DRILLING PROJECTS

At Cathedral, we are constantly striving to improve our fleet of tools, from the EM/MWD (electromagenetic measurement while drilling) tools to the mud motors and tubulars that are used. We feel that by constantly improving and listening to our customers, we are able to provide the best possible service to each and every customer.

Underbalanced Drilling

Cathedral use three types of MWD tools to produce the standard survey requirements. In underbalanced drilling, conventional mud systems are not used because of formation damage and/or sensitive production zones. The application of underbalanced drilling minimizes these issues and increases production from the well. The EM/MWD tool does not require the use of drilling mud to transmit data to surface. Instead, it transmits data via low-frequency electromagnetic signals through the rock formations to surface gathering the proper survey data.

Cathedral has become one of the industry's leaders in underbalanced drilling because of the effectiveness and reliability of its EM/MWD tool and our performance motors. The underbalanced drilling environment is considered to be very harsh. Cathedral has identified the specific characteristics and tool performance requirements to be successful in this environment. Through innovative modifications to our tools, Cathedral has increased its reliability and performance in the underbalanced drilling market.

Re-Entry Drilling

Horizontal re-entry drilling is a very economical method of increasing the recovery from an existing well. By utilizing the existing vertical wellbore, the cost of drilling down to the "kick-off point" (point where the wellbore deviates towards the horizontal) is saved, and the existing surface facilities can be re-utilized. The efficiency of drilling horizontal re-entry wells increases dramatically as the depth of the horizontal target increases. The cost of drilling horizontal re-entries is approximately half the cost of drilling primary horizontal wells due to utilization of the existing vertical well, which decreases drilling time.

Relief Wells – Well Control

Using Cathedral's conventional directional drilling tools and Vector Magnetics Well Spot/Ranging Tools we are able to:

- Drill a relief well to control a blowout;
- Mill a window and re-enter casing after sidetracking around a fish or collapsed casing;
- Do subsurface re-entry and abandonment;
- Find and re-enter a deep casing stub;
- Intersect casing at multiple depths for remedial plugging;
- Avoid collision with nearby wells.

Horizontal, Short, Medium and Long Radius Wells

Using build rates from 4 degrees/30 meters to 90 degrees/30 meters, Cathedral has the ability to plan and drill each well according to our customers requirements. Many applications for horizontal wells require medium to long radius curves; however, on re-entry applications such as formation restrictive zones or kicking off below lost circulation areas, short radius curves are required. Cathedral's team of engineers is able to design bottom hole assemblies (BHAs) to accommodate high build rate applications and successfully drill wells requiring short radius curves.

Multi-Lateral Wells

Over the last several years, re-entry and multi-lateral well applications have become more prevalent in our industry. To maximize reservoir access, multi-leg horizontal wells are drilled from a single leg horizontal well to ensure proper drainage without the additional cost of building another surface location. With proper planning and the experience of our engineering and field staff, multi-lateral directional drilling applications have become reliable and repeatable.

Coal Bed Methane Wells

Coal Bed Methane, or CBM wells as they are commonly known, have different characteristics than standard horizontal wells. Drilling CBM wells requires experienced personnel, both in the field and at the planning stages, in order to have success. Casing placement and drilling assemblies and procedures are crucial elements in drilling CBM wells. Cathedral has been a leader in CBM drilling and brings to the table a highly experienced engineering and field staff to ensure cost effective drilling for each CBM well plan.