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VIRTUAL PANEL DISCUSSIONS

**VPDS**

# **“Upgrading the Grading: Let’s talk about the progress made and plans forward”**

AIR DATE: 9 FEBRUARY 2022

Presented by

**DRILLING**  
C O N T R A C T O R

# Agenda

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**7:00 – 7:10** – IADC Upgrade Overview – Robert van Kuilenburg

**7:10 – 7:30** – Drill Bit Group – Dustin Lyles / Tom Roberts

**7:30 – 7:50** – BHA Group – Paul Neil

**7:50 – 8:00** – Break

**8:00 – 8:20** – Case Studies – Willie Watson

**8:20 – 8:40** – Data Storage and Retrieval – David Shackleton

**8:40 – 9:00** – Closing Remarks/Action Items – Paul Pastusek

# Anti Trust Guidelines

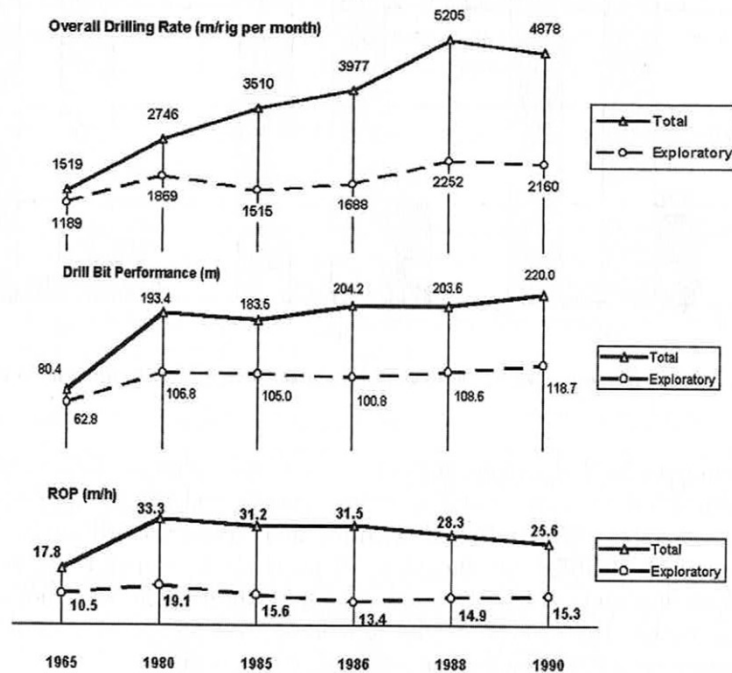
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It is appropriate for IADC and its members to engage in a variety of beneficial activities, including development of proposed standards and collection of industry statistical data. It is prudent for members to exercise caution, however, and refrain from discussion of or joint action in connection with the following topics:

- Current or future prices, price adjustments or discounts.
- Profit levels sought or attained.
- Dividing or allocating customers, markets, or territories.
- Any refusal to deal with or boycott a customer, potential customer, supplier or potential supplier.
- Activities that would lessen the ability of others to compete or potentially compete with IADC members.
- Restrictions or limits on the availability of services.
- Any limits on sales of services or use of equipment.
- Any action recommended by IADC to its members is to be voluntary, not mandatory. Each Producer, Drilling Contractor or Associate Member must make its own individual marketplace decision whether to follow any IADC recommendation.

<https://www.iadc.org/about/antitrust-guidelines/>

# Once upon a Time – Performance was Good



Source: Advanced Drilling Solutions, Lessons from the FSU, Volume1

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# Grading was Easy



Fig. 2-50b PDC bit sub-bit SD65 (new) and bit sub-bit SD24 (turbo) for the well Verdun, PDC pilot bit SD65 (new)

