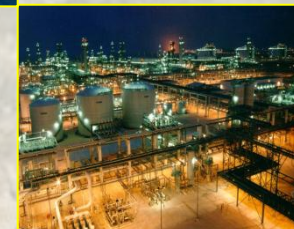


# Technical Report

## Block 15 North Burg El Arab offshore



### About The Block

**Location:** North Burg El Arab offshore block is extended 5 Km from the shoreline northward to about 45 Km in the Med. sea and located at approximately 25 km to the west of Alexandria city. The western part of the concession is terminated at the El Dabaa city.

**Total Area :** 3180 Km<sup>2</sup>

**Water Depth:** 20 - 750 m

### Seismic Surveys

: 2D Seismic lines (approx. 2755 Km)

**3D Seismic** : SAER 08 (approx. 780 Km<sup>2</sup>)

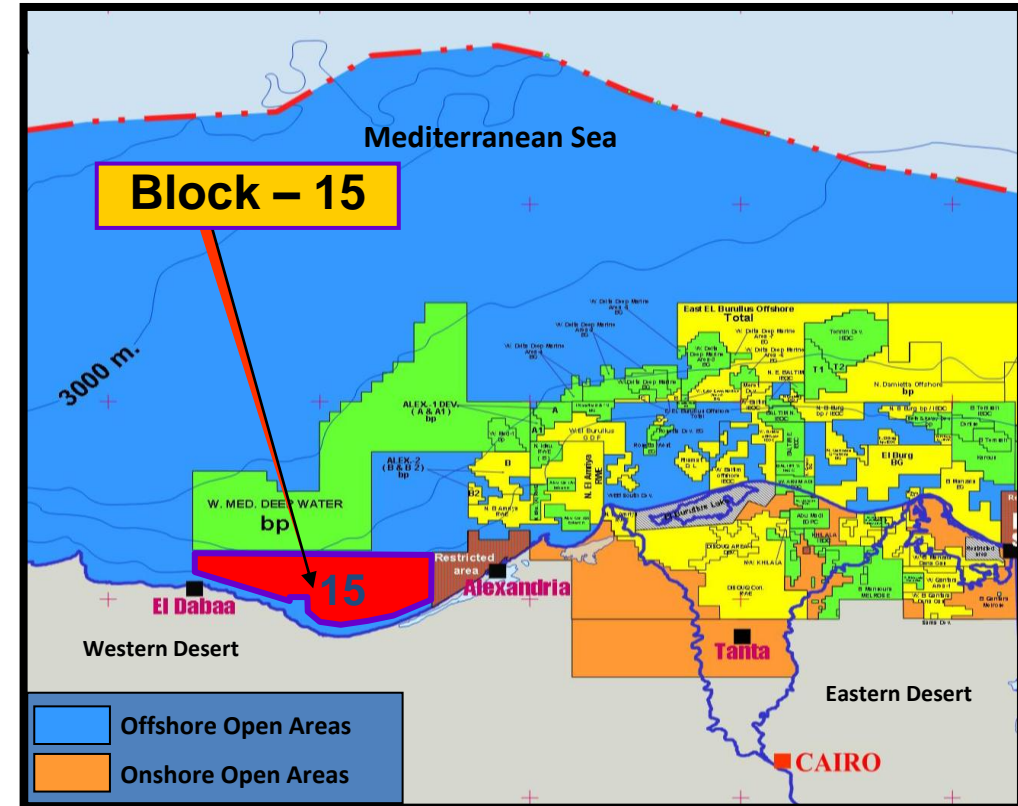
: SAER 09 (approx. 1039 Km<sup>2</sup>)

