CO_2 EOR Exploration Alliance by Merging Assets for Risk Management

Alliances can be formed by merging some of the assets of different operators in different fields to manage risk, exploit limited capital, optimize reservoir management and deploy advance technology. One application of this principle would be for CO_2 EOR exploration. CO_2 EOR is similar to exploration for oil but with the added advantage of knowing the oil is there.

An EOR alliance is far from a new concept. It is a redeployment of an old proven management method, long used in oil and gas exploration.

Why Exploration Alliances

- **Independents Are Primarily Exploiting The Remaining Domestic Oil Resources**
- **Limited Capital For Recovery Optimization & Deploying Advanced Technology**
- **Risk Reduction By Diversification Of Capital Over Multiple Projects**
- **EOR Potential Is Greater Than The Undiscovered Domestic Oil Potential**

A void is developing regarding exploration of current resources in the domestic oil industry as the majors abandon this arena. It will be up to the Independents to fill this void being created by the majors' mega-mergers, asset consolidation, midsize property divestiture, and concentration of exploration activities in younger less developed basins, primarily outside the continental United States. Historically the majors have concentrated their EOR implementation into only a few large projects.

The over 24,000 Independents are attempting to fill this void created by the majors. However it is putting a stain on their available discretionary capital. Independents are already responsible for over 85% of the domestic drilling. As the Majors continue to divest themselves of their domestic production, Independents are acquiring the properties thereby further reducing there availability of capital for optimizing reservoir management and deploying advance technologies like CO_2 EOR.

CO_2 EOR projects can require a greater percentage of available capital than the Independent is willing to risk in a single project. Independent's projects are generally small. They disperse their capital among multiple projects reducing overall risk.

Alliances, formed by merging assets, can be used to exploit limited capital, manage risk, optimize reservoir management, and deploy advanced technology. EOR exploration alliances is a redeployment of a proven management method used in oil and gas exploration; now used for the new type of exploration, EOR. The reserve potential for EOR surpasses the undiscovered domestic oil potential.

Enhanced oil recovery has the potential to recover 35 billion barrels of oil, 50% more than the current US proven reserves of 23 billion barrels, from the 351 billion barrel resource of oil that has been discovered but will not be produced by current means. This potential is greater than the US undiscovered potential of 30 billion barrels. This potential could be lost if methods cannot be developed to exploit it. Increasingly wells and fields are being plugged and abandoned or acquired by depletionests. Once this happens the potential to exploit the EOR potential becomes virtually non existent.

It is clear that the task to explore and exploit EOR depends on the Independents and new Mega-independents. Forming EOR exploration alliances is one way that the Independents can achieve their new role in the domestic oil, filling the void left by the majors.

Exploration Alliance

- **Proven Management Principles Applied To Capital Intensive EOR Exploration**
- **Assets Merged by Similar Geographical Or Geological Area**
- **Alliances Evaluate & Rank EOR Potential**
- **Alliances Develop & Initiate Exploration Plan**

Exploration areas of mutual interests, exploration units, joint ventures, and limited partnerships have long been used for oil and gas exploration to merge assets in an area and jointly exploit or explore the area. This is particularly true in the early exploration of a basin or area and was found to be advantageous to the Independents. It allowed them to manage risk by distributing available capital over more prospects. This exploration model is the basis on which CO_2 Exploration Alliances is rooted.

Exploration alliances differ from conventional operating units in that the assets owned by different operators in different fields are merged in a joint venture or limited partnership. Fields that make-up the alliance of properties would be in the same geographical or geological area. Combining assets in this manner will help optimize operation and or reservoir management issues.

Alliance assets are jointly evaluated for EOR potential, ranked on a weighted scale taking into account reservoir risk, capital requirements, condition of equipment, location of CO_2 infrastructure, etc. An exploration plan is developed and the prospects would then generally be developed in stages. Thus reducing initial capital exposure. Development of subsequent stages can potentially be funded from the proceeds of the first project.

These alliances formed by merging assets of Independents can help manage risk, exploit limited capital, optimize reservoir management and deploy advanced technology in the exploitation of the current domestic EOR reserve potential.

Alliance Advantages

- **Risk Management**
- **Capital Diversification Over Several Projects**
- **Improved Knowledge Base**
- **Best Practices Of Operators Initiated**

Risk is distributed among multiple projects reducing the risk of total failure on an individual operator. Projects will seldom perform as projected. Some will perform better than originally expected while others will perform worse. Participating in several projects increases the potential that one will be involved in both kinds of projects. Thus offsetting the poorer performer with the better performer.

Risked capital is better managed since more partners share the initial project cost. Designing of the development stages generally can be done in a manner that capital for future projects is supplied out of a portion of the profits of the first project. Additionally equipment from the first project can potentially by used in subsequent stages or projects reducing the overall cost.

Best practices of the multiple operators can be implemented in the fields. Improving the EOR operations in addition to improving the existing ongoing operations in fields prior to the implementation of EOR operations. Better use of the existing and EOR developed knowledge base is promoted since each operator does not have to reinvent the wheel.

The void left behind by the majors in domestic oil to produce, explore and exploit EOR now depends on the Independents and new Mega-independents. Forming EOR exploration alliances, by merging assets, follows the independents proven exploration model of managing risk in a capital-intensive environment. Thus allowing the maximum exploitation of the largest domestic oil potential, EOR.