



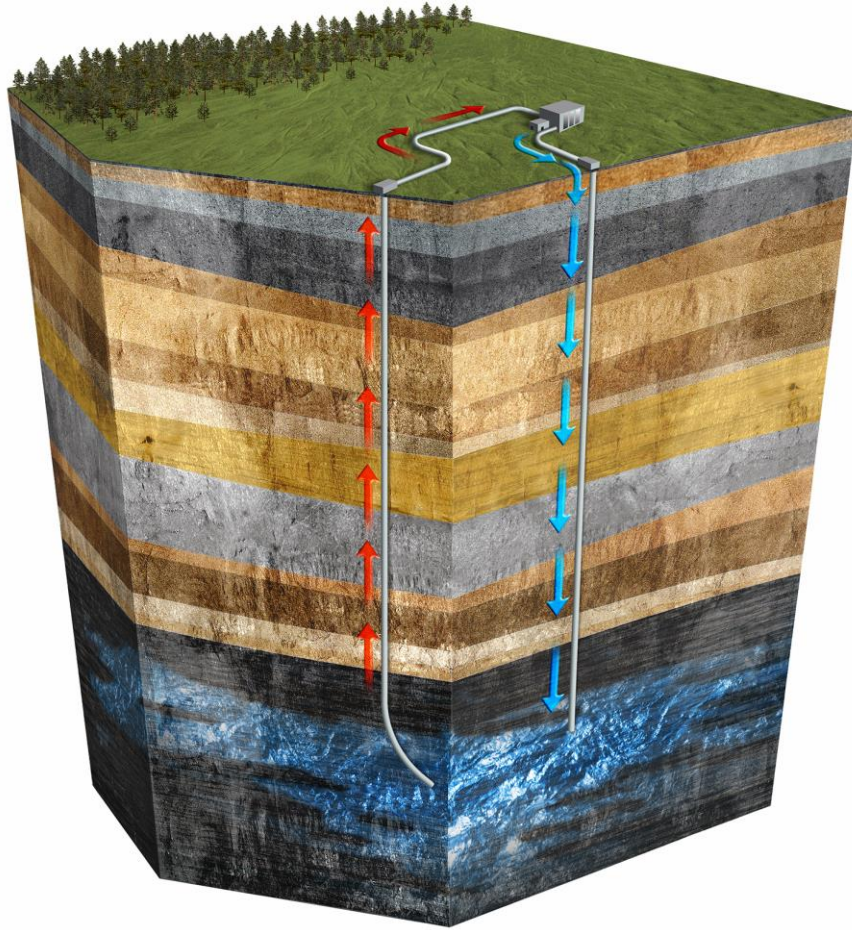
St1 Deep Heat Oy
First deep geothermal project in Scandinavia
Achievements today
Geoenergidagen 2018

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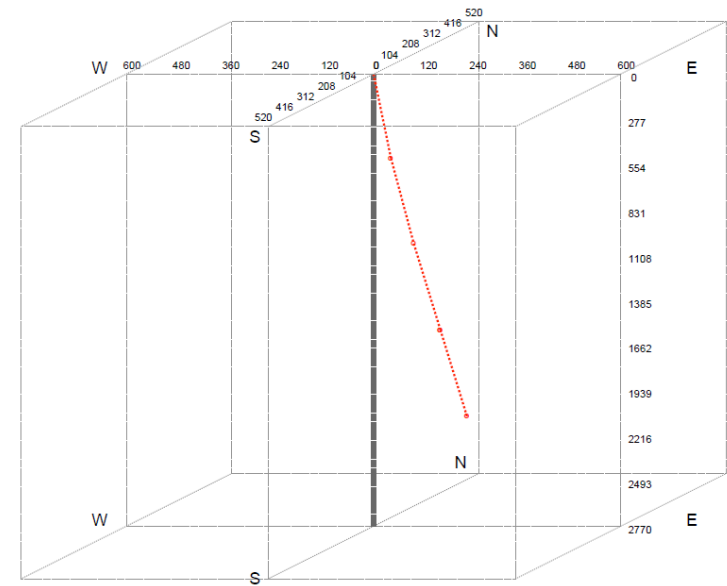
St1 Deep Heat project: plant concept



