minimising risk and lowering drilling costs
- Removes the manual process of making bit projections and calculating slides
- Provides instant slide length directives saving time and cost

**Applications for Criterion include:**
- 2D & 3D directional wells
- Top hole nudge work
- Optimizes rotary in the lateral

**Key Features**
- Automatic bit projections - Handles both MTF & GTF
- Automatic slide sheets - Auto populate side sheets from WITS data utilizing rig state detection
- Receive RAW and Calculated surveys via WITS & WITSML
- Provides Slide and Rotate Directives
- Live effective toolface - Utilizes real time toolfaces and slide distances to show a true effective toolface
- Accommodates Geosteering updates - Wellpath can be easily adjusted based upon Geosteering updates in real time
- Motor yield analysis - Correlates motor yields with formations / BHA type / portion of the well
- Advanced rosebud - Shows well / bit position and slide directive on a single screen
- Increased awareness - Auto calculates rotary influence, motor yield and DLS to Land in real time
- Fully Integrated with Innova’s Drilling Software Suite - Perform RT T&D & Hydraulics calculations, optimizing performance
- Real Time Viewer – Run remote operations utilizing Criterion from a RTOC. Monitor & direct multiple wells simultaneously
**Key Benefits - Directional Service Company**

- Enhanced skill level - equalizes the skill level of directional hands regardless of experience.
- Enhance Efficiency by Automation - Analysis tools such as motor yield, reporting, survey update and automatic reporting relieve the DD’s workload, allowing more focus on performance optimization.
- Reduced rig site personnel - can reduce directional personnel by using MWD personnel or contractors’ drillers.
- Risk mitigation - Reduced risk due to consistent repeatable results.
- Cost savings.

**Deployment Methods**

Criterion can be operated in 4 modes:
- **Tier 1** - Stand alone: Surveys and slides are entered manually but directives are automatically calculated.
- **Tier 2** - Real Time: Surveys and rig states are automatically detected and entered via WITS.
- **Tier 3** - Remote: A rig site server is installed and Criterion can be operated remotely.
- **Tier 4** - Downlinking to RSS and or Criterion Rig Automation.

**Key Benefits – Operators**

- Consistency - ensures the same results regardless of rig site personnel.
- Repeatability.
- Transparency - Automated slide sheets for parameters.
- Smoother Wellbore - Reduces sliding percentage, resulting in; easier casing running, reduced back reaming, easier tripping.
- Increased ROP - Reduced steering allows more rotary drilling.
- Reduced decision times due to instant bit projection and slide calculation.

- Reduced weight to weight times - back on bottom sooner.
- Risk mitigation - reduced chances of plug back and side-track, stay closer to the line, reduced anti-collision issues.