**Wells:** Shaqiq-1x, Marakia-1X, Kerir-1X, Sidi Abd El Rahman-1 and Hooreya.

### Data review and Purchase form EGAS

**Previous Concessionaire** : Shell, Apache and Edison

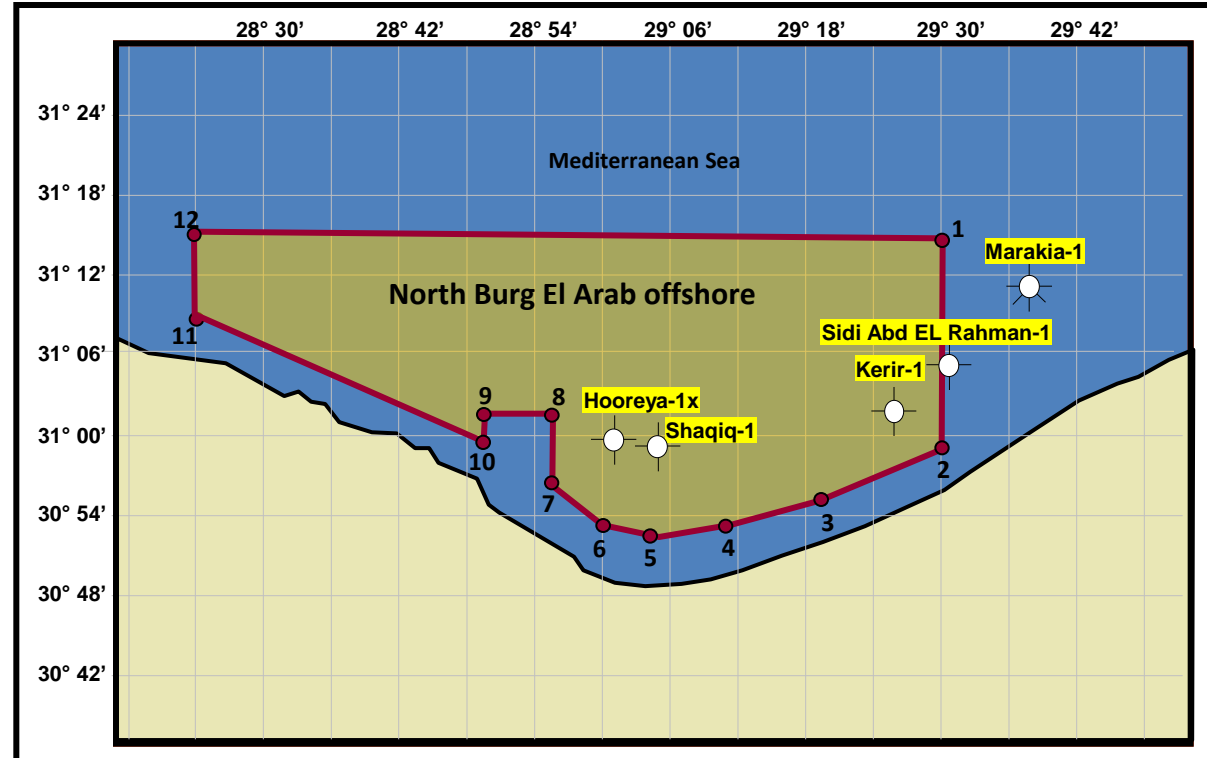
**Nearby Fields & Discoveries:** WMDW, W. Med. sea & N. Alex development leases from the north (Mediterranean sea), N. Alamein, Akik and Burg El Arab fields from the south (N. Western desert).



# Block- 15

## North Burg El Arab offshore

Block -15						
North Burg El Arab offshore						
No.	Latitude ( North )			Longitude ( East )		
1	31°	15'	00"	29°	30'	00"
2	30°	59'	00"	29°	30'	00"
3	30°	55'	00"	29°	20'	00"
4	30°	53'	00"	29°	10'	00"
5	30°	52'	00"	29°	05'	00"
6	30°	53'	00"	29°	00'	00"
7	30°	55'	00"	28°	56'	00"
8	31°	01'	00"	28°	56'	00"
9	31°	01'	00"	28°	49'	00"
10	30°	59'	30"	28°	49'	00"
11	31°	08'	00"	28°	24'	00"
12	31°	15'	00"	28°	24'	00"



