



## Cemented VersaFlex® expandable liner hanger provided superior reliability and saved 24 hours of rig time

Location: Australia

**CHALLENGE** – A major operator in Australia wanted to install a 4 1/2-in. liner hanger into a 6 1/8-in. openhole wellbore. They knew that once they reached total depth, if the flow rate was unacceptable, the liner hanger would need to be run and cemented in place to enable fracturing operations.

Because of the tight annular clearance and small job volume, achieving optimum cement placement efficiency can be challenging. A competent cement bond is crucial for the integrity of these wells, as is making sure injection fluids are confined within the target zones during fracturing operations.

Halliburton was challenged to find a solution that would achieve the best possible cement bond log results and provide a means to tieback the production liner to surface while isolating the parent casing from fracturing pressures during injection.

**SOLUTION** – Halliburton proposed the VersaFlex® expandable liner hanger system and the 13.5 ppg HalCem™ liner slurry with post-set expansion properties. The slurry was specifically tailored to the VersaFlex system and features included low fluid loss, long zero gel period, short transition time and fast compressive strength development. With the

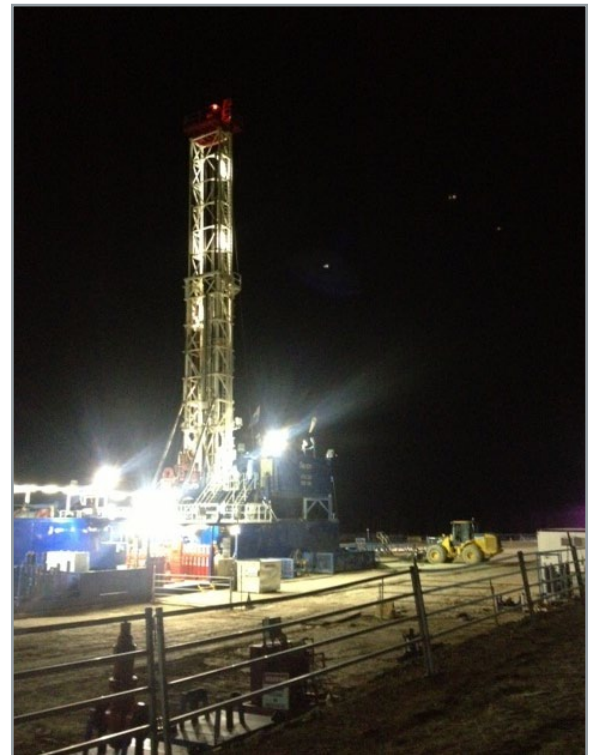
VersaFlex system, Halliburton was able to achieve a maximum circulation pressure of 3,500 psi, a burst rating of 9,000 psi and the system was also able to be hydraulically set. This allowed increased circulation rates, more than 1,000 psi increase in acceptable frac injection pressures, and the ability to set in these highly deviated well trajectories without requiring a force to be applied at setting depth in order to energize elastomers and achieve a seal.

**RESULT** – The VersaFlex system was successfully deployed to depth and cemented while also providing integrity at the liner top and means for tieback during fracturing operation.

Along with providing superior reliability, 24 hours of rig time were saved and several key benefits were realized when compared to the conventional system that the operator had used previously. Since this installation, the operator has been so pleased with the end result from this initial trial they have decided to continue with the design long term.



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| <b>Specifications</b>   |                                  |  |
|---|----------------------------------|--|
|   | <b>Conventional Liner Hanger</b> | <b>VersaFlex® Expandable Liner Hanger System</b> |
| <b>Maximum circulation pressure allowed during deployment</b>       | 1,800 psi                        | 3,500 psi  |
| <b>Burst rating</b>   | 7,400 psi                        | 9,000 psi  |
| <b>Required to set</b>  | Ball                             | Flapper deployment - ball contingent             |
| <b>Liner packer setting mechanism</b>                               | Applied weight down              | Hydraulically set                                |
| <b>Scraper run required in parent casing at setting depth</b>       | Yes                              | No   |
| <b>Junk basket required</b>   | Yes                              | No   |
| <b>Ability to pressure test upper TBR connection after assembly</b> | No                               | Yes  |

**The VersaFlex® system helps reduce mechanical manipulation and increase efficiency during set & release.**

| <b>Setting Procedure</b> | <b>Conventional Hanger</b>                              | <b>VersaFlex® Expandable Liner Hanger System</b> |
|--------------------------|---|--|
| <b>1</b>                 | Drop ball   | Pump cement                                      |
| <b>2</b>                 | Pressure up to set hanger (hold down sub if applicable) | Pressure to deploy flapper                       |
| <b>3</b>                 | Slack off weight to check hanger set                    | Pressure to set                                  |
| <b>4</b>                 | Blow ball seat  | Pick up to confirm hanger set                    |
| <b>5</b>                 | Release running tool                                    | Slack off to release                             |
| <b>6</b>                 | Pick up to confirm release                              | -  |
| <b>7</b>                 | Pump cement   | -  |
| <b>8</b>                 | Pick up out of TBR                                      | -  |
| <b>9</b>                 | Slack off to set liner-top packer                       |  |



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**For more information on VersaFlex® expandable liner hanger systems, please call your local Halliburton representative or email us at [completions@halliburton.com](mailto:completions@halliburton.com).**

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