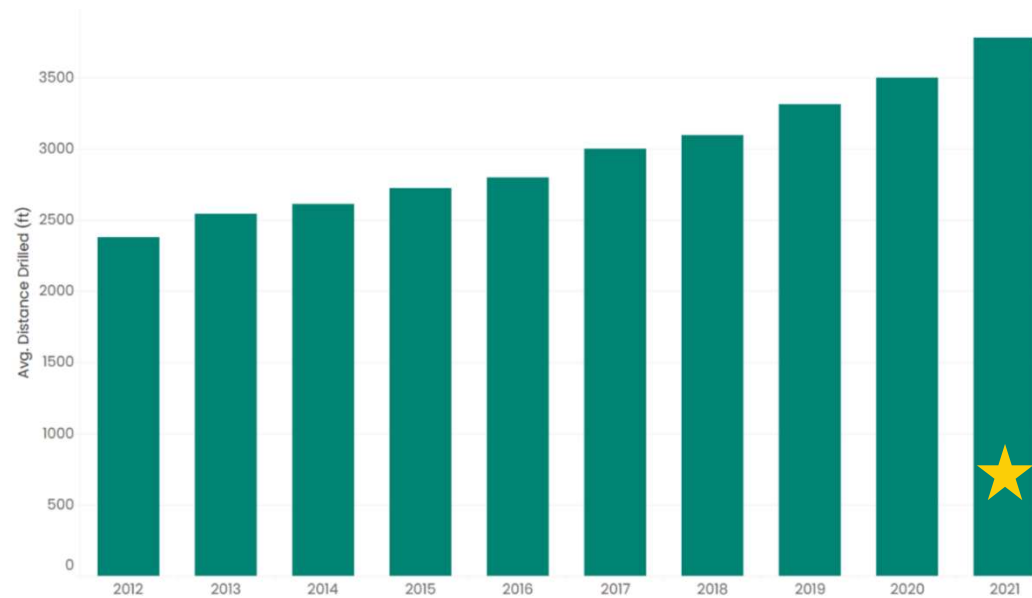


Source: Advanced Drilling Solutions, Lessons from the FSU, Volume 1

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# Today, Performance is Better

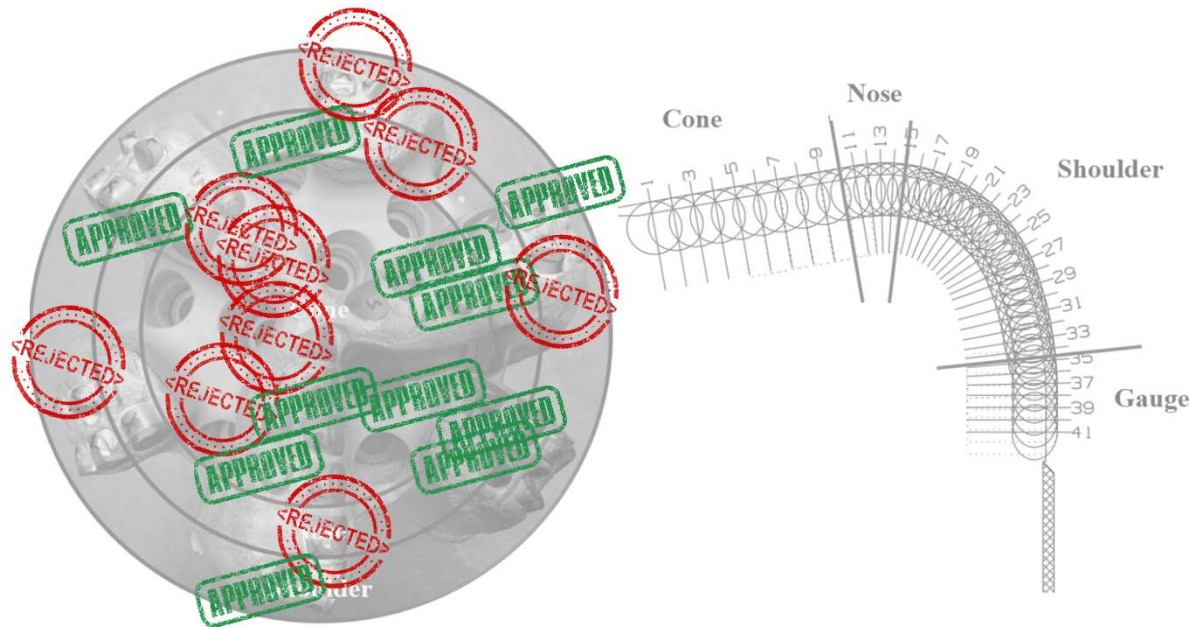


Baker Hughes 

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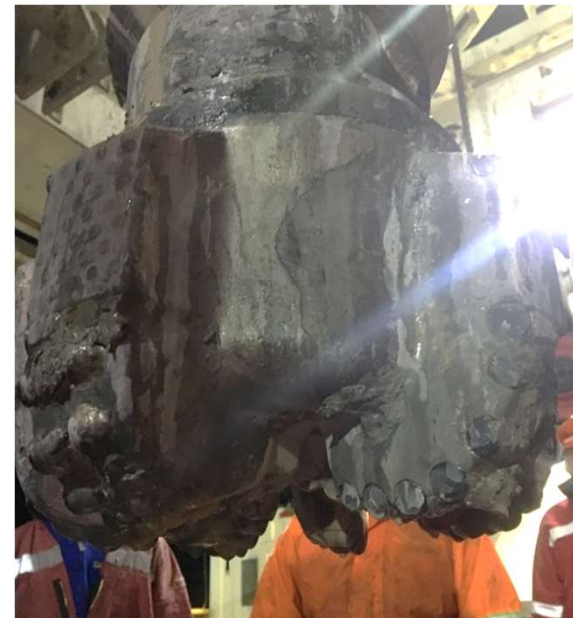
# Grading became Simpler?



