

# CASE STUDY



## WIZARD HEDP

## DISSOLVABLE PLUG

## SMALLEST DIAMETER

## HIGHEST EXPANSION



# WIZARD

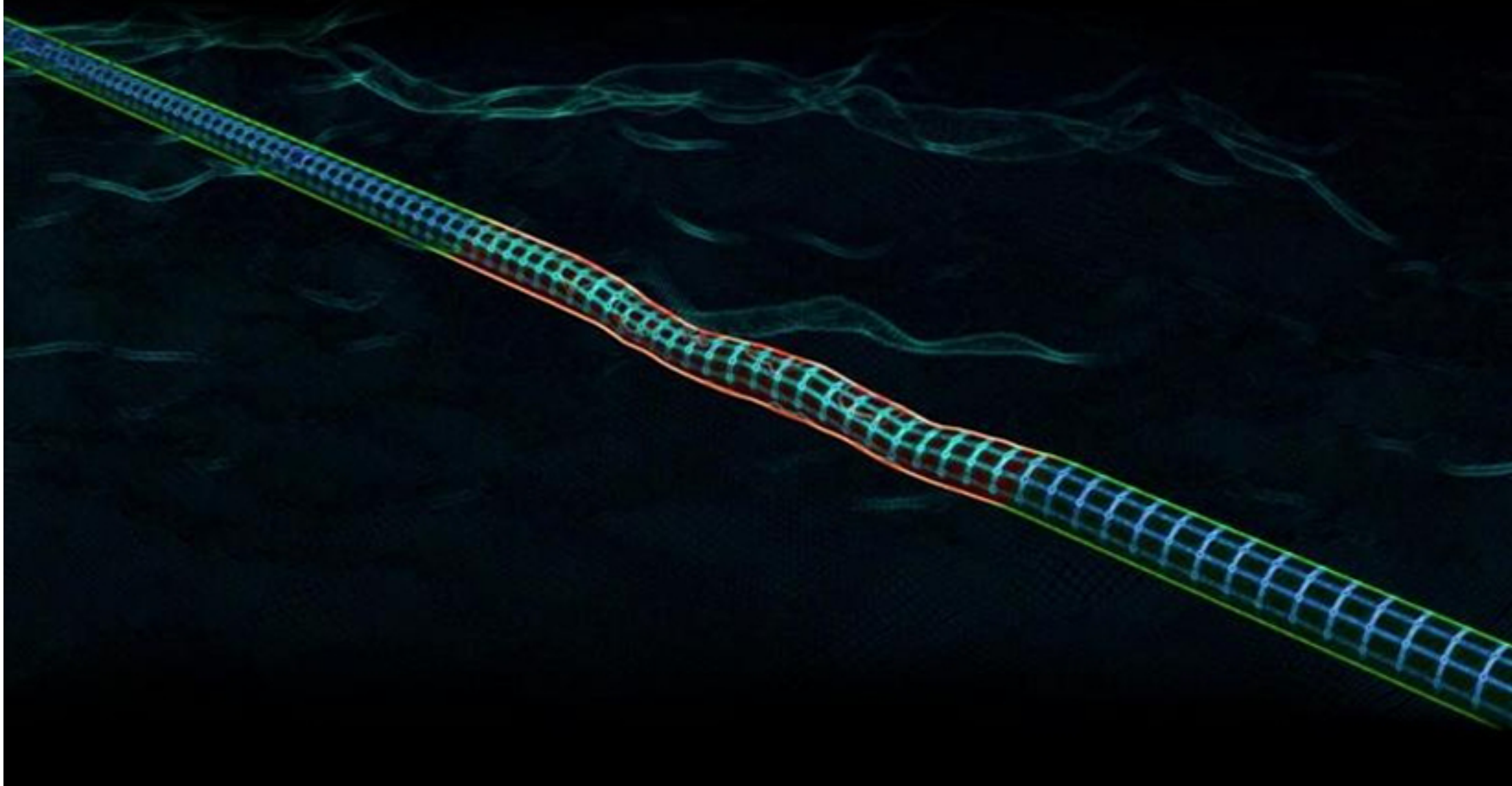
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## BACKGROUND



Casing deformation is a common problem in the southwestern shale region of China. There are several factors that can cause casing deformity, which can disrupt a smooth plug & perf operation. These factors include changes in formation stress during fracking, poor cementing quality, and mechanical damage during running.

5.5" 26.8# casing is commonly used, while most frac plugs are 4.055" or slightly larger. These frac plugs often encounter restrictions, resulting in stuck bottom hole assemblies (BHAs) and some that are lost in the hole and cannot be retrieved despite multiple attempts.



As a result of these issues, many completions are experiencing non-productive time (NPT) ranging from 3 days up to several weeks. In some cases, wells have even been forced to skip over "problem zones," resulting in a **loss of 10-23% of total stage counts**.

Unfortunately, the frequency and severity of casing deformation has been increasing as hydraulic fracturing activities expand across the region.

