

Lithology	Carbonate shale
Play	Eagle Ford
Operator	BHP Billiton
Bottomhole temperature	322 degF [161 degC]
Bottomhole pressure	11,181 psi [77.09 MPa]
Max. perforating depth	19,855 ft [6,052 m]

Background

Approximately 35% of all gun failures are related to wiring or flooding. To improve the overall efficiency of multistage stimulation and perforating, BHP Billiton decided to deploy 402 Fractal* multistage stimulation perforating systems in the Eagle Ford and 65 in the Permian basin as a field test.

Technologies

- Fractal multistage stimulation perforating system
- Secure2* RF-safe electronic detonator
- S3106DS stimulation-optimized shaped charges

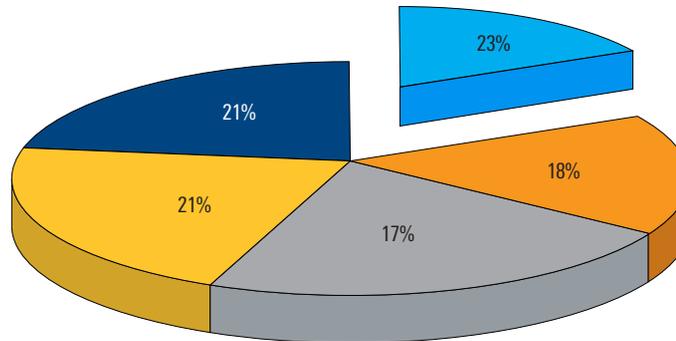
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BHP Billiton Deploys 467 Fractal System Guns with 99.1% Reliability

Fractal multistage stimulation perforating system provides unmatched safety and efficiency

Failures Encountered with Conventional Perforating Systems

- Hardware and seals
- Wiring
- Unknown or human errors
- Detonators and explosives
- Auxiliary and surface equipment



The Fractal system reduces the likelihood of misruns by up to 77% when compared with conventional systems. To address issues experienced by conventional perforating systems, the Fractal system features prewired guns to eliminate wiring connections and errors in the field. Full assembly in controlled conditions virtually eliminates the possibility of human error at the wellsite.

To mitigate wiring issues in the field, Schlumberger developed the Fractal system, which includes a perforating gun that is preassembled at the manufacturing center, thus reducing the number of electrical connections made manually on location by 85%. The unique modular plug-and-play design also eliminates the O-ring threaded port plug on each gun, minimizing the risk of flooding. The crews experienced a 50% faster turnaround compared with conventional gun systems, which allowed them to focus on other aspects of operational planning and execution, safety, and maintenance while achieving 99.1% reliability.