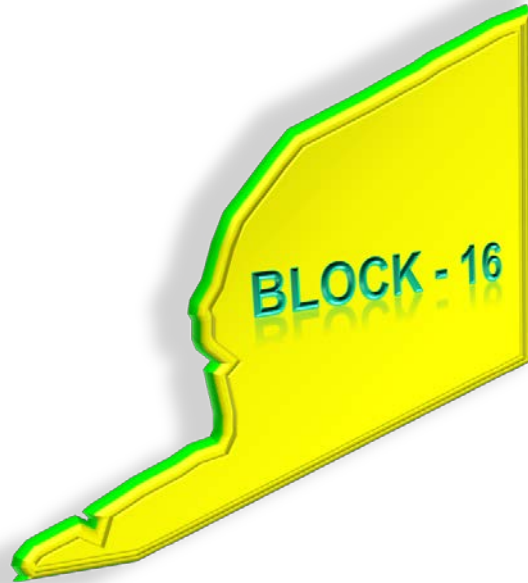
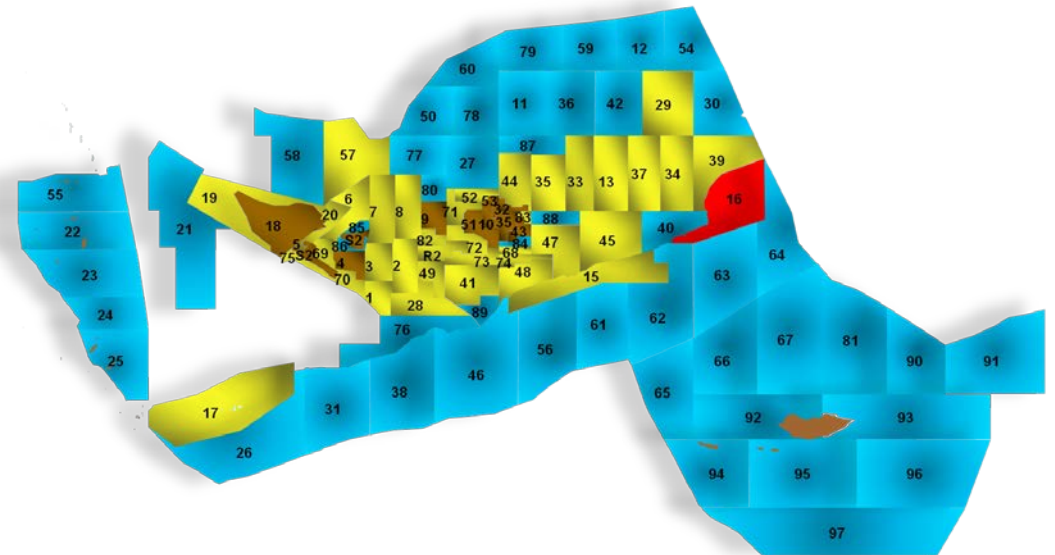
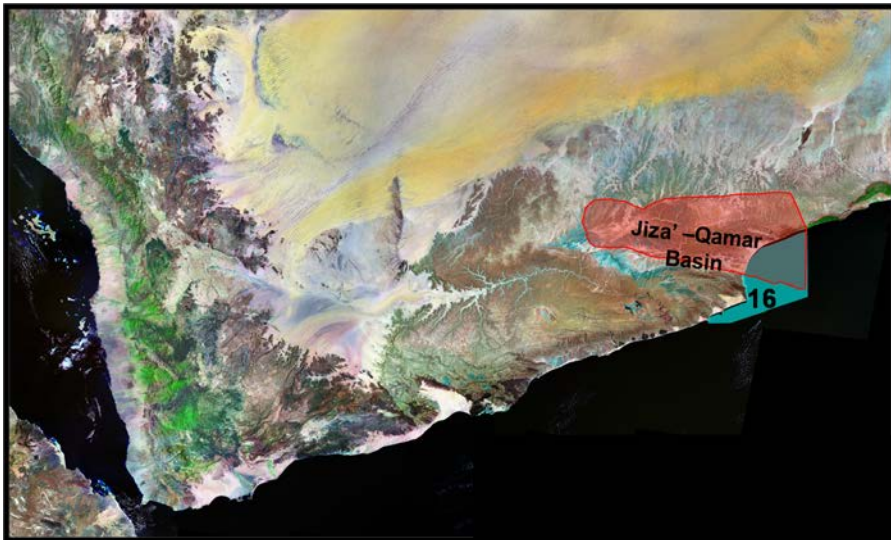




