37TH INTERNATIONAL NO-DIG FLORENCE 2019

Fortezza da Basso • FLORENCE (Italy)

30th September • 2nd October 2019

The Drilling Contractors Association – DCA- A European Association for Quality and Education in HDD

Jorn Stoelinga, B.Sc. President DCA

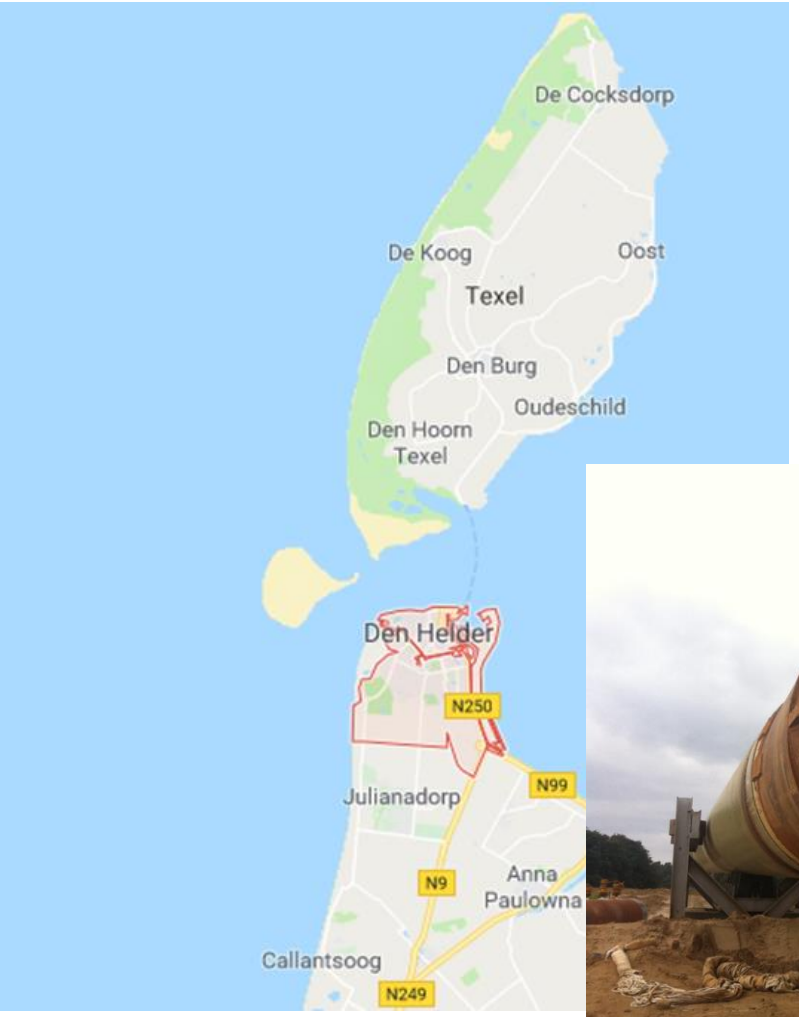
DCA Drilling Contractors Association

The DCA Europe

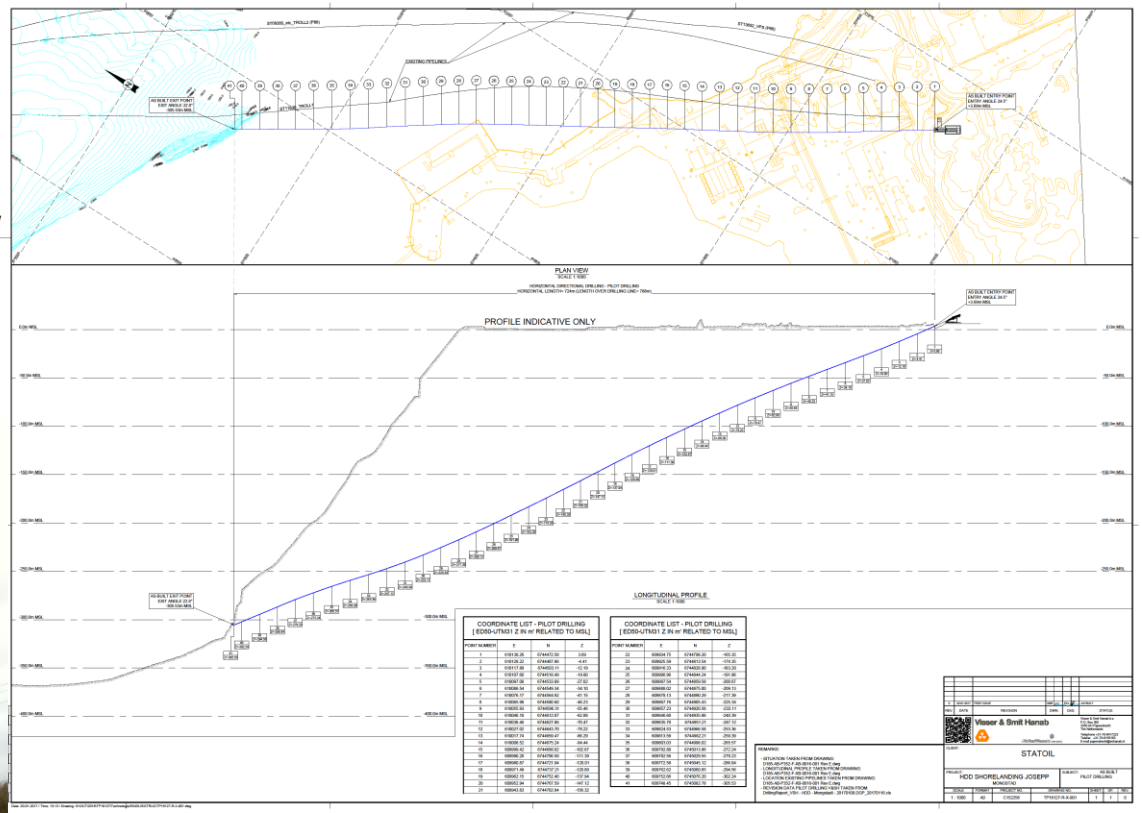
was founded in 1994 by leading HDD companies
to **support**, **promote** and **further develop** HDD technology

Since then, HDD has become an internationally recognised alternative to cross underground obstacles for the installation of pipeline systems, both in technical and in economic terms.

