



Hashemite kingdom of Jordan
Ministry of Energy and Mineral Resources

Petroleum Exploration Opportunities in Jordan

The Kingdom was divided into twelve contract areas, two of them are development areas according to CGG study 2017.

Open contract areas for exploration:

1. Azraq contract area
2. Northern Highlands contract area
3. Dead Sea contract area
4. Petra contract area
5. Rum contract area

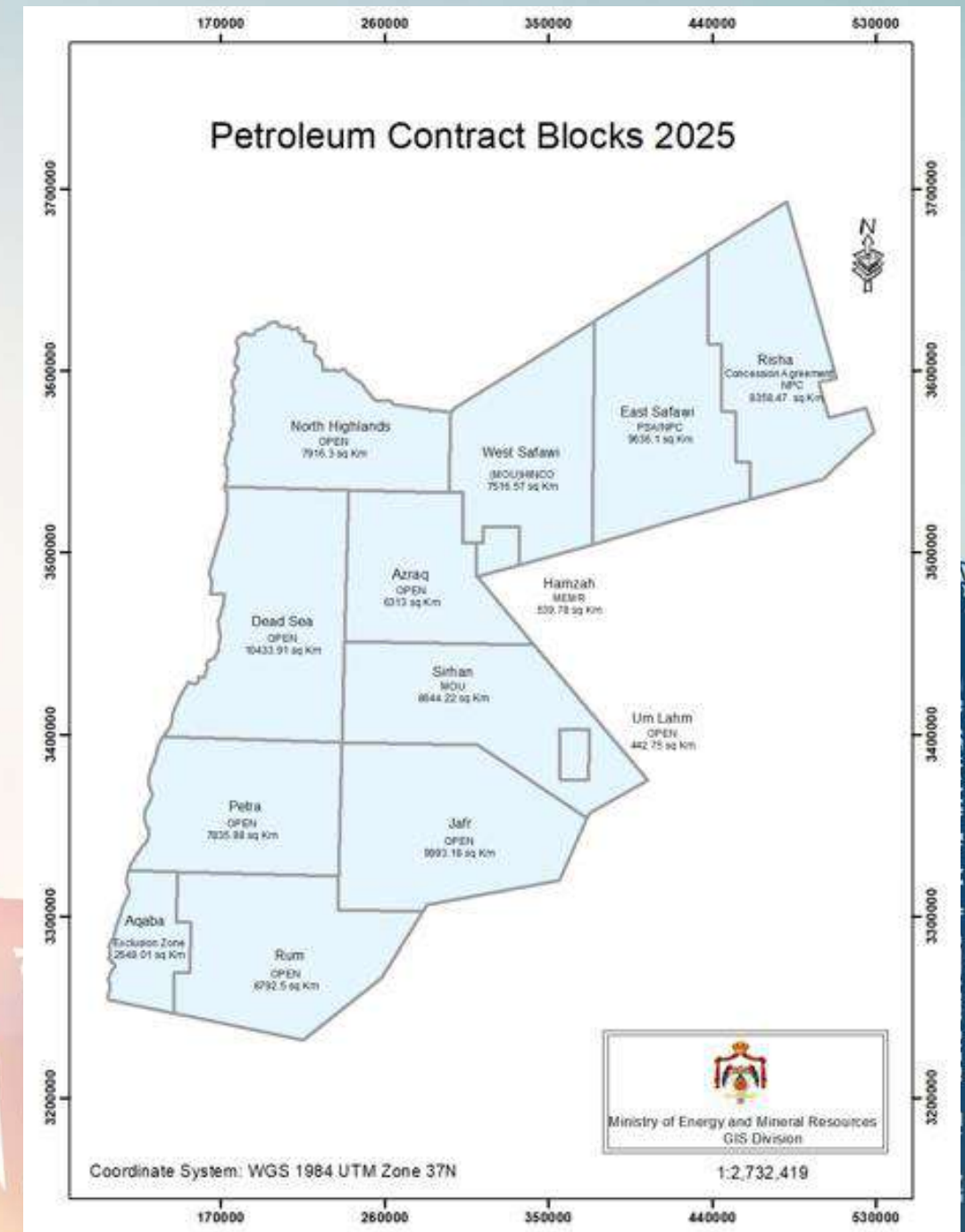




Table of Contract areas in Jordan

No.	Description	Name	Area (km ²)	Number of drilled wells	Status
1	Contract Area	East Safawi	9636.1	4	Under PSA
2	Contract Area	Hamza	539.78	19	MEMR Project
3	Contract Area	Risha	8358.47	44	Under concession
4	Contract Area	Sirhan	8644.22	3	Under MOU
5	Contract Area	West Safawi	7516.57	11	Under MOU
6	Contract Area	Um Lahm	442.75	9	Close
7	Contract Area	Jafr	9993.18	8	Close
8	Contract Area	Azraq	6312.98	6	Open
9	Contract Area	North Highlands	7916.3	7	Open
10	Contract Area	Dead Sea	10433.91	20	Open