# ***Block- 15***

## ***North Burg El Arab offshore***

**Wells:**

COMPANY	WELL	SPUD	COMPL	FTD	FM. @ TD	Lat. N.	Long. E.	Status
SHELL	Marakia -1A	28-Sep-1991	6-Jan-1992	14256 FT	AEB	31 11 13	29 37 53	P&A Dry Hole
SHELL	Shaqiq 1-B	11-Feb-1992	5-Mar-1992	5460 FT	Khoman	30 57 45.8	29 10 14.9	P&A Dry Hole
Apache	Kerir-1	2-Oct-2002	12-Apr-2003	12600 FT	AEB Cretaceous	31 03 14.81	29 29 40.52	P&A Dry Hole
EDISON	Sidi Abd El Rahaman offshore-1	29-Mar-2009	17-Jun-2009	13531 FT	AEB -3G	31 05 39.336	29 31 22.116	P&A Dry Hole
EDISON	Hooreya-1	27-Aug-2010	26-Nov-2010	12999 FT	Alam El Buib	30 59 27.166	29 04 28.629	P&A Dry Hole

# ***Block- 15***

## ***North Burg El Arab offshore***

### **SEISMIC DATA**

#### **A) "2D" SEISMIC DATA (Segy Standard Format)**

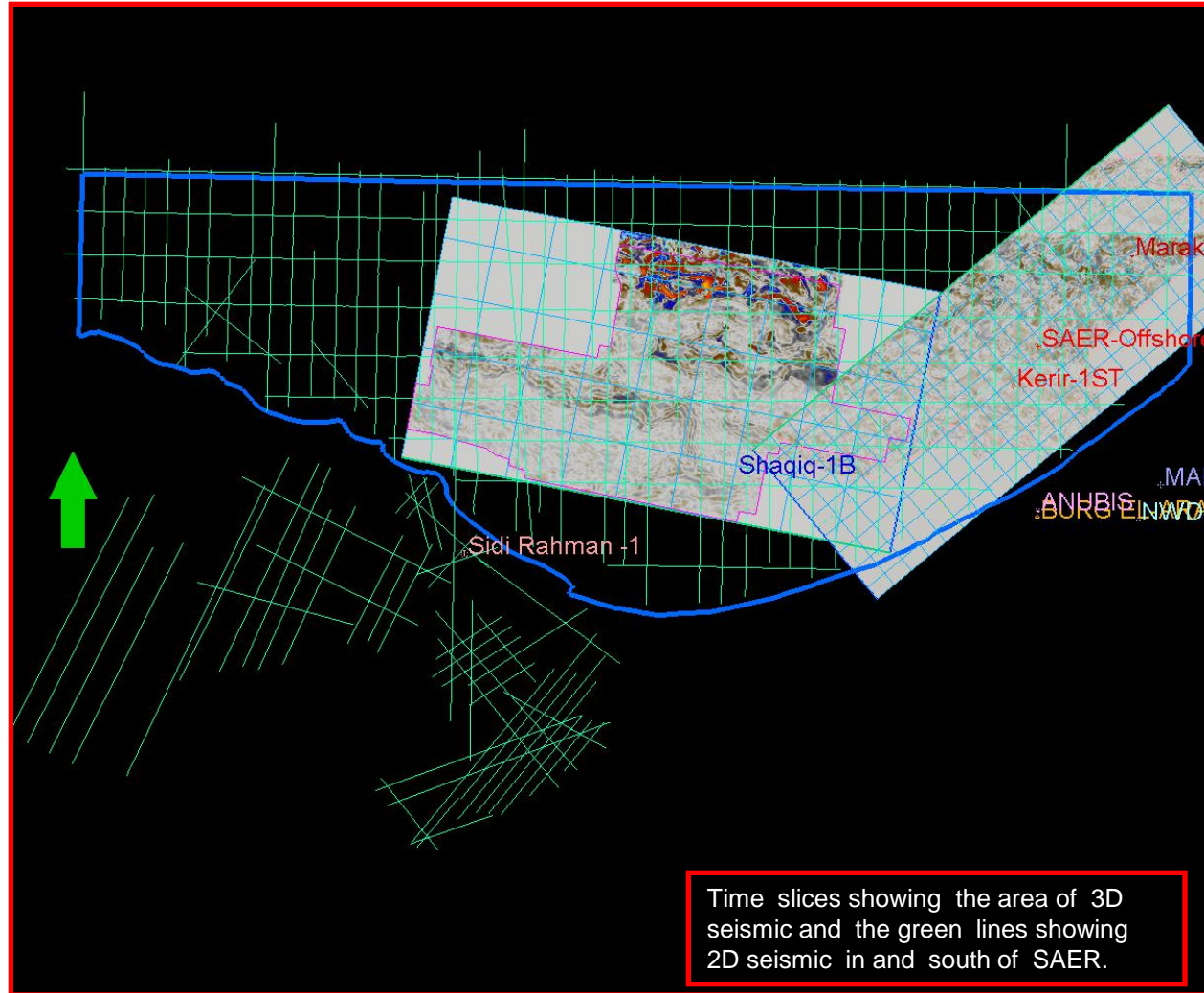
<b>Survey Name</b>	<b>Digital 2D Data (Km)</b>	<b>No. of Seismic lines</b>
<b>OEM</b>	<b>2311</b>	<b>56</b>
<b>WM97</b>	<b>152</b>	<b>9</b>
<b>XXXX</b>	<b>204</b>	<b>9</b>
<b>SK 90-SH 90</b>	<b>64</b>	<b>4</b>
<b>TMY 80</b>	<b>24</b>	<b>1</b>
<b>TOTAL</b>	<b>2755</b>	<b>79</b>

