

DOWNHOLE
PRODUCTS

SPIR-O-MIZER® ULTRA HARD SOLID BODY SPIRAL BLADE CENTRALIZER

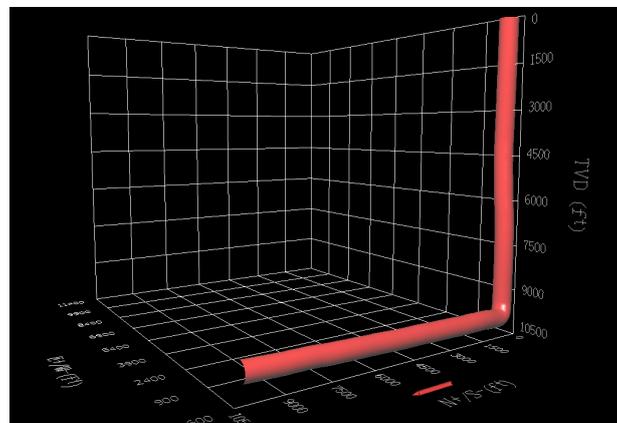
TECHNOLOGY: The Spir-O-Mizer is a cast steel unit which is austempered to improve wear resistance and increase impact strength. This method produces a unitary (no welds) unit of exceptional strength.

In industry this method of casting steel is used to produce parts that are subjected to severe wear and abrasion usage, such as the teeth on the buckets of mechanical diggers and the crankshafts of high performance sports cars.

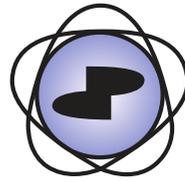
The Spir-O-Mizer resistance to wear and abuse is unparalleled when compared to the fabricated steel and cast aluminium products available to the industry.



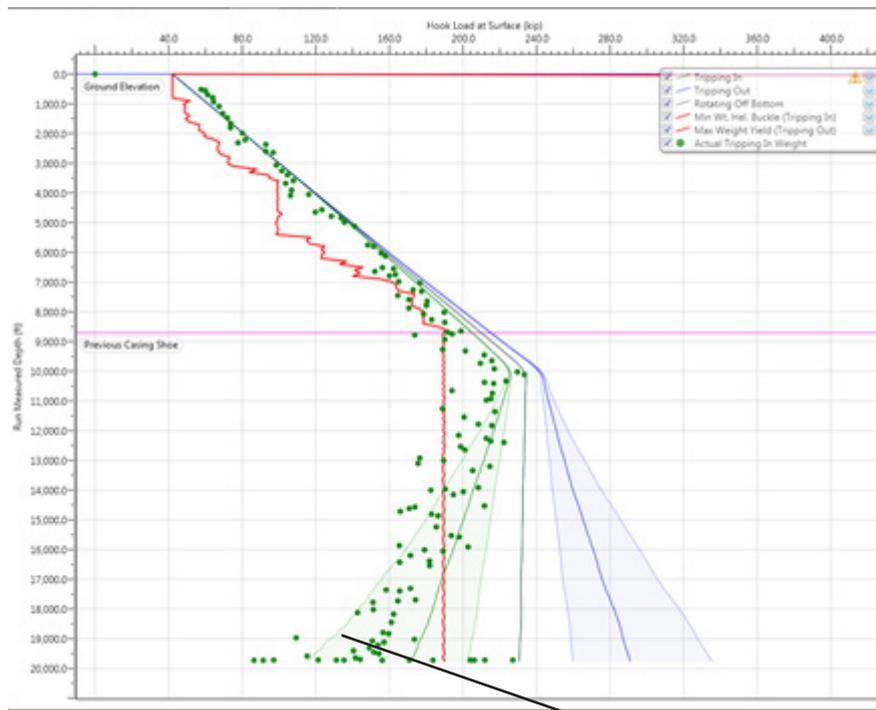
CHALLENGE: A North American operator specializing in shale oil and gas extraction had been experiencing problems getting their 5 ½" production casing to depth through their challenging 8 ½" well-bore. Doglegs in the 20-25° per 100ft range are not unusual, as the well profile transitions from vertical to horizontal. Conventional thinking would dictate that stripping the string of any centralization (the operator had been using bow-type centralizers) should help negotiate the rapid build section, but the benefit of running an uncentralized string in the hole was quickly negated by a new problem... buckling. The operator contacted DHP based on their reputation as friction reduction specialists and identified three similar wells to conduct trials.



For further information on this tool and proposed applications, please contact your local DHP representative. Specifications may be liable to change without prior notice.



PERFORMANCE: The operator wanted to best replicate the conditions and previous spacing strategy they had been employing with the bow spring centralizers to judge any improvement seen from the solid blade units. The operator initially went with the premium friction reducing zinc alloy Spir-O-Lizer® at (1) every 3 joints with the below result being achieved.

