



**Integrated Drilling Solutions
for
Geothermal Projects**



Overview



- **Standard Day rate drilling contracts**
- **Services involved in drilling operations**
- **Materials needed in drilling operations**
- **What is Integrated drilling solutions - benefits**
- **Integrated drilling service in Dominica**

Standard dayrate-drilling contracts

The responsibility of the Drilling Contractor is limited to the safe and efficient operations of his drilling rig and crew.

Drilling rig with crew 

Includes for example;







- ✓ BOP's 
- ✓ Drill string 
- ✓ Topdrive 
- ✓ Solids Control Equipment 
- ✓ Mud cooler (specially for geothermal projects) 

The handling of all other related services and material procurement **are the obligation of the Operator**,
.....who normally has a big staff of experienced drilling experts for planning and execution. (oil & gas producers like Shell, Exxon etc.)

Services involved in drilling operations



CONTRACTED SERVICE




1. Rig site preparation 
2. Cementation equipment and services 
3. Casing Running Services 
4. Directional Drilling Services 
5. Airated drilling services 
6. Mud Logging Services*
7. Stimulation Services – Acidizing
8. Electric Borehole Logging*
9. Production Tests (Pump, Cooling Units, Data Recording)* 

* Not directly involved in drilling operation

Materials needed in drilling operations



MATERIAL PROCUREMENT

- Wellhead Equipment 
- Mud Materials, Bentonite and additives
- Drilling Bits 
- Tubulars – Casing & Tubing, incl. Centralizers and Float Equipment 
- Liner Hanger Equipment
- Cement

What is Integrated Drilling Solution



- Integrated Drilling Services is a new concept in which all services and equipment and even in some cases material procurement are integrated under one contract. This model of a contract is technically and economically feasible for the geothermal concession owners who usually lack all infrastructures running a complicated drilling project. Instead of making contracts with 7-9 service providers, you can do with only 2-3 contracts. Project management becomes simpler and therefore more efficient.
- Further this can lead to improved well design, better selection of rig equipment and technology selection. Based on terms and conditions, the experienced Drilling Company are more responsible for problem solving, better drilling systems for different well sections, and good operational coordination which usually leads to drilling optimization and cost efficiency.

For Operators of drilling projects not having their own infrastructure and expertise for handling all this procurement

.....one option is to source these services out to a professional
Drilling Contractor.

Integrated drilling contact - Benefits

- Simple process
- Reduced risk of onsite difficulties.
- Reduced risk of delays in the drilling time plan
- Increased quality of communication.
- Higher quality of work.
- Reduced cost (less overhead).
- Easier monitoring of processes.

Example of integrated services offered in Dominica

Drilling Rig



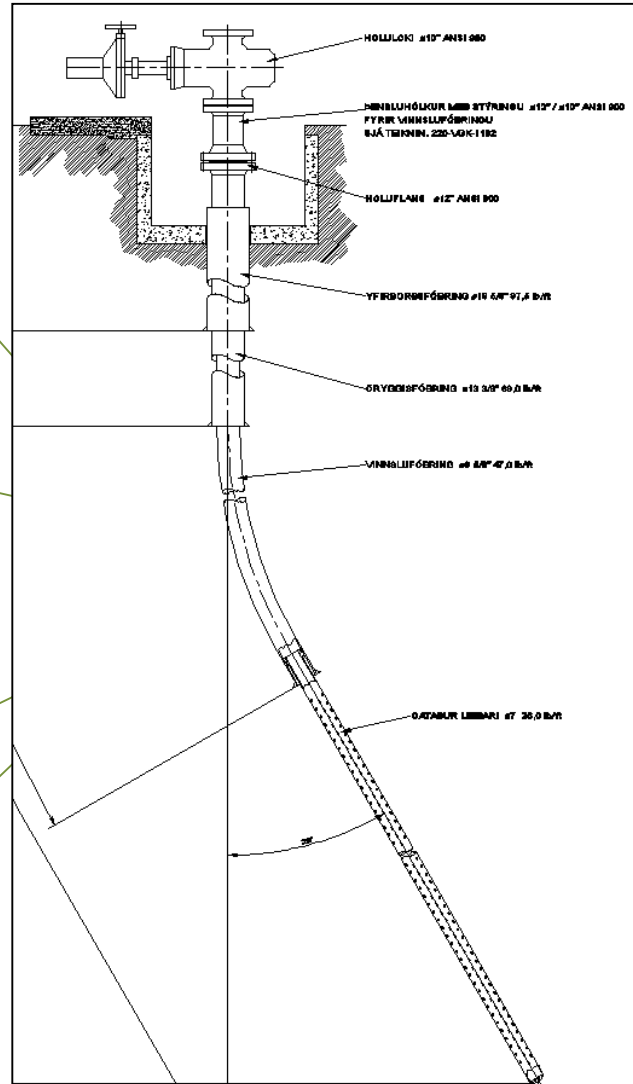
Casing Service



Cementing Service



Mud logging



Wellhead



Mud material

Casing material



Cementing material

Directional Drilling

**Down hole logging
service in cooperation
with ISOR in Iceland**



Drilling rig in Dominica 2012



Iceland Drilling rig, Sleipnir G-102



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for
Geothermal Projects