Depositional Environment and Reservoir Characterization Shiranish B and C, Oudeh Block, Republic of Syria

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Introduction

The Oudeh Field located in the northeastern area of Syria was discovered by the Syrian Petroleum Corporation (SPC) in 1982 and development drilling continued to 2000. No drilling occurred between 2000 to 2003. Tanganyika Oil Compnay Ltd was awarded the Oudeh Block and became operator during November 2003. Dublin International Petroleum (Syria) Ltd is the 100% owned operating company of the Oudeh Field.

The objective of the Contact for the Development and Production of Petroleum with the Government of Syria is to increase oil recovery and crude oil production by applying enhanced oil recovery techniques. The contract has a term of 20 years with a provision for a five year extension.

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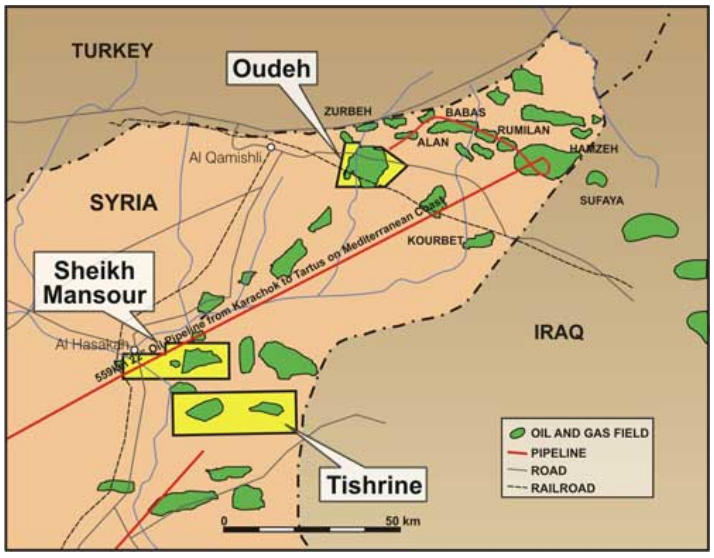


Figure 1: Oudeh Field Locatio

Regional Geological Setting

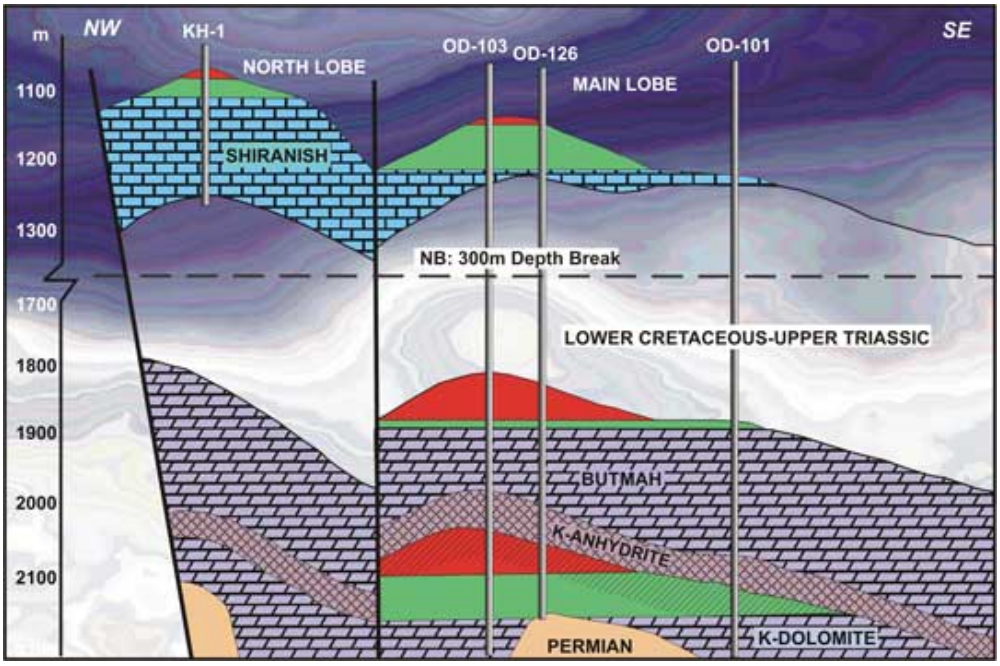
The Oudeh Field is located within the northern most extension of the Zagros fold belt. There are a number of fields in the region. The Zagros fold belt contains abundant anticlinal structures in a zone stretching from within the border of Turkey, across northeastern Syria and into northwestern and southern Iraq. The folds are asymmetric and commonly

en-echelon with the south-western limbs vertical or overturned. The fold belt developed from late Eocene onwards as a result of the collision of the Arabian and Iranian plates creating a broad NW-SE oriented belt of prominent fold structures. These structures contain reservoir sequences deposited on the stable shelf area of the Arabian Shield.

Stratigraphy

The Oudeh Field contains three reservoirs. The Jurassic Butmah formation, the Triassic Kurachine formation and the upper Cretaceous (Maastrichtian) Shiranish formation.

The Butmah and Kurachine (K Dolomite) formations are dolomitic limestone with thin beds of anhydrite and contain gas and oil.



The focus of this core display is the Shiranish formation. Within the Oudeh field the Shiranish is informally divided into there members, Shiranish A, B and C. The primary reservoir is limestone of the Shrianish B.

