

HawkEye™ RT Service Datasheet



**Performance
Drilling**
TECHNOLOGY •

12202 Advance Drive
Houston, Texas 77065

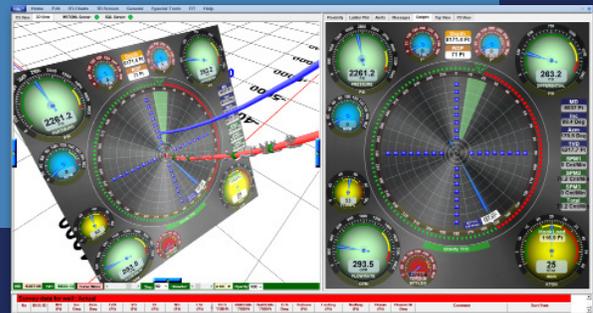
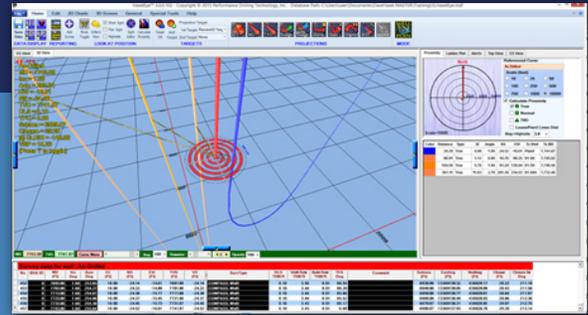
www.hawkeye3d.com | info@hawkeye3d.com | [@linkedin](https://www.linkedin.com/company/hawkeye3d) | 281-890-7494

What HawkEye™ RT is.

This is a scalable online platform that allows an unlimited number of users to log into a drilling operation from anywhere in the world and analyze the well being drilled **in real time**.

All users can:

- see time/depth logs
- run projections
- run driller's guidance mode
- create plots
- create survey and AC reports
- create hydraulics/T&D reports
- view historical logs



Global Reach

Unlimited users can log into any job globally to manage, advise and observe.

3D

3D Interface

Based on the proven user interface of the HawkEye™ Field and Well Planning version.



Logs

Time and depth logs can be arranged with custom ranges and full export to Excel.



Projections

An array of projections can be used by all users, calculated instantaneously.



Hydraulics

Analyze live data based on the current BHA and parameters pulled from the rig every five seconds.



Torque and Drag

Constant T&D output based on live data and current surveys, all exportable to Excel instantly.



SQL Security

Default storage is Microsoft Azure, an extremely reliable service to secure customer data.



Global Reach with unlimited users

Companies with more than one drilling operation connected with RT can manage the access level of all users from anywhere in the world, as well as create new user accounts as needed.

All RT users with a Windows computer and an internet connection have access to the following features when logging into a job:

- **Logs:** time and depth logs
- **Projections:** eight types, all instantaneous
- **Driller's Mode:** non-stop toolface guidance
- **Plots:** PvAs with 3D screenshots
- **Reports:** survey, projection and anti-collision
- **More reports:** hydraulics and torque & drag

Set user permissions for each user:

Permissions	Admin	Well Planner	DD	Reviewer
3D Navigation	✓	✓	✓	✓
Proximity/Uncertainty	✓	✓	✓	✓
QuickPlots	✓	✓	✓	✓
Reporting	✓	✓	✓	✓
Projections	✓	✓	✓	
Edit/Add/Delete Surveys*	✓	✓	✓	
Add/Delete Wellpaths*	✓	✓		
Edit/Add/Del Targets*	✓	✓		
Edit/Add/Del Casing	✓	✓		
Edit/Add/Del Lithology	✓	✓		
Edit/Add/Del Lease Lines	✓	✓		
Edit/Add/Del Hard Lines	✓	✓		
Project Data: Geodetics	✓	✓		
Project Data: Field	✓	✓		
Project Data: Project	✓	✓		
Project Data: Structure/Pad	✓	✓		
Project Data: Slot/Wellhead	✓	✓		
Project Data: Job Info	✓	✓		
Set Permissions	✓			

Use any desktop, laptop or tablet with Windows...