The Drilling Contractors Association – DCA



- Drills of over >4000m,
- exit points 300 m below water level
- Drills of 56”,



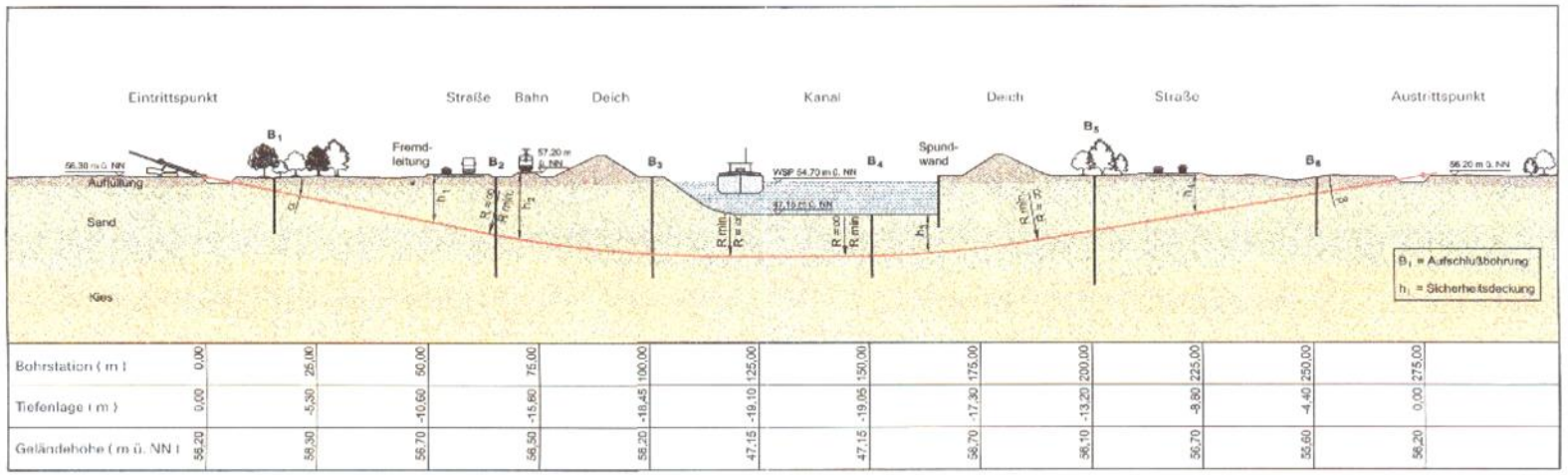
Challenges

- HDD is worldwide recognized as an economical and quick trenchless pipelaying technology, but
    - success still is very much depending on the combination of specific subsoil of the crossing and specific experience of the HDD contractor
    - Uncertainties, e.g. related to ground conditions or disposal costs, bear economical risks either for the client or for the contractor
    - Other trenchless technologies have some advantages, e.g. accuracy of navigation, capability to tackle difficult subsoils

