



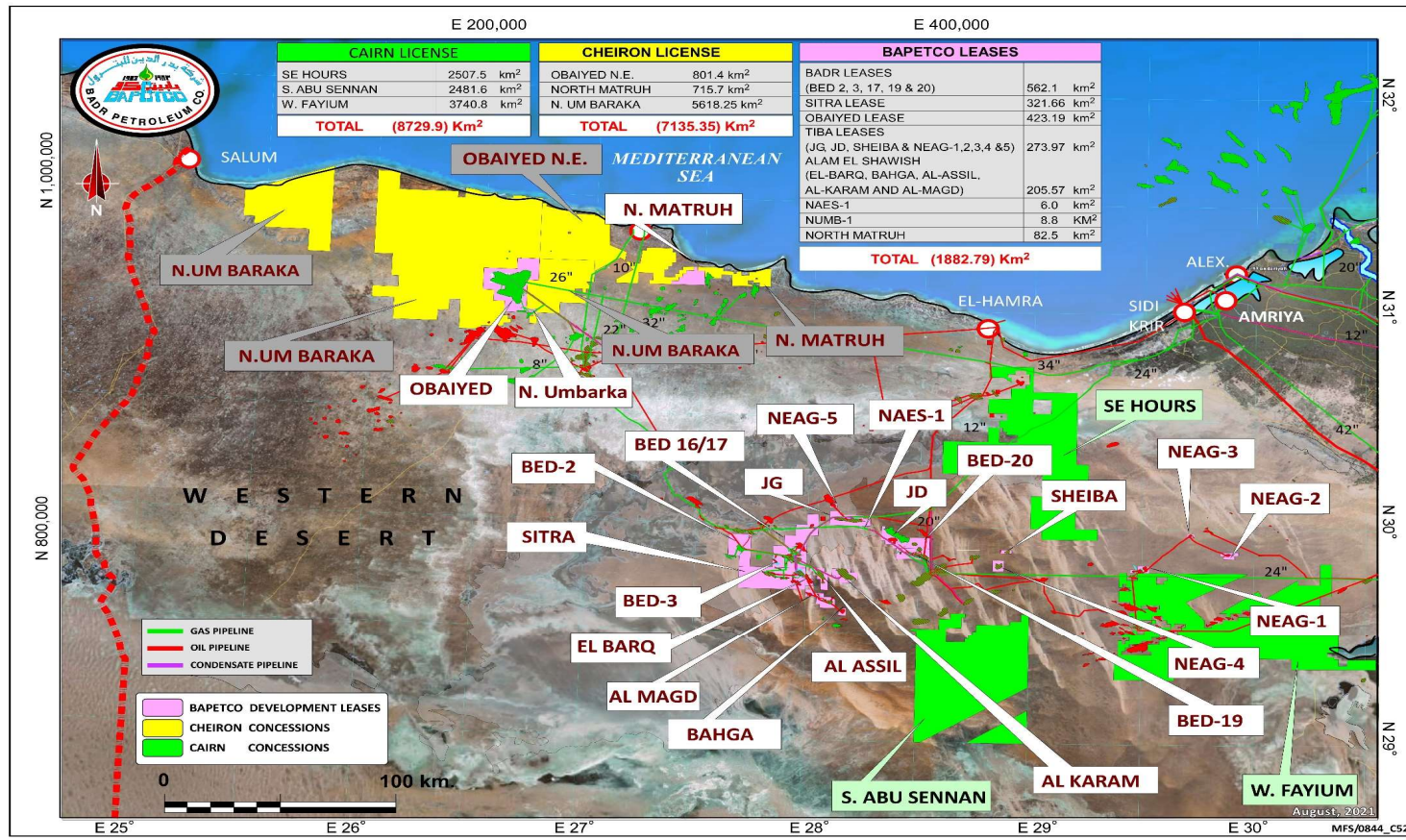
Carbonate Reservoir Workshop

Abu Roash-B Focus

Geologist: Alaa Abu Mostafa
Bapetco

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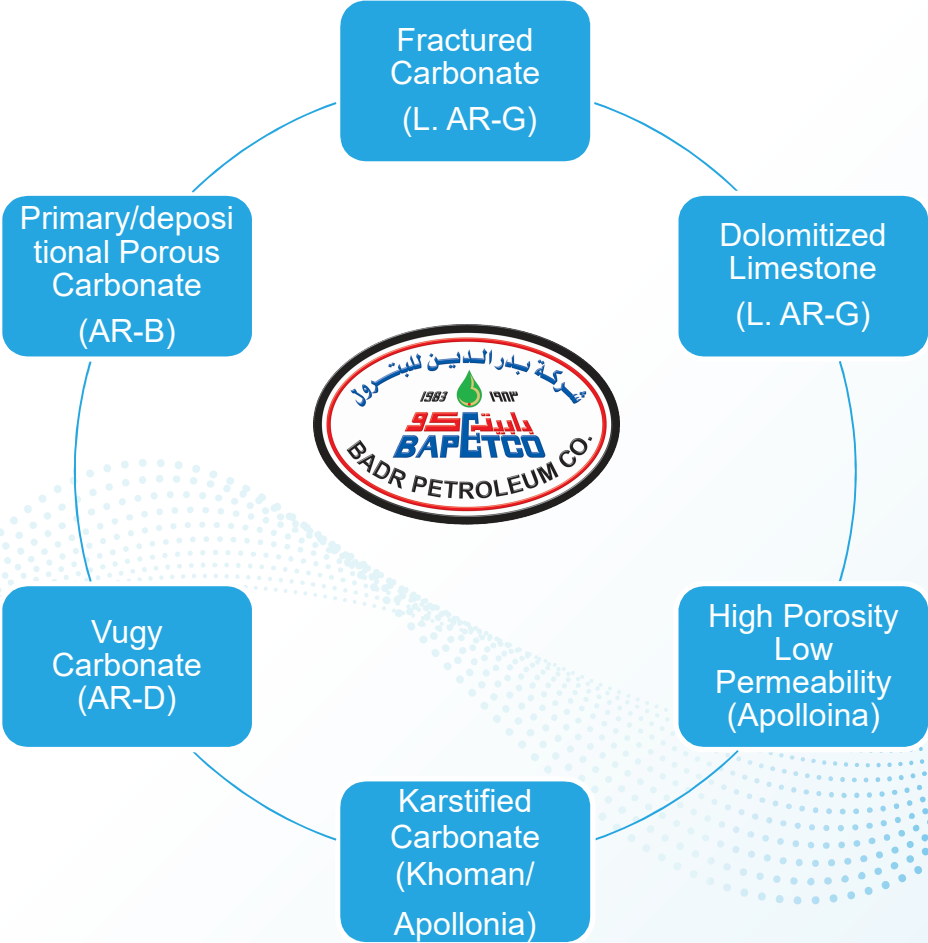
- **Introduction to Bapetco Carbonate Portfolio**