- Concept is basically an EGS plant with the exception that it produces only district heat
 - This gives better efficiency for the plant and allows more electricity to be used in pumping
- Finnish district heating networks are all designed with maximum temperature 120 °C and normal maximal operating temperature is around 115 °C.
 - Summer time minimum temperature is 75 °C
 - This causes the need to drill as far down as 6400 m in Southern Finland

What has been done? Exploration well

- Otaniemi site exploration drilling was done during summer 2015 with NQ2 coring drill.
- Exploration well was ready 11.7.2015 at the MVD 1963 m and TD 2015 m

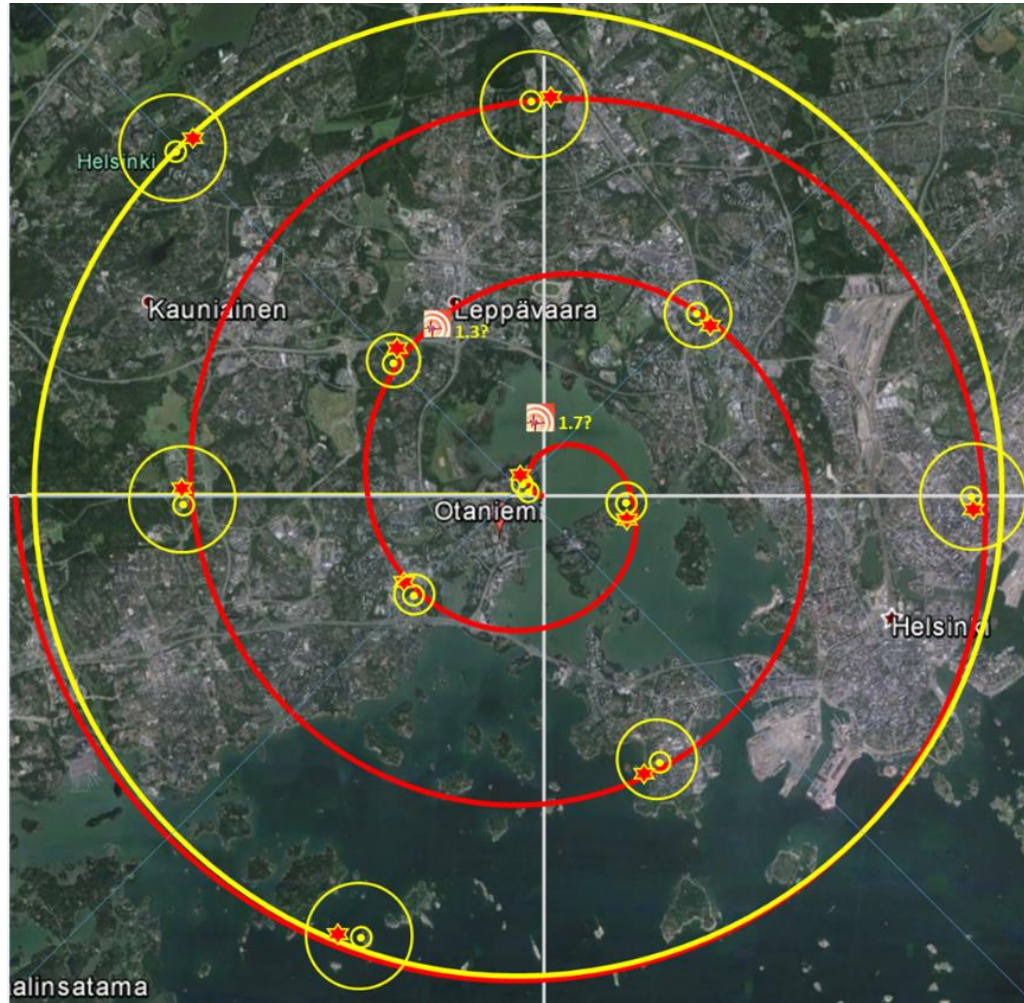


What has been done? Site and Drilling

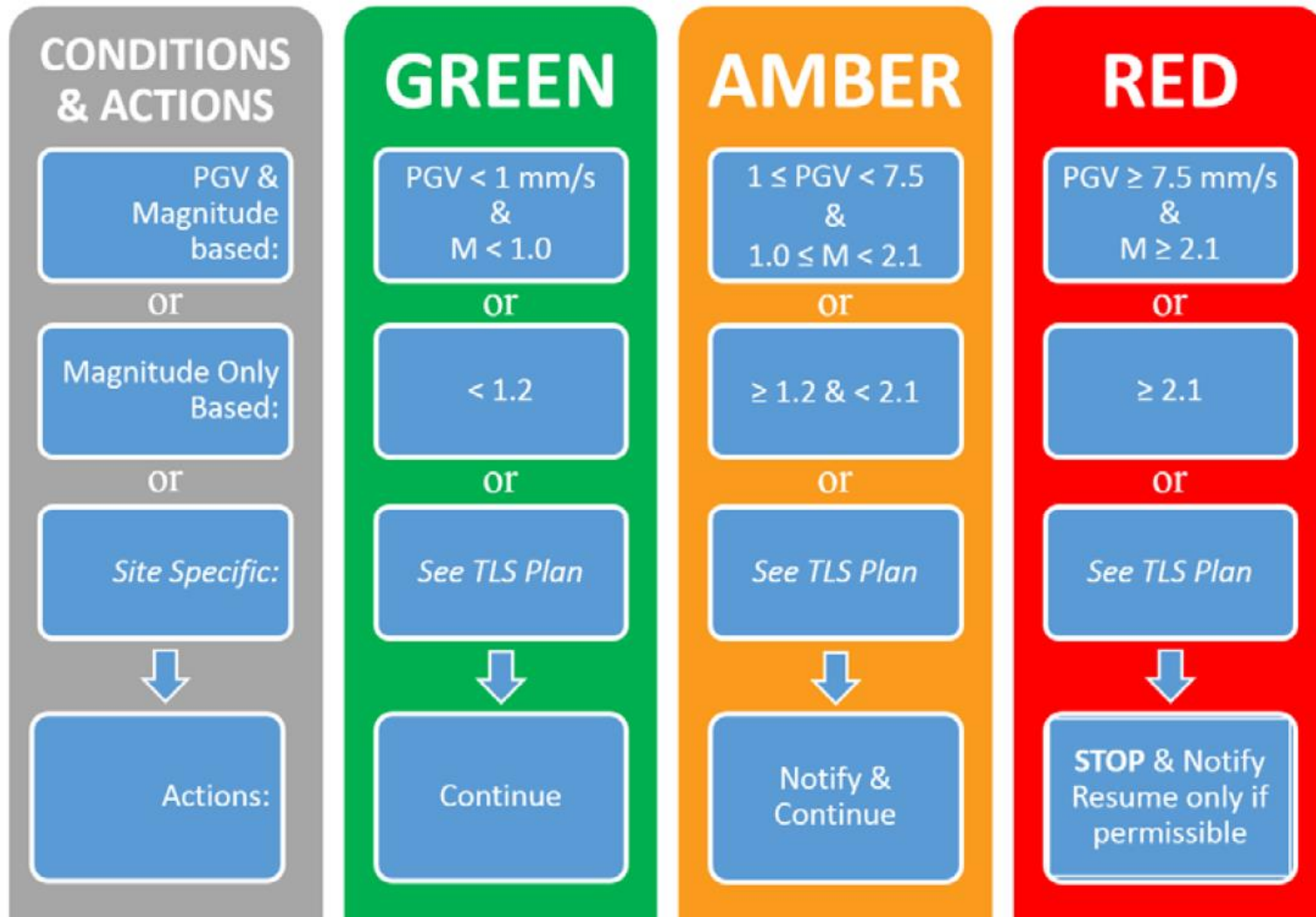


What has been done?