11	Contract Area	Petra	7835.87	3	Open
12	Contract Area	Rum	8792.5	5	Open
13	Exclosion Zone	Aqapa	-	-	----



Azraq Contract Area



- **Total Area:** 6312.98 km²
- **Location:** Onshore, east of Jordan
- **Topography:** 496m-979m
- **Seismic Survey:** 2D - Several scanned
 - SEG-Y lines: 1256 Lkm
 - SEG-Y reprocessed (CGG, 2016): 57 Lkm
 - SEG-Y vectorised from scans: 368 Lkm
- **Well:** 6 wells
(WG-2) well has oil stains and bitumen in Wadi Essir Formation and Naur Formation.
- **Available Information:**
- **Comp. lith. electrical and LAS logs, Final geological reports**

Reservoirs:

- Amman (Upper Cret)
- Hummar (Cenomanian)
- Shueib (Cenomanian)
- Kurnub (Early Cret)
- Ma'in (Early Triassic)
- Dubeidib (Ordovician)

Sources:

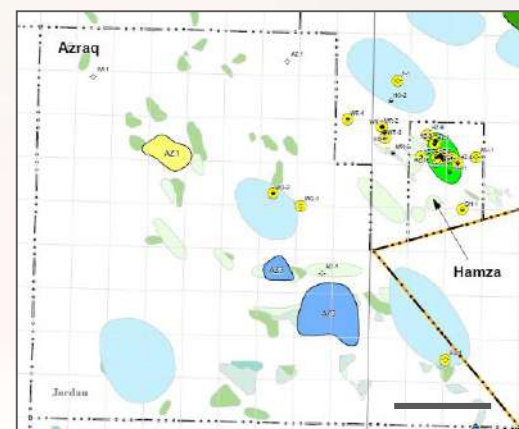
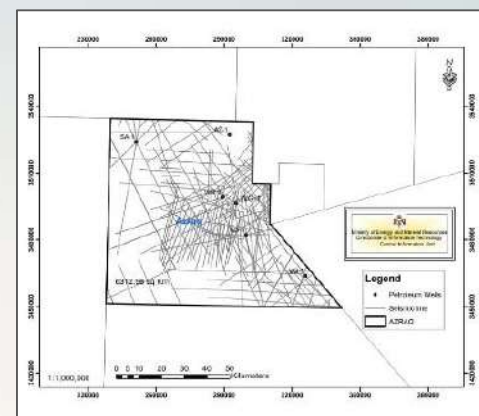
- Wadi Essir (Turonian)
- Naur (Cenomanian)
- Mudawwara (Silurian)
- Dubeidib (Ordovician)
- Hiswa (Ordovician)
- Burj (Cambrian)

Seals:

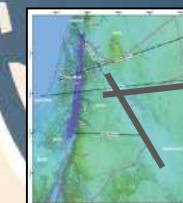
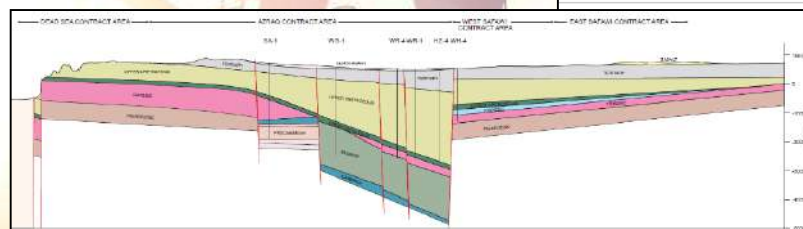
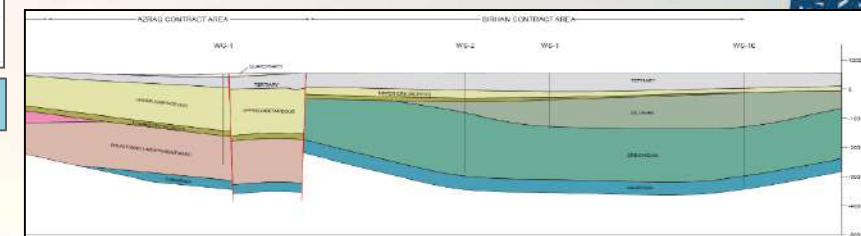
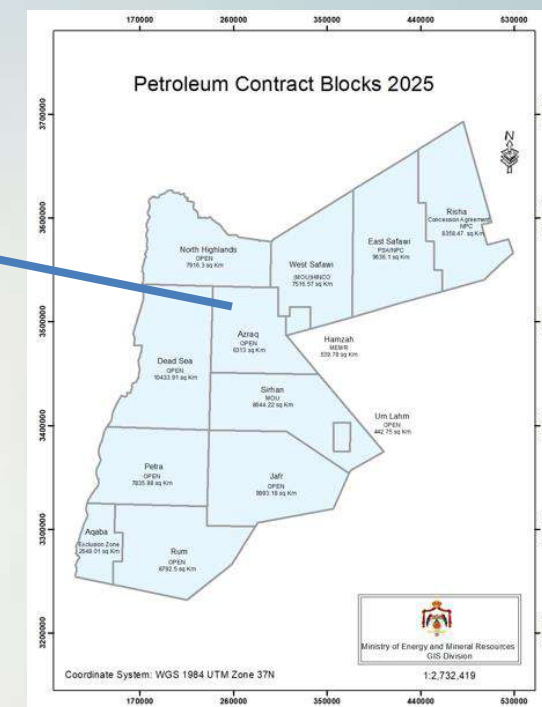
- shaley layers to reservoirs within the Lower Amman Fm.
- anhydrites and shale beds for reservoir layers within the Wadi Essir Fm.
- The base of the Shueib Fm. is generally shaley and tight for the Hummar Fm.
- Low porosity intervals and shale beds in near base of Naur Fm. for the Kurnub Fm.

Trap:

- Eocene horst blocks and tilted fault, Compressional anticlines, anticline trending WNW-ESE flanked by major faults to the north and south.
- Faulting is believed to have a strike-slip component and is characterised by flower structures.
- Cenomanian to early Maastrichtian strike-slip reactivation of the NW-SE trending faults.



