

Geothermal

Drilling Consultancy

Iceland GeoSurvey has extensive experience assessing all surveys and results from previous drilling to advise the customer on drilling location and drilling program.



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Iceland GeoSurvey can provide drilling consultant, well site geologist, logging expert and tools for down-hole measurements during drilling. In addition to the standard geothermal drilling consultancy and well site support, Iceland GeoSurvey provides expertise in overcoming drilling problems.

The findings are presented in a comprehensive Drilling Report. Various tests are made at the end of drilling to assess the outcome. All information is presented in such a way that it can later be used for integrated studies and conceptual modeling.

Iceland GeoSurvey offers full scale drilling services on the following items:

▶ **Selection of well site and description of the well target**

This is based on various surface exploration data.

▶ **Design of drilling programs**

Advice is provided on the most appropriate drilling technology to be applied and ways to overcome drilling problems. Description of the expected drilling conditions is provided including specification on the casing program, drilling fluids, cementing, measurements to be carried out etc.

▶ **Mud logging and onsite geological consulting**

Well site geologists carry out binocular and microscopic analysis of the cuttings and identify the alteration minerals. The downhole stratification, intrusions, geothermal alteration and geological relations of aquifers are mapped. Lithological- and alteration logs are prepared together with a plot of drilling information from the rig. First analyses and interpretation of these data are carried out on site for preliminary estimation on formation temperature and structure. Daily reports are issued.

▶ **Well logging and well orientation measurements**

Iceland GeoSurvey has a full line of geophysical logging instruments and the trucks and tools to deploy them. These logs do not only give information on the permeable structures and general conditions in the well but are also used in the elucidation of the stratigraphy, alteration, and intrusion history of the reservoir. These tools are run into the hole at casing points to log each section of the well as it is drilled, taking advantage of the temporary cooling of the well by the drilling mud. Additional measurements are made to solve drilling problems. Gyroscopic surveys that are carried out to steer the directional drilling and later to confirm the well track are a special class of measurements.

▶ **Well injection test and stimulation**

At the end of the drilling, it is recommended to perform a short injection test to find out how permeable the openings in the well are. Iceland GeoSurvey offers consulting on the design of this injection test as well as recommendations on how to carry out a stimulation program if necessary. That could for example include thermal cracking, hydrofracturing and acidising .

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