Chances

- Under normal circumstances, HDD normally is the most economical trenchless technology
- Many countries are changing to electricity as main power source;
- There is a lot of individual knowledge and experience in the HDD branch. If these could be consolidated smarter and not only be regarded as a competition advantage, the HDD technology could improve its reputation far better: Cooperation instead of competition

Predictability **Reliabilty** **Repeatability**



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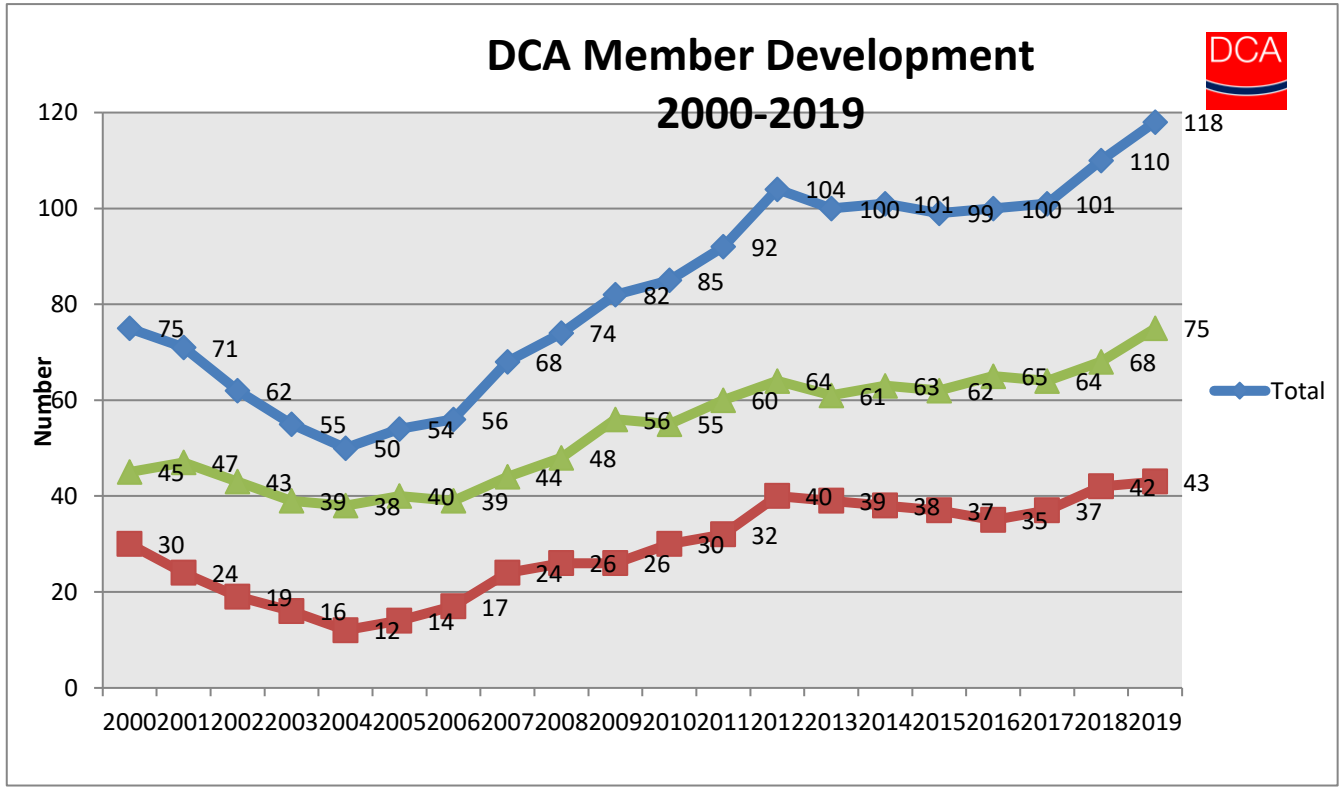
DCA Goals