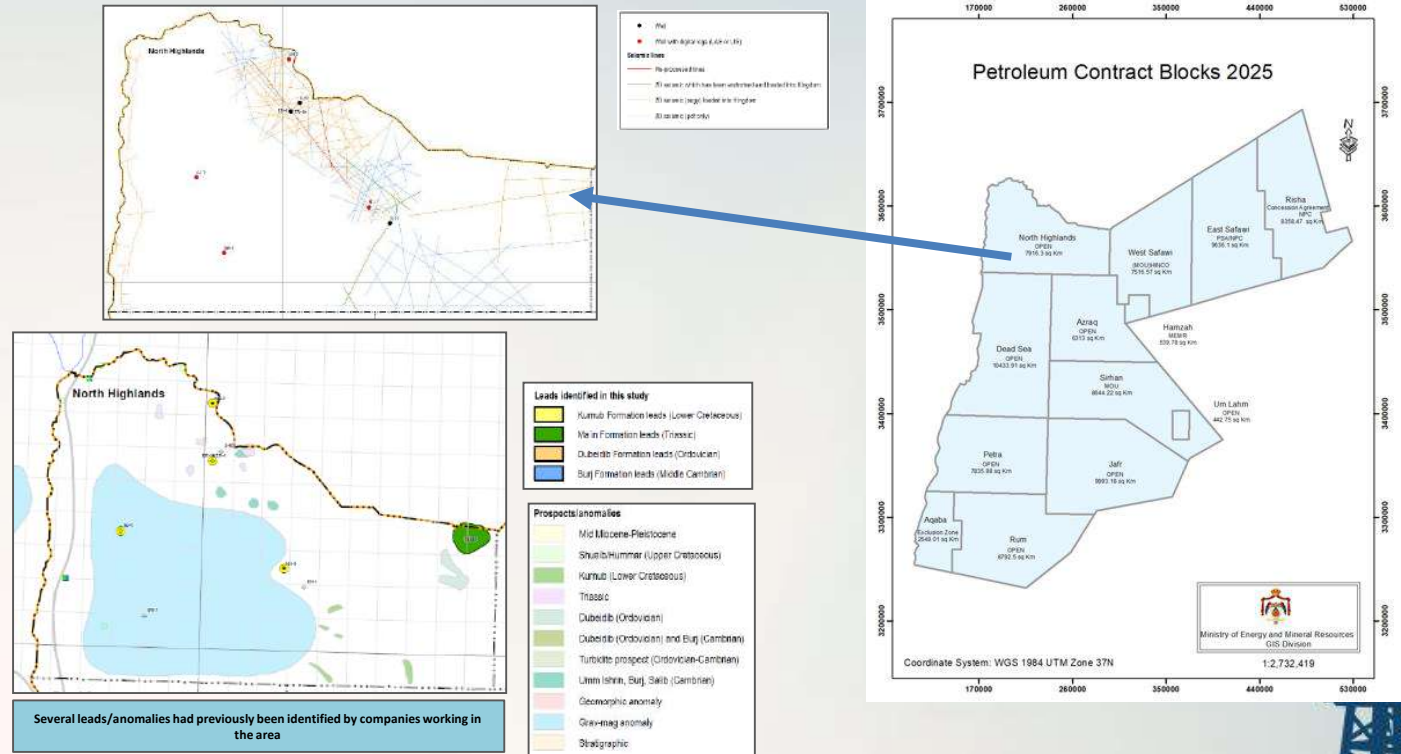
Several leads/anomalies had previously been identified by companies working in the area



- **Total Area:** 7916.3 km²
- **Location:** Onshore
- **Topography:** -378m - 1243m
- **Seismic Survey: 2D**
 - SEG-Y lines: 1199 Lkm
 - SEG-Y reprocessed (CGG, 2016): 69 Lkm
 - SEG-Y vectorised from scans: 78 Lkm
- **Well:** 7 wells
NH-1 & NH-2 minor oil and gas shows in the Huni and Salib Formations
- **Available Information:**
Comp. lith. electrical and LAS logs, Completion report, Final drilling reports, Final geological reports, Geological and geochemical reports, VSP reports
- **Reservoirs:**
 - Kurnub (Early Cretaceous)
 - Ma'in (Early Triassic)
 - Disi (Early Ordovician)
 - Burj (Cambrian)
 - Salib (Cambrian)
- **Sources:**
 - Huni (Jurassic)
 - Abu Ruweis (Late Triassic)
 - Iraq Al Amir (Middle Triassic)
 - Mukheiris (Middle Triassic)
 - Ma'in (Early Triassic)
 - Hudeib (Permian)
- **Seals:**
 - The Kurnub Fm. is sealed by Naur Fm.
 - anhydrite, limestone and shale of the Abu Ruweis and Umm Tina Fms. seal for Triassic reservoirs (Ma'in Fm.)
 - Cambrian and Ordovician age are sealed by the shale of the Umm Irna Fm.
 - Limestone and shales of the Burj Fm. seal for the reservoirs of the Salib Fm.
- **Trap:**
 - Extensional tectonics occurred in northern Jordan during the Late Cretaceous and Early Tertiary, forming normal faults and horst and graben structures.
 - An increase in folding to the northwest.