Seismic network

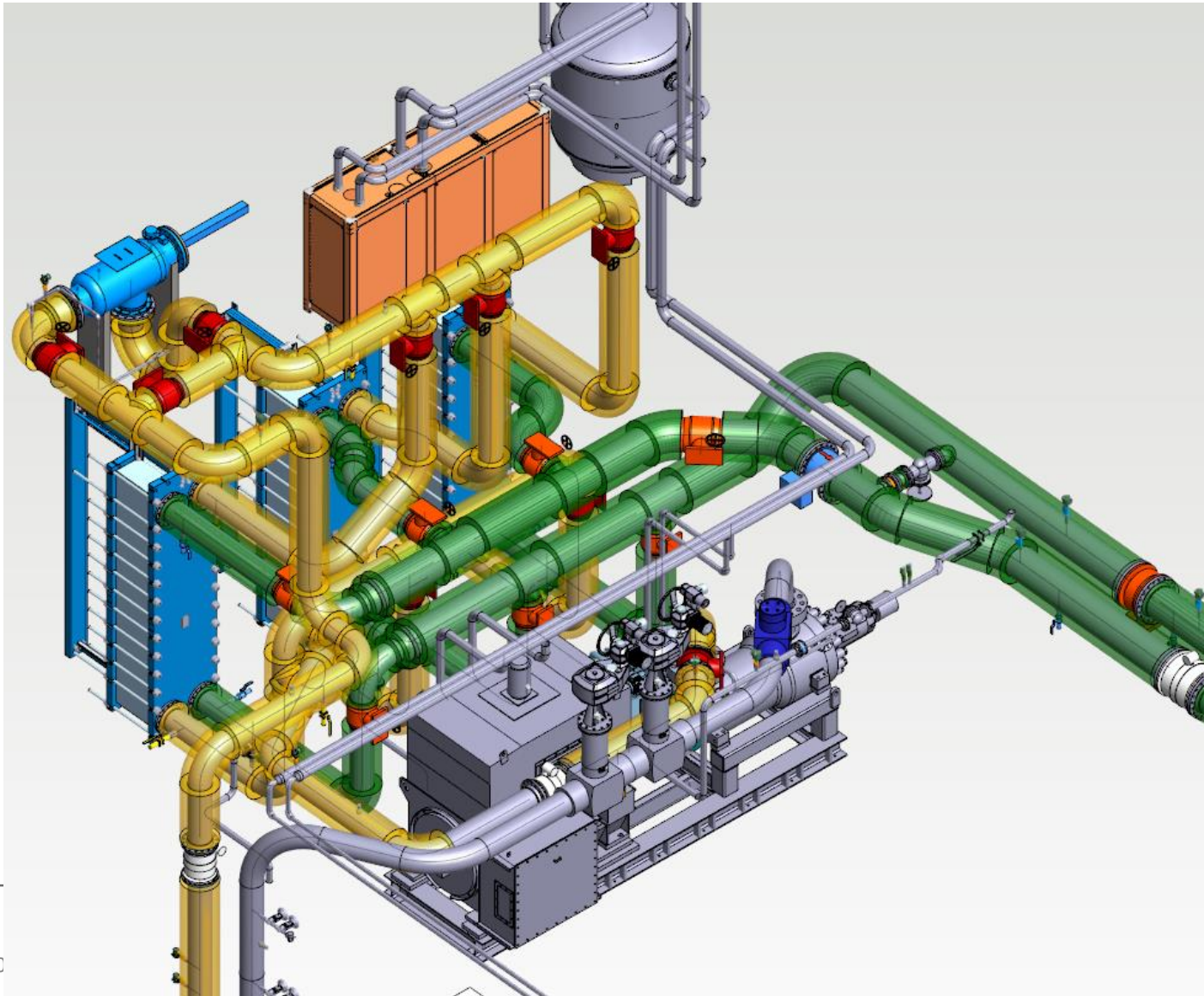


Traffic Light System



