



## TenarisHydril Wedge 461™ connection sets new standards in Utica Shale formation

A major operator has successfully run over 1 million feet of Wedge 461™ in laterals exceeding 16,000 feet in the Appalachian Basin, United States.

### Summary

#### Torque, robustness and reliability

An important operator drilling in the Utica Shale at the southern end of the Appalachian Basin in southeast Ohio was looking for a connection capable of performing in lateral lengths exceeding 14,000 feet (4,267 meters).

The relationship with Tenaris began early in the project planning when the operator requested Tenaris technical consulting services for the most critical of the planned wells. The TenarisHydril Wedge 461™ was proposed as the optimum solution for this challenging operation. The connection was successfully ran in the most challenging lateral and the operator immediately recognized the connection's outstanding torque capacity and overall performance.

Since that time, the operator has been exclusively running the Wedge 461™ in two rigs of the Appalachian region with the same exceptional results in performance and reliability, and recently surpassed the 1 million feet mark. Thanks to the reliability of the connection and the assistance of Tenaris field services, the operator has achieved breakout and reject rates of 0.09% and 0.01%, respectively, during this time.

### Challenges

#### Extreme lateral lengths

In June 2018, the operator decided to drill its longest well to date with a lateral length of roughly 16,000 feet (4,876 meters) and a measured depth of 26,139 feet (7,967 meters). Previously utilized connections did not possess the necessary operational torque for these extreme lateral lengths.

#### Industrial drilling approach

In a typical string design for southeast Ohio's Utica Shale, production strings have an approximate true vertical depth of 10,000 feet (3,048 meters) and a measured depth ranging from 16,500 feet (5,092 meters) to 26,500 feet (8,077 meters).

### PROJECT PROFILE

#### Location

Appalachian Basin,  
southeast Ohio, US

#### Products highlighted

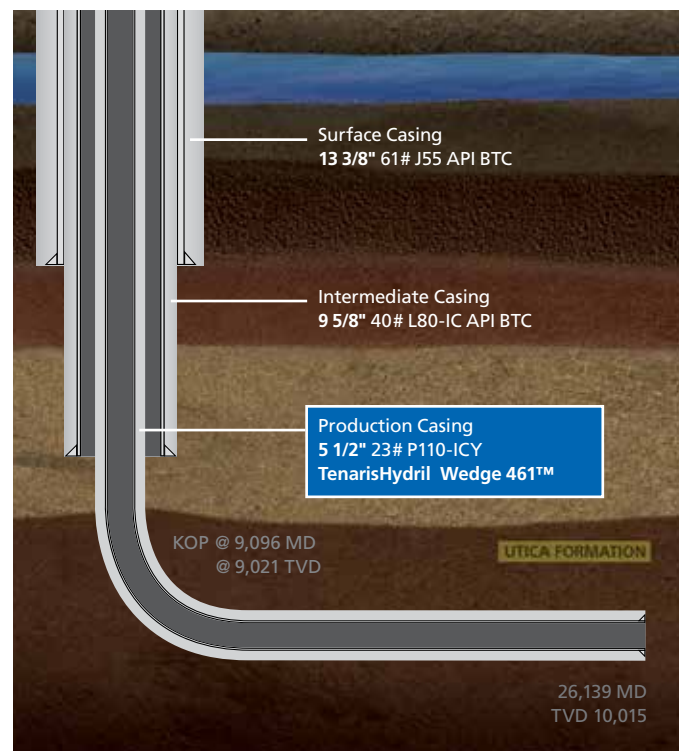
TenarisHydril Wedge 461™

#### Well Type

Horizontal shale,  
natural gas

#### Services provided

- Rig Direct®
- Technical consulting services
- Field services



Bottom hole pressures vary from 5000 psi to 8000 psi. The operator needed a cost efficient and reliable connection able to withstand the challenging conditions of this drilling campaign.

## Solutions

### String design to post-job analysis

When the operator requested technical consulting support from Tenaris, a product development team dedicated to unconventional applications proposed the newest connection of the catalog – the TenarisHydril Wedge 461™. The team provided the customer with a pre-job torque and drag model to demonstrate the connection's behavior under the expected well conditions.

### The right connection for shale wells

The TenarisHydril Wedge 461™ connection exhibits all of the features required for massive deployment in the extended laterals of the Utica Shale. With proven operational performance, the Wedge 461™ offers high torque, reliability, and fast and safe installation while also being cost effective.

### Field support

Tenaris field services representatives were present during the run to complete the pre-job visual inspection of casing and accessories and to monitor the casing installation. They also provided training and support to the customer throughout the installation process, monitoring make-up operations and conducting field repairs.

## Results

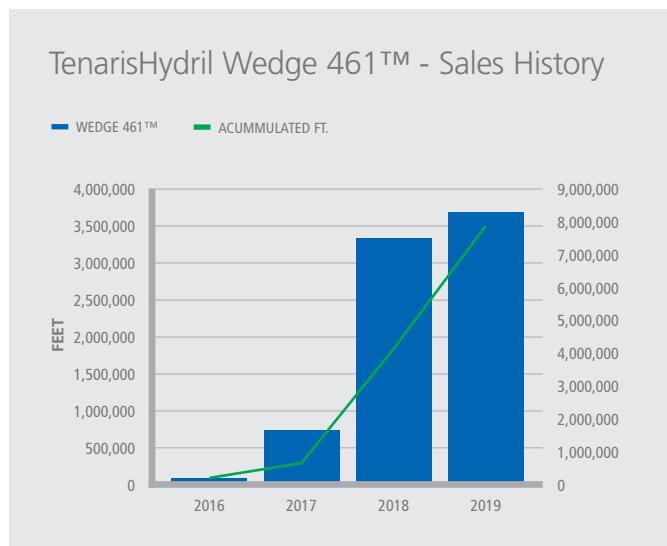
### Performance and savings

The operator initiated the running by sliding the casing string in hole until it reached 16,360 feet (4,986 meters). From there, the operator rotated the casing until it reached a final depth of 26,139 feet (7,967 meters).

The post-job analysis showed that the casing string was exposed to maximum operational torque values of 30,000 ft.-lb at 30 RPM. The operator praised the performance of the Wedge 461™ under these challenging conditions and highlighted the fact that it permitted them to not only reach their target depth, but did so while improving the operational efficiency.

The operator also recognized the added value of Tenaris field services team, who were on site throughout the operation to ensure things ran smoothly. Given the outstanding results, the operator decided to expand their use of the Wedge 461™ in the region.

In the last eighteen months, the operator ran the Wedge 461™ exclusively on two rigs. Fifty-seven strings of Wedge 461™ connections comprising over 24,000 joints have performed exceptionally well from the standpoint of application and runnability. With the assistance of Tenaris field services, the operator has experienced only 23 breakouts and 3 rejects during this time (breakout and reject rates of 0.09% and 0.01%, respectively), further highlighting the reliability of the Wedge 461™.



▲ Tenaris field services representatives providing support throughout the installation process by advising on recommend practices.



For contact information, please visit our site:  
[www.tenaris.com](http://www.tenaris.com)