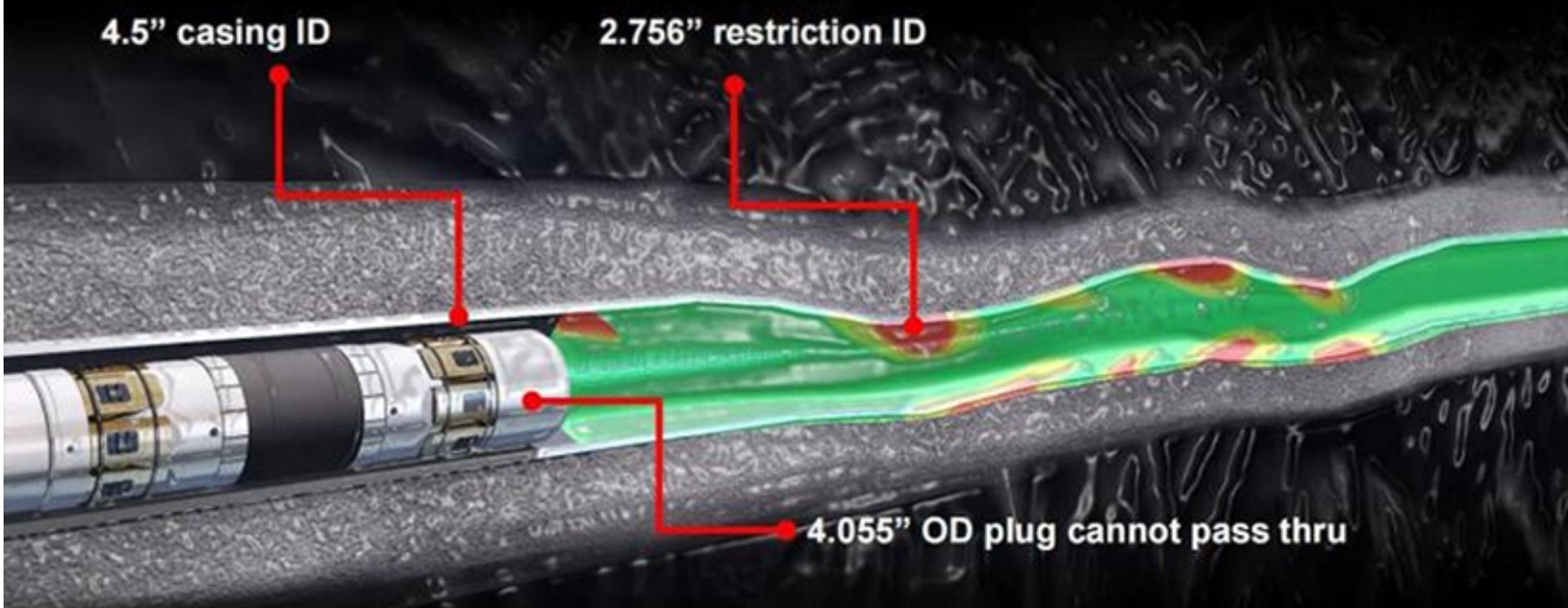
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## CHALLENGE



There are currently many high-expansion frac plugs available on the market that are designed to pass through tight spots. However, in some extreme cases, even these tools are unable to effectively address the issue.

For example, in the case described in this study, the restriction is approximately 2.756". To pass through this restriction, the plug and tool string must be smaller than 2.756" and have the ability to expand and set inside 4.5" inner diameter casing. This can be a challenging task, especially if the restriction is particularly severe.