North Highlands Contract Area



- **Total Area:** 10857.27 km²
- **Location:** Onshore, West of Jordan
- **Topography:** -428 to 1637m
- **Seismic Survey:** 2D, 3D
 - Several scanned
 - SEG-Y 3D: 75 km²
 - SEG-Y lines: 800 Lkm
 - SEG-Y reprocessed (CGG, 2016): 28 Lkm
 - SEG-Y vectorised from scans: 14 Lkm

• **Well:** 20 wells

There are numerous oil and gas shows within the Late Cretaceous and Cambrian sections in 10 of the 20 wells

• **Available Information:**

Comp. lith. electrical and LAS logs, Completion report, Final drilling reports, Final geological reports, Geological and geochemical reports, VSP report

• **Reservoirs:**

- Kurnub (Early Cretaceous)
- Burj (Cambrian)
- Salib (Cambrian)

• **Sources:**

- Ghareb (Maastrichtian)
- Huni (Jurassic)
- Ma'in (Triassic)

• **Seals:**

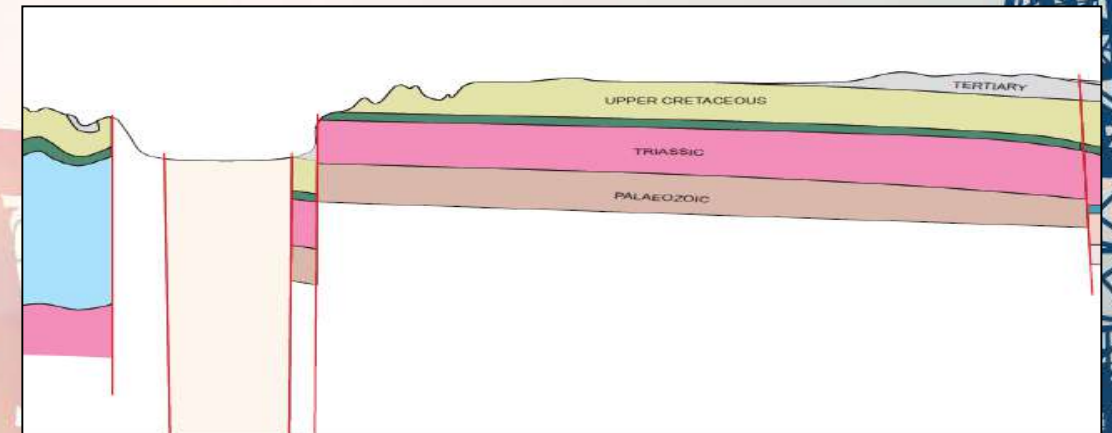
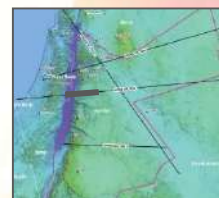
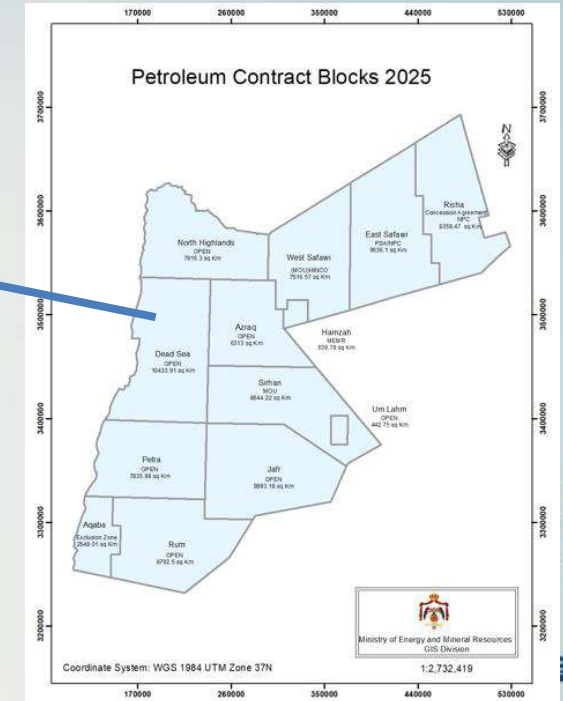
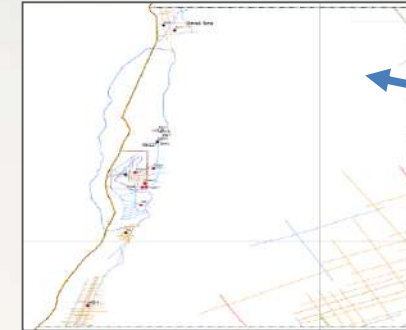
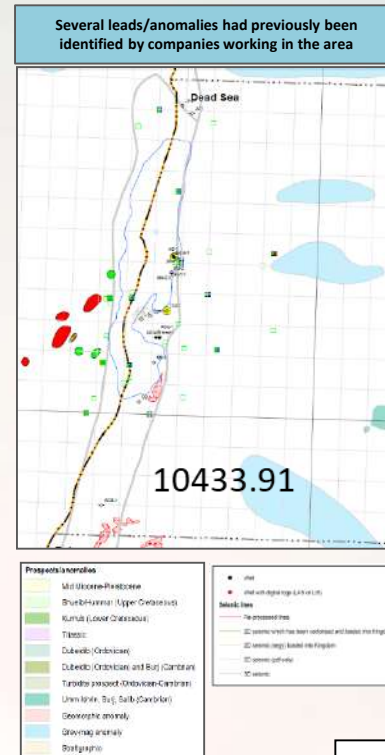
- organic limestones and Plio-Pleistocene evaporites for Kurnub Fm.
- shales and tight carbonates for The Burj Fm reservoirs.
- shales of the lower Burj Fm for salib fm.

