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Determining Environmental Tradeoffs Associated with Low Impact Drilling Systems

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ABSTRACT

An environmental scorecard is being developed to determine the tradeoffs associated with implementing low impact drilling technology in environmentally sensitive areas. The scorecard will assess drilling operations and technologies with respect to air, site, water and biodiversity issues. Low environmental impact operations will reduce the environmental footprint of operations by the adoption of new methods to use in (1) getting materials to and from the rig site (site access), (2) reducing the rig site area, (3) using alternative drilling rig power management systems, and (4) adopting waste management at the rig site.

The scorecard enables a dialog to be established and maintained among all interested, concerned and affected stakeholders. In this manner, the oil and gas industry has a new way of seeing itself within the larger network.

The scorecard presented in the paper provides the means to demonstrate the connectivity between energy production and the affected ecosystem.

The Houston Advanced Research Center (HARC) and Texas A&M University have been leading an industry consortium effort to investigate the development of low impact drilling systems.

The work originated in 2005 and funding was obtained by the U.S. Department of Energy for 2006 through 2008.

The goal of the low impact drilling systems project is to reduce the environmental impact of rig operations through integration of low-impact site access and site operations. The paper will discuss the scorecard that is being developed. The scorecard methodology presents an ecological understanding of the tradeoffs associated with producing energy. The EFD scorecard will be developed in detail for a coastal margin ecosystem and the methodology will be documented to enable the scorecard to be replicated at other ecosystems wherever reservoirs are produced. This scorecard methodology is being developed through a series of workshops being held with ecologists, botanists, wildlife management experts and others in addition to oil and gas industry experts.

INTRODUCTION

The Houston Advanced Research Center (HARC) and Texas A&M University through the Global Petroleum Research Institute (GPRI) have been collaborating with industry and environmental organizations to integrate and demonstrate current and new technology into land-based drilling systems for compatibility with environmentally sensitive or off-limits areas. The **Environmentally Friendly Drilling Systems** (EFD) Program is taking a systems approach to the integration of currently known but unproven or novel technology in order to develop drilling systems that will have very limited environmental impact and enable moderate to deep drilling and production operations and activity with reduced overall environmental impact.

The EFD Program is identifying and providing the technology to successfully produce shale gas and tight gas sands while appropriately addressing environmentally sensitive issues. The project focuses on developing drilling technologies that can be used throughout the U.S., in particular, unconventional natural gas resources as illustrated in Figure 1 and Figure 2.