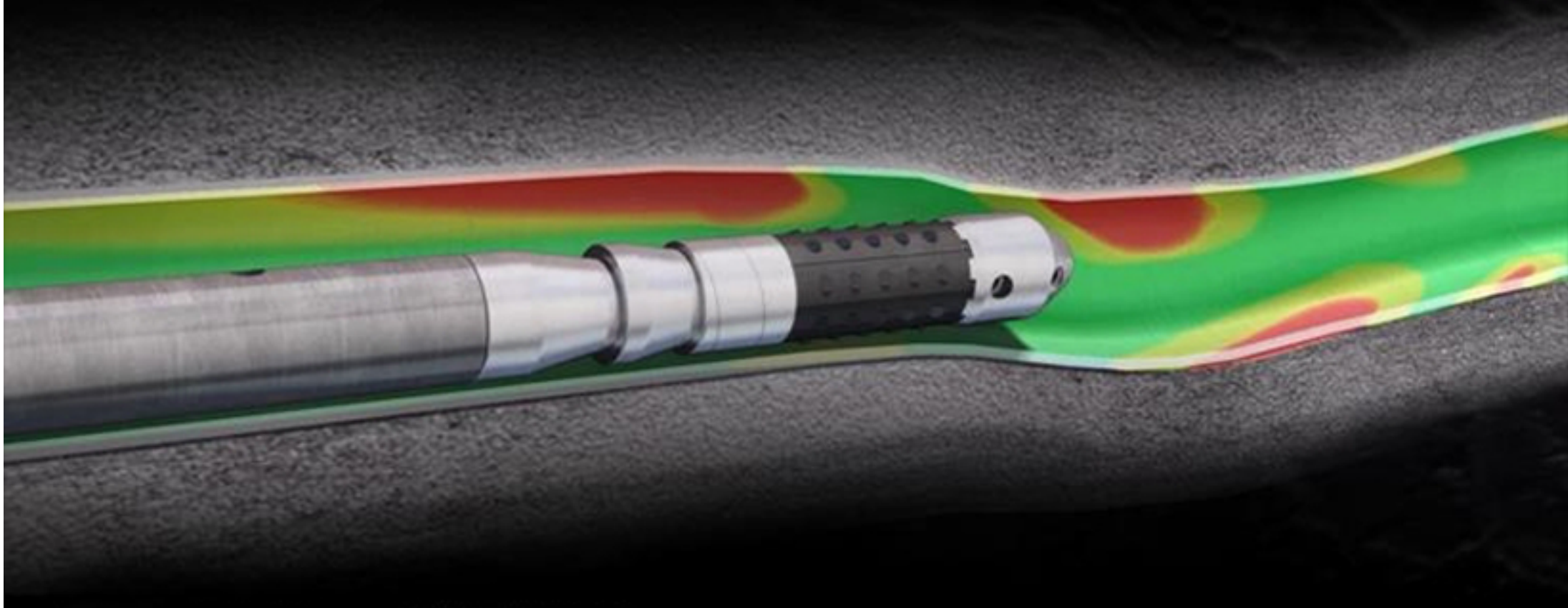


Since 2016, VerTechs has been developing and offering high-expansion dissolvable frac plugs to address downhole restrictions. These plugs are designed to save untreatable stages and speed up completions by providing a solution for challenging restrictions.

VerTechs has developed many different types of high-expansion dissolvable frac plugs over the years, but the **WIZARD HEDP Dissolvable Plug** is the only design currently available on the market that is able to effectively address the specific challenge described in this case study.

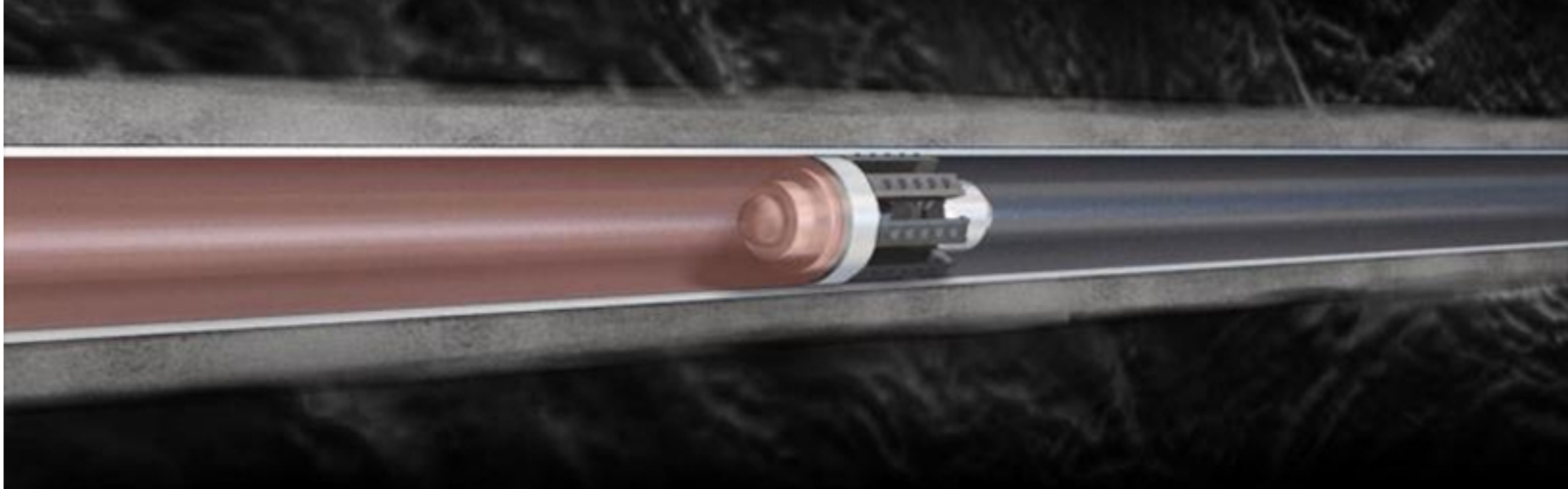
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## END RESULT



The WIZARD HEDP dissolvable plug's outer diameter is only **2.36"**  
Able to pass thru the most severe restriction without any issues

Finally set inside the normal casing by expanding up to **90.5%**



**7KPSI** of differential pressure was applied to the plug

**30+** stages were saved in **6** wells

Saving more than **120** hours in another severely deformed lateral

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