Halliburton Integrated Project Management enabled operator to accelerate field development by delivering 58 wells on turnkey basis

### OVERVIEW
To accelerate production of several fields in South Mexico, a Western Hemisphere operator turned to Halliburton. These fields have complex geology, high temperature and pressure, and depths up to 23,000 feet – increasing drilling and, ultimately, financial risk. Halliburton bid the project on a lump sum, turnkey basis and won a $684 million contract to drill 58 wells. Operating today with as many as ten rigs simultaneously, Halliburton has completed more than half the wells to date.

Without the additional resources Halliburton provided, the operator could have been forced to wait years to develop these resources. Performance improvements have also lowered actual average drilling time per well and placed Halliburton three percent ahead of schedule. The operator recognized this performance, gradually assigning more rigs and extending Halliburton’s contract – making it one of the world’s largest drilling and completion contracts.

### CHALLENGE | SOLUTION
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Complex geology slows drilling  
The geology in this region presented the biggest challenge. The operator battled high pressures, high temperatures, depths up to 23,000 feet and highly depleted zones. These conditions slow drilling and field development, and can result in wells that exceed budget, or in some cases, are not completed.  
Halliburton Integrated Project Management (IPM)  
Halliburton project managers and engineers helped plan each well, marshal necessary resources and coordinate teams from every group within Halliburton. Halliburton developed organizational structures and processes to execute complex projects efficiently, ensuring all goals were aligned.

Uncertainty and risk  
Drilling and completing wells in these complex fields presented financial risks for both the operator and Halliburton. To avoid costly delays, Halliburton needed to solve technical challenges quickly, schedule teams efficiently and avoid nonproductive time.  
Halliburton Well Design and Risk Management  
Halliburton IPM’s thorough risk identification and management process reviews all offset wells, identifies drilling and reservoir issues and proposes technologies and well designs that help reduce risk. This process, combined with an experienced team of drilling engineers, helped improve drilling performance.

Timely decision-making  
With as many as ten rigs operating at the same time, complex decisions needed to be made quickly. While Halliburton project managers could make most technical decisions, consultation with the client was also needed, which created the potential for more delays.  
Real-time, collaborative environment  
Halliburton built a real-time operations center that allowed the operator and Halliburton to collaborate on a wide range of critical decisions in an efficient manner. The center enabled a small group of experts to monitor and control operations at multiple sites simultaneously and make decisions quickly.
This Western Hemisphere operator awarded Halliburton a lump sum, turnkey contract for 58 wells valued at $684 million. Contract extensions will put the total close to $1 billion, making this one of the largest drilling contracts in the world.

Geological complexity of these fields included high pressure/high temperature (HP/HT) conditions and extreme depths that ranged up to 23,000 feet (7,000 meters). Extremely depleted zones within the reservoir added to the challenge.

Initial results proved so promising that the operator increased the number of rigs allocated to the project from 4 to 10. This was not only a show of confidence in Halliburton project management; it helped Halliburton complete wells faster. Thirty of 58 wells have now been completed.

The operator estimated the average time for drilling each well would be 213 days. Halliburton drilled them in an average of just 208 days, three percent ahead of schedule.
Western Hemisphere operator outsources drilling of 58 wells
The challenging Mesozoic wells in South Mexico range up to 23,000 feet deep and present both high temperatures and high pressures.

This Western Hemisphere operator estimated it would take an average of more than seven months to complete wells in this complex environment. To accelerate production and field development, the operator tendered a contract for the drilling and completion of 58 wells on a lump sum, turnkey basis. The company awarded the $684 million contract to Halliburton.

Complex geologies and depleted zones add to drilling challenge
Extremely depleted zones within the reservoir added to the challenge. Well architectures are also complex. In many cases, the upper sections required enlargement for casing to reach the target. Halliburton needed the right team and tools in place to take on this challenging environment safely and efficiently.

Integrated Project Management brings quality team together
Halliburton Integrated Project Management coordinated and managed all aspects of the project. Project managers, in conjunction with experts from every part of Halliburton, also decided what technologies to use when drilling.

Halliburton project managers have an average of more than two decades of field experience and used that experience to help solve issues that arose on an almost daily basis. To help plan and design these complex wells, Halliburton brought in teams that knew the area and the operator well. This experience, combined with a rigorous risk management process, enabled Halliburton to continually improve performance with each well drilled.

Halliburton geophysicists helped assess complex formations using 3D seismic. Halliburton also set casing, cemented, logged and perforated the wells. Teams reviewed all offset wells, identified drilling and reservoir issues, and proposed well program designs and technologies that enabled management of any risk.
Halliburton Real Time Centers and technologies drilled wells

With as many as ten rigs drilling simultaneously, Halliburton’s Real Time Centers (RTC) helped manage the complex project efficiently. The RTC enabled Halliburton teams to look at each of the wells in real time and make decisions quickly and accurately. The operator and Halliburton could then collaborate in one room to ensure the right decisions were being made quickly.

Halliburton deployed virtually its entire line of technologies and services to make the project a success.

• Managed Pressure Drilling techniques successfully solved the challenge of depleted zones.
• GeoBalance® Services enabled deep drilling with nitrogen.
• The GeoPilot® steerable system built complex directional wells, including horizontals.
• Concentric Casing techniques helped complete horizontal laterals with low pore pressure gradients.
• XR™ Reamer Borehole Enlargement Tools helped open upper sections.
• Versaflex® expandable liner hanger systems sustained the tremendous weight of long casing strings.

Halliburton is drilling wells three percent ahead of schedule

Halliburton has met and even exceeded the operator’s expectations. The RTC, Halliburton technologies, and the coordination provided by the Integrated Project Management team helped Halliburton complete more than half the contracted wells to date. The average time allocated for drilling each well was 213 days. Halliburton has drilled them in an average of 208 days, three percent ahead of schedule.

Contract extended and expanded, one of the largest in the world

The operator’s confidence in Halliburton has continued to grow throughout the contract. After initially providing four rigs for the project, the operator now has ten of its rigs working on the project. The operator believes the Halliburton Integrated Project Management team has helped accelerate production in fields that it wouldn’t have otherwise pursued. The operator has extended the original contract with Halliburton and plans to expand it further, making it one of the largest drilling contracts in the world.