# The Limits With the Current Code

## IADC codes have some known limitations:

1. Focused on justification for pulling the bit, and describes basic wear, but does not capture details needed for forensic root cause analysis.
2. Require human expertise and are subjective, photo verification is often required.
3. Do not include common BHA element codes that are known to help with drilling diagnostics.
4. No framework or best practice to include other data such as digital pictures, etc.
5. Limited support for fully automated drilling system processes on the near horizon.



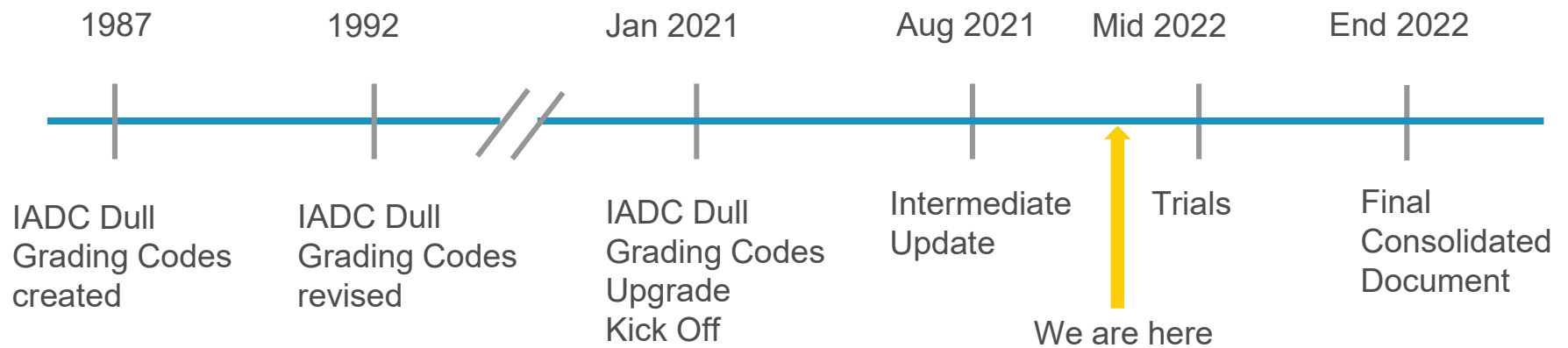


# IADC Dull Code Upgrade - Objectives

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- Support continuous improvement and root cause analysis
- Eliminate or reduce the subjectivity in the current codes
- Support both human and automated bit dull grading systems
- Create best practices for a digital storage and retrieval

# The History



Lots of hard work still to be done – still help needed!

# The Teams

## Drill Bit Group

- Dustin Lyles
- Tom Roberts
- Chris Propes

## BHA Group

- Paul Neil
- Roland Illerhaus
- Jim Oberkircher

## Case Studies

- Willie Watson
- Fred Dupriest
- Ysabel Witt-Doerring
- Raafat Abbas
- Ty Cunningham

## Data Storage & Retrieval

- Dave Shackleton
- Kyle LeGrand
- James Ng
- Nathan Zenero
- Darryl Fett
- Tartan Collier
- Jonathan Sharples

## Leadership Team

- Paul Pastusek Exxon Mobil
- Dustin Daechsel Shell
- Robin Macmillan Data Gumbo
- Robert van Kuilenburg Noble

# Participants (120+)



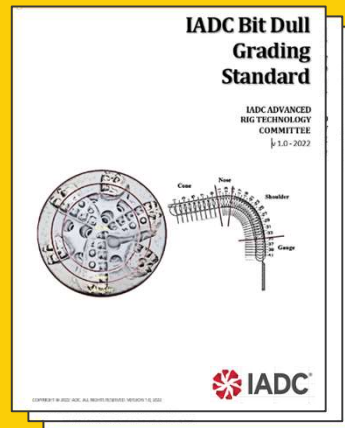
# Deliverables

## Outreach

- Trials
- Papers
- Update Meetings



## Codification



## Digital Guidelines

- Existing Standards
- Additional Good Practices
- Transition and Future Practice
- Data Communities & Training Set

# Outreach

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- IADD Workshop - Upgrading the Grading - Digitization of Dull Bit Forensics (14 Jan 2021)
- VPD Drill Bit Forensics (12 April 2021)
- VPD Update Aug 2021
- Training and Field Trials planned Mid 2022

## IADC/SPE International Drilling Conference and Exhibition

8-10 March 2022 | Galveston, Texas, USA  
Galveston Island Convention Center

### Additional Communication – March 2022

- SPE **208787** – IADC Dull Code Upgrade: Objectives And Organization
- SPE **208707** – Data Collection And Workflow Required To Conduct Bit Forensics And Create Effective Changes In Practices Or Design
- SPE **208712** – Bit And BHA Forensics Using Rig-based Photographic Documentation Practices

# On to the Drill Bit Group!

Dustin Lyles

Tom Roberts

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