• **Trap:**

- salt potential for pre-salt anticlinal features and fault blocks exists.
- Tilted fault along the main basin boundary faults.
- Stratigraphic pinchouts against the flanks of the diapirs and rollover structures triggered by salt.



Dead Sea Contract Area



• **Total Area:** 7835.87km²

• **Location:** Onshore

• **Topography:** 116m - 1733m, West of Jordan

• **Seismic Survey:2D**

- Several scanned
- SEG-Y lines: 337 Lkm
- SEG-Y reprocessed (CGG, 2016): 17 Lkm
- SEG-Y vectorised from scans: 43 Lkm

• **Well:** 3 water wells

• **Available Information:**

Comp. lith. electrical and LAS logs, Completion report, Final drilling reports, Final geological reports, Geological and geochemical reports, VSP report.

• **Reservoirs:**

- Kurnub (Early Cretaceous)
- Burj (Cambrian, Series 3)
- Salib (Cambrian, Terreneuvian)

• **Sources:**

- Mudawwara (early to middle Llandovery)
- Dubeidib (Ordovician)
- Hiswa (Ordovician)
- Burj (Cambrian)

• **Seals:**

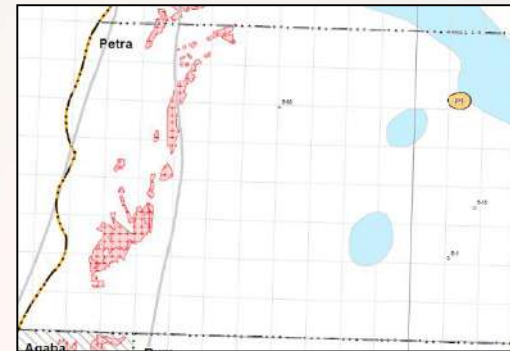
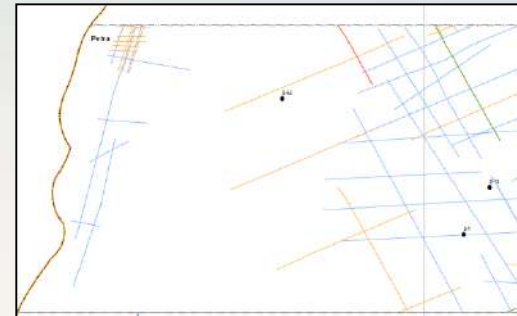
- These unconformably overlie the Late Ordovician Dubeidib sandstones and provide an effective top seal the shales of the Hiswa Fm. seal to the Cambrian sandstone unit.
- Tight carbonates or shales may seal internal dolomites and oolitic buildups within the Burj Fm.
- Burj limestones and shales also provide good seal for Salib Fm. sandstones.
- shales in the overlying Naur Fm. seal for Kurnub Fm.