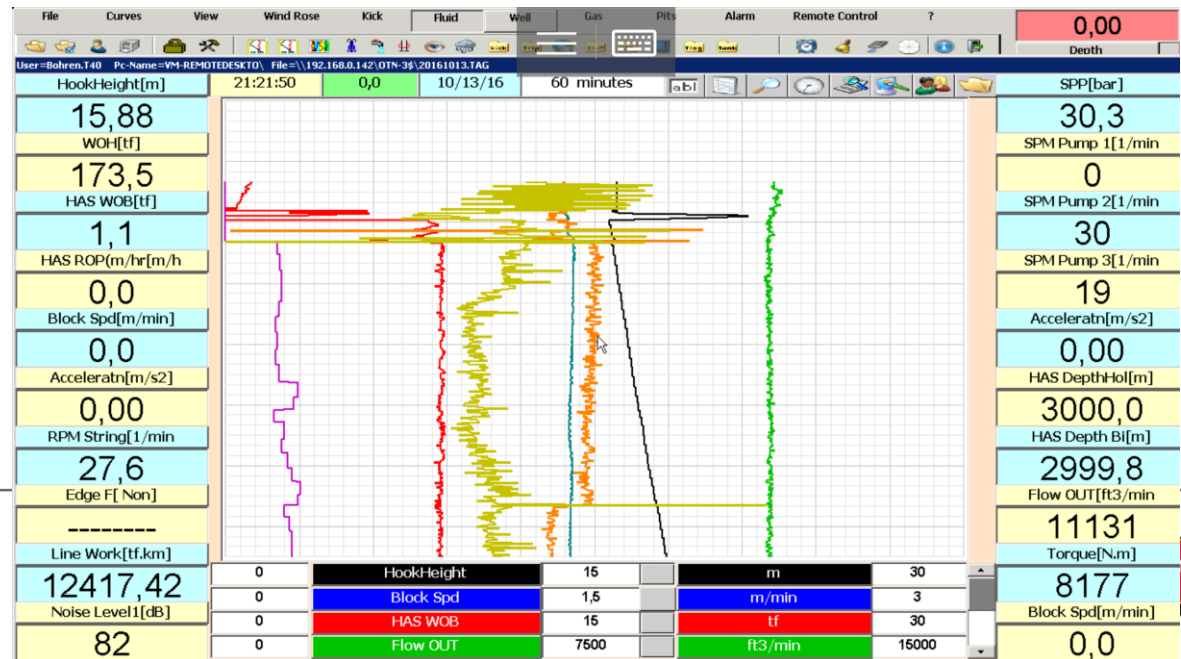
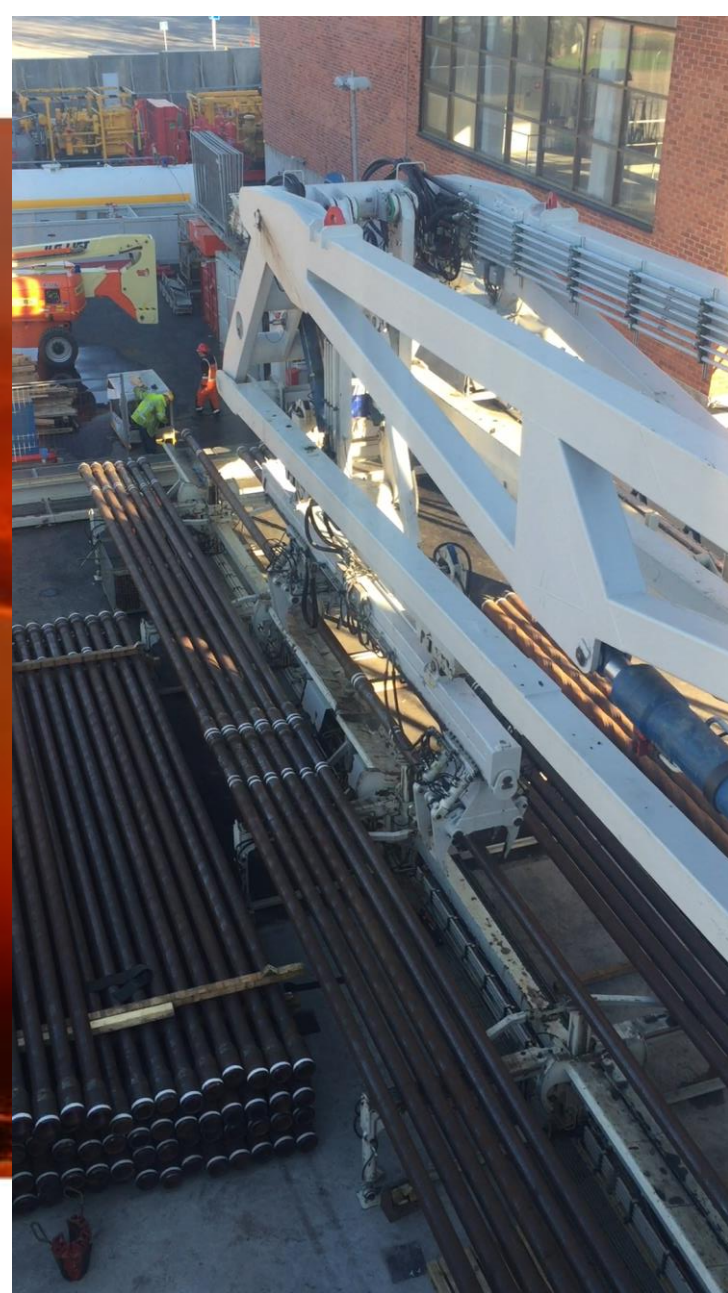
What has been done?