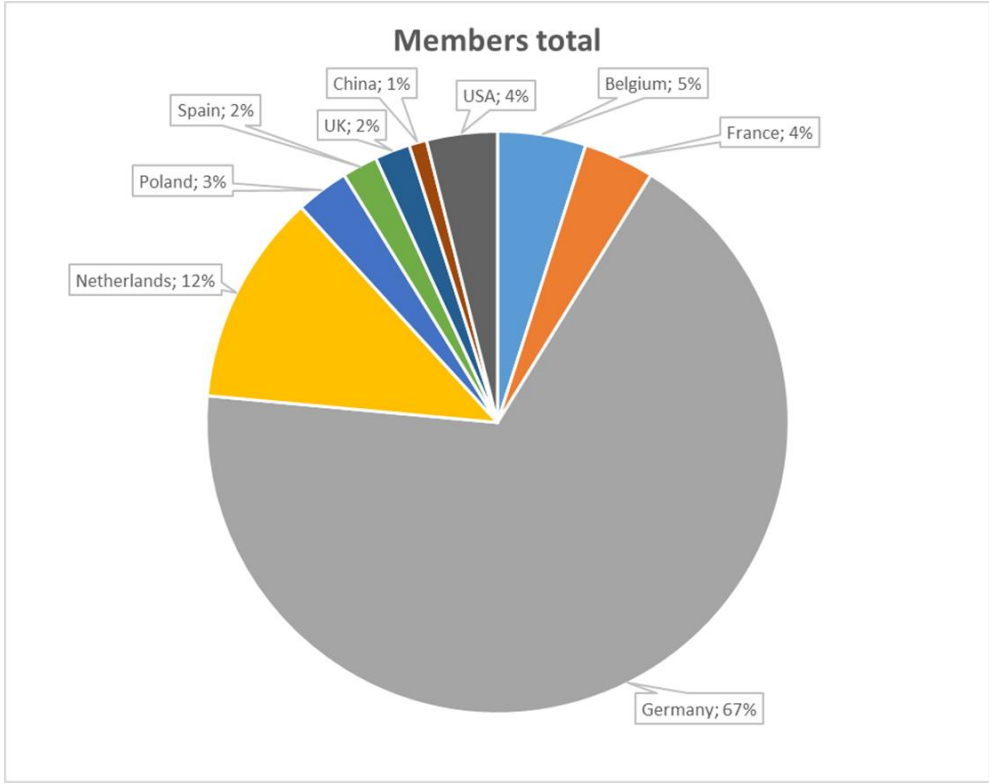
1. **to further develop** HDD-Technology according to the requirements of practice at European level!
2. **to promote** HDD as a means to lay pipelines/cables, as well as an option for other technical challenges, not only when crossing obstacles
3. **to enhance** the representation of technical interests to the clients, public authorities and other institutions!
4. **to offer** a platform for a constant exchange of information and experiences!
5. **to advance** the qualification of our members by the use of further education!
6. **to support** young people during their education at university!