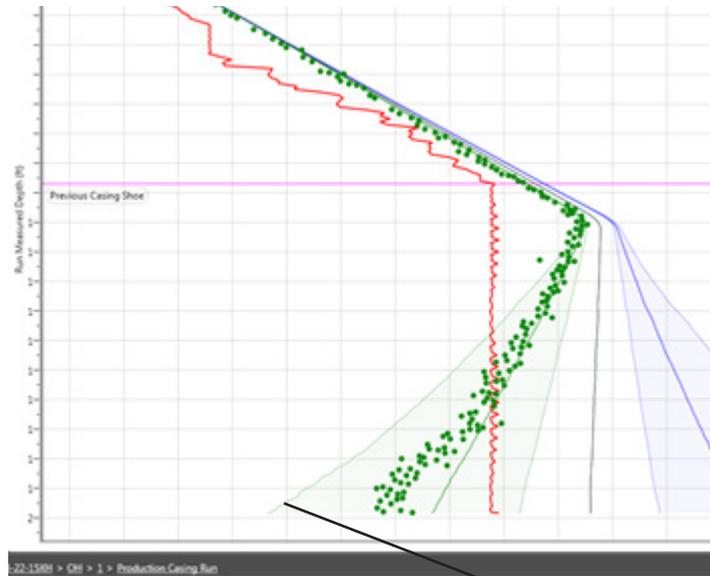
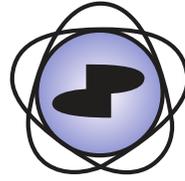


Predicted RIH Plot

No issues were seen while running and rotation was not required to get the string “round the corner”...for the first time in a long time.

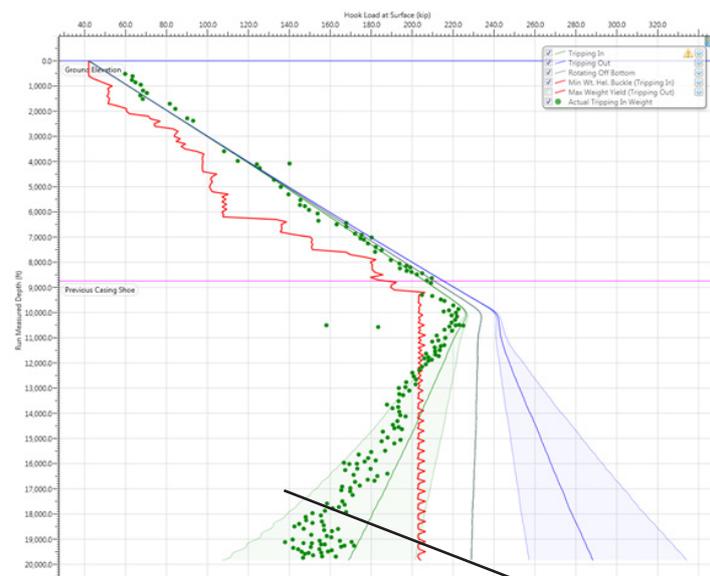
Buoyed by what had been seen the operator decided to centralize at 1 per joint for the next well, again with the premium Spir-O-Lizer to see if further gains could be achieved.

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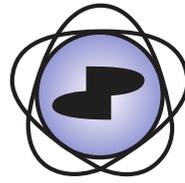
Predicted RIH Plot

As before the green dots donate actual RIH weights plotted against predicted plots using a friction factor of 0.25 cased hole and 0.30 openhole. With the information gleaned from the first 2 trial wells it was decided to run the Spir-O-Lizer's cast steel more economical brother the Spir-O-Mizer to compare the two different materials and the benefits versus additional cost of the Spir-O-Lizer.



Predicted RIH Plot

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CONCLUSION: The results from all three wells were studied to get a better understanding of what benefit the solid blade centralizer had over the troublesome bow spring centralizers. Although a reduction in friction between the zinc alloy of the Spir-O-Lizer and the cast steel of the Spir-O-Mizer was seen, it becomes very clear that minimizing buckling by having a centralizer strong enough as to not yield and compress...as a bow spring is designed to...is key to the mechanics of weight transmittal to allow the casing to be run through the challenging transition from vertical to horizontal. The solid blade, when put under load, will not compress like a bow spring as the pipe starts to buckle which in turn gives the string better rigidity to push the casing through the curve and along the horizontal...yet as the centralizer is relatively short it does not affect the casings ability to bend through the doglegs and rapid build angle.

The use of solid blade centralizers is often overlooked these days as many operators have bought into the bow spring versus solid blade... standoff is all that matters myth... being spun by the manufacturers of these products. As has been proved here, standoff is only half the battle on these more challenging step outs, getting the casing down to TD at first time of asking can be the hardest part.

The operator was both surprised and impressed by what the results showed and has since selected the Spir-O-Mizer for his 5 ½" casing strings going forward...

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