- **Abu Roash-B Carbonate Analysis**
 - **Sedimentological and Petrographical Analysis**
 - **Petrophysical Analysis**
- **Bapetco Strategic Plan of Carbonate Reservoirs**
- **Conclusions**



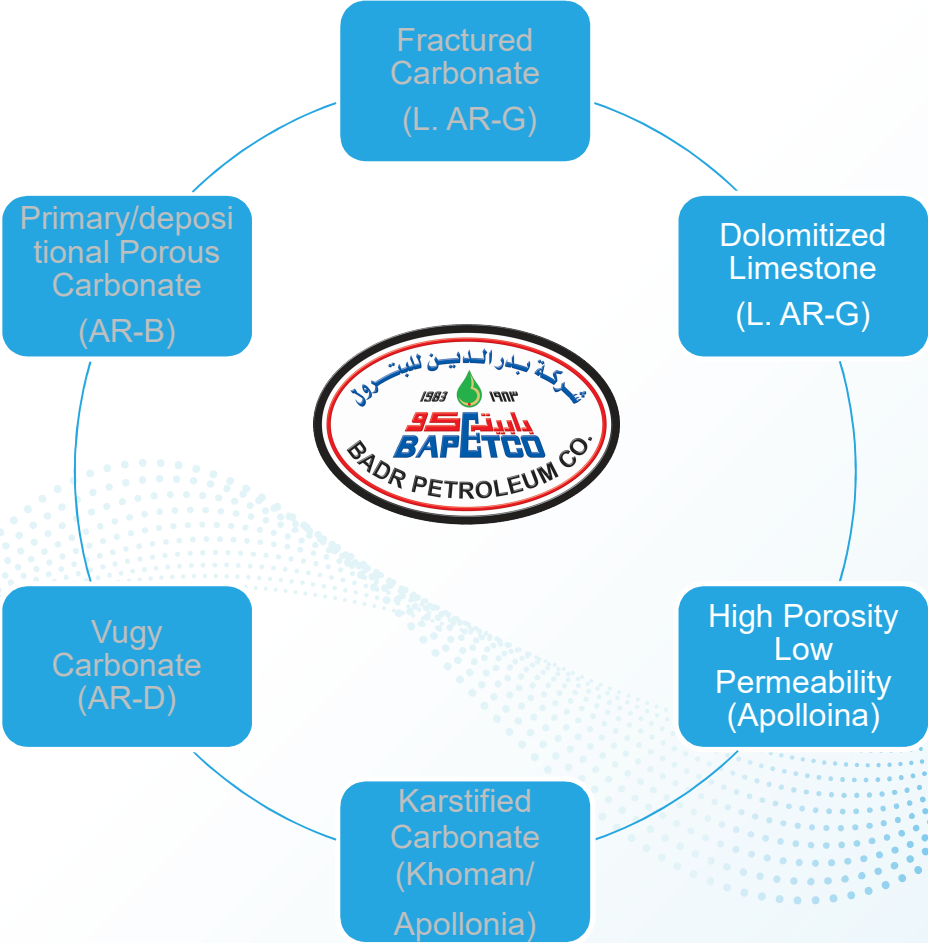
Bapetco Acreages:

- $\approx 1883 \text{ km}^2$ of development leases contain wide-range of H.C. fields (clastics, carbonate, oil, gas, deep and shallow, conventional and unconventional reservoirs)
- $\approx 15800 \text{ km}^2$ of exploration concessions with high H.C. potential (Bapetco is operating on behalf of partners)

Key Carbonate Reservoir Types – Bapetco Portfolio

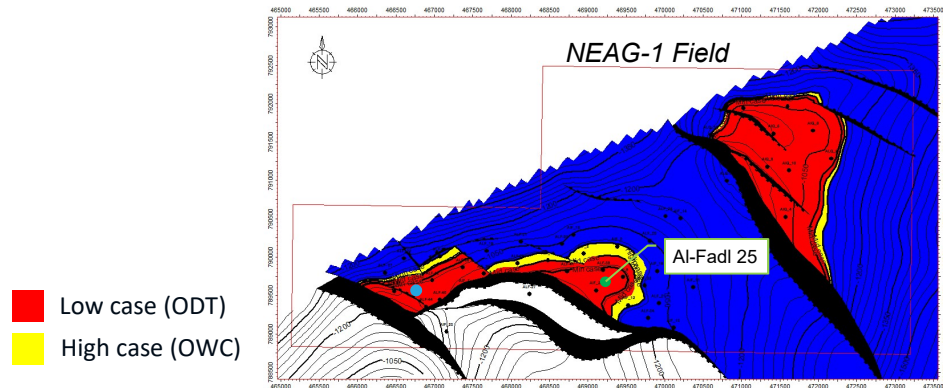


Key Carbonate Reservoir Types – Bapetco Portfolio

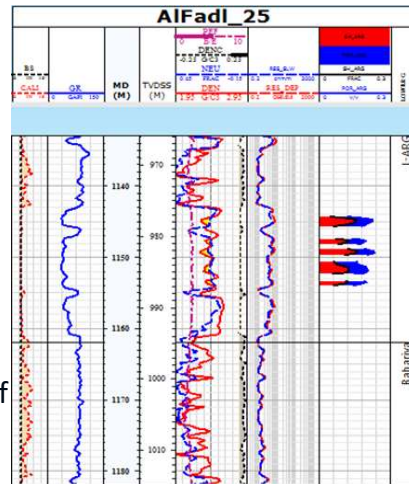


Key Carbonate Reservoir Types – Bapetco Demonstration

Dolomitized Limestone – Lower AR-G