DCA structure

- **The DCA** is a **European Association** under German law
- HDD Contractors are so called **regular members**
- Suppliers, Principals and engineering companies are **associate members**
- **Differentiation** in company size
- This is also reflected in the **board**

The Drilling Contractors Association – DCA





The Drilling Contractors Association – DCA

Our experience – Your success

President

Jorn Stoelinga
LMR Drilling GmbH, Germany

Vice-President
(Small Scale Drilling)

Dipl.-Ing., Marco Reinhard, MBA
LEONHARD WEISS GmbH & Co. KG, Germany

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Board

Vice-President (Big Scale Drilling)
Atef Khemiri
(Horizontal Drilling International SA, France)

Vice-President (Associate Members)
Dr. Tim Jaguttis
(de la Motte & Partner, Germany)

Treasurer: Jürgen Muhl
(STEP Oiltools, Germany)

Board Member: Franz-Josef Kißing
(Open Grid Europe GmbH, Germany)

Board Member: Marc Schnau
(x-plan schnau engineering, Germany)

Board Member: Scott Stone
(Visser & Smit Hanab b.v., Netherlands)

Education for the HDD business

Courses are set up for HDD personal primarily but is interesting for principals and planers.

Based on German DVGW systems, since 2017 courses for drillers and supervisors are also taught in The Netherlands, France is currently under development
Group A: Drilling equipment < 400 kN pullback force
Group B: Drilling equipment ≥ 400 kN pullback force

Drillers

(A. o. Mathematics, physics, project execution, steering systems, borehole hydraulics, pumps, drill pipe and tooling)

Supervisors

(A. o. *Topography, mathematics, physics, equipment, project execution, steering systems, soil variables, borehole hydraulics, drill pipe, drilling tools, basic design*)

HDD Specialists

(A. o. *Topography, mathematics, physics, equipment, soil variables, borehole hydraulics, project execution, steering systems, drill pipe, drilling tools, basic design, legal framework and contract basics)*

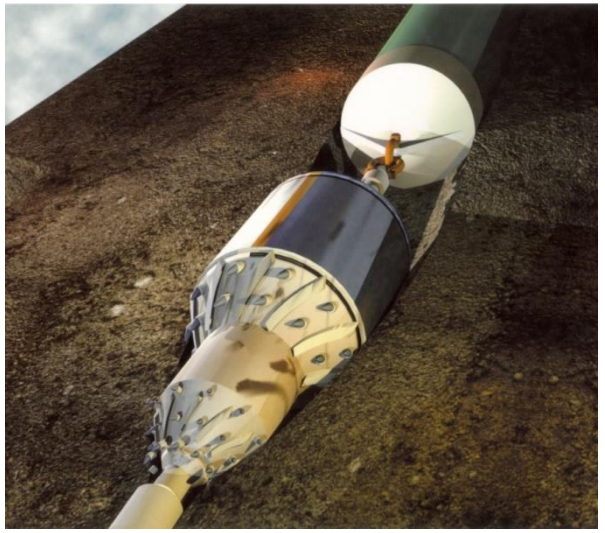
Further Education and seminars

In order to keep up to date, follow up courses and topic courses are required;

- Mud courses (also offered by mud companies)
- Refresher for HDD specialists also often frequented by supervisors and drillers
- Members forum, following on topic of yearly congress
- Various rig suppliers provide seminars, DCA supports with lectures or by hosting

DCA promotes! Sponsorship award 5.000 €

The main goal of the project is to support the new generation of university graduates in the field of Horizontal Directional Drilling (HDD).

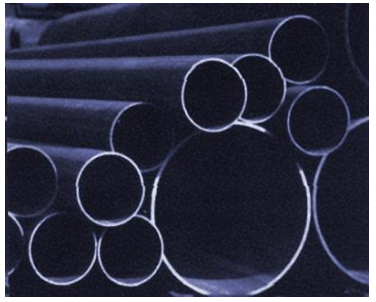


Entry conditions

The invitation is directed to universities of applied sciences and technical universities from DCA member states that educate in the field of horizontal directional drilling and associated disciplines.