BLOCK 16 (QAMAR)



- ✦ The Qamar Block (16) occupies an area of 10,864 km² near the south western coast of Yemen in the Jiza – Qamar Basin.
- ✦ Block (16) lies on the offshore area. It is bordered on:
 - ⊕ The east and north by Exploration Block (39) and Open Block (40).
 - ⊕ The south and west by the open Blocks (63 & 64).



GENERALS

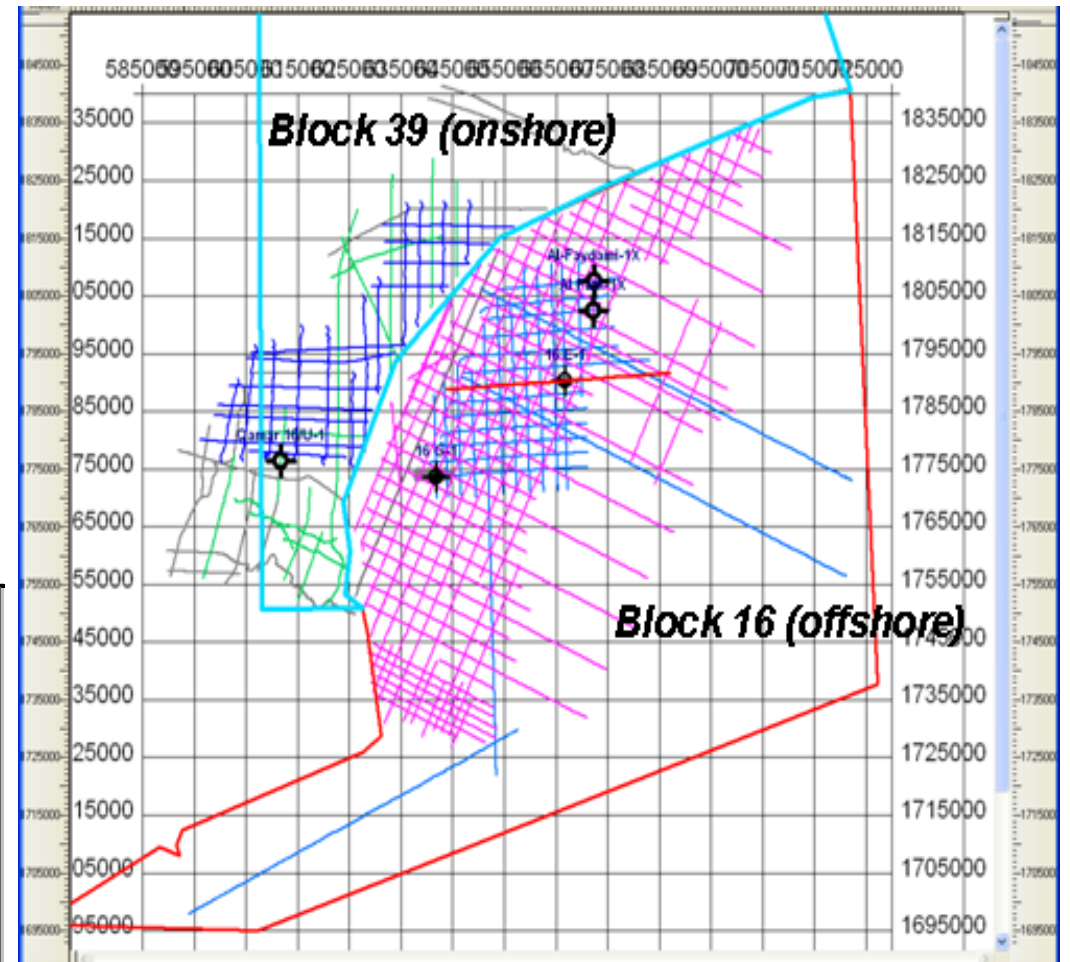
Block Name	AL QAMAR
Block N ^o	(16)
Province	Al Mahrah
Basin	Jiza – Qamar Basin
Area (Km ²)	10,864

