

Case Study – Vertechs Dissolvable Diverter Balls

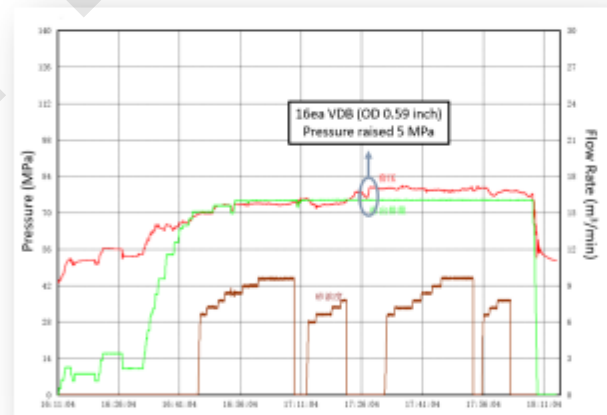
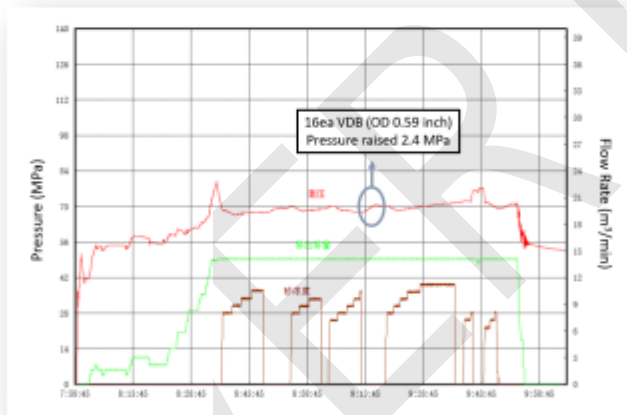


Diversion among clusters during hydraulic fracturing, high stress plugging & fully dissolvable

VDB (Vertechs Dissolvable Diverter Ball) is the member of Vertechs VD series degradable frac diversion system and design for diversion among clusters within frac stage. After fracturing, the diverter balls dissolve at downhole temperatures and conditions, restoring full fracture conductivity. The following frac curves were from 2 wells with totally 55 stages, in which VDB was implemented successfully. There was 300 ~ 700psi pressure spike indicating VDB landed in targeted perf clusters and the stimulation was successfully diverted among clusters. VDB has been widely applied by this major operator in its fracturing operations since 2013.

Operation Data

Well No.	BHT (°F)	Treatment Pressure (psi)	Flow Rate (bbl/min)	VDB OD (inch)	Quantity per Stage	Pressure Increase (psi)
ZH1-4	256	10,000 ~ 15,000	90 ~ 100	0.59	15 ~ 38	300 ~ 700
ZH1-8	254	11,000 ~ 15,000	90 ~ 100	0.59	15 ~ 38	300 ~ 700



Benefits & Results

- Clear pressure spike indicates effective diversion among clusters during fracturing.
- Increase the complexity of fracture distribution & stimulated reservoir volume.