



# WWT Non-Rotating Protectors

Directional Geothermal Well

Stainless Steel Casing Protection

Case History – USA – 10660 & 12791

## NRPs Protect Expensive Stainless Steel Casing for Wellbore Cleanouts in Harsh Geothermal Reservoir



### Summary

Geothermal wells initially drilled in the 1980s were facing casing corrosion and collapse due to 400°F acidic steam reservoir. Over the decades the casing design evolved from steel to titanium and then to expensive duplex stainless steel for corrosion resistance. Minerals from the reservoir accumulates in the casing and surface pipelines, requiring wellbore cleanouts and redrills every few years.

### NRP Performance

Considering the stainless steel casing is prone to wear, Non-Rotating Protectors (NRPs) were used to reduce both conventional wear and galvanic corrosion from the steel drill pipe embedding material into the stainless steel casing which causes pitting and corrosion.

After steel casing collapsed, a stainless steel casing was run 24 years after the initial drill. 8 years after that, HT3-500 model NRPs were used to protect all drill pipe above the BHA during a cleanout run and drilling to extend the well depth. 4 years after that cleanout run, the casing passed a pressure test to satisfy a regulator to again extend the well depth. NRPs were used for a second time to protect the casing during a cleanout and reaming run with 500k drill pipe revolutions. NRPs have become a standard practice for extending casing life in the field.