PREVIOUS EXPLORATION ACTIVITIES

Company	Period	Activities
Agip	79-83	<ul style="list-style-type: none"> ⊕ Magnetic & 2D seismic ⊕ Drilling (2) wells
Nimir	92-00	<ul style="list-style-type: none"> ⊕ Gravity & aeromagnetic ⊕ 2D seismic ⊕ Drilling (2) wells
KNOC	06-10	<ul style="list-style-type: none"> ⊕ 2D seismic

DRILLED WELLS

WELL NAME	COMPANY	DATE	TD	SHOWS
			TD FM	STATUS
Al Fatk#1	Agip	1981	4300 m	Oil shows
			Mukalla	P & A
Al Faydami#1	Agip	1982	1656 m	Dry
			Jiza	P & A
16/G-1	Nimir	1994	3885 m	Minor shows
			Mukalla	P & A
16/E-1	Nimir	1994	4315 m	Oil shows
			Mukalla	P & A



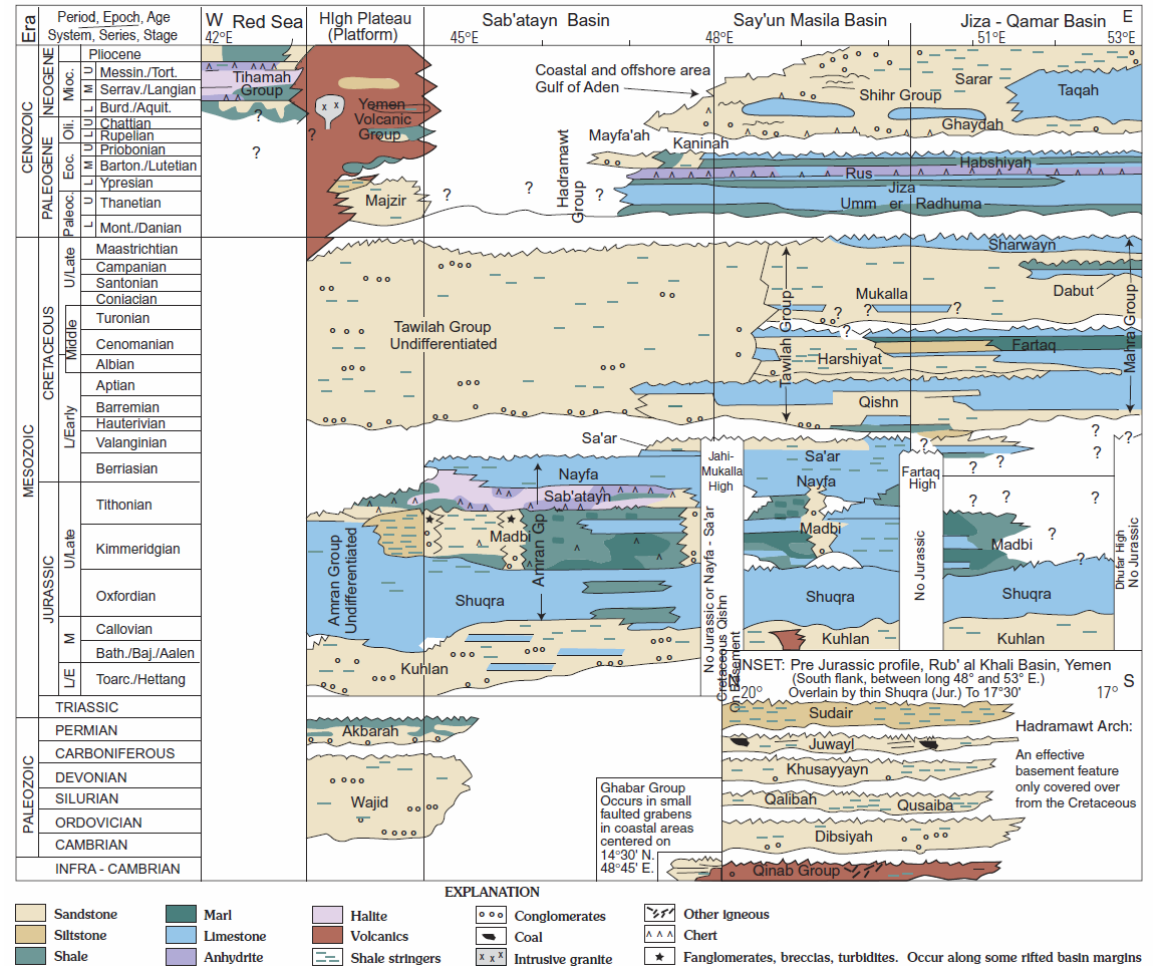
Previous Works

PETROLEUM SYSTEM SOURCE ROCKS

- ▢ Harshiyat Formation mudstone and coal have source rock potential. Harshiyat Formation shows good source rock quality in the western part of the basin. Mudstone and coal sequence shows TOC=0.17-5.13%, HI=5-663 mgHC/g TOC at Al Furt-1 and TOC=0.25-4.48%, HI=77-695 mgHC/g TOC at Wadi Armah-1. These are mainly Type II - III kerogen and partly Type I - II. SIGMA-2D simulation results suggest that Harshiyat Formation is the best contributor to hydrocarbon generation and accumulation in the Jeza-Qamar Basin.
