Talisman Energy adopts multidiscipline well planning technology, reducing cycle times by up to 80%

DecisionSpace® Well Planning software optimizes unconventional field planning while saving hundreds of thousands or millions of dollars

**OVERVIEW**
Talisman Energy, a medium-sized global independent operator headquartered in Calgary, is active in both conventional and unconventional plays in more than a dozen countries. Several years ago, asset teams in the Montney Shale play of British Columbia began ramping up for drilling programs involving hundreds of horizontal wellbores. Unfortunately, existing manual methods of well planning proved too slow and cumbersome, making it difficult to keep up with ambitious drilling schedules. After learning about Landmark’s collaborative DecisionSpace® Well Planning software technology, Talisman invited Landmark to conduct two pilot studies in the Montney asset, each of which dramatically reduced planning cycles. The company purchased six DecisionSpace software licenses. Today, collaborative planning workflows are spreading to other asset teams, saving Talisman hundreds of thousands or millions of dollars.

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<th>CHALLENGE</th>
<th>SOLUTION</th>
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<tr>
<td>Reduce excessive well planning cycle times due to tedious manual methods</td>
<td>Adopted collaborative software tools linking geology with directional drilling</td>
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<td>Using standalone software tools, hardcopy maps, and manual methods of well planning in Talisman’s Montney Shale play, one asset team took 180 days to complete just 2 planning iterations for 10 pads with 80 horizontal wellbores, targeting 3 to 4 zones in each well.</td>
<td>Landmark conducted two pilot projects using collaborative DecisionSpace® Well Planning software. The first pilot planned the same 80 wells in just 15 days. But it completed 30 to 40 iterations in that time, optimizing the field plan. The second pilot cut cycle time by 80 percent.</td>
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<td>Lower overall costs and environmental impact of drilling unconventional plays</td>
<td>Used DecisionSpace scenario planning and optimization tools to plan the whole field</td>
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<td>To meet ambitious drilling schedules, shale teams often planned one section of a field at a time, incurring delays, hours of rework, costly pad extensions, and unnecessary environmental impact. Talisman needed to improve efficiency without slowing teams down.</td>
<td>Automated scenario planning, visualization, and optimization tools enabled Talisman to plan the entire field up front, review well and pad plans in 3D, and reach consensus rapidly. One Montney pilot study saved an estimated $4.5 million in the first drilling phase.</td>
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<td>Avoid interference problems in areas with active drilling and completion operations</td>
<td>Integrated DecisionSpace software with Talisman’s scheduling tool to track crew locations</td>
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<td>During periods when 10 or 11 rigs were running in the Farrell Creek field, Talisman faced potential interference problems between active horizontal drilling operations and hydraulic fracturing operations.</td>
<td>To ensure that frac crews remained at least 3,300 ft (1,000 meters) away from drilling rigs, Talisman linked DecisionSpace Well Planning with its own scheduling software, thereby streamlining the process of mapping crew locations each month.</td>
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By using DecisionSpace® Well Planning tools, Talisman was able to reduce...

...costs by hundreds of thousands or millions of dollars per project

COST

...well planning cycle time and time investigating potential pad locations

TIME

...surface area and lower environmental impact by optimizing well spacing and pad design

SIZE

...technical labor and number of iterations with the directional drilling contractor before finalizing a viable plan

LABOR

80 HORIZONTAL WELLS

Previously, it took 180 days to plan 10 pads with 80 wellbores. The first pilot took just 15 days to plan the same wells, but 30-40 iterations further optimized the field plan.

DAYS

180 → 15

Saved

$4.5 MILLION

&

80% reduction in cycle time

A second Montney team took notice and engaged Landmark consultants for another pilot study, which reduced the well planning cycle by as much as 80 percent and saved an estimated $4.5 million in the first phase of operations.

To ensure that frac crews remained at least 3,300 ft (1,000 meters) away from drilling rigs, Talisman linked DecisionSpace Well Planning with its own scheduling software, thereby streamlining the process of mapping crew locations each month.

Solving challenges.
OVERCOMING THE CHALLENGES AND COSTS OF HIGH-VOLUME DRILLING

Several years ago, at the height of the shale-gas boom, asset teams responsible for Talisman Energy’s Montney Shale play in British Columbia began planning for intensive drilling programs with hundreds of stacked, horizontal wellbores. Using standalone software tools, maps, spreadsheets, and manual methods of pad and well planning, geoscientists and engineers found the task cumbersome and slow. For example, planning 10 pads with 80 horizontal wells, each targeting 3 or 4 zones, took one team 180 days. In that time, they completed only two planning iterations.