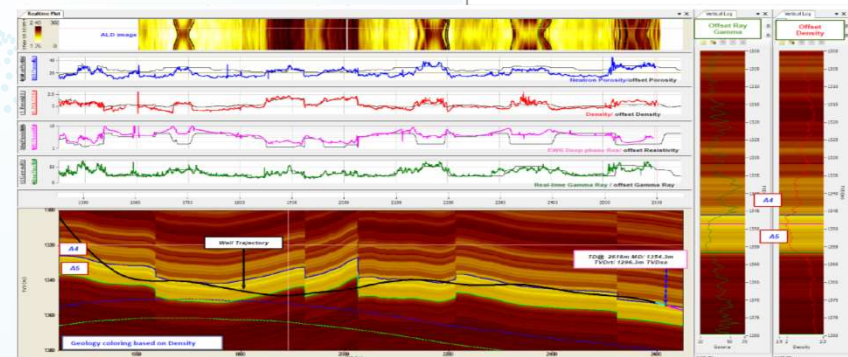
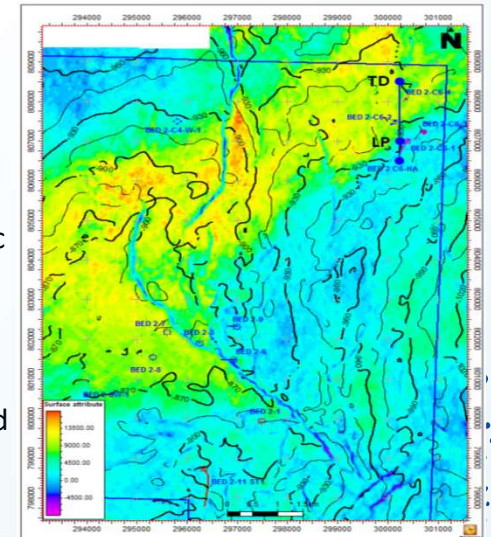


- 6 m net pay, 15 % porosity, 30% Sw
- 400 BBL/D initial rate (after frac stimulation)
- Sustain production with 100 BBL/D (24 months)
- 80 KBBL cum production (still on production)
- 15 MMBBL is most likely oil in-place
- Further development plan:
 - **Fast-track:** recomplete two closed wells (2021)
 - **Longer-term:** recomplete rest of existing wells and/or drill horizontal wells

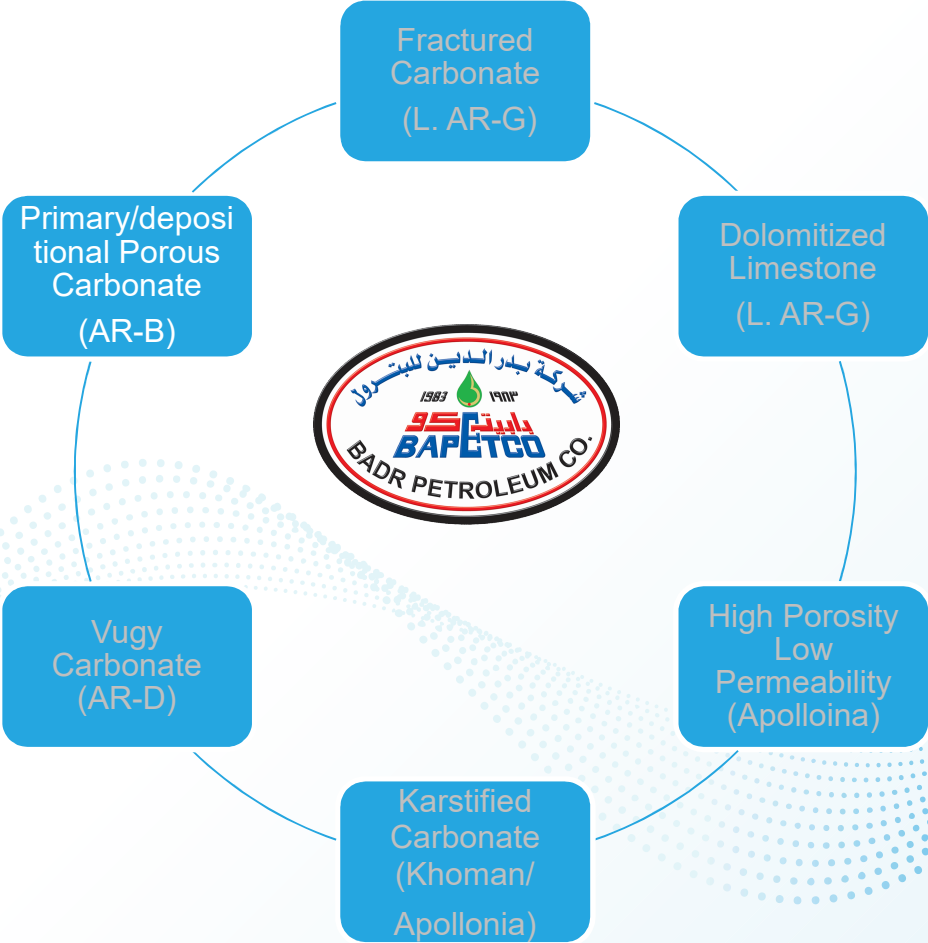


High Porosity Low Permeability – Apollonia (BED 9-6 Well Fishbone Technology)

