PROJECT FACT SHEET

CONTRACT TITLE: Reservoir Simulation/Horizontal Drilling, Round Mountain Unit Thermal Development Project, California/Independent Award

ID NUMBER: DE-FG26-00BC15258

B&R CODE: AC1010000

CONTRACTOR: MacPherson Oil Company

ADDR: 2716 Ocean Park Blvd
Suite 3080
Santa Monica, CA 90405

DOE PROJECT MANAGER:

NAME: James L. Barnes
LOCATION: NPTO
PHONE: 918/ 699-2076
E-MAIL: jim.barnes@npto.doe.gov

CONTRACT PROJECT MANAGER:

NAME: David W. Chenot
PHONE: 661/ 326-1112
FAX:
E-MAIL:

PROJECT SITE

CITY: Santa Monica **STATE:** CA
CITY: Round Mtn. Field, Kern Co. **STATE:** CA
CITY: **STATE:**

CONTRACT PERFORMANCE PERIOD:
6/1/2000 to 5/31/2002

PROGRAM: Reservoir Life Extension
RESEARCH AREA: Improved Oil Recovery; Independent
PRODUCT LINE: DCS

CO-PARTICIPANTS:

PERFORMER:	**CITY:**	**STATE:**	**CD:**
PERFORMER:	**CITY:**	**STATE:**	**CD:**
PERFORMER:	**CITY:**	**STATE:**	**CD:**
PERFORMER:	**CITY:**	**STATE:**	**CD:**

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	75	888	963
FY 2002 CURRENT OBLIGATIONS	0	0	0
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	75	888	963

OBJECTIVE: Use reservoir simulation to select the most efficient combination of horizontal or redrilled/lateral wells and steamflood process to produce heavy oil in the Round Mountain Field, Kern County CA.

PROJECT DESCRIPTION:

Background: Heavy oil in the Vedder Sand at Kern County Round Mountain Field is produced by injecting steam into vertical wells to heat and mobilize the oil, allowing it to flow by gravity to the producing wells. The Vedder Sand is highly permeable at the top of the formation and grades downward to lower permeability toward the bottom. This permeability distribution causes much of the steam to override the "tighter" sands and bypass the oil remaining in the lower reaches of the producing horizon.
Work to be Performed: Develop a three-dimensional model of the entire Round Mountain Field to study the field's production history by computer simulation and make predictions of expected performance improvements from the drilling of horizontal wells in the lower, reduced-permeability sands. Based on the results of the simulation, one horizontal well will be drilled in the Vedder Sand.

PROJECT STATUS:

Current Work:

Scheduled Milestones:

Develop 3D reservoir model of the Round Mountain Vedder reservoir - gather data	09/00
History match model	12/00
Use model to predict future performance under various development/drilling scenarios	02/00
Drill new well(s) or sidetrack from existing well(s) to optimize field recovery	04/00

Accomplishments: To evaluate horizontal drilling, a short radius lateral was drilled from an existing borehole using the commercially available Rotary Steerable System. Problems were encountered in setting the cement kick-off plug. A Curve Drilling Assembly was run to make the kick-off from vertical to the short radius turn, but the actual kick-off point ended up approximately 15 feet lower than planned. This resulted in the bore hole being beneath the target zone, in a softer formation, requiring a higher hole angle than planned to return to the target. The Rotary Steerable System used in the drilling process was not able to build angle above 90 degrees in the softer sand. Eventually a fish was lost in the hole, resulting in abandonment of the sidetracking effort.

Conclusions are that the Veder sand is too soft and unconsolidated for the Rotary Steerable System to build angle above 90 degrees. The failure of the lateral drilling attempt did not answer the questions of the value of horizontal drilling in the Round Mountain Thermal Project. In view of the number of successful applications of the Rotary Steerable System, one failure is not surprising, and does not condemn the system. The operator believes that the Vedder sand is not a good target for Rotary Steerable System tools because of its unconsolidated nature.

Subsequently, a conventional intermediate radius horizontal well (IRW) was successfully drilled with a 440 foot horizontal section. After clean-up, the well demonstrated a high productivity index of 140 B/D/psi. The well is in position to receive oil when the hot oil bank reaches the well. The successful completion of an IRW with a high productivity index supports the concept that horizontal wells can produce at high rates in the Vedder Formation.

Received Final Report 7-12-01.

TECHNOLOGY TRANSFER:

Technology/Information Transfer:

Public Relations:

Updated By: Walter B. North **Date:** 1/17/2002