- ▢ Mukalla Formation mudstone and coal are the richest source rock quality in the Jeza-Qamar Basin; especially coal shows high organic carbon contents and hydrogen index values. In the western part of the Jeza Basin, mudstone and coal shows TOC=0.52-3.91% and HI=24-182 mgHC/gTOC at Al Furt-1, TOC=0.66-15.4% and HI=30-312 mgHC/gTOC at Wadi Armah-1, comprising mainly vitrinite. At Wadi Jeza-1 in the eastern part of the Jeza Basin, the geochemical data indicates TOC=0.38-19.48%, HI=10-847 mgHC/gTOC. In Qamar Bay area mudstone and coal shows TOC=0.09-87.4% and HI=18-378 mgHC/gTOC, comprising sapropel and vitrinite at Al Fatk-1X. Well 16/U-1 has TOC's in excess of 10%, S2 yields over 100kg/ton and HI's of over 400 which demonstrate that these coals have significant liquid potential. Kerogen type shows mainly Type I – III. Mukalla Formation is identified to have good quality oil-prone mudstone and coal with high Hydrogen Index in the Jeza Basin and Qamar Bay area

RESERVOIR ROCKS

- ▢ Tertiary and Upper Cretaceous Clastics and Carbonates reservoirs.
- ▢ Alluvial to fluvio-deltaic to shallow marine sandstone in Albian-Maastrichtian
 - Horst/tilted fault block, drape anticline and differential compaction on the horst/tilted fault block, reactivated faulted anticline.
- ▢ Lime-grainstone shoal, coral/rudist build-ups, and porous dolomite in the upper Cretaceous, Umm Er Radhuma, and Rus Formation
 - Carbonate build-ups on the margin of the basin and intra-rift high.