Plant design



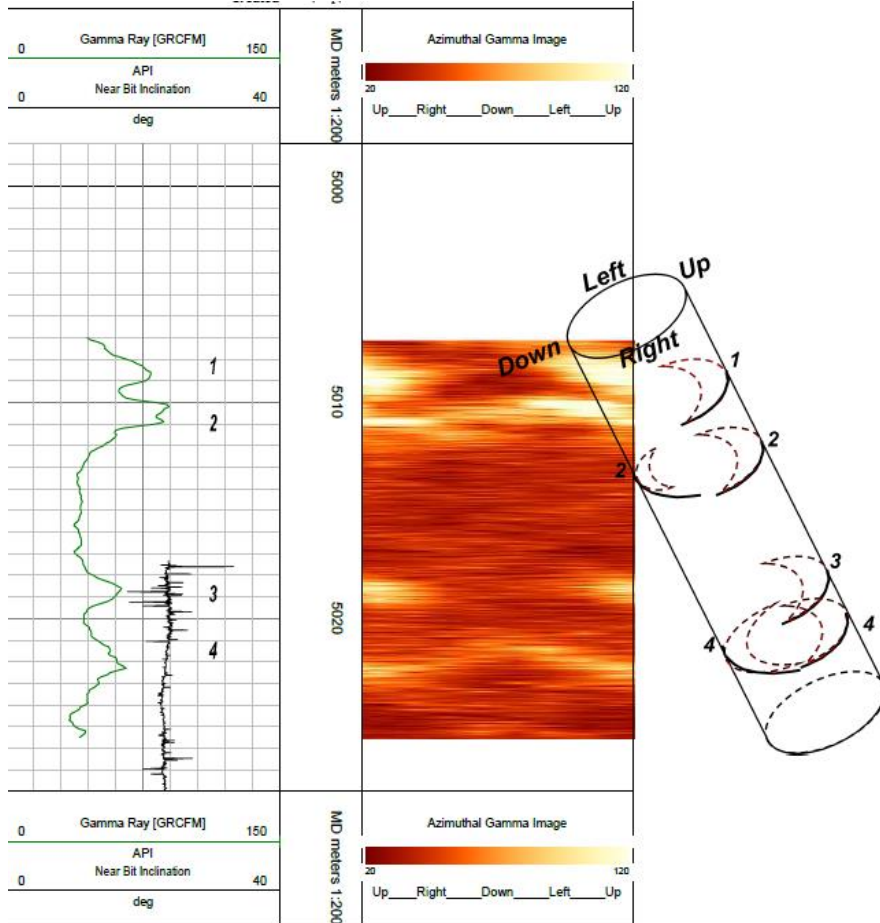
Project status

- Both production wells have now been drilled to more than half way down with air hammer (DTH drilling technique)
- OTA-2 is 3,3km deep and OTA-3 6,4 km.
- The deeper well was stimulated succesfully between June-July this summer



What has been learned?

How to stabilize a borehole more than 5km deep



What has been learned?

How to create earthquakes big enough to see where the water goes
BUT small enough not to disturb neighbors

