

MINUTES

IADC Geothermal Committee Meeting, 12 March 2024

Present at the meeting were

Scott Farmer, H&P; Kevin Gray, Black Reiver; Eric Gonzalez, Thermaprime; Ashok Santra, Aramco Americas; Shaun Toralde, Weatherford; Daniel Drader, Iceland Drilling; Tamas Csrefko, Nabors; Toney Deer, Well Control School; Collin Crist, Kenai Drilling; Erik Roesen Larsen, Innargi; Brage Johannesen, Parker Wellbore; Francisco Porturas, Archer Geo; Alexander Heger, OMV; Jesse Kwasnicia, Precision Drilling; Lars Nydahl Jørgensen, IADC (minutes).

1. Minutes of February 2024 Meeting

There were no comments to the minutes.

2. Introduction of new members

New members joining the committee were Brett Dalgety, BP, Jesse Kwasnicia, Precision Drilling and Robert Gonzalez, Oxy.

3. GeoTHERM 2024 Feedback

The conference took place on February 29th and March 1st in Offenburg, Germany. There were 6,509 trade visitors (up from 4,982), 241 Exhibitors (up from 160), and 56 presentations.

Also discussed was a recent geothermal conference in Taiwan. The Offenburg and Taiwan conferences had a very positive atmosphere and a growing interest in geothermal energy in common. This contrasted with some of the oil and gas conferences held recently, which saw a smaller than usual audience.

4. IADC Onshore Drilling Conference

The panel members for the geothermal discussion at this conference will be Shaun Toralde of Weatherford, Elliott Howard of Fervo Energy, and Tamas Csrefko of Nabors.

5. Other Conferences

- Budapest conference: Scott and Lars had been in a video conference with the organisers of the Budapest Geothermal Summit to take place in September 2024. Scott will submit an abstract to talk about this committee's work. The organisers are very interested in IADC's participation in the conference. The conference is of particular interest since the Hungarian government will use it as a flagship event in the course of their EU presidency in the second half of 2024. This presidency is expected to have a strong focus on energy – and we know from some of their diplomats that they are in love with geothermal energy.

- IADC Geothermal Conference and Exhibition: The conference is now scheduled to take place in March 2025 in Vienna. OMV have already shown their strong support of the event. In this regard, Alex shared some of OMV's considerations relating to the geothermal industry's current growth. IADC's conference team is working on all the practicalities. The committee members agreed that we should expect an audience of at least 100, probably well above that, not least because the conference would be of interest to regulators and district heating companies. A targeted campaign with invitations to district heating companies was suggested.

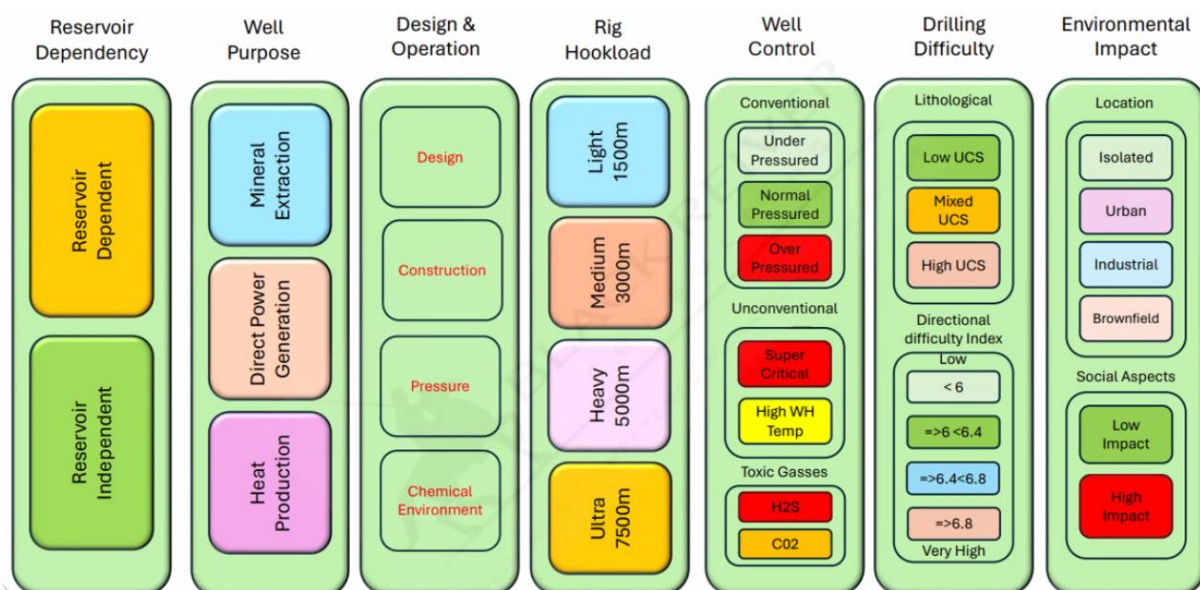
For the purpose of advertising the conference, a narrative would be needed. Probably one-half page. Lars would prepare that but asked committee members to contribute what they considered important to include in the narrative.

