

Eagle Ford Characterization

The University of Texas Bureau Of Economic Geology will produce a comprehensive Technology Assessment report on the Eagle Ford Shale Play. This report will cover the entire areal extent of this area and include both surface and subsurface geological analysis. Surface features include topography, fresh water, brackish ground water and other features that would impact natural gas development. Ground water zones will be identified with an analysis on the capacity of these zones to provide adequate water for drilling fluid and fracturing water make up. Analysis on the subsurface area will show zones that are best candidates for disposal.

Field Tests – Locating Sites

Environmental Land Steward Consultants will supervise incorporation of new technology to minimize disturbance. Programs supported by the EFD Program during the years 2004-2010 will be adapted to South Texas to assist in site selection, lease roads, rigs, lines, frac ponds, compressor stations, and power lines. The goal is to allow new technology to influence positively land use, to reduce environmental impacts while retaining cost effective well plans and surface operations. The deliverable from this segment will be a documented process handbook describing “best practices” for site operations.

Field Tests – Drilling and Completion Operations

The EFD project has conducted studies on the advances of small footprint rigs and power sources that are more efficient, require less fuel, produce fewer emissions, and are quieter. Advances in rig design and efficiency continue to be made. Regulators, land owners and managers need to be informed on these advantages and options. With smaller rigs there can be tradeoffs. This task will demonstrate what is possible, the cost effectiveness and environmental benefits of using a modern rig.

Wildlife/Bio-Environment Mitigation Strategies

This work will be coordinated through the Institute for Sustainable Energy and the Environment managed by Texas A&M Kingsville Texas. The NSF sponsored Center fosters fundamental research and development for promoting the concepts of sustainability of ecological and environmental systems in the semi-arid coastal areas of South Texas. An additional resource is the county extension service representatives from Texas A&M’s Agri-Life College. The deliverable will be establishment of a coordinated link to long term research, outreach and education efforts of institutions in South Texas.

Field Tests – Community Issues

This effort focuses on community issues, principally in South Texas, but with applicability to other areas experiencing rapid development. *Unconventional Gas Social Impact Assessment* (UGSIA) is based on social impact assessment (SIA), a sub-field of the social sciences, and is a process designed to systematically appraise *in advance* the social impacts of a proposed project or policy change. Researchers will develop and test a modified version of SIA for affected populations in the Eagle Ford Shale using data gathered from recently conducted sociological studies in the Barnett Shale. Together with ongoing studies in the Uintah Basin, and the Marcellus Shale we will focus on identifying, documenting, and through stakeholder involvement procedures, addressing the broad range of social, cultural, demographic, economic, and social-psychological impacts of proposed gas development in the Eagle Ford Shale. Deliverables from this task are reports from this modified SIA will provide information to industry and other stakeholders about the types of impacts that need to be considered in any exploration and development decision. In addition, it will provide industry with documentation on the negative social impacts that it needs to minimize and/or avoid. And, by minimizing and/or avoiding such potentially problematic issues, the energy industry can correct many of the misconceptions surrounding unconventional gas development and, in turn, gain the public’s trust.

Field Tests – Air Quality/Emissions

One issue that the energy industry faces is how to minimize adverse environmental impact of their operations. The objective is to monitor air quality in a selected area, provide data to key stakeholders, and to make sure environmental standards for the area are met. Selected sensors measure the environmental conditions within a certain area, record those conditions remotely, then process and incorporate that information into a web-based network for display in real time. This subtask will deliver a prototype environmental oversight package that accepts wide variety of sensor data and through an existing network displays that information in easily understandable manner.

Field Tests – Water Management

A number of water treatment business ventures are joining Texas A&M’s team to prove out the technology and to provide documented data for pilot plant, field trials, and potentially full scale commercial operations. Tests will be performed on frac water flow back and produced brine to identify the required level of treatment that is best for re-use in subsequent fracturing operations.

Environmentally Friendly Drilling Program

For 20 years, we have worked to reduce our environmental footprint. Remarkable progress has been made.

The program has shown we can **reduce the footprint more than 90%** with a further reduction in the impact on the environment if low impact technologies are combined in a system.

From the past...
(multiple well sites)



...to the present drill site pad
6 times smaller and able
to access multiple wells
from **ONE** location



System includes:

- Modular small footprint rigs with reduced emissions.
- Pad drilling of multiple wells from one site.
- New downhole logging and steering tools.
- Closed loop drilling fluid systems.

Managed by the Houston Advanced Research Center (HARC), Texas A & M University, Sam Houston State University and TerraPlatforms LLC
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