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中石油二氧化碳干法加砂压裂技术获重大突破

2017年4月25日,长庆苏里格气田苏东XX-XXC4井二氧化碳干法加砂压裂试验圆满完成。这是中国石油天然气集团公司(以下简称集团公司)的重大现场攻关试验项目——二氧化碳干法加砂压裂技术,经过中国石油川庆钻探工程公司(以下简称川庆钻探)历时3年的重点攻关,完成了由重点设备研发、室内工艺技术试验到作业现场验证的关键性“三步走”,为这项技术在国内标准化作业、规模化应用奠定了基础。

二氧化碳干法加砂压裂技术,通过使用液态二氧化碳代替常规水基压裂液,具有无残渣、无水相、返排快、对储层无伤害等优点,在环保增储方面优势明显。

为加快这项国际前沿技术的重点攻关,科研人员相继研发4代二氧化碳密闭混砂装置和新型氮气增压装置,同时配套新型二氧化碳储液装备、卸荷旋塞阀远程控制系统、二氧化碳压裂施工数据采集一体化技术及新型提黏剂体系,通过在长庆油田14口井进行先导性试验,解决了二氧化碳干法加砂压裂施工排量低、带压混砂难、液态二氧化碳挟砂性能差等世界性难题,实现了二氧化碳干法加砂压裂由单井单层到单井多层、油管注入到油套同注+环空加砂压裂等多种施工工艺方式的重要升级。

(天工 摘编自中国石油新闻中心)