

DIRECTOR'S COMMENTS

G—045-03

Fryburg and Medora Unitized Fields: Prototypes for Revitalizing Conventional Oil Fields in North Dakota

Submitted by: Eagle Energy Partners/EERC

Principal Investigator: Pat Nickodemus

Request for: \$3,000,000

Total Project Costs \$6,000,000

Duration: 36 months

Description of the Project:

Eagle Energy Partners I, LLC (EEPI) proposes a multidisciplinary research program to address the technical challenges facing the revitalization of conventional reservoirs in North Dakota. EEPI intends to investigate the Fryburg Heath (Tyler)–Madison and Medora Heath–Madison unitized fields (FHMU and MHMU, respectively) in Billings County as prototypes for implementing CO₂ enhanced oil recovery (EOR) in North Dakota. EEPI proposes to conduct the program in close collaboration with the Energy & Environmental Research Center (EERC). Information generated in this project will positively affect ultimate recovery from North Dakota's existing conventional oil pools and will lead to additional projects, processes, ideas, and activities to facilitate implementation of oil exploration and production technologies presently not used in the state. The potential to revitalize conventional oil fields and increase ultimate recovery will bring new oil companies and industry investment to North Dakota, resulting in the growth of oil and gas jobs, wealth, and tax revenues for North Dakota.

The objective is to investigate waterflood optimization as a precursor for CO₂ EOR and development pathways for FHMU and MHMU as prototypes for the revitalization of conventional oil fields in North Dakota. Objectives to be accomplished to meet the stated goal are 1) evaluate waterflood optimization and CO₂ EOR potential and implementation approaches specific to FHMU and MHMU; 2) develop cost-effective operational strategies that address key technical challenges, optimize current facilities, and systematically consider necessary new facilities; and 3) frame the results and experiences from this project as a prototype for revitalizing Tyler and Madison conventional oil fields in North Dakota.

Technical Reviewers' Comments

Reviewer G-45-03A

Merits of the project are the work plan is logical and follows industry established methods. Considerable work will be required to properly identify the likelihood of success of a CO₂ project. Consideration of the condition of the existing wells and facilities is good. The reality of additional drilling is expected. The work and studies done by the long time previous operator/owner Hess are apparently not in their possession. I suspect there is a considerable dossier of information of the type needed for this study. A well-presented plan utilizing in-house expertise for the field facilities as well as EERC reservoir evaluation experts and tools is good. Study will be a good resource for future implementation of similar studies by others in the industry.

Recommendation: Fund

Reviewer G-45-03B

The proposed study has identified unitized fields that are likely candidates for successful tertiary recovery. The proposed methods appear to be focused on addressing specific aspects of the petroleum present in these fields and are certainly worthy of significant study. If successful this study may lead to technologies that extend and enhance oil production from a significant portion of the existing inventory of conventional wells.

Recommendation: Fund

Reviewer G-45-03C

The methodology is strong. It has all the steps for a traditional look at field development as used by Producing Companies, plus the blending of newer technologies using EERC's labs, equipment, and testing procedures. I believe the categorizing of all existing data for the mature field; lab testing as required, a look at existing facilities and infrastructure for improvement/enhancement; improving or developing secondary recovery (waterflood) efficiencies, and then preparing for future EOR recovery is well thought out.

Recommendation: Fund

Director's Recommendation:

To fund in the amount of \$3,000,000 over the course of 2 biennium.