grA⁺de

Autonomous Dull Bit Forensic Digitization System

TraX
ElectronicS
Applied Digitization for Drilling &
Completions Operations

AUTONOMOUS DULL BIT FORENSIC DIGITIZATION SYSTEM

PUSH BUTTON ROBOTICS

AUTONOMOUS AI-DRIVEN ANALYSES

- Independent/objective 3rd party evaluation

- Portable enough to be field-deployable

- Economic system

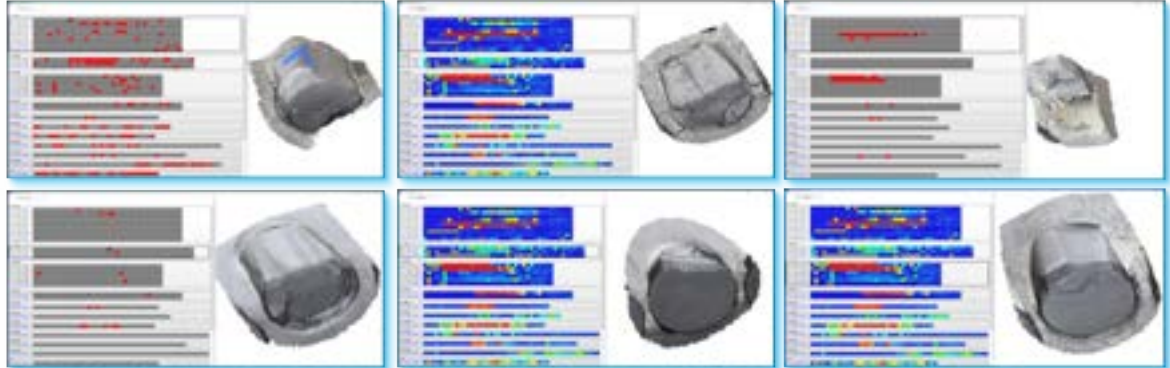- No special training required

- Minimal user time involved

TRAX ELECTRONICS INC.

Phone: 403-389-1976
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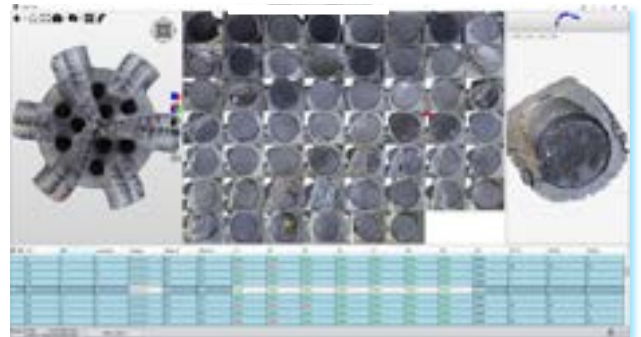*"In many cases, it's not so much about the bit you use, as how you use it."*

AUTONOMOUS DULL BIT FORENSIC DIGITIZATION SYSTEM

Delamination, Lost Cutters, Chipped, Broken, Spalled, Erosion & Heat Checking

ELIMINATE CUTTER DAMAGE &

MAXIMIZE BIT PERFORMANCE

- **Prolong bit & BHA life**

- **Reduce tripping**

- **Identify dysfunction to eliminate cutter damage**

- **Manage bit wear (as opposed to damage) to maximize performance**

- **Maximize data granularity**

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"In many cases, it's not so much about the bit you use, as how you use it."

AUTONOMOUS DULL BIT FORENSIC DIGITIZATION SYSTEM

QUALITY ASSURANCE & QUALITY CONTROL

- Precise & accurate

- High resolution, metrological repeat-ability in the order of 1/1000" (25.4µm)

- Reliable visualization build; complete every time

- Enable big data/analytics

- Improve bit design & quality control

"In many cases, it's not so much about the bit you use, as how you use it."

AUTONOMOUS DULL BIT FORENSIC DIGITIZATION SYSTEM

DYSFUNCTION MITIGATION & DRILLING PEFORMANCE AUDITING

- **Drilling Performance Auditing**
- **Dysfunction Event Flagging**
- **Drilling Optimization Mapping**
- **Optimize Drilling Parameters**

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AUTONOMOUS DULL BIT FORENSIC DIGITIZATION SYSTEM

The **grA⁺de** system is a purpose-built autonomous Digital Dull Bit Forensic Grading system. At the push of a button the system processes images and, using AI algorithms, autonomously grades the entire bit, cutter by cutter, with an independently verified metrological repeatability in the order of 1/1000" (25.4µm).

The software produces a fully manipulatable proprietary 3D visualization, complete with damage assessments, by cutter. It generates legacy IADC coding & supplementally includes remaining % diamond volumes, % cutter volumes and % diamond surface, three different heat map views of wear, and much more.

The resulting data sets can be downloaded in .csv format, and can be can then be used to identify drilling dysfunctions, and to modify drilling procedures accordingly, in order to optimize performance and mitigate damage to the bit, as well as to the remainder of the tool string. As well, the data can be used to assess and modify bit designs and/or to aid in bit selection processes.

Since the **grA⁺de** system is automated and digital in nature, the uncertainties and inconsistencies related to human judgement in the grading process used today, are eliminated.

SPE Presentation 2021   **grA+de Teaser Demo**

"In many cases, it's not so much about the bit you use, as how you use it."