#### **B) "3D" SEISMIC DATA (Segy Standard Format)**

<b>Survey Name</b>	<b>Total Selected Sq. Km</b>	<b>Remarks</b>
<b>SAER 08</b>	<b>780 Km<sup>2</sup></b>	<b>Apache</b>
<b>SAER 09</b>	<b>1039 Km<sup>2</sup></b>	<b>Edison</b>

# **Block- 15**

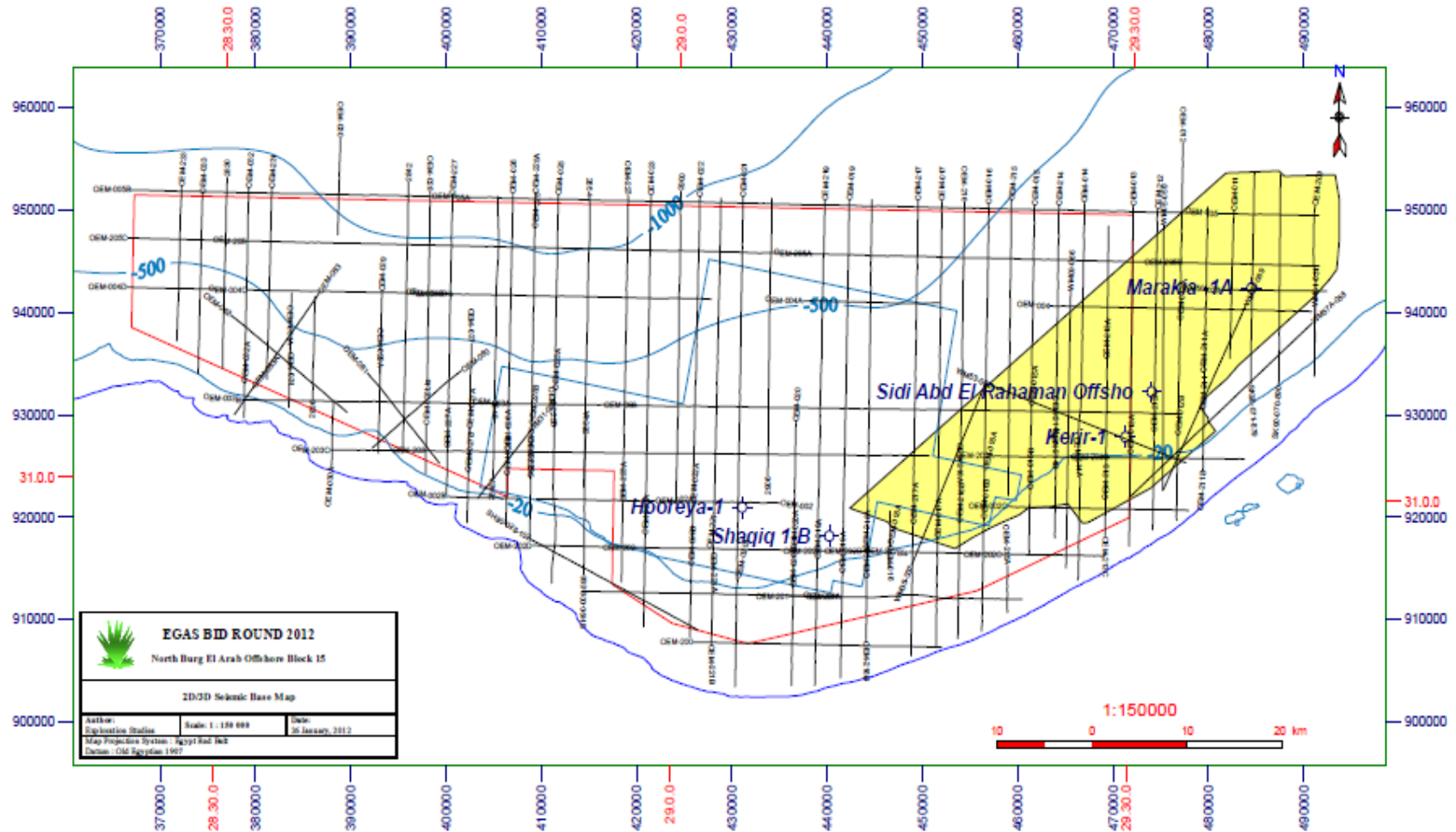
## **North Burg El Arab offshore**



**3D Seismic Data : (1819 Km<sup>2</sup>)**  
**2D Seismic Data : Total Line 7195 Km**

# Block- 15

## North Burg El Arab offshore



# ***Block- 15***

## ***North Burg El Arab offshore***

<b>PRICE LIST</b>							
<b>Block No.</b>	<b>Block Name</b>	<b>Area (Km<sup>2</sup>)</b>	<b>Principal Data Package</b>			<b>3D Surveys</b>	
			<b>2D Total Line Km</b>	<b>Drilled Wells</b>	<b>Price US\$</b>	<b>3D Survey Km<sup>2</sup></b>	<b>Price US\$</b>
15	North Burg El Arab offshore	3180	2755	5	125125	780 (SAER-08) 1039 (SAER-09)	429100 571550

- Data Package for each block in digital format will be available at EGAS premises at prices as shown in the above table.
- Technical reports for all wells are available for purchase at: (\$1100 for hard copy and \$1200 for digital format per well)
- Final geological reports for all wells are available for purchase at: (\$1500 for hard copy and \$1700 for digital format per well)
- Data review will be available at EGAS premises using Geographix Software (Seisvision, Prizm & Geoatlas) at cost:

10% of total price of the principal data package (2D and well logs) with a minimum of \$2000/block

