



## REDEFINING HOW RELIEF WELLS ARE DRILLED

DeadAhead™ represents a paradigm shift in relief well execution. High-current active magnetic ranging is integrated directly into a powered drill string, eliminating wireline dependence and embedding ranging within drilling. Traditional relief wells require repeated wireline runs and BHA trips to confirm proximity and adjust trajectory. DeadAhead™ replaces that model with ranging while drilling. High-amperage excitation, detection, and telemetry deliver deterministic distance and directional updates without interrupting operations.

## OPERATIONAL IMPACT

Relief wells are time-critical, high-consequence operations where days — often weeks — directly increase risk and cost. DeadAhead™ maintains a continuous low-impedance electrical path through the powered drill string, establishing direct galvanic coupling with the formation. This enables approximately 10× the current injection capability of wireline systems, generating stronger casing excitation and a more consistent magnetic response during convergence. Measurements are acquired while drilling — through the locate, follow, and intercept phases — reducing intercept timelines and relief well AFEs by 50%, and in some cases up to 75%.

## HSE & EXPOSURE REDUCTION

Relief wells are drilled in dynamic environments where conditions can change rapidly. As separation distance decreases, continuous hydraulic and mechanical control becomes critical. DeadAhead™ keeps all ranging functions within the drillstring, allowing the BHA to remain in hole. Operators maintain circulation, pressure control integrity, and full directional capabilities while receiving real-time proximity updates — without interrupting drilling operations.

DeadAhead™ reduces HSE exposure by:

- Removing discrete intervention operations
- Reducing handling and trip-related risk
- Preserving continuous well control
- Minimizing surface personnel exposure

## TECHNICAL ADVANTAGE

Magnetic signal strength scales directly with injected current. Higher amperage produces stronger casing excitation, expands detection range, and improves solution stability during intercept convergence.

DeadAhead™ converts a dedicated ranging run into an ~8-minute survey acquired at each station while drilling. Ranging becomes a repeatable survey event within the drilling program — not a separate operational phase.

DeadAhead™ provides:

- ~10× current injection capability relative to wireline
  - Stronger casing excitation and improved signal-to-noise ratio
  - Expanded detection range
  - Reliable performance across mud systems and resistive formations
  - Compatibility with motors and rotary steerable systems
  - Ranging integrated through build and high-dogleg sections
- Stronger excitation combined with survey-level acquisition delivers clearer signal, faster convergence decisions, and more confident intercept positioning.

## GENERAL SPECIFICATIONS

<b>TARGET DETECTION</b>	
MAXIMUM RANGE	500 ft (150 m), modeled
3D POSITION UNCERTAINTY	7% of total distance*
STANDARD RANGE	200 ft (60 m)
3D POSITION UNCERTAINTY	5% of total distance*
CLOSE RANGE	10 ft (3 m)
3D POSITION UNCERTAINTY	3% of total distance**

\* From active direction triangulation, if complete target well survey report exists

\*\* From active gradient field measurements

### DUALLINK™ POWERED WIRED DRILL PIPE

UPLINK BIT RATE	56,000 bps
DOWNLINK BIT RATE	1,000 bps
POWER TRANSMISSION	500 W
TELEMETRY RANGE	30,000 ft, at 56Kbps 500 W

### MEASUREMENT HARDWARE

NOMINAL OD	1.875 in (47.6 mm)
MAX TEMPERATURE	347°F (175°C)
MAX PRESSURE	15,000 psi

### SOFTWARE

Proprietary software automatically generates a new intersect well plan after each ranging shot, an industry first