Details on application

- Training centre
- Coordinator of programmes
- Application interview
- Title and short presentation of thesis
- Scheduling



The Drilling Contractors Association – DCA

Year 2004

Topic: “Research in the optimisation of pipe installation by using horizontal directional drilling (HDD) technology”

Research Assistant: Dipl.-Ing. Stefan Roßbach

Technische Universität Clausthal-Zellerfeld

Year 2009

Topic: "Study of ground stability during and after the passage of HDD for pipe installation and impact on existing structures"

Graduate: Marie Cebrian

École Supérieure d'Ingénieurs de Poitiers (ESIP, France)

Year 2012

Topic: "Neuartige Herstellung und Verlegung von Dükerrohren mittels HDD"

Graduate: Edda Bockelmann

Hochschule 21

Task Groups– Actual issues faced by the industry

Issues that the industry is dealing with, proposed and elaborated by the members

Between 2008 and 2017 following TG´s have been concluded

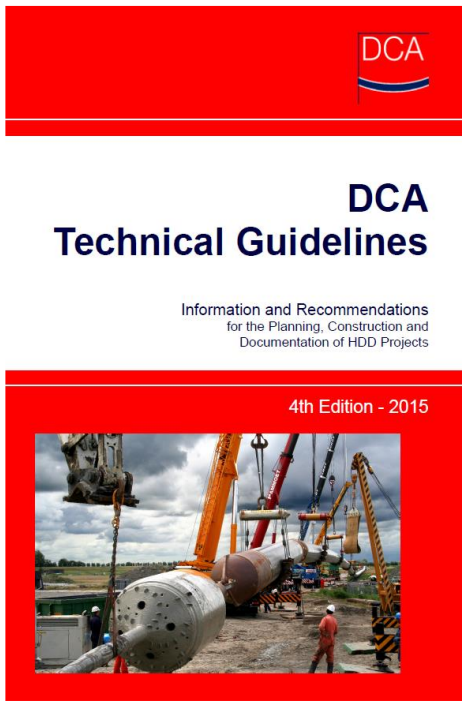
- ✓ Task Group: Soil Conditions
- ✓ Task Group: Technical Guidelines edition No. 3
- ✓ Task Group: Bending Radius
- ✓ Task Group: Model Bill of Quantities
- ✓ Task Group: Shaping Recommendation of Technical and Legal Contract Conditions
- ✓ Task Group: Quality Assurance
- ✓ Task Group: Safety aspects in HDD
- ✓ Task Group: Technical Guidelines edition No. 4
- ✓ Task Group: VOB DIN 18319

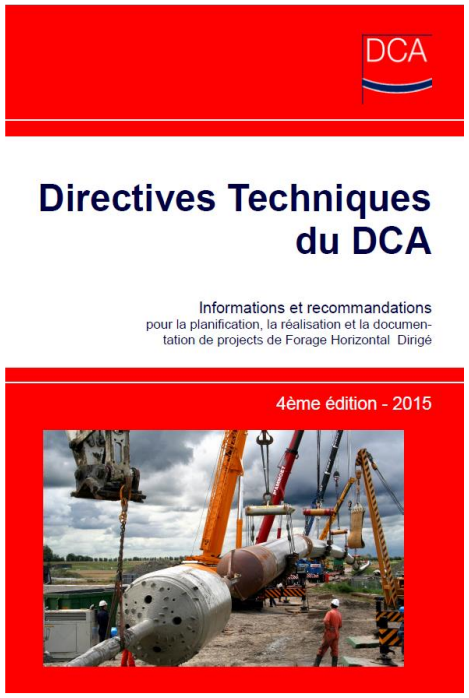
The DCA Technical Guidelines

Information and Recommendations on Planning, Construction and Documentation of HDD–Projects (English, German, French)!

Subjects

- Project fundamentals
- Assessment of building ground
- Permissions
- Project planning
- Safety arrangements
- Project realisation
- Quality assurance
- Documentation





Task Group 1 – Mud and Cuttings Disposal

(Finalised early 2019)

Situation

- Disposal of Mud on agricultural areas is hardly possible anymore → EU-law requires extensive investigations which are in most cases not to fulfil in time
- Properties of mud and cuttings to be disposed are highly influenced by the drilled soils → no reliable front end determination of disposal procedure possible