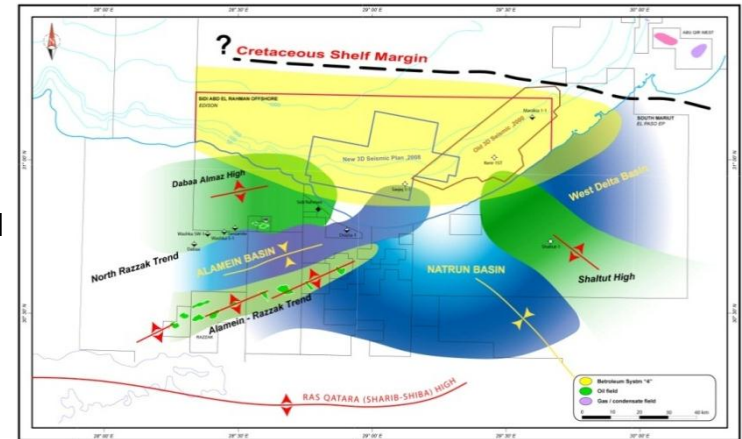
10% of total price of request 3D seismic survey

- In case of data purchase after review, review fees will be deducted from the total purchase price



# PROSPECTIVITY

This area is separated by a major WNW-ESE Tertiary fault zone (or “Cretaceous Shelf Margin”) just located in the northern part of the block into two distinct provinces. The northern province is the extension of the Nile Delta play and represent the Nile Delta sedimentary sequence which has been characterized by of rapid accumulation of clastic sediments from the Oligocene to the Recent time. The result is a 6000 meters thick of the clastic sediments, while the southern and central province is the extension of the Western Desert play and represent the Western Desert sedimentary sequence which has been characterized by uplift during late Cretaceous / Early Tertiary a period and thin section of clastic sediments has been deposited from Oligocene to the Recent time.



During late Cretaceous/Early Tertiary a period of uplift occurred across the area, in particular over the area of the Jurassic highs. Two basic fault systems are seen. The dominant set is oriented WNW with normal throw, whereas the secondary fault orientation is NW-SE and W-E with small throws. During the Late Eocene/Early Oligocene , major basin margin faulting occurred with major down to the north growth faulting along E-W trend.

The Petroleum System is working in the area and the existence of the nearby Alamein basin in the southern part of the concession could work as kitchen area for HC generation. From the regional geochemical analysis, the *AEB shale* and the *Jurassic Khatatba coaly facies* could work as possible source for the highlighted prospects .The oil source analysis carried out by Stratochem company on samples retrieved in in SAER-1X & Marakia-1 confirms that oil is mixed sourced in AEB shales and Jurassic organic matters as well. Direct charging through deep seated fault is the main charging mechanism.

AGE	FORMATION	LITHOLOGY	THICK(ft.)	POTENTIAL
QUAT			0 - 400	
OLIGO-MIOCENE	MARMARICA		0 - 1300	
	MOGHRA		2000 - 3500	
	DABAA		1000 - 2500	
EOCENE	APOLLONIA		0 - 1200	
L. CRET.	KHOMAN		200 - 1400	
	ABU ROASH	B	800 - 1250	POTENTIAL RESERVOIR
		C		
		D		
	E			
	F			
	G			
	BAHARIYA		600 - 1200	POTENTIAL RESERVOIR
E. CRET.	KHARITA		800 - 1800	
	DAHAB		350 - 450	
	ALAMEIN DOLOMITE		150 - 300	POTENTIAL RESERVOIR
	ALAM EL BUEIB		2000 - 7000	POTENTIAL RESERVOIR AND SOURCE ROCK
JURASSIC	MASAJID		500 - 700	POTENTIAL SOURCE
	KHATATBA		1200 - 2000	POTENTIAL SOURCE
	W. NATRUN			

**Pliocene Play Concept:**

This play was successfully explored in West Med. development lease as gas bearing sandstone deposited in a turbidite slope channel system.

**Source:**

The basal Pliocene shales provided an excellent source rocks for biogenic gas.

**Reservoir:**

The Pliocene reservoir was deposited in channel / levee complex environment and interpreted as delta front upper slope lobes / sheets and represented by stacked sandstone channels with good reservoir quality.

