



Congratulations!

Our distinguished panel of independent judges has chosen ***Spontaneous Leak Detection*** technology as one of the winners of the 2021 Special Meritorious Awards for Engineering Innovation (MEAs). E&P's MEA program recognizes new products and technologies that demonstrate innovation in concept, design and application. Hart Energy's E&P editors will award certificates to the 2021 MEA winners, and the winning technologies will be showcased in the E&P newsletter in October.

Attached is a list of the winning entries. Please let me know if your winning entry is not cited correctly.

Hart Energy will provide 10 certificates for each winning entry. Additional certificates, plaques and/or medallions may be ordered by contacting Bill Miller at 713-260-1067 or by email at bmiller@hartenergy.com. An order form is attached to this email for your convenience.

Technology has clearly been in the forefront as the industry has challenged the frontiers of exploration, drilling and production. We applaud your commitment to technological progress in the upstream industry, and we congratulate you on your receipt of this award.

We also invite you to enter next year's awards. The MEAs entry form will be available on our website, www.hartenergy.com/mea starting Nov. 1, 2021. The deadline for next year's contest is July 1, 2022.

Very truly yours,

Len Vermillion

Len Vermillion
Editorial Director
Hart Energy
lvermillion@hartenergy.com



The 2021 Honorees:

ARTIFICIAL LIFT

- ForeSite Edge, Weatherford

CARBON MANAGEMENT

- EcoCell, Patterson-UTI

DIGITALIZATION

- GumboNet, Data Gumbo
- Advance Diagnostic and Prognostic Technology (ADaPT), PETRONAS

DRILL BITS

- StrataBlade Concave Diamond Element Bits, Smith Bits, a Schlumberger company

DRILLING FLUIDS/STIMULATION

- NanoTags, EXPEC ARC, Saudi Aramco

DRILLING SYSTEMS

- Welltec Annular Barrier (WAB), Welltec

EXPLORATION/GEOSCIENCE

- Surface-Consistent Full Waveform Inversion (pQC-FWI), Saudi Aramco
- EarthStar 3D – Ultra-Deep Resistivity Service for Halliburton Sperry Drilling, Halliburton

FORMATION EVALUATION

- World Slimmest Tractor for Production Logging & Well Intervention of Extended Reach Wells, Saudi Aramco, Western Well Tools

HSE

- Off Road Air Breathing System, Saudi Aramco
- VIGILANCE, Frank's International
- Spontaneous Leak Detection, Siemens Energy

HYDRAULIC FRACTURING/PRESSURE PUMPING

- SPM EdgeX Carbide Seat, SPM Oil & Gas, a Caterpillar company

IOR/EOR/REMEDICATION

- 15K MultiStage Frac System (frac sleeves, RockLock packers, WIV, Alpha Sleeve, and liner top), Baker Hughes

NON-FRACTURING COMPLETIONS

- Sealed Wellbore Pressure Monitoring, Devon Energy Corp. and Well Data Labs Inc.

ONSHORE RIGS

- High-Temperature Variable-Bore Rams, Schlumberger

SUBSEA SYSTEMS

- Residency Buoyancy, Trelleborg Applied Technologies
- TCP Riser, Strohm

WATER MANAGEMENT

- Flow-Sync Water Management Platform, Bedrock Automation/Flow-Sync