PROJECT
facts

DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

OIL recovery
PROGRAM

PROLONGING THE LIFE OF THE BLUEBELL FIELD — THE UTAH GEOLOGICAL SURVEY PROJECT

PRIMARY PROJECT PARTNER
Utah Geological Survey
Salt Lake City, UT

FOSSIL ENERGY PROGRAM
Oil Recovery Field Demonstration

MAIN SITE
Bluebell Field
near Roosevelt, UT

TOTAL ESTIMATED COST
$5.67 million

COST SHARING
DOE - $1.94 million
Non-DOE - $3.73 million

DE-FC22-93BC14953

Project Description

The Utah Geological Survey is working on a project cofunded by the U.S. Department of Energy to demonstrate techniques that could help recover as much as 1 billion barrels of oil that are at risk of being abandoned in the Uinta Basin Bluebell field, near Roosevelt, Utah.

The Bluebell, the largest field in the basin, has produced 118 millions barrels of oil over the last 40 years, but like many other fields, many of its well have been abandoned, production is declining, and the remaining wells are producing more water than oil.

Like its neighbors, the Bluebell field was developed in a hit-or-miss fashion. Some wells were opened in non-productive regions or in low-pressure "thief zones" that siphoned off oil from productive zones. Only 25% of the potentially productive zones today yield oil or gas.

The Utah Geological Survey and small oil operators in the area are examining the Bluebell Field for productive zones that have been bypassed. From drilling records, outcrop and core sample data geologists are piecing together a much more detailed subsurface map that will indicate potential oil-bearing zones and their relationship to rock structures and fractures.

The first phase of the project, developing the more accurate description of the reservoir strata, is nearly complete. Its results will guide the selection of wells and zones targeted in the upcoming field demonstration, in which the Survey will reperforate an existing wellbore, redrill a well by emplacing short lateral offsets, and drill a new well.

Lessons learned will be conveyed by the Survey to producers through a petroleum extension service, workshops and seminars, publications, and a computerized database.

Program Goal

In pursuing its goal of prolonging the productive life of U.S. domestic oil fields, the Department of Energy is cost-sharing projects designed to provide oil producers with the technologies needed to overcome barriers to production in various reservoir classes.

The Utah Geological Survey is applying modern methods of reservoir analysis to the Uinta Basin to locate bypassed oil zones. New analyses of well data and computer simulation of reservoir fluid flow patterns can provide improved knowledge to guide the location of recompleted, extended and new wells that can tap the remaining unproduced oil.

The Survey estimates that nearly 1 billion additional barrels of oil can be recovered from the Uinta Basin using these techniques, which will contribute to the domestic oil resource and strengthen the local economies of the affected areas.

Project Partners

UTAH GEOLOGICAL SURVEY
Salt Lake City, UT
- Project mgmt, reservoir characterization, tech transfer

UNIVERSITY OF UTAH
Salt Lake City, UT
- Reservoir characterization, reservoir simulation

HALLIBURTON SERVICES
Vernal, UT
- Completion technology

BRIGHAM YOUNG UNIVERSITY
Provo, UT
- Outcrop analysis

QUINEX ENERGY CORPORATION
Roosevelt, Ut
- Field operations, well data

Prolonging the Life of the Bluebell Field — The Utah Geological Survey Project

Project Benefits

The Utah Geological Survey project is representative of several of the Department of Energy's Oil Recovery Field Demonstration Projects that are showing how substantial quantities of additional oil can be recovered by re-examining older fields using modern techniques.

When the Bluebell Field was opened 40 years ago, very little was known about the actual subsurface geologic structures that make up the rich, oil-bearing formations of the Uinta Basin. Wells were drilled and opened at depths thought to be the most promising, and as long as production flowed freely from the reservoirs, there was little incentive to conduct a more detailed examination of the formation's architecture.

Today, however, the situation has changed. With production declining and the price of oil low, producers can no longer afford to operate in a hit-or-miss fashion. The demand today is for more precise reservoir descriptions that allow an operator to pinpoint productive pay zones in a formation.

Like many U.S. oil fields, Bluebell Field probably contains productive zones which earlier well bores may have bypassed. One of the most cost-effective ways of increasing production may be to reopen existing wells at intervals where new information indicates such productive zones lie. Equally important will be the location of nonproductive zones or "thief zones" (see Project Description), so that time and expense can be saved by avoiding them.

The Utah Geological Survey project will provide much of this information. It will have application throughout the Uinta Basin. By reopening wells or drilling new wells into missed or bypassed zones, some 1 billion barrels of Uinta Basin oil could be saved from abandonment, providing new additions to the U.S. domestic reserves and reducing the Nation's dependence on foreign suppliers. New domestic oil production also provides increased state and federal revenues, good paying jobs, and increased sales of equipment and services.

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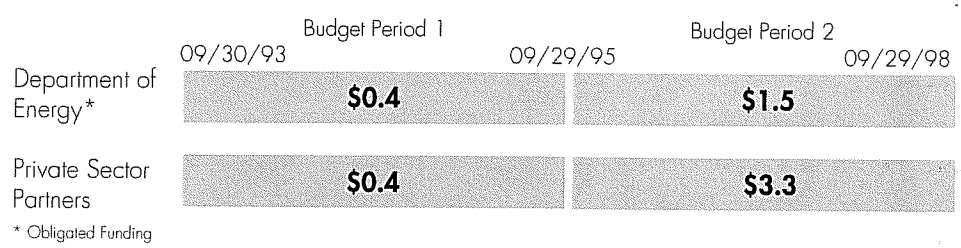
Cost Profile (Dollars in Millions)



* Obligated Funding

Key Milestones