

FINISH ON TIME &
ON BUDGET WITH

SONIC DRILLING



BENEFITS OF SONIC DRILLING

CONTINUOUS CORE

Provides a nearly in-situ continuous core 4" to 10" diameter.

REDUCED WASTE

Up to 80% less drill cuttings than conventional drilling methods, saving time and money on IDW management.

FAST DRILLING

2 to 4 times faster than conventional drill methods in various formations, allowing you to achieve your project benchmarks on time.

UNLIKELY REFUSAL

Cores through cobbles, boulders, debris, slag and dense clays/tills.

SONIC OUTER CASINGS

Multiple temporary isolation casing options include 6" to 12" outer diameter to seal off potentially contaminated zones and to allow for discrete water sampling, testing and well construction.

STRAIGHT DRILLING

Accuracy and verticality: $\leq 1\%$ deviation within 100', low deviation for angled applications.

FLEXIBLE

Various drilling platforms to drill unconsolidated and consolidated materials. Easily converts to conventional wireline coring and air rotary if desired.

SONIC TECHNOLOGY

HOW IT WORKS

Sonic drilling is accomplished by creating high-frequency resonant energy using (2) counter rotating weights within the sonic oscillator located on top of the drill string.

This oscillator is mounted on a pneumatic isolation system that protects the drill rig from sonic vibration and preferentially transmits energy downhole to a core barrel or an outer over-ride casing. This resonant energy maximizes bit face energy as well as substantially reduces borehole friction adjacent the entire drill string resulting in faster penetration rates.

The drill rig operator can adjust the frequency of the sonic oscillator in order to maximize production rates in various formations including clays, sands, gravels, boulders, fill materials, and bedrock.



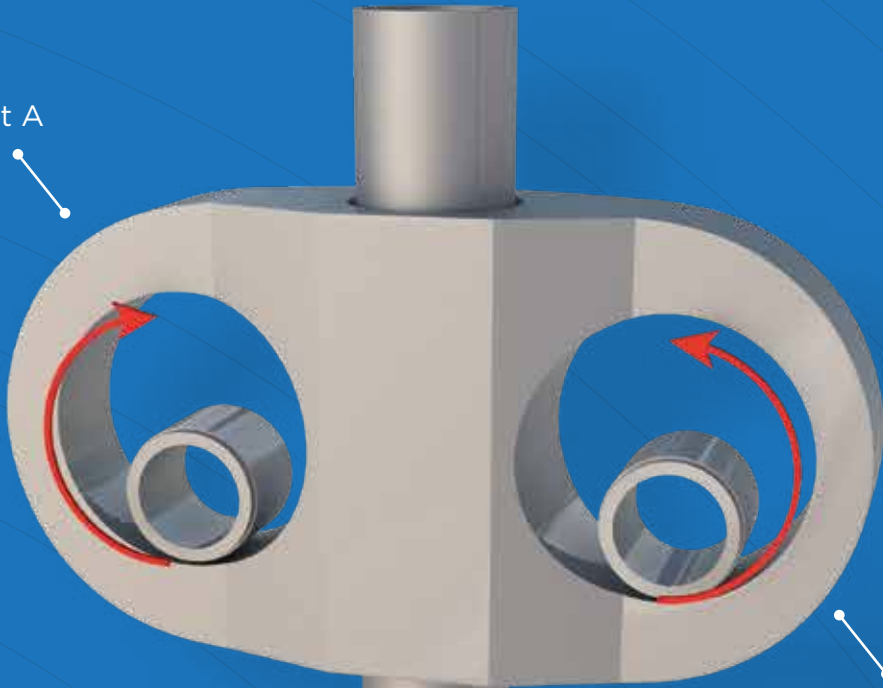
Drilling output: sonic core sample

SONIC DRILLING CAPABILITIES

3-12 inch
Borehole diameter range

700' or more
Possible drilling depths

Rotating Element A
Rotates clockwise



Rotating Element B
Rotates counter-clockwise



High frequency
wavelengths
travel along axis
of drill pipe

Drill Pipe



Rotating and vibrating drill bit
End of drill pipe

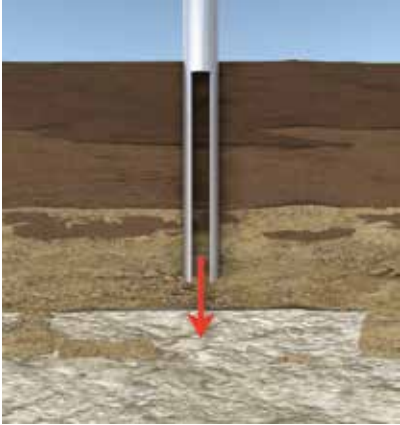


TYPICAL PROCEDURE

SONIC DRILLING

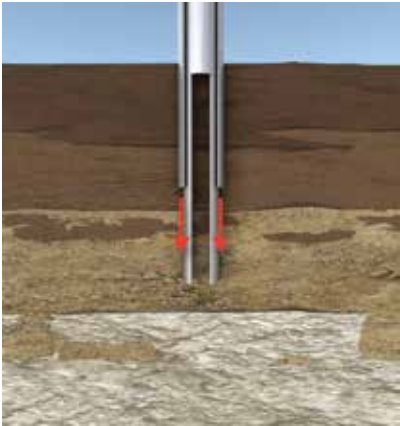
1

Drill the sonic core barrel 10' into the undisturbed formation.



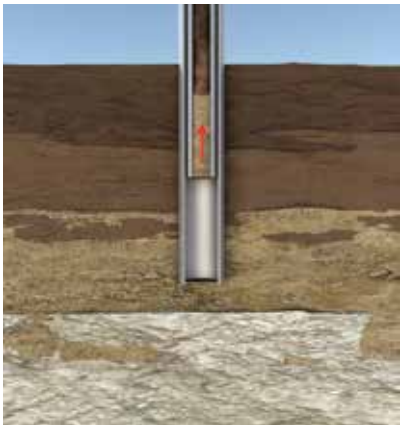
2

Drill the sonic outer casing over the core barrel to 10' depth.



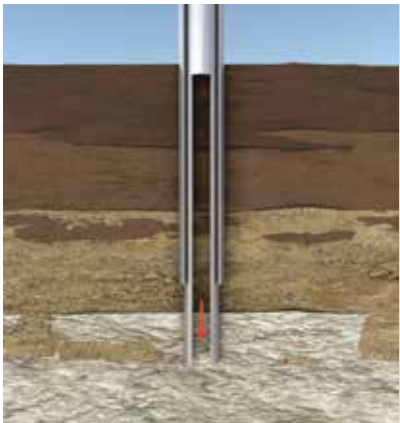
3

Extract the sonic core barrel to the surface for sample extrusion.



4

Repeat this process to desired depth.





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