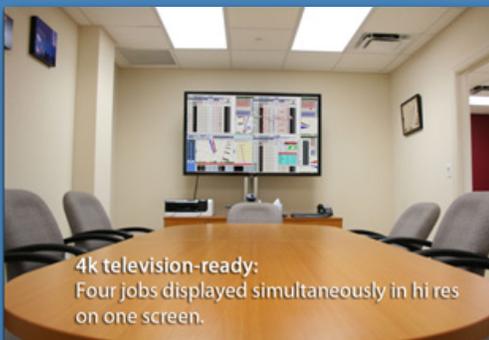


WHAT WE'RE DOING

By connecting to a WITSML server that is collecting on-site data, HawkEye™ RT aims to deliver advanced analytics in real time to all authorized personnel anywhere in the world.



This means all authorized personnel have an expansive array of tools to assist in analyzing a drilling operation, reducing the rate of errors, increasing wellbore accuracy, and ultimately **reducing costs by drilling better, more efficient wells.**



4k television-ready:
Four jobs displayed simultaneously in hi res on one screen.

Companies can easily build state-of-the-art war rooms to monitor multiple drilling operations simultaneously. HawkEye™ RT is 4K optimized so it can run multiple instances on one computer and display four separate realtime jobs per 4K screen.



4K television-ready:
HawkEye RT is scalable for war rooms



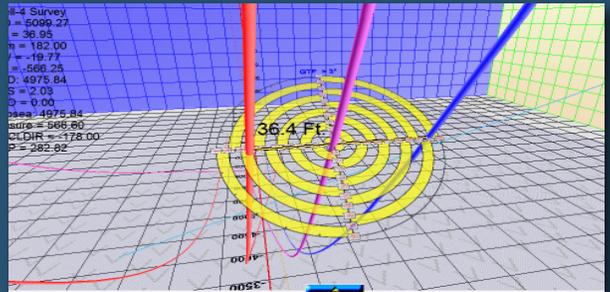
3D visualization of all downhole objects

All users have the power of 3D during the course of a job, a tool that is most important when assessing proximity and zones of uncertainty.

The following objects are visualized in the 3D space:

- **Wells:** Work curves and proposals
- **Projections:** Instant on-and-off for each user
- **Targets:** single point and target planes
- **Lease Lines and Hard Lines:** flat or wall
- **Lithology tops:** projected on a vertical plane
- **Uncertainty:** ellipsoids are better than ellipses
- **Center-to-center scans:** instantly at any point
- **Casing tops**