Tasks of the group

- Summary of current legislation and consequences for HDD industry
- investigation of economical and technical aspects of mud recycling especially on small rigs
- Clarification of responsibilities between HDD contractor and investor/client (owner of subsoil)
- Proposal of fair contractual arrangements

Task Group 2 – Coating Quality

Situation

- Successful testing of coating integrity after pullback forms a contractual acceptance criteria

- But coating damages can occur even if best drilling quality has been performed, due to
  - Selection of inappropriate factory coating material,
  - Poor application quality, especially of field joint coatings,
  - Occurrence of the so-called residual geotechnical risk

Tasks of the group

- Analyse current situation with respect to available coating materials, testing methods and applicable standards

- Determination of drilling parameters having influence on coating quality

- Categorize geotechnical conditions and applicable coating systems

- Risk assessment; Preparation of recommendations / guidelines

Task Group 3 – Update of Technical Guidelines

Situation

- Particularly in the area of categorization of HDD drillings (cf. Chap. 10f) and tolerances updates are required. In particular, the previous classifications into routine, standard and complex HDD drilling will be reviewed and, if necessary, verified. This requires, among other things, a fundamental revision of the tabular classifications (cf. Table 11: Criteria for the classification of an HDD project).

- Furthermore, the topic "Special procedures/special applications in HDD" was discussed at the last board meeting. This area is largely missing from the current version of the guideline.

- Tolerances and accuracy need to be aligned with other documents

Tasks of the group

- Further revision, particularly in the area of categorization of HDD drillings (cf. Chap. 10f).

- Special procedures/special applications in HDD; Dealing with homogeneous areas

- Analyse current description of tolerances and bring in line with applicable standards

- Preparation of guidelines

Task Group 4 – Digitisation

Situation

- The majority of HDD rig manufacturers, especially for small scale rigs, have moved to equip their rigs with automation systems providing extensive means for data acquisition and recording.
- The operators are showing an increasing interest in analyzing and processing this data for the purpose of failure analysis, progress reports as well as quality control measures.
- Clients demand a fully automated data recording for HDD projects similar to the requirements that are already now made for larger pipe jacking projects.
- It is of interest of all parties (both operators and clients) to standardize data acquisition as well as transmission to allow for common solutions to process this data.

Task Group 4 – Digitisation

Tasks of the group

- Review of common automation systems as well as recorded machine data
- Definition of relevant machine data for exchange (e.g. torques, advance rates, rpm) including their respective units (e.g. SI-Units) or conversion factors
- Compilation of further information to be recorded, possibly operator input (e.g. status, shift, operator)
- Definition of reasonable recording frequencies depending on machine status or recording of min/max values for longer intervals.
- Specification of possible data transmission for offline (e.g. USB stick, CSV) or online (IP based, OPC) operation including file formats and protocols, preferably based on "open" standards to allow data exchange by standardized hard- and software interfaces, independent of machine make.
- If required, rules or recommendations for visualization or filtering of data during (post) processing.

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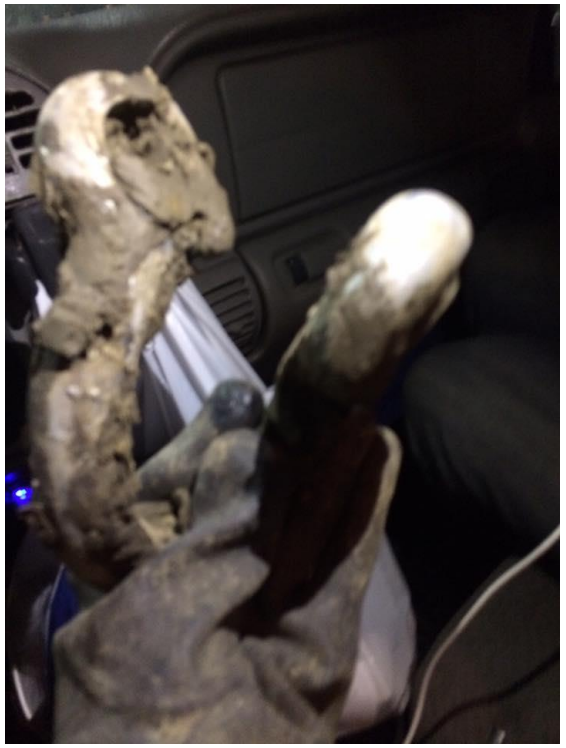

