

DEPLOYABLE CENTRALIZERS FOR DIRECTIONAL DRILLING

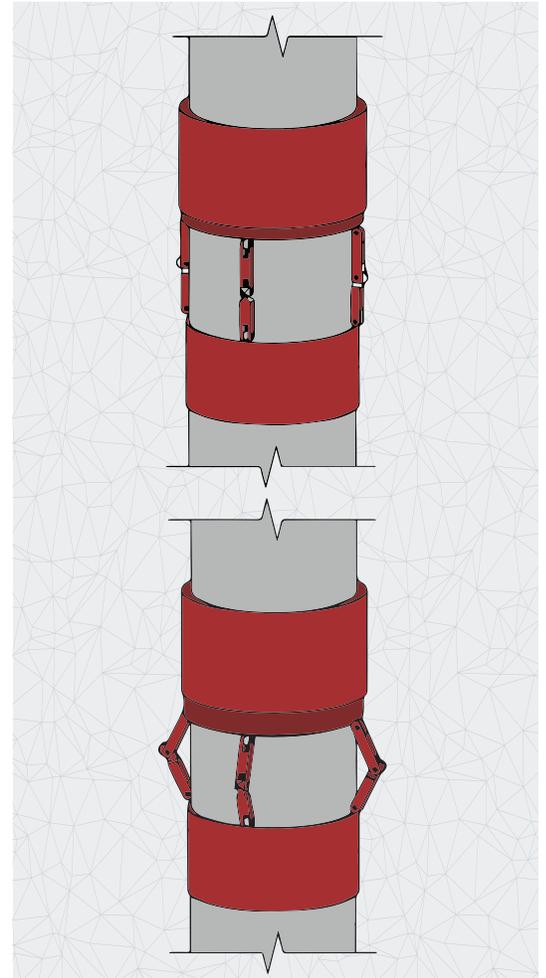
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Technology Readiness Level: 3

Concept demonstrated analytically or experimentally

Sandia National Laboratories has developed a robust centralizer that actively centers casing in deviated, directional or horizontally drilled well bores. Traditional centralizers, most commonly based on a bow spring design, are economically optimized for use in vertically drilled wells, however, they can lack sufficient force to centralize casing in deviated or directional drilled wells. This may result in variations in cement jobs and an improper seal that is prone to failure.

Sandia's deployable centralizer comprises two collars that are joined together by articulated linkage. Once the casing is situated downhole, a power source integrated in the collars is activated, drawing the collars together while forcing the linkage outwards towards the borehole walls. The resulting deployed structure is similar in final shape to a bow spring centralizer, however, it is powerful enough to properly support or displace the casing. Also, when deployed downhole in the retracted position, our centralizer alleviates drag and can transit through bends with less friction. Sandia's deployable centralizer is a robust solution for directional or horizontal drilling to ensure a uniform 360° annular space around the casing and ensure a competent cement seal to the borehole wall.



Sandia's centralizer can be deployed downhole in the retracted position (top image) and expanded against the walls of the casing when in place (bottom image)

TECHNICAL BENEFITS

- Active centralizer system
- Large load carrying capability
- No installation drag
- Allows for complete concentric cement seal of casing to the borehole wall without variations in cement thickness

APPLICATIONS & INDUSTRIES

- Oil & Gas
- Geothermal