**Trapping:**

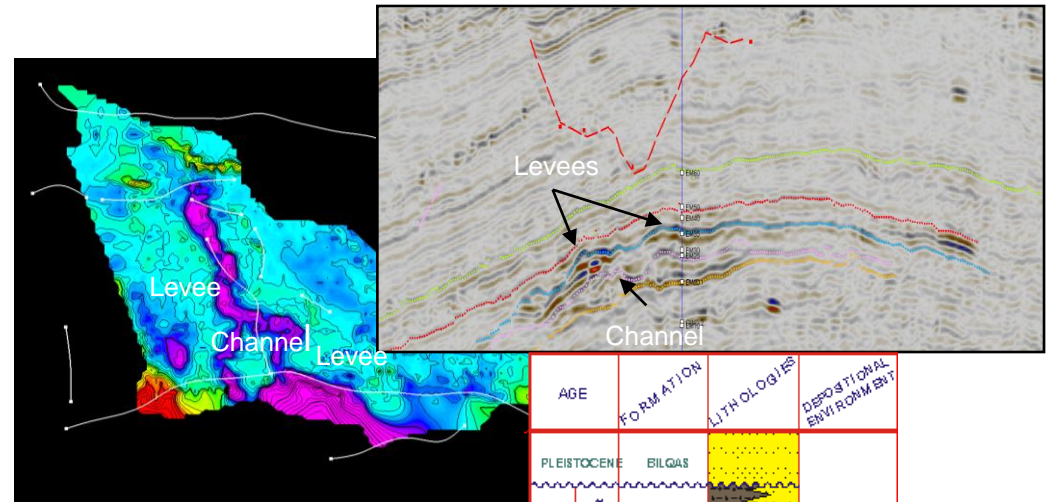
The Pliocene trap is characterized by low relief closure with only minor faulting, lateral pinchouts of channel sands in this shale dominated sequence is more likely to provide stratigraphic trap component.

**Sealing:**

Thick shale bodies of Pliocene shales act as a good seal.

**Charging:**

It is carried out directly from source to reservoir or through minor deep seated faults.



AGE	FORMATION	LITHOLOGIES	DEPOSITIONAL ENVIRONMENT	
PLEISTOCENE	BILQAS			
	MIT GHAMR			
	EL WASTAN			
PLIOCENE	KAFR EL SHEIKH			DELTAIC TO OPEN MARINE
	ABU MADI			FLUVIAL TO MARINE
MIOCENE	ROSETTA			PLAYA / HYPERALINE LAKE
	QAWASIM			FLUVIAL / DELTAIC
	SIDI SALIM			SHALLOW TO DEEP MARINE
MIOCENE	QANTARA			SHALLOW
	QAEBA			DEEP MARINE

**Abu Sir, Al Bahig, El Max**

**Top Rosetta**

**El King**

**Abu Sir - 2x**

**Top Oligocene**

### **Messinian Play Concept:**

This play is represented by Abu Madi channel which has deposited in deltaic / shallow marine environment just after the end of the Messinian salt crisis.

### **Source:**

The terrestrial and marine deposits developed during Oligocene-Miocene time are considered the main source rocks.

### **Reservoir:**

The reservoir was deposited in channel / levee environment which significantly encountered below and in between the Rosetta anhydrite as hydrocarbon bearing sand (eg. in La 52-1 well drilled by Shell and El King-1 well drilled by Apache).

