ENHANCED OIL RECOVERY

E- 386

OBJECTIVES

To learn the fundamentals of EOR studying feasibility of the existing methods. At the end of the course, the students will be able to select the best method taking into account reservoir properties, oil characteristics

COURSE CONTENT

INTRODUCTION **0.5 day**

General introduction: reservoir management/drainage architecture (design of an effective pattern).

What is EOR (Enhanced 0il Recovery): Definition and different methods used.

GAS & WATER INJECTION. **1 day**

Factors influencing recovery: reservoir and fluid characteristics and efficiencies,

injection characteristics (volumes of injected fluids, type of fluid , flood pattern).

Displacement or microscopic efficiency, area sweep efficiency, vertical sweep efficiency and global sweep efficiency.

Water flooding: sources and treatment of injected water, well injectivity, water flooding implementation, flood pattern, practical example.

Immiscible Gas injection: injected gas sources, flood mechanism and well injectivity.

Gas injection implementation, practical example.

Gas cycling mechanism and implementation, practical example.

CHEMICAL **1 day**

Surfactant: decreasing Sor, surfactants oil displacement.

Polymer: increasing µw, chemicals, stability, rheology in porous media, adsorption/retention, oil displacement.

Alkaline: effect on oil/water interfacial tension, wettability effect, chemicals, fluid/fluid and rock/fluid interactions.

THERMAL **1 day**

Reducing oil viscosity: thermo-chemical alteration of crude oils.

Steam injection: temperature effects, implementation, WASP (Water Alternating Steam Process).

In situ combustion: process, operations.

GAS **1 day**

Thermodynamics: phase equilibrium, wettability, two-phase and three-phase relative permeabilities, miscible/immiscible fluid ($C0_2$, N_2, steam/propane, WAG (Water Alternating - Gas).

Miscible flooding parameters: phase behavior, MMP, heavy crude.

Field equipment and implementation.

New techniques: gas shut off, gas sequestration

OTHERS **0.5 day**

Microbial

Economics, reservoir screening criteria

Field cases examples

Improved oil recovery: horizontal wells, multidrain, complex wells

▲ Who should attend?

Engineers in charge of the increase of the oil and gas production and the enhancing oil recovery. Other professionals and managers participating in the effort in multidisciplinary teams and who need to gain a better understanding of the concepts and limitations of the different methods.

▲ Duration

5 days

▲ Dates & Location

October 20 to 24, 2008

Rueil-Malmaison (Paris)

▲ Tuition Fees

€ **2,090**

▲ Course Coordinator

Gérard GLOTIN

Ref. **GIS / EOR**