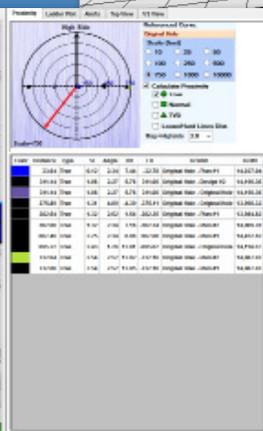
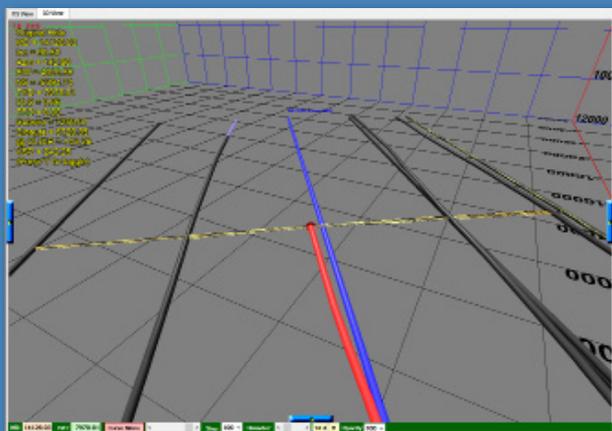
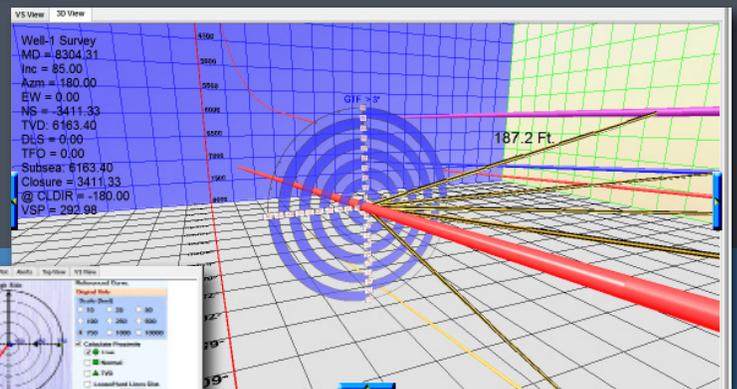
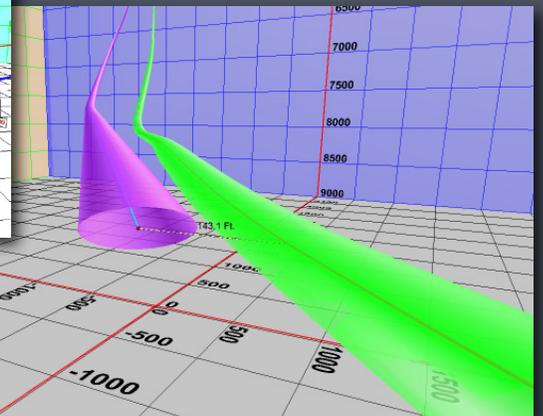
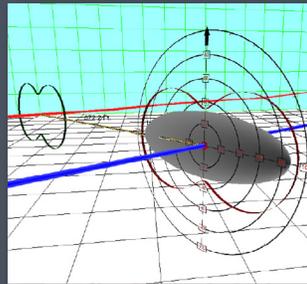
The 3D is fast, smooth and completely customizable.



PROXIMITY

DONE RIGHT

Anti-collision in the 3D space was the basis of the HawkEye Field software. In RT, all users have the power to see zones of uncertainty for every well.



Center-to-center proximity in 3D is quick and simple for all users.



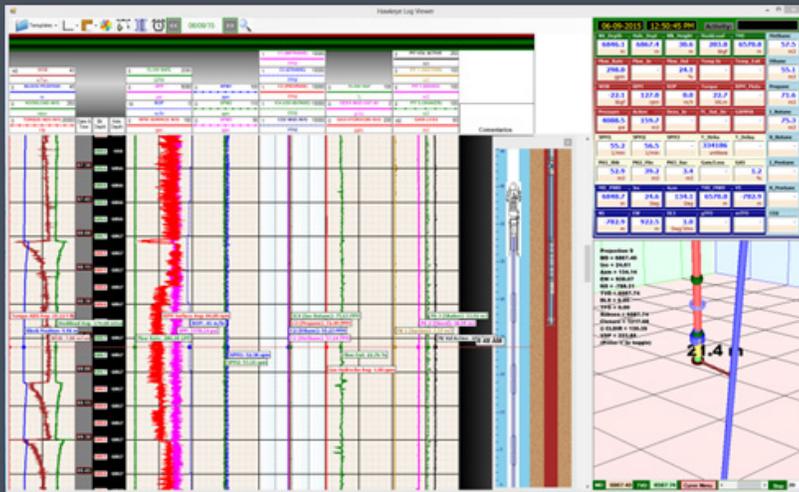
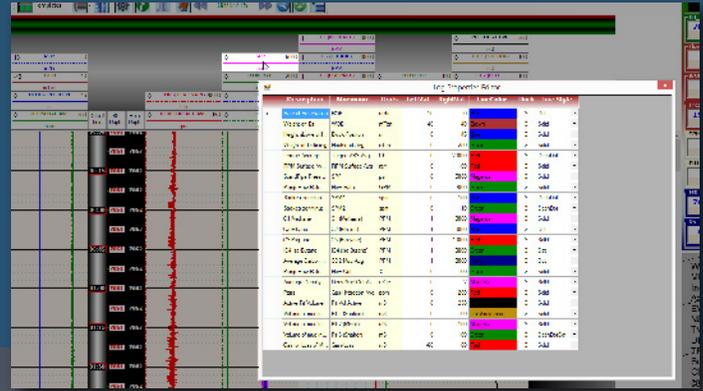
Logs: Time and Depth