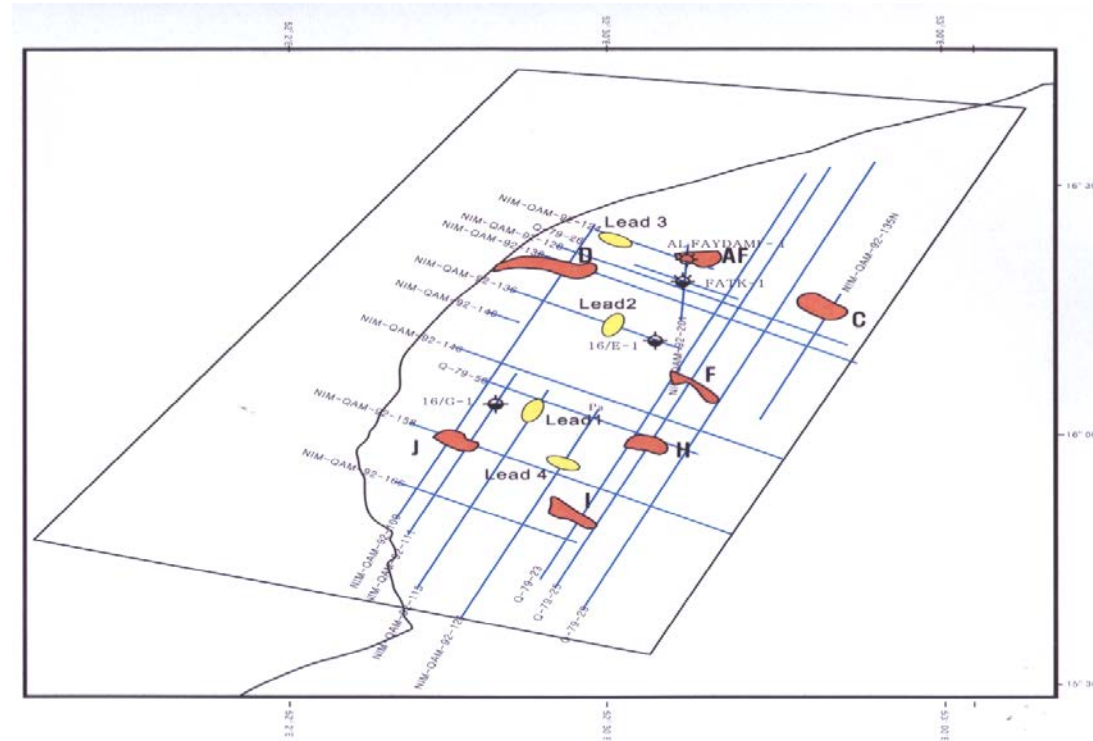


ADDITIONAL RESERVOIR ROCKS (in northern & southern Edges of the Basin)

- ▢ Fractured Basement reservoirs.
- ▢ Upper Jurassic sandstone (Kuhlan Fm) and carbonate (Shuqra Fm)
 - Horst/tilted fault block formed by rifling in late Jurassic to early Cretaceous, which developed on the margin of the basin and intra-rift high.
- ▢ Lower Cretaceous Qishn Formation Clastics Member
 - Horst/tilted fault block formed by rifling in late Jurassic to early Cretaceous high additional.

CONCLUSIONS

- ▣ The main trap type is provided by structural play, and the other types are provided by differential compaction, drape anticline, horsts and tilted fault blocks by the rifting in the Oligocene.
- ▣ There are multiple potential reservoirs developed in the pre-rift, syn-rift and post-rift sequences.
- ▣ The major source rock is the post-rift sequence, the Qishn, Harshiyat and the Mukalla Formations in the east. The Jurassic sequence in the west and northern - southern Edges of the Basin.
- ▣ Drilled wells, Wadi Jeza-1 in the eastern part of the Jeza Basin and 16/U-1 in the onshore part of Qamar area. In Wadi Jeza-1, oil shows were reported in Jeza Member and Umm Er Radhuma Formation and gas, show in Mukalla Formation. In 16/U-1, dead oil was recovered from Umm Er Radhuma Formation and gas shows were reported in Mukalla Formation
- ▣ Many drilled wells in the basin encountered oil and gas shows
 - Al Rizq-1 well in Block 13 considered as an under-evaluation gas discovery – in Shuqra Formation.
 - Wadi Rashm-1 well in Block 33 considered as an under-evaluation gas discovery – in the Basement.



Prospects and Leads