



ENVIRONMENTALLY FRIENDLY DRILLING SYSTEMS PROGRAM

Cost Effective Technologies for Environmental Protection

European Chapter Development

The Environmentally Friendly Drilling (EFD: www.efdsystems.com) program, managed by the Houston Advanced Research Center (HARC), is a long term project that has been funded the US Department of Energy, the Research Partnership to Secure Energy for America (RPSEA) and Industry. The team includes academic institutions, national laboratories, research organizations and small businesses under the guidance of industry, environmental organizations and government agencies. The program focuses on technologies for developing energy sources that can be cost effectively applied in environmentally sensitive areas to maintain our standard of living and preserve our quality of life. The objective is to identify, develop and transfer critical, cost effective, new technologies that can provide policy makers and industry with the ability to develop reserves in a safe and environmentally friendly manner.

Transatlantic Cooperation

On both sides of the Atlantic, it is important to address environmental tradeoffs associated with energy development. Innovation knows no geographic boundaries. The EFD program will be expanded to include a European Chapter with the goal to identify and apply best practices in Europe as well as to identify new innovations and applications. Regulatory requirements in countries that have strict regulatory standards (sometimes stricter than in the US) cause innovation and lead to the development of new technologies that could be applied in the US as well as Europe. Having both a US and a European EFD programs enables all operators and regulators to learn about technologies being developed and implemented throughout the world, fostering relationships between Europe and the USA. European operations will be able to learn about technologies that have been cost effectively applied in environmentally sensitive areas within the US, for example, produced water and hydraulic fracturing technologies.

The Environmentally Friendly Drilling Systems Program

The EFD program addresses new low-impact technology that reduces the footprint of drilling activities, integrates light weight drilling rigs with reduced emission engine packages, addresses on-site waste management, optimizes the systems to fit the needs of a specific development sites and provides stewardship of the environment. In addition, the program includes industry, the public, environmental organizations, and elected officials in a collaboration that addresses concerns on development of unconventional natural gas resources in environmentally sensitive areas. The EFD program provides the fundamentals to result in greater access, reasonable regulatory controls, lower development cost and reduction of the environmental footprint associated with petroleum E&P operations.

The program continues to add participants from environmental organizations, academia, state and federal agencies, government laboratories, and industry. Currently over 100 organizations support this effort which includes providing financial assistance. The partnership identifies new technologies and transfers them to areas that must incorporate new practices to address environmental concerns. Regional partners optimize technologies to fit the needs of their locale. Partners routinely come together to discuss progress with the sponsors/advisors. The program has received multiple national awards for its contribution for its contribution to improving the environmental impact and public awareness; including the prestigious Environmental Partnership Chairman's Stewards Award from the Interstate Oil and Gas Compact Commission at their 2009 annual meeting.



Technology Transfer activities include the human dimension of technology incorporation in societal areas. Educating and informing is directed toward the industry, Federal and State regulators and the public. The outcome of these activities is expected to result in reasonable regulatory controls, lower development cost and reduction of the environmental footprint associated with operations. To date, the program has made over 40 presentations, issued over a dozen publications and has held four significant workshops.

The EFD Program has created a University/National Laboratories Alliance to fund and transfer critical new technologies that accelerates development of domestic reserves in a safe and environmentally friendly manner. The research is aimed specifically at identifying and developing safe and environmentally friendly technologies. While some of the alliance technologies may have received initial funding from sources other than for oil and gas research, the project's objective is to adapt prior work to address environmental challenges facing oil and gas activities.

Next Steps

The 2010 Society of Petroleum Engineers (SPE) Annual Technical Conference is scheduled to be held in Florence, Italy in September. This provides an excellent opportunity for launching a European EFD chapter. First, a panel discussion may be held at the SPE conference that discusses the various environmental challenges associated with developments in the USA and Europe. Secondly, a full day EFD workshop may be held in Florence on Thursday, September 23, immediately following the SPE conference. The workshop can focus on low impact drilling – noise, emissions, footprint, roads, well siting, as well as environmental and societal issues. The goal is to foster an exchange of how companies and organizations are meeting regulatory, environmental and societal challenges.

The workshop would include operators, regulators and other organizations presenting case studies and examples of innovative best practices as suggested by the EFD advisors. In addition to the updates on the program and case studies the workshop may also include the environmental scorecard, most applicable technologies and societal studies.

The EFD management team has been working with Gerhard Thonhauser with the University of Leoben, Austria, to explore the possibility of establishing an EFD European chapter and organizing the SPE panel and complementary workshop.

Funding

Due to US government restrictions, funding for the European initiative cannot come from RPSEA. At least one Industry Sponsor (service company/operator) is required to initiate the European program. The new sponsor would become a member of the EFD program with the sponsorship fee (US \$100,000) being split on the workshop and on a mutually accepted task, for example, a report on best practices in certain environmentally challenging region(s) that can be presented at the workshop. The results of the workshop will be provided to EFD members who cannot participate. Additional sponsorship funding may be used to fund the development of technologies, processes and methods that may be applied to environmentally sensitive areas in Europe.

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