ASL
Avalon Sciences Ltd
LEADERS IN VSP TECHNOLOGY

AST-1 Advanced SPARKER Tool

Main Features

Peak Power 1000 Joules/Shot

Bandwidth 10 - 4000Hz

Omni Directional

3” (76.2mm) Diameter

Automatic or Triggered Firing

150°C Temperature Rating

10,000 PSI Pressure Rating

Monocable or 7 conductor wireline

Deployed with GeochainTM System or standalone operation

Repeatable energy pulse

Firing T/B transmitted to surface

Operation in any type of conductive well fluid

Built in safety protection

General

The Advanced Sparker Tool (AST) has been developed to provide a high energy and a repeatable down hole seismic source. Primary use of the AST would be with seismic sensors deployed in an adjacent well or wells to provide cross well imaging or sensor orientation. When the AST is deployed with the GeochainTM system it will be possible to provide single well imaging. With a low power requirement of a 100W and high energy output of 1000J the AST is a versatile downhole seismic source which can be deployed in various configurations.

AST Firing head being lowered into well for cross well operation, Devine Well, Texas 2011

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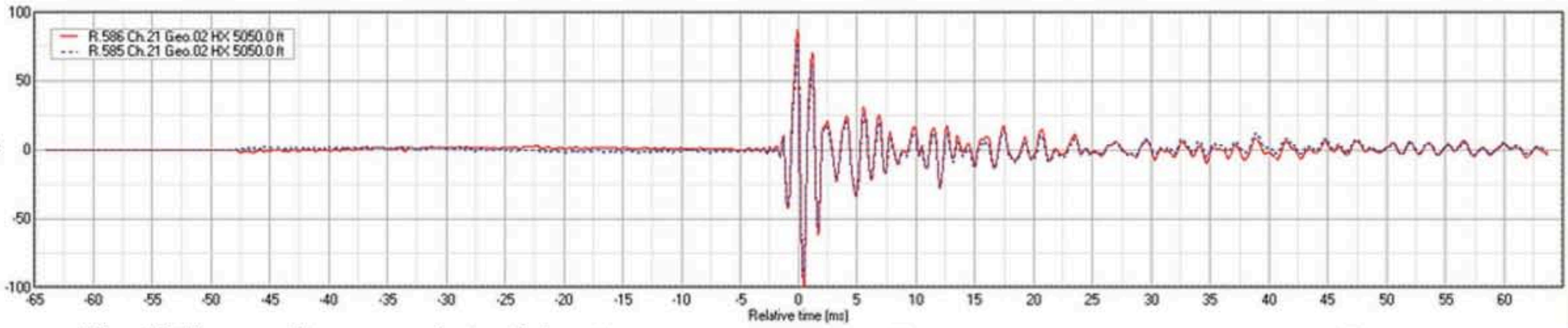