IADC World Drilling: Scott's abstract to present the committee's work has been accepted.

Brage introduced the fact that geothermal drilling is still very small compared to oil and gas drilling, probably 1:100. So, we owe it to ourselves not to get over-excited just now. A discussion followed on this matter. Contrasting views foresaw a surge in activity based on the facts that we are right now seeing activities which could be technological breakthroughs (e.g. Eavor Loop drilling in Germany), and we had seen the COP Commitment calling for 100000 geothermal wells being drilled before 2030 as well as the recent strong commitment by the EU to support geothermal energy.

6. IADC Geothermal Well Classification

Scott and Kevin discussed the progress made on the classification system, including the initial draft of seven categories (see below) and the need for further refinement. They emphasized the practical implications of the coding system and its importance in assessing development, HSE, and financial risks of well projects.





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Please note that the proposed classification is at a very early draft stage and is likely to change – specifically the Design and Operation, Rig Hookload, Well Control and Drilling Difficulty categories. Comments to this slide are solicited. Scott will arrange a second session to review the slide. He also mentioned that the proposed system should be tested against prominent types of wells.

7. AOB

There being no further business, the meeting was adjourned.

/ Lars Nydahl Jørgensen



Geothermal Committee
General Meeting – 12/03/24

Agenda

- Validation of MoM of the previous meeting
- New Members
- GeoTHERM 2024 feedback
- IADC Onshore Drilling Conference (Panel)
- Other Conferences
- IADC Classification
- AOB

New Members

- Brett Dalgety – BP
- Jesse Kwasnacia – Precision Drilling
- Robert Gonzalez – Oxy
- ...

GeoTHERM 2024

- February 29th and March 1st in Offenburg, Germany
 - 6,509 trade visitors (up from 4,982), 241 Exhibitors (up from 160), and 56 presentations
- Did people attend?

IADC Onshore Drilling Conference

- Panel Discussion – 3 x 20min presentations
 - 16th May 2024 – Hyatt Regency – Houston, USA
 - Shaun Toralde – IADC Geothermal Committee
 - Elliot Howard – Fervo Energy
 - Last presenter – **Tamas Csrefko - Nabors**