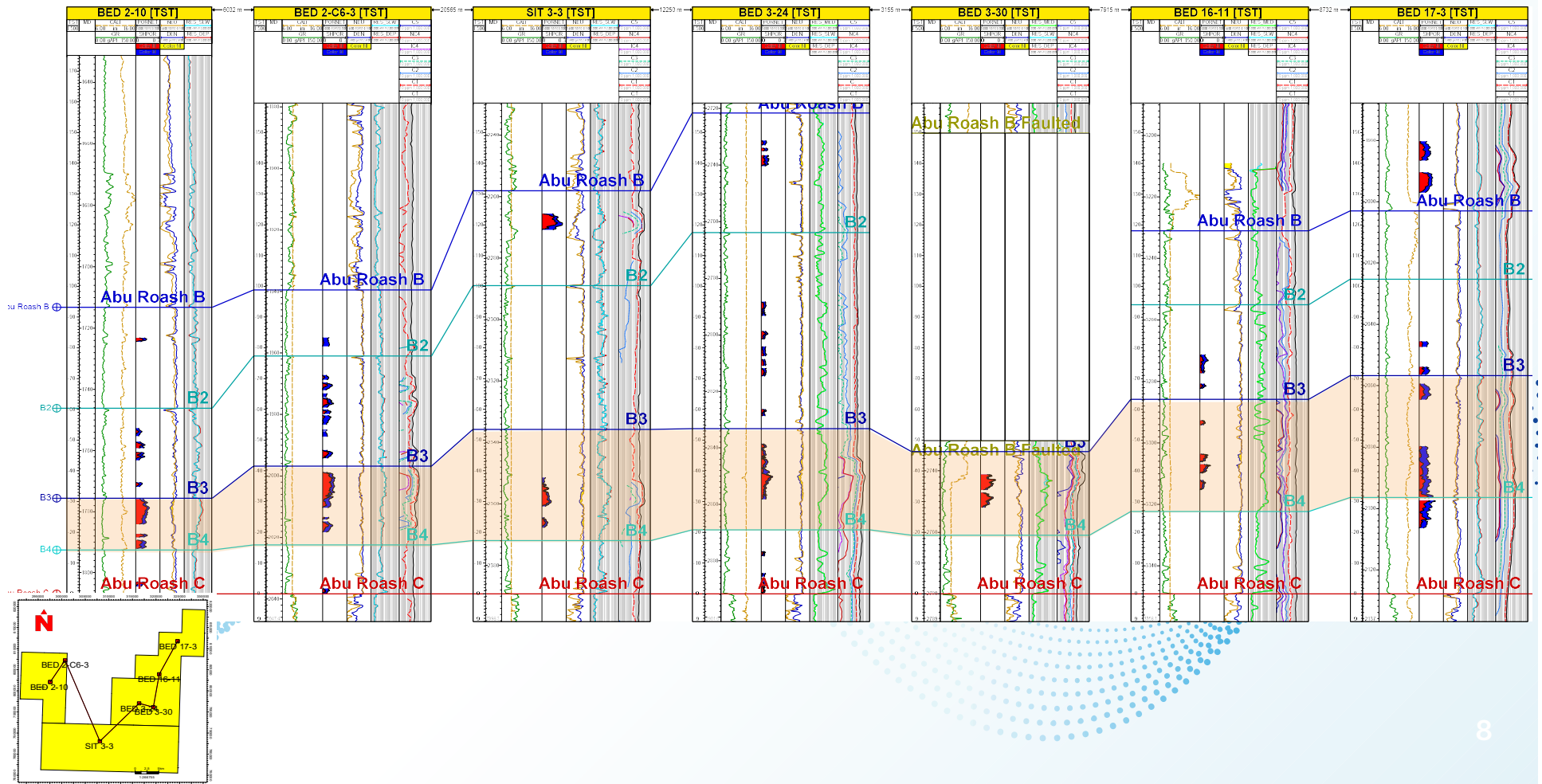
- High porosity (upto 30%), low permeability (maximum 1 mD) carbonate
- Leading-edge technologies are used:
 - 3D seismic reservoir characterization (pre-stack seismic inversion)
 - Drilling horizontal wells
 - **Fishbone technology**
- BED 9-6 well tied-back during November 2021 with 7MMSCF/d