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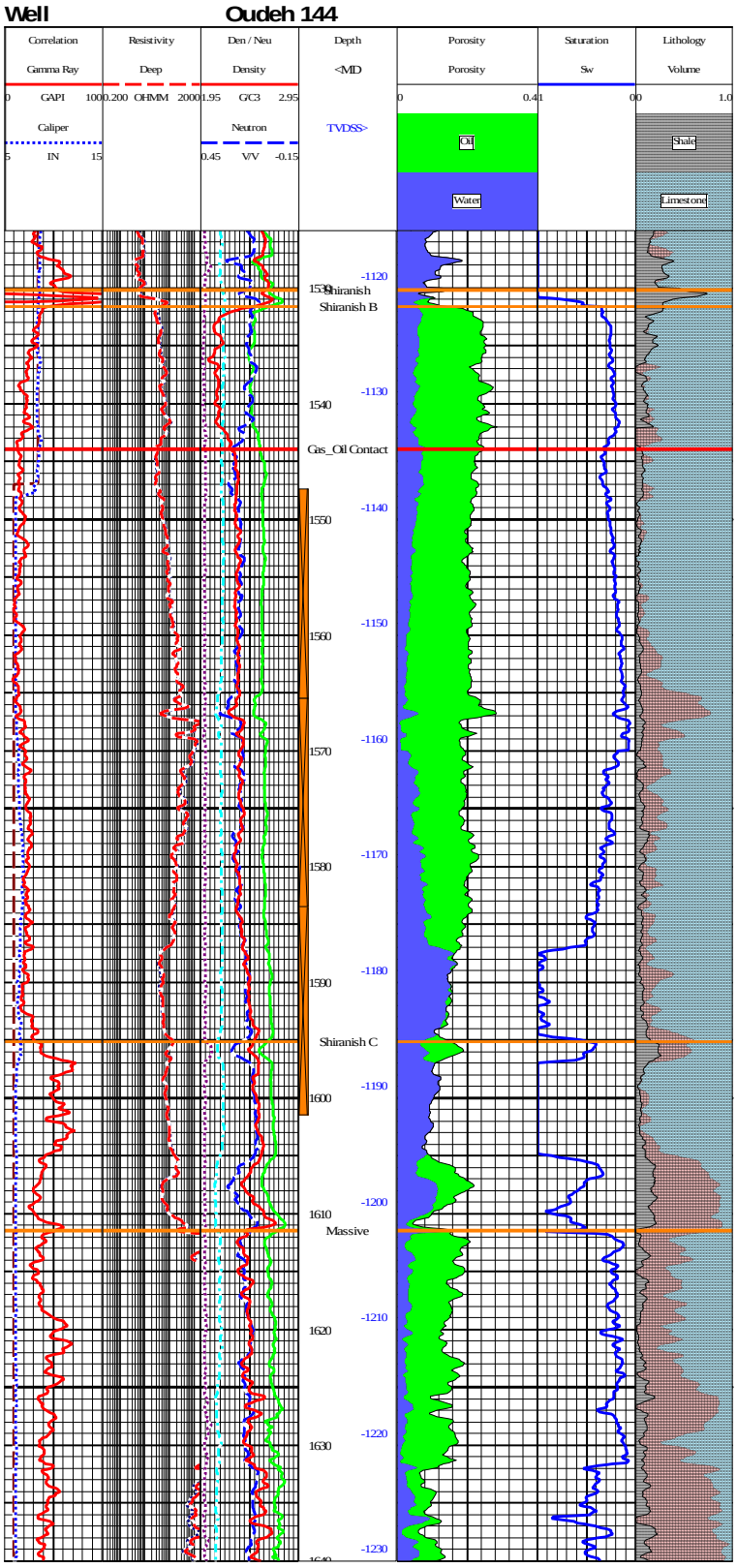

Figure 2: OD-144P Log Display

Core Description

The Shiranish C from 1594.5 to 1601.5 m is a lenticular bedded peloidal dolomitic lime wackestone with argillaceous wisps and seams deposited in a deeper water environment. The highly calcareous, matrix rich microcrystalline dolomitic limestone contains poor to fair effective porosity and poor to moderate estimated permeabiltiy from thin section analysis. Glauconite and detrital clay clay occurs in moderate amounts. Original sediment probably consisted of lime mud, peloids, mud clasts, glauconite peloids, echiniod grains and variety of other shell detritus. Microcrystalline to fine crystalline dolomite replaces the original limestone.

The Shrianish B from 1565 to 1594.5 m is a succession of lenticular bedded to bioturbated skeletal wackestone with scattered small sponges to fine skeletal packstone to grainstones. Deeper water elements such as crinoid ossicles, planktonic formainifera and skeletal debris, primarily shell fragments are present. This succession is interpreted to represent a transitional environment from moderate water depths (storm wave base) to shallow fair weather wave base on an open marine ramp. The dolomitic lime packstone to grainstone has poor to fair porosity and moderate permeability. Matrix consists of peloids, mudclasts and lime mud compressed between more competent skeletal grains. Skeletal detrius consists of echinoids, forminiferids, bivalve shell fragments and bryozoan fragmemts.

The Shiranish B from 1547.5 to 1565 m is a skeletal lime grainstone with preserved cross bedding. The depositional environment is interpreted as above fair weather wave base on a carbonate ramp setting. The skeletal lime grainstone consists of a framework with micritized grains and peloids with echinoid grains and foraminiferids. Good porosity and permeability in the grainstone, a significant microporosity component occurs in the micritized grains.

Conclusion

The Shiranish C and B represents an overall carbonate grainstone succession on an open marine carbonate ramp. Shoaling and preserved bedding grading to cross bedding is seen within the upper portion of the Shiranish B where deposition takes place above fair weather wave base. Reservoir porosity and permeability is controlled by the depositional facies. Poor to good porosity and permeabiltiy is seen in the wackstone to packstone beds. Fair to very good porosity and peremability is seen in the grainstone facies.

References

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