The Log View displays industry-standard time and depth logs, along with customizable ranges and current position parameters.

The Log View in RT features the following:

- Industry standard log
- Full historical log search
- Instant display of log detail with mouse hover
- Block position and BHA diagram
- Adjustable ranges and colors
- User commenting system
- Fast export to Excel format
- All data secured on SQL server

All time and depth logs are customizable.

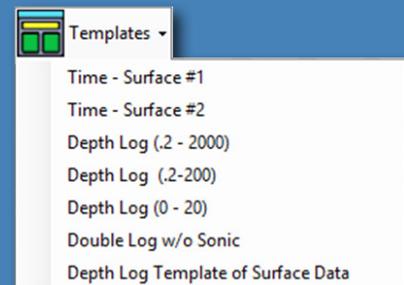


LOGS FOR ALL

When everyone is able to quickly pull up a time or depth log on their own and push that out to an Excel report, time and money is saved on sending emails, calls and other needless communications.

Logs As You Need Them

RT comes with a wide range of customizable log templates, but we are committed to providing additional formats for our customers as needed.





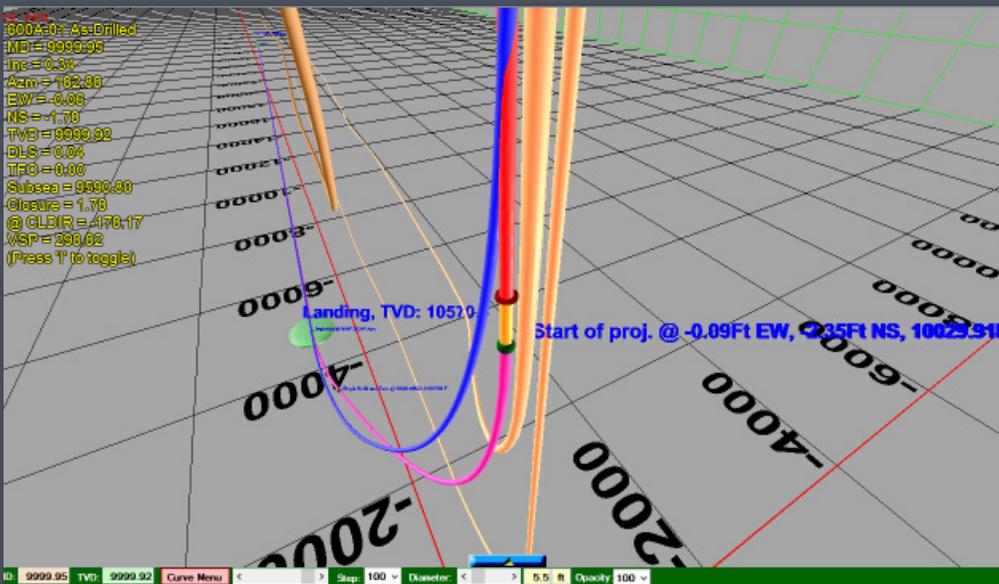
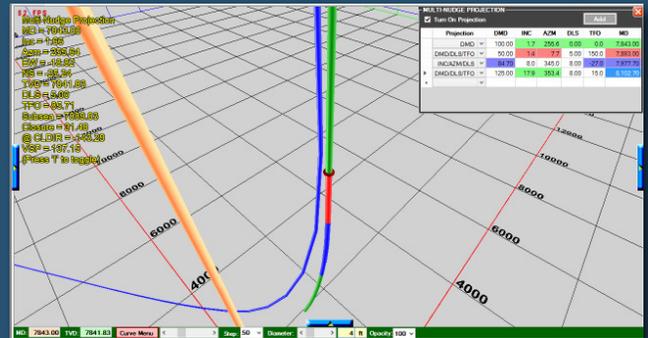
Projections with a couple clicks of the mouse