### **Trapping:**

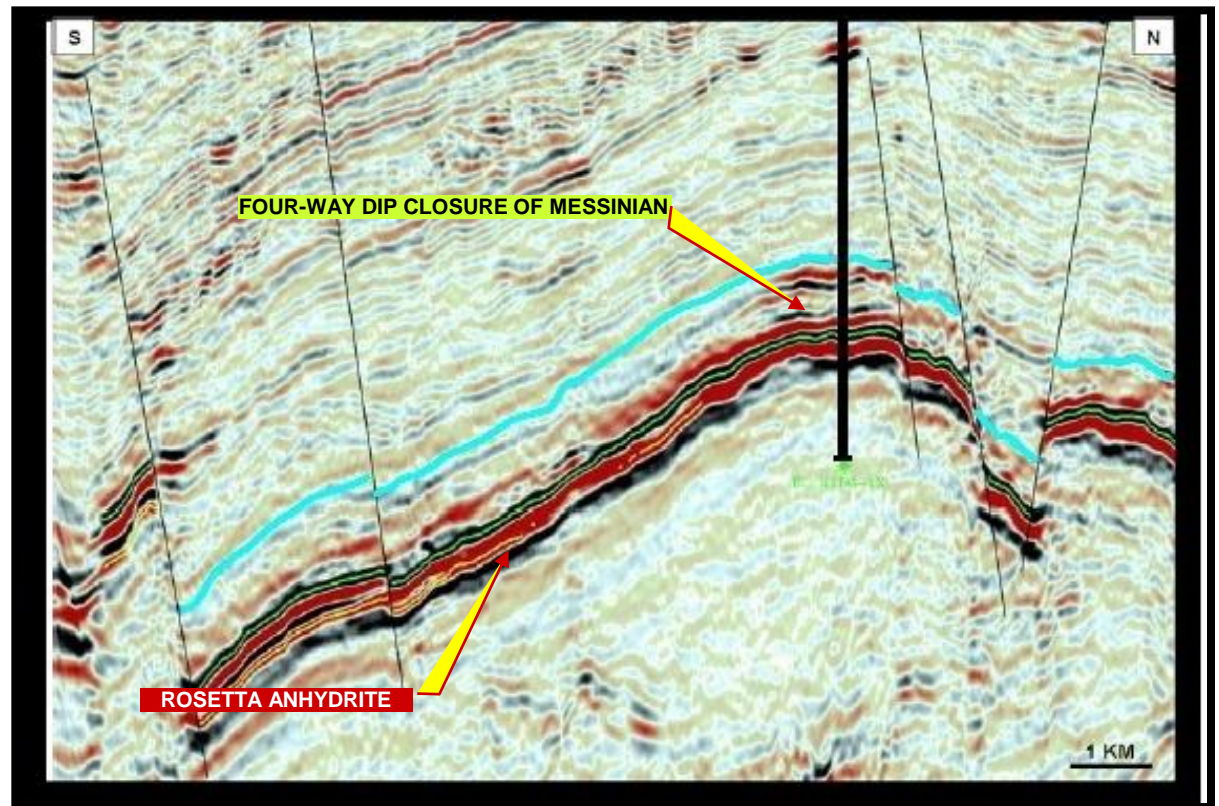
Combination of structural and stratigraphic traps.

### **Sealing:**

Thick shale bodies and Rosetta anhydrite act as a good seal.

### **Charging:**

It is carried out through deep seated faults.



## **Mesozoic Play Concept :**

This play is well discovered in the northern part of the Western Desert by Cretaceous and Jurassic reservoirs as in Salam and Obaiyed gas and oil fields. Paleogeographic trends indicate a more marine facies development of the Jurassic and Cretaceous sequence northwards into the offshore, where the Marakia well is located (30° API was recovered from RFT in L. Cretaceous sands @ 3832 m)

### **Source :**

Several source rock intervals have been identified within the Jurassic Khatatba and the Cretaceous Alam El Bueib formations based on geochemical analysis available from wells. Development of effective kitchen areas is demonstrated onshore by oil accumulations on the nearby Alamein ridge. Source rocks are mature for oil and gas generation near the depocenter of the kitchen and hydrocarbon shows suggest the presence of an offshore kitchen. (eg. Khatatba source rocks are carbonaceous shales and coals of types II and III).

### **Reservoir:**

Khatatba formation (Safa sandstone) of Late Jurassic age.  
Bahariya, Dahab, Alamein clastic and Alam El Bueib sandstones of Early Cretaceous age.

### **Trapping:**

Three way dip structural closure mainly fault assisted and Four way dip closure are quite few.

### **Sealing:**

Thick shales and carbonates deposited above the reservoirs.

### **Charging:**

Is expected to be provided through reactivated fault plane that reach upwards into the reservoirs or directly from source to reservoir.