• **Trap:**

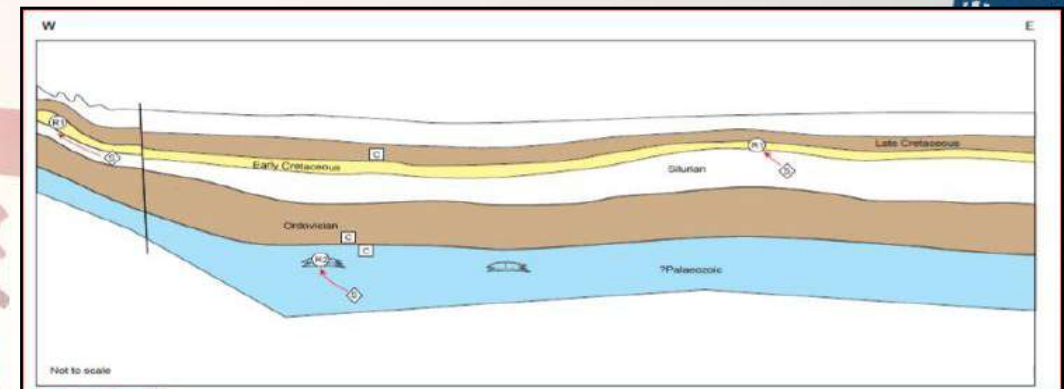
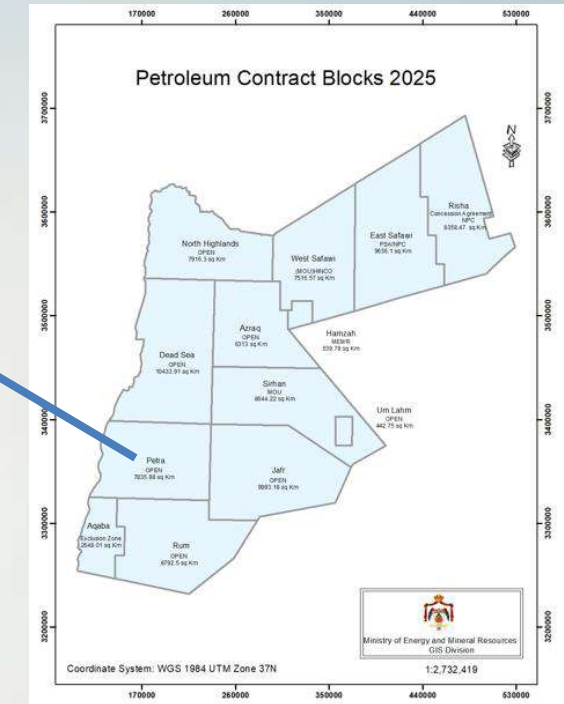
- compressional 'pop-up' structures.
- Older, compressional antiforms may have formed, relating to the Hercynian Orogeny.
- tilted fault blocks and horst within the Precambrian section.



Petra Contract Area



Several leads/anomalies had previously been identified by companies working in the area





Rum Contract Area



- **Total Area:** 8792.5 km²
- **Location:** Onshore, east of Jordan
- **Topography:** 667m-1818m
- **Seismic Survey:** 2D
 - Several scanned
 - SEG-Y lines: 209 Lkm
 - SEG-Y reprocessed (CGG, 2016): 52Lkm
 - SEG-Y vectorised from scans: 13 Lkm
- **Well:** 5 wells three of them is water deep wells.
- **Available Information:**
Comp. lith. electrical and LAS logs, Final geological reports.
- **Reservoirs:**
 - Dubeidib (Ordovician)
 - Umm Sahm (Ordovician)
 - Disi (Ordovician)
 - Burj (Cambrian, Series 3)
- **Sources:**
 - Mudawwara (early to middle Llandovery)
 - Dubeidib (Ordovician)
 - Hiswa (Ordovician)
- **Seals:**
 - Mudawwara shales seal for potential Dubeidib Fm. reservoirs (Ordovician).
 - Intraformational shales within the lower and middle Dubeidib Fm. may act as localized seals
 - The Hiswa Fm. shales (Early Ordovician) seals for the Umm Sahm and Disi Fms. (Early Ordovician),.
 - Intraformational shales and tight carbonates within the Burj Fm seals for potential reservoir horizons.
- **Trap:**
 - Tilted horst blocks
 - Unconformities where the Dubeidib Fm. (Ordovician) glacial channel deposits are overlain by Mudawwara Fm. shales (Silurian) are considered effective stratigraphic traps.