Companies can answer the constant need for projections back to plan by empowering all its personnel with HawkEye™ RT's easy to use projections.

The proven HawkEye™ projections include:

- Sensor-to-Bit
- MD & TVD: Straightline
- Nudge
- Multi-nudge: for rotary steerables, etc.
- Horizontal: for use with target planes
- Slant: single-turn solutions
- Aligned: two-turn solutions
- Back-on-Track: powerful, automated, simple

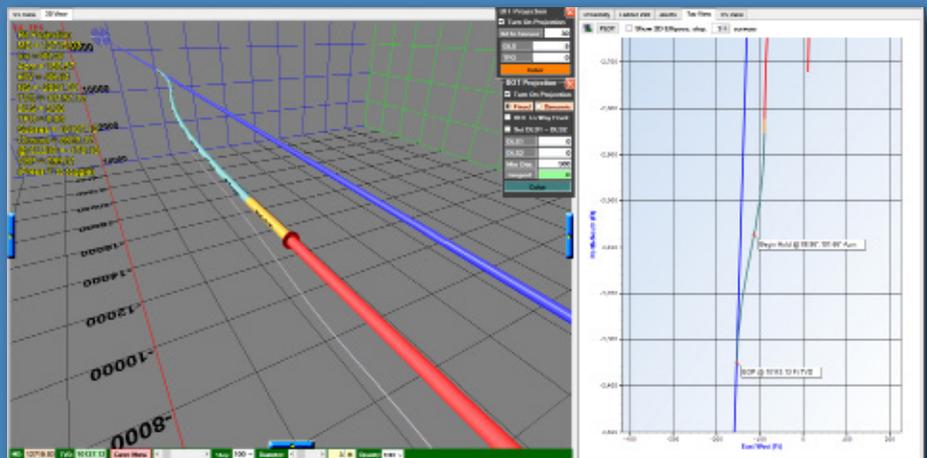
The Multi-nudge is fast and easy.



EFFICIENCY

All users can create projections and reports for those projections. This means fewer emails, fewer phone calls and **less unnecessary communication between personnel.**

The Back-on-Track projection can be left on at all times, and will recalculate instantly with each new survey. This is more than easy to use. It's automatic.



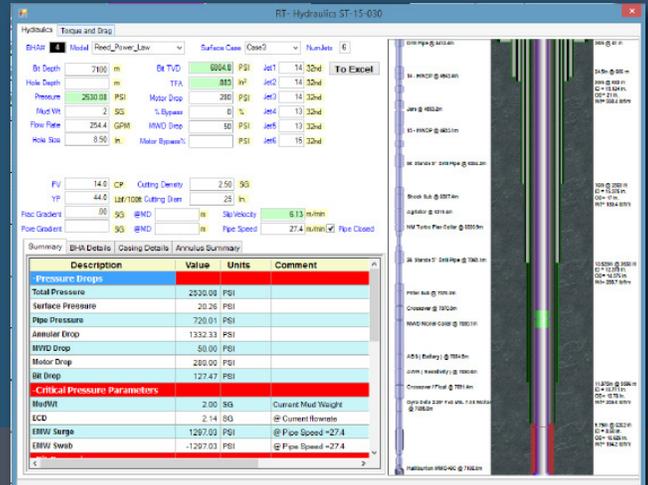


Hydraulics analysis at all times

Hydraulics analysis is running at all times with the job data coming in from the rig, and arbitrary data can be entered by any user to run a discreet analysis of their own.