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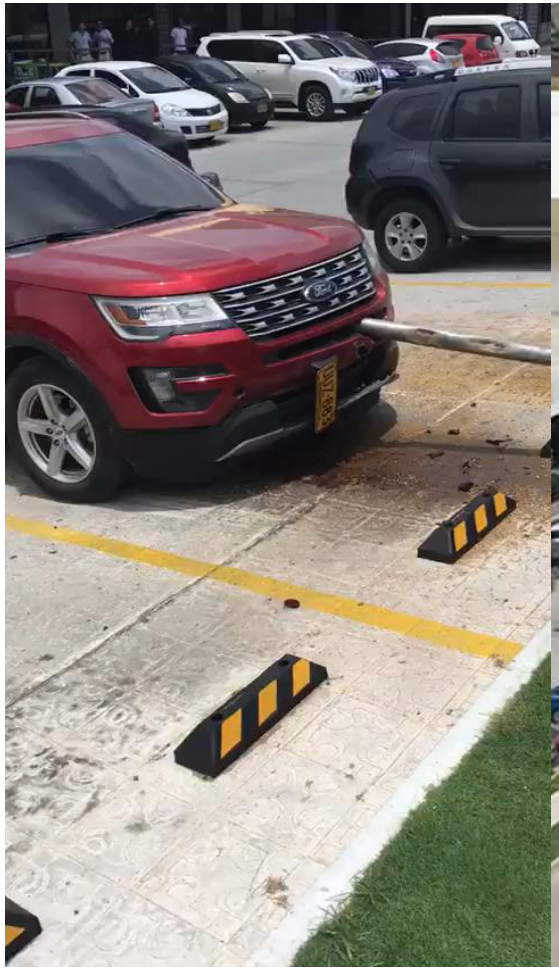

Events – Training - Participation

- Education in cooperation with Drillings School Celle, Germany and Deltares, The Netherlands
- Further education for HDD specialists in Kassel, Germany
- Supporting events of various manufacturers
- Filling in and hosting of HDD presentations on as well as having a booth at the International Pipeline Forum in Oldenburg, Germany
- Annual congress with interesting project presentations, workshops and social programme
- Members workshop, following congress theme
- Lustrum celebration 2021 EU Headquarters, Brussels

Annual congress, members meeting, workshops and much more!

Besides a promising **conference agenda**, **workshops** and the opportunity to present your own products, our annual congress offers you an entertaining supporting programme which will leave enough room for **exchange of experiences**.

22nd DCA Annual Congress,
Dordrecht, Netherlands

04.-06.10.2017

23rd DCA Annual Congress,
Frankfurt, Germany

17.-19.10.2018

24th DCA Annual Congress, Krakau, Poland

16.-18.10.2019

The Drilling Contractors Association – DCA

Interested in membership?

You will find the application form ready on our homepage!
www.dca-europe.org

Membership
Every natural or juridical person who is willing to promote the association targets can become member.

Membership groups

Drilling companies (Regular):

The membership fees for drilling companies is calculated on the basis of the **sum of the pulling forces** of the HDD equipment owned by the company.

Group 1: Sum of all pulling forces	≤ 1,000 KN	1.050,00 €
Group 2: Sum of all pulling forces	> 1,000 ≤ 2,500 KN	2.100,00 €
Group 3: Sum of all pulling forces	> 2,500 KN	3.150,00 €

Supplier companies, clients, consulting companies, etc. (Associate):

The membership fee for associate members is calculated on the basis of the **number of employees** in the company, whereby the size of the parent company is in each case taken account of.

Group 1: Number of employees	< 5	840,00 €
Group 2: Number of employees	5 ≤ 50	1.050,00 €
Group 3: Number of employees	> 50 ≤ 200	1.320,00 €
Group 4: Number of employees	> 200	1.580,00 €
Group 5: Personal Membership		100,00 €

DCA Connects!!

Thank you for your attention

For more info and application form:
www.dca-europe.org