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Ortenauhalle Kongress 1  
Tiefe Geothermie

Friday, 27 February 2026, 1.50 pm  
Ortenauhalle Congress 1  
Deep geothermal energy



## **A more efficient design for closed loop geothermal ranging**

*Ein effizienteres Design für geschlossene geothermische Messungen*

**Sean Hinke**  
**Halliburton**

With the geothermal space seeing renewed interest in the desire to reduce our carbon footprint globally, new and refreshed methods to target this energy stream are being explored. One refreshed method seeing much interest globally due to its ability to be installed essentially anywhere temperatures can be found is Advanced Geothermal Systems or more colloquially known as Closed Loop Geothermal.

Amongst the typical geothermal drilling challenges such as high temperatures, high vibration in hard and abrasive rocks and significant losses drilling through naturally fractured reservoir. Closed Loop also requires incredibly precise wellbore placement to ensure two or, more wellbores can physically connect to create a continuous fluid conduit.

A critical technology to deliver these well types which typically is only needed for localized or specialized applications is Magnetic Ranging. This presentation and paper will explore different well types that have been explored within the closed loop geothermal space, the current technology landscape of magnetic ranging technologies, which current technologies are most suitable for closed loop geothermal, unique challenges to execute Closed Loop geothermal projects and the technical hurdles to tailor Magnetic Ranging technologies to overcome these challenges.

The authors will also introduce a new technology that has been developed to address these unique challenges to improve the operational efficiency while drilling closed loop geothermal wellbores.

Through this abstract and subsequent paper, the authors hope to give the readers a better understanding of what is required to achieve these types of projects, the limitations that need to be considered in the planning stages and what the current technology landscape entails.