All RT users can open up the easy-to-use hydraulics module, run an analysis and print their own report.

- Uses data stream from WITSML
- Can take manual parameter inputs
- Simulates jet plugging and mud caking
- All reports are in Excel and contain diagrams of the BHA

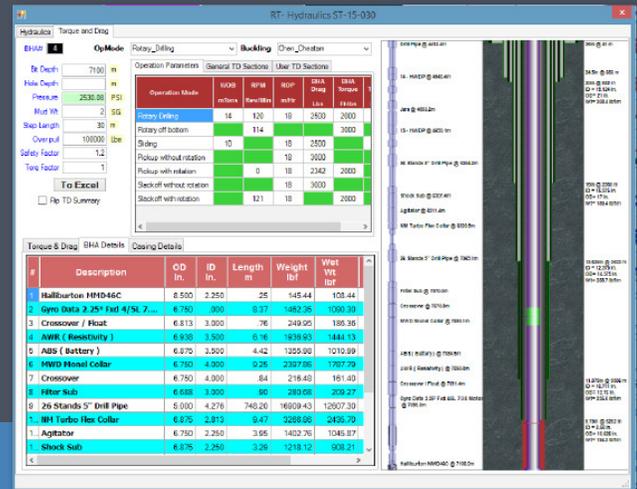


Torque and Drag analysis for every user

As with hydraulics, the torque and drag module is always running off of the rigsite data, but can also take user-defined parameters for separate

All RT users can open up the torque and drag module, run an analysis and print their own report.

- Uses data stream from WITSML
- Can take manual parameter inputs
- All reports are in Excel and contain diagrams of the BHA



WHAT WE'RE DOING

By providing hydraulics and torque & drag analysis to every logged in user, time is saved day over day from avoiding redundant emails. This is possible when every team member can access the same job.



Saved time is saved money. Instead of cluttered inboxes with reports that are outdated in a matter of minutes, engineers can log into any job and have an analysis in a matter of seconds.



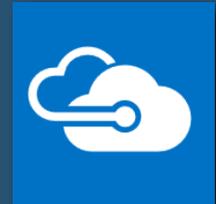
SQL Server speed and security

RT pulls data from a WITSMML server and stores it all on a separate, secure cloud SQL server. We use Microsoft Azure for extremely reliable storage but companies can opt to use their own SQL server.

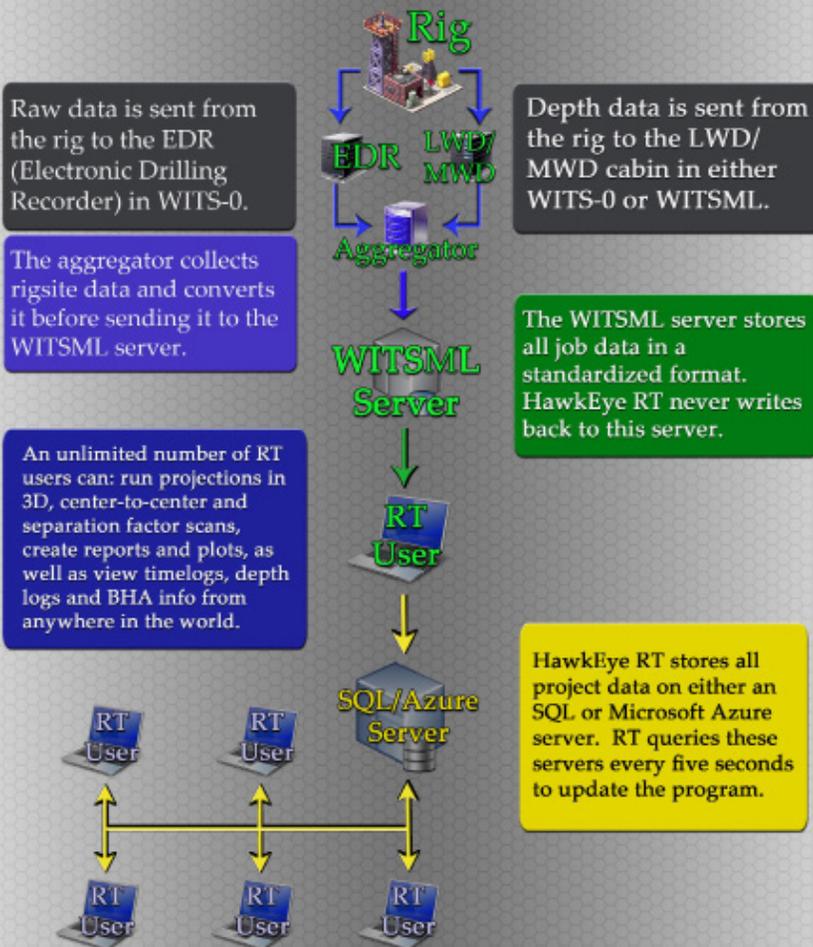
HawkEye™ RT requires that a SQL server be established for storage and retrieval of their job data. We provide scalable, free usage of Microsoft Azure servers, which are extraordinary in several ways:

- **Secure:** Cascading redundancy in servers provides 99.9% uptime and complies with international privacy laws
- **Worldwide:** Azure spans 19 global data centers, more than Amazon Web Services and Google Cloud combined
- **Flexibility for your company:** Azure works with many different programming languages, as well as existing IT systems, allowing customers to eventually manage their own SQL service if operations expand or move on

MS Azure comes with HawkEye™ RT



HawkEye™ RT Dataflow



WHAT'S IMPORTANT

Data is received and stored in the WITSMML standard.



Companies get unlimited global users with different permission levels.



All job data is secured on SQL servers and remains your property.

The Benefits of HawkEye™ RT

RT strengthens its user companies by reducing the costs of drilling by 25-35%. Companies who connect to a job with HawkEye™ RT can allow any personnel in the company view timelog, depthlog and survey data. This phenomenon results in three things:

1. **Reduction in downtime:** More eyes on the drilling operation means there is a much smaller chance for errors that slow down or stop drilling.
2. **More payzone drilled:** The result of fewer errors is the drilling of better wells that have increased reservoir contact, fewer kinks and severe doglegs, and ultimately produce better overall.
3. **Faster Decisions:** With more personnel exposed to so many aspects of the same job at the same time, a company is able to speed up the decision-making process in an operation and get things done with fewer unnecessary emails, redundant calls and bottlenecked report production.

Overview of HawkEye™ RT Features

DATA HANDLING

- Permissions control for each user
- Data secured and encrypted on servers
- All data logs saved to the off-site data server

CORE HAWKEYE FEATURES

- 3D Visualization of all wells and objects
- Nine types of instant projections
- Surface location (geodetics) via Google Earth
- ISCWSA error modeling and 3D separation factor
- Seven types of survey reports

DRILLER'S MODE

- Clear steering guidance in 2D and 3D
- Simple interface optimized for Windows tablets

LOG VIEW

- Industry-standard time and depth logs
- Adjustable scales, ranges and colors
- Historical log search
- Fully exportable to Excel

HYDRAULICS AND TORQUE & DRAG

- Constant analysis based on live data
- User parameters can be entered
- Reports in Excel

Requirements (recommended)

Internet connection
Windows 7, 8 or 10
1600x900 screen (1920x1080)
4 Gb RAM (8 Gb)
i3 processor (i7)
500 Gb hard drive storage
Mouse (Logitech hyperscroll)

CONTACT US to get connected

Performance Drilling Technology, Inc.
12202 Advance Drive
Houston, Texas 77065
United States of America

Phone

Main Office 281-890-7494
North America 832-289-1825
Latin America 832-914-2119

E-mail

info@hawkeye3d.com

Homepage

www.hawkeye3d.com