Passing target coordinates, maps, and well plans back and forth between the various disciplines and the team’s directional drilling contractor made efficient collaboration difficult. Linking geologists’ horizontal tracks in the subsurface with viable pad locations on the surface without running into potential interference problems proved daunting. To keep multiple rigs running on ambitious schedules, teams often planned only one section of a field at a time. This led in some cases to delays, long hours of rework, costly pad extensions, and other serious consequences.

“When you don’t plan and optimize the whole field at once,” says Fred Schwering, a drilling technologist with the Montney Delivery Unit, “you’re basically losing reservoir, which means you’re sacrificing production.”

CONNECTING SUBSURFACE TARGETS WITH SURFACE LOCATIONS AND OPTIMIZING PLANS

After seeing a demonstration of Landmark’s collaborative DecisionSpace Well Planning software, Talisman invited Landmark to perform a pilot well planning project for the block that took six months to plan manually. Because the software automatically generates and visualizes pad and well plans in three dimensions within proper geologic context—thereby integrating the geoscience and drilling domains—the project took a mere 15 days to finish. However, instead of just 2 planning iterations, DecisionSpace software enabled them to complete from 30 to 40 iterations, dramatically improving reservoir optimization. A second Montney team took notice and engaged Landmark consultants for another pilot study, which reduced the well planning cycle by as much as 80 percent and saved an estimated $4.5 million in the first phase of operations. Sufficiently impressed, Talisman purchased six licenses of the DecisionSpace software.

“With DecisionSpace Well Planning software,” explains Schwering, who is now DecisionSpace Coordinator for the Montney asset, “you can efficiently plan the entire field right up front. The scenario planning engine lets you quickly try out different well spacings, azimuths, and wellbore lengths, and optimize the number of wells per pad, and pads per block.”
Visualization tools in DecisionSpace software enable team members from geology, drilling, land, and construction to meet in one place, review subsurface and surface locations and well plans in 2D or 3D, and quickly reach consensus. The software generates a high-level directional plan, which, according to Schwering, gives team members the comfort of knowing all their initial well plans will be possible to drill, and no wellbores will collide with producing wells—even before final directional plans are made. In the middle of fast-paced drilling operations, they can modify well plans on the fly to further optimize drainage, if necessary. Furthermore, by linking well planning with Talisman's scheduling tool for field activities, they can avoid interference between drilling and fracing operations.

“When you're running 10 or 11 rigs in a relatively small area,” he says, “you want to make sure the frac crew stays at least 3,300 feet (1,000 meters) from your drilling crew. With DecisionSpace software, it's a fairly automated process to map the location of your wells, rigs and completion crews in advance every month.”

SLASHING CYCLE TIMES, SAVING MONEY, SPREADING COLLABORATIVE WORKFLOWS

Since beginning to use DecisionSpace Well Planning software in the Montney Shale play, Talisman has drilled roughly 100 wells in its Farrell Creek field. Currently, Schwering is also planning wells in its Greater Cypress field. Elsewhere, Talisman is using the software to help plan complex, high-profile international exploration wells and support critical drilling activities in its new Real-Time Operations Center. Other asset teams, such as Wild River—which handles a strategic tight gas / liquids-rich gas play in Western Alberta—are taking up the technology to improve collaboration, accelerate planning cycles, and optimize performance. Another early adopter says he initially planned 132 pads and 420 S-shaped wells with 2 targets each in just 3 working days. That would have been impossible in the past.

“With DecisionSpace software, a geologist and drilling engineer can sit down together and come up with high-level plans for four to eight wells in an hour or so,” Schwering explains. “Decreasing the well planning cycle by 50 to 80 percent means you can spend more time looking at more drilling details and optimizing potential production.” DecisionSpace Well Planning software, he observes, requires less technical labor and fewer iterations with the directional drilling contractor before finalizing a viable plan, which saves both time and additional fees. Talisman field scouts spend less time investigating potential pad locations. Optimizing well spacing and pad design uses less surface area and lowers environmental impact. “Overall,” he concludes, “DecisionSpace software is saving Talisman fairly substantial sums of money—from hundreds of thousands to millions of dollars.”

Although collaborative workflows in Talisman's Montney Shale play have primarily integrated the geoscience and drilling engineering disciplines, Schwering says it doesn't stop there. “The latest version of DecisionSpace Well Planning software lets us bring in completion design as well. That should save us even more time, while further optimizing reservoir drainage.”