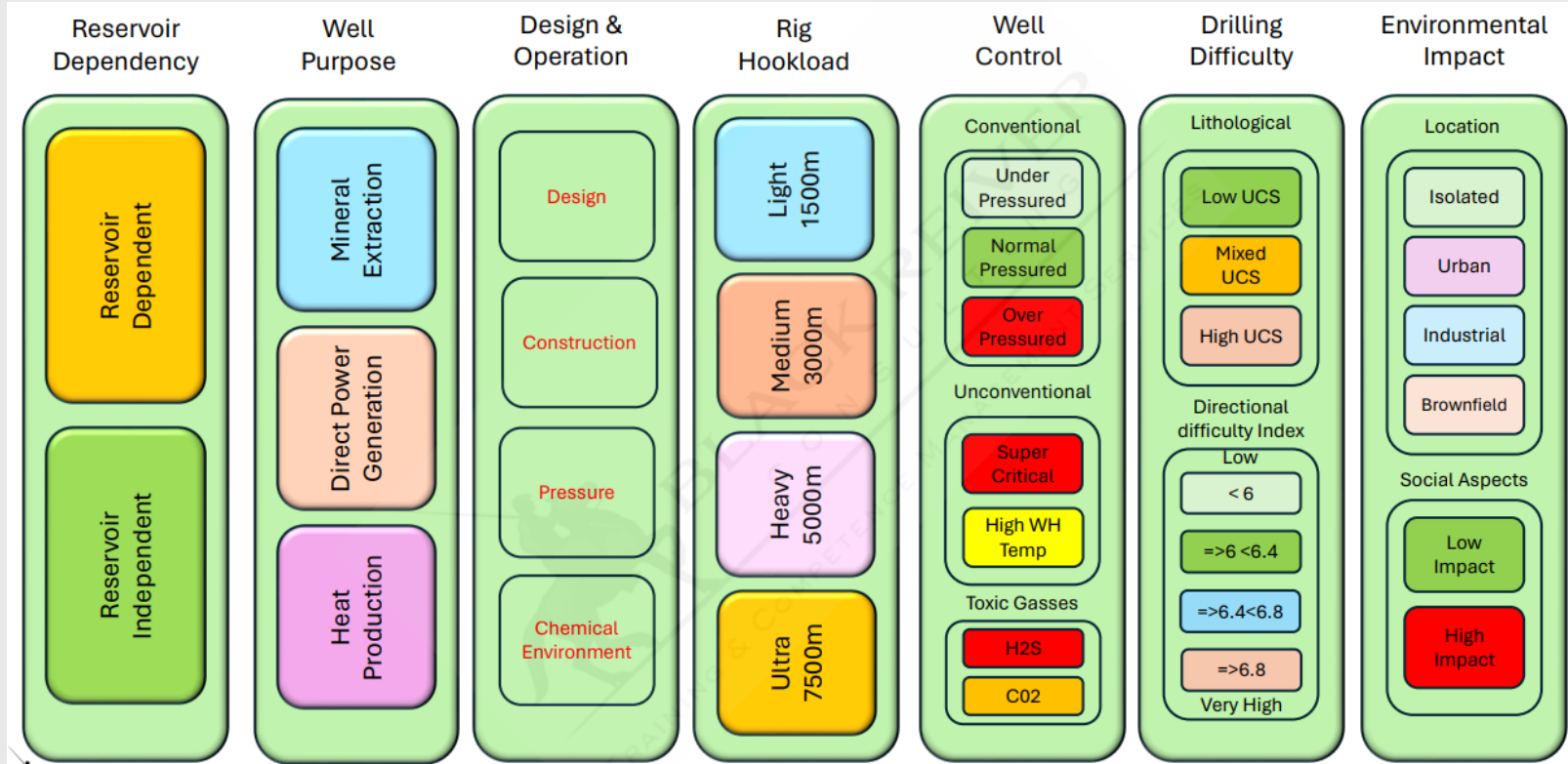
Other Conferences

- Budapest Geothermal Energy Summit 2024 – September 20th 2024
 - Meeting held with organizers 05/03/24
- IADC Geothermal Conference – Discussion
 - 98% to take place March 2025 – Vienna
 - Conference team to be pulled together for abstracts etc
 - Venues being screened

IADC Geothermal Well Classification

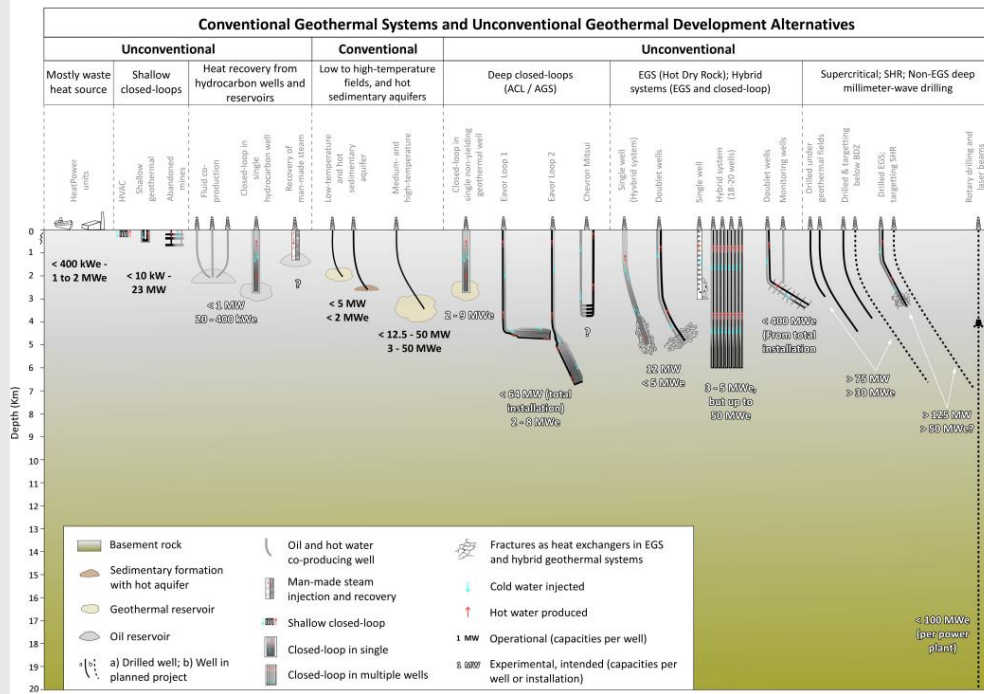
Provide an international coding system for **geothermal well construction** that reflects the practicalities of “putting a hole in the ground”, the risks associated with drilling operations, and the long-term operation of the well.

IADC Geothermal Well Classification



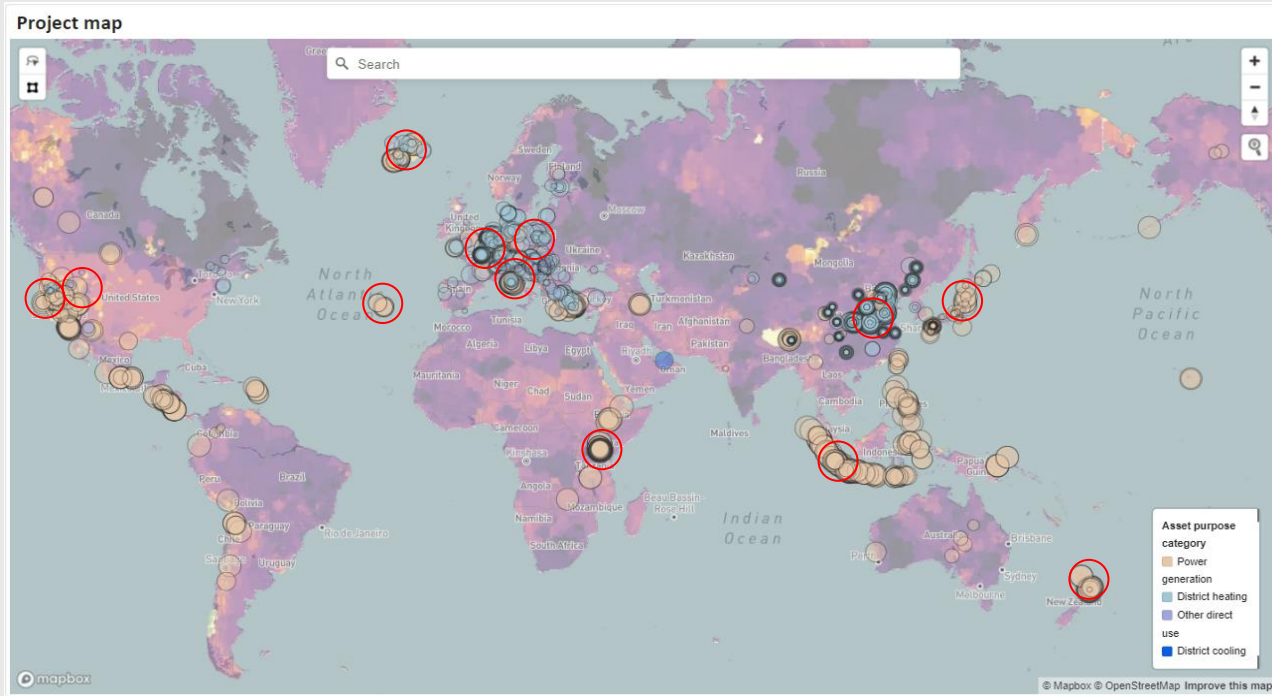
IADC Geothermal Well Classification

- Alignment with latest publication? <https://www.scirp.org/journal/paperinformation?paperid=131201>



IADC Geothermal Well Classification

- Classification to be tested against prominent areas/types of wells



1. California – Geysers
2. Nevada – Fervo?
3. Azures
4. Iceland
5. France, Paris – Dogger
6. France, Upper Rhine Graben
7. Italy
8. Germany – Eavor Loop
9. Kenya
10. China
11. Indonesia
12. Japan
13. New Zealand
14. ...

Proposed Way Forward

- Aim to define the first draft of classification in Q1 2024
- Q2 2024 refine classification, documentation and begin endorsement
- End Q3 deliver IADC Classification
- Q4 – Launch other section of IADC Geothermal Well Drilling Guideline

