

SHORT COURSE 5: Geothermal Drilling: Standards, Strategies and Reduction of Risks and Costs

Length: 2 days
Location: Reykjavik University
Dates: October 23-24, 2021
Convenor: *Eng. Hagen Hole*, Geothermal Consultants NZ Ltd. (GCNZL)
Other main lecturer: *Eng. Ralph Winmill*, Senior Drilling Engineer, Contact Energy, NZ
Additional lecturers: In addition, *international lecturers (US, Iceland)* are expected to join the lecturing team through panel discussions. The details will be announced later.

Scope of the course

The short course will introduce geothermal drilling to the participants. What makes geothermal drilling different. The need for standards, and the evolution of the NZ drilling standards will be discussed. Code of Practice, and geothermal well design. Risks and costs will be introduced – in decision making and during drilling. Contract types will be discussed and cost management. Project planning aimed at reduction of risk and cost. Vertical or directional wells.

Course outline:

October 23

Introduction	08:00-09:00	Registration and coffee
	09:00-10:00	Aim of SC, outline and organization, introduction – HH
	10:00-10:30	<i>Coffee/tea break</i>
	10:30-11:30	A short history of drilling; the geothermal environment, what makes geothermal drilling different to oil & gas drilling - HH
	11:30-12:30	The need for standards and standard operating procedures; the evolution of the NZ code of practice - a background - HH
	12:30-13:30	<i>Lunch</i>
	Geotherm. drilling standards, well design	13:30-14:30
14:30-15:30		Geothermal well design - the well design process – RW
15:30-16:00		<i>Coffee/Tea break</i>
16:00-16:45		Geothermal well design according to code of practice – RW
16:45-17:30		Casing design checks - RW

October 24

Risks and costs	09:00-10:30	Res. science, design constrains, consents, finance, timing – HH
	10:30-11:00	<i>Coffee/tea break</i>
	11:00-11:45	Materials, drilling, productivity and injectivity – RW
	11:45-12:30	Funding sources, contract types, cost tracking and man. – HH
	12:30-13:30	<i>Lunch</i>
Strategy	13:30-14:30	Project planning, reducing risk & cost, integration, civil works Design, well design material, personnel, tenders – RW
	14:30-15:30	Proj.pl. cont. vertical/direct. wells, well pads, direct. drill – HH
	15:30-16:00	<i>Coffee/Tea break</i>
	16:00-17:00	Panel discussion – Qs & As
	17:00-18:00	Closing ceremony and presentation of certificate.

Both on-site and virtual participation possible.