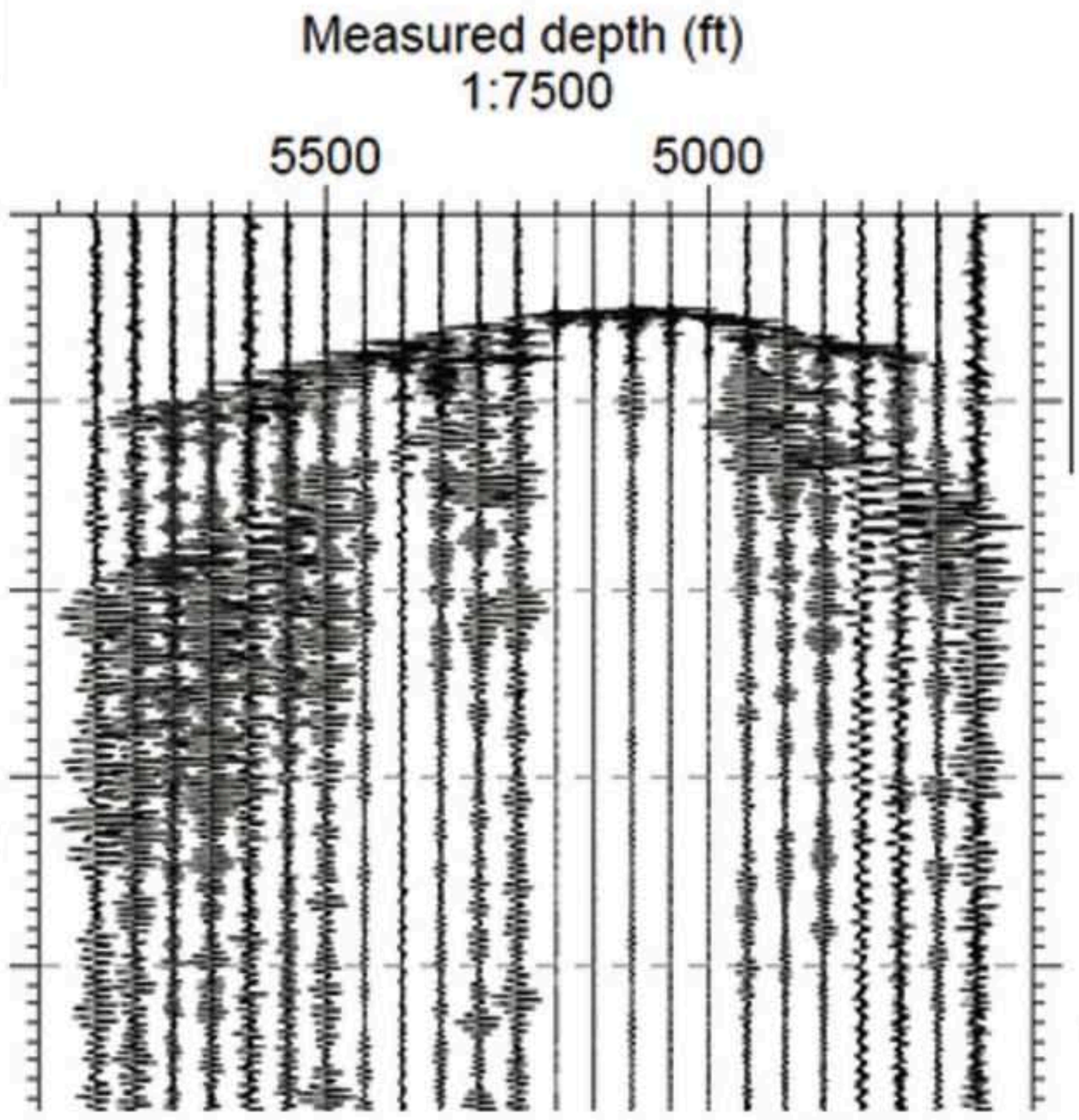
Two sparker signal traces showing good repeatabilty.



The AST has undergone substantial field trials and is now in full commercial operation in crosswell/reverse VSP surveys showing offset penetration up to 1500' at 1600Hz bandwidth.

Sparker Crosswell data from Texas, 2011 recorded by Geochain™



Specification

Power	1000 Joules/shot
Bandwidth	10-4000Hz
Power consumption	100 watts
Electrode life:	>5000 shots
Diameter:	3" (76mm)
Length:	29.9ft (9.1m)
Pressure:	10,000psi (700bar)
Temperature:	356°F (150°C)
Firing interval:	20 seconds
Wireline:	Mono or hepta

Functionality

To operate the Advanced Sparker Tool DC power is supplied to the high voltage power supply unit. The DC power can be supplied by the Geochain™ system, or if run independently, directly from the surface. The downhole HVPSU charges a bank of capacitors to a high voltage. When the critical voltage has been reached the energy is switched to the electrode via a gas discharge switch, generating a spark and creating a high energy output pulse. The unit can be programmed to fire at a constant rate, or it can be triggered remotley.

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