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MINUTES

IADC Geothermal Committee Meeting, 9 April 2024

Present at the meeting were

Scott Farmer, H&P; Erwin Boering – Well Engineering Partners B.V., Kevin Gray, Black Reiver; Brett Dalgety, BP; Alexander Heger, OMV; Shaun Toralde, Weatherford; John Beswick, Marriott; Steven Pink, NOV; Daniel Drader, Iceland Drilling; Allen McIntosh, NOV; Toney Deer, Well Control School; Fredrik Meyer-Lampe, Odfjell Tech; Jesse Kwasnicia, Precision Drilling; Francisco Porturas, Archer Geo; Darren Mourre, TSC; Alex Ott, Odfjell Technology; Daria Ivakhnenko, Black Reiver; Lars Nydahl Jørgensen, IADC (minutes).

Scott went through the since last meeting and moderated the discussion as follows:

1. Minutes of March 2024 Meeting

There were no comments to the minutes.

2. Introduction of new members

New members joining the committee were Erwin Boering – Well Engineering Partners B.V., Zander McDougall – Oilstates, Alex Ott – Odfjell Technology and Brett Dalgety – BP.

3. IADC Geothermal Drilling Conference & Exhibition

- The conference will take place 25-26 March 2025 in Vienna. OMV is the main sponsor and have been very helpful in this early phase. A venue has been selected and will be announced shortly.
- There was some discussion about the timing of the conference as it will take place only one month after the Offenburg Conference, which is a main geothermal conference. However, in view of the fact that IADC is a global organization it will be difficult to find any really "dry spots" in the calendar. The first year will likely tell us if the timing is problematic.
- At this point, 9 individuals have volunteered to join the conference programme committee. Based on experience from other conference planning bodies in IADC, it would be preferable to have at least 15. Members of the Geothermal Committee were encouraged to join the conference programme committee.
- Both Erwin Boering and Francisco Porturas volunteered to join the programme committee.
- General marketing of the conference will commence shortly and a call for abstracts will be sent out when the programme committee has agreed on the main themes for the conference.



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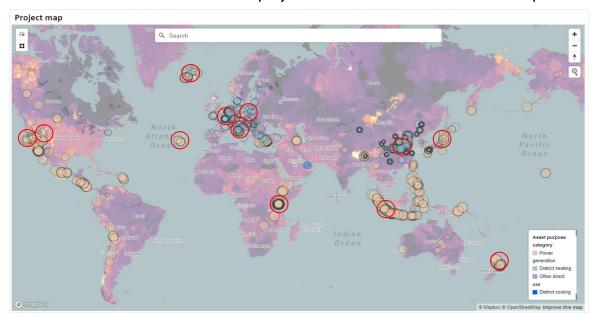
4. IADC Geothermal Well Classification

Scott went through the structure of the well classification. Whereas there had been little progress made in the past month, there was progress for reflection in a number of areas.

Scott had discussed the Environmental Class element with Erik from Innargi. The outcome is still to be formalised but will be incorporated into the overall classification.

There was agreement that it would be a good idea to aim for another session in line with the one held in Pau. This session may be virtual or in person and should be held in the not-too-distant future.

Based on the Rystad map (see below) that Scott had sent out prior to the meeting, there was a discussion about the analysis that will be carried out to check that existing well types will in fact fit into the classification. On this basis, members were invited to contribute observations from the areas that they may be familiar with. In particular, well schematics and details for different projects around the world would be helpful.



The plans for the near future would be:

- 1. First draft of classification in Q2 2024. At this point, an early survey should be made among member companies to establish whether at this stage there is agreement about the high-level classification.
- 2. In the course of Q2, the classification shall be refined and documented.
- 3. The next step is to receive endorsement from available experts and not least from other trade organisations.
- 4. Towards the end Q3, a final IADC Geothermal Wells Classification shall be ready.
- 5. In Q4 this classification shall be adapted, so that it can be the first element in the IADC Geothermal Well Drilling Guideline.

With regard to point 3 above, the importance of building consensus among IADC members and with stakeholders outside IADC was discussed and agreed. We wish to



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produce a document that can have universal application in the geothermal industry and with the relevant regulators. This may take more time than we would have preferred, but it is of utmost importance.

Kevin suggested that we should work on a statement on behalf of IADC, emphasising the importance of attractive fiscal terms and possibly the need for tax incentives in this transition period when many drilling contractors have to refit their rigs for the purpose of geothermal drilling. This could then be used in discussions with regulators, the political environment and the press. As this was to some extent covered by the committee's plans for engagement with supranational bodies, it was agreed that our plans in this regard should be revisited.

Toney brought up the subject of well control and the extent to which this differs in geothermal wells compared to oil and gas wells. It was agreed that well control should be covered in the Guideline and that well control training for geothermal should be considered as an element in IADC's portfolio.

John inquired whether anybody was aware of an inventory of geothermal wells spudded. It will probably be impossible to get an overview with 100% coverage. However, several commercially available sources were mentioned, among which the Rystad source from which also the map above had been derived.

5. AOB

There being no further business, the meeting was adjourned.

/ Lars Nydahl Jørgensen



Geothermal Committee General Meeting – 09/04/24



Agenda

- Validation of MoM of the previous meeting
- New Members
- IADC Geothermal Drilling Conference & Exhibition
- IADC Well Classification
- AOB



New Members

- Erwin Boering Well Engineering Partners B.V.
- Zander McDougall Oilstates
- Alex Ott Odfjell Technology

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IADC Geothermal Drilling Conference & Exhibition

- 25-26 March 2025 in Vienna, sponsored by OMV
- E-mail sent to prospect program committee members (26/03/24)
- Call for abstracts to be released + visuals in coming weeks



Other Conferences

- Celle Drilling 17-18 September.
- Budapest Geothermal Energy Summit 20 September.



IADC Geothermal Well Classification

- No significant progress was made in March
- Meeting held with Innargi for Environment classification (to be formalized)
- Aim for another session (virtual or in person in April TBC)
- Call on members to share well schematics and details for different projects around the world.



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
- France, Upper Rhine Graben
- 7. Italy
- 8. Germany Eavor Loop
- 9. Kenya
- 10. China
- 11. Indonesia
- 12. Japan
- 13. New Zealand
- 14. ...

Rystad Energy - Client Portal



Proposed Way Forward

• Aim to define the first draft of classification in Q1 2024



- Q2 2024 refine classification, documentation and begin endorsement Ongoing
- End Q3 deliver IADC Classification
- Q4 Launch other section of IADC Geothermal Well Drilling Guideline

