RESULTS OF DEEP DRILLING IN AUSTRIA

Hermann F. Spoerker

Austria is a small country in the heart of Europe and most foreigners have problems in not calling it Australia; even if they heard of it before, they think of Johann Strauss waltzes and the world-famous Sacher-Torte. Very few — even in the oil business — know that the deepest wildcats in the search for hydrocarbons worldwide, outside of the USA, have been drilled here. Oil and gas exploration in Austria started early this century in 1909. Galicia, at that time part of the Austro-Hungarian Empire, ranked third in world oil production. In 1934 the first commercial oil discovery was made in Austria, within the borders as we know them today. By 1943 the annual production passed the 1 million tons per year mark and in 1956 Austria produced more than 3.6 million tons of crude oil. Because of the intensive exploration programs during the 1940's and 1950's our company, the OeMV Aktiengesellschaft, was forced to drill deeper and deeper.

The first well in Austria to reach a depth of 3000 m was the Paltendorf 1 in 1957, the 4000 m mark was passed in 1961 in the Schönfeld 1 well.

The era of ultra deep exploration began in Austria in 1966 when OeMV (the Austrian State Oil Company) spudded the first 6000-m well: the Schönkirchen T 32, some 35 km northeast of Vienna. In this area the Matzen Oil Field, at that time the largest oil field in Western Europe, was discovered in 1949 (Fig. 1).

Below the tertiary oil and gas accumulations a new oil discovery was made in 1962 in the top part of the basement: this field was called Schönkirchen Deep.

Following the geological concept that one should drill in a proven oil and gas province deeper and deeper until one has definite indications that no more hydrocarbon accumulations can be expected, the OeMV spudded the before-mentioned ultra deep test: Schönkirchen T 32 (Fig. 2). Drilling operations progressed according to plan and something exploration people can only dream of happened: the very first ultra deep test discovered another gas field: Schönkirchen Ultra Deep. As can be seen on the geological cross-section of this area, the discovery was made in a dolomite body of the highly tectonically disturbed stratas of the Mesozoic Basement. The test showed sour gas, containing approx. 13% CO₂ and 2% H₂S. Due to the fact that the reservoir was in a steep dipping dolomite body the reservoir pressure gradient on top was about 1.4 atm - 10 m.

1Director Exploration and Production, OeMV Aktiengesellschaft, Otto-Wagner-Platz 5, 1090 Vienna, Austria
This field was developed by other 6000 m wells and in 1977 an even deeper gas discovery was made in the wildcat Gänserndorf UT1 which reached a T.D. of 6344 m.

These deep discoveries stimulated the exploration efforts of the OeMV and already in 1975 it was decided to order one of the biggest land drilling rigs available at that time to be able to reach to depths of 8000 and 9000 m. This rig, an IDECO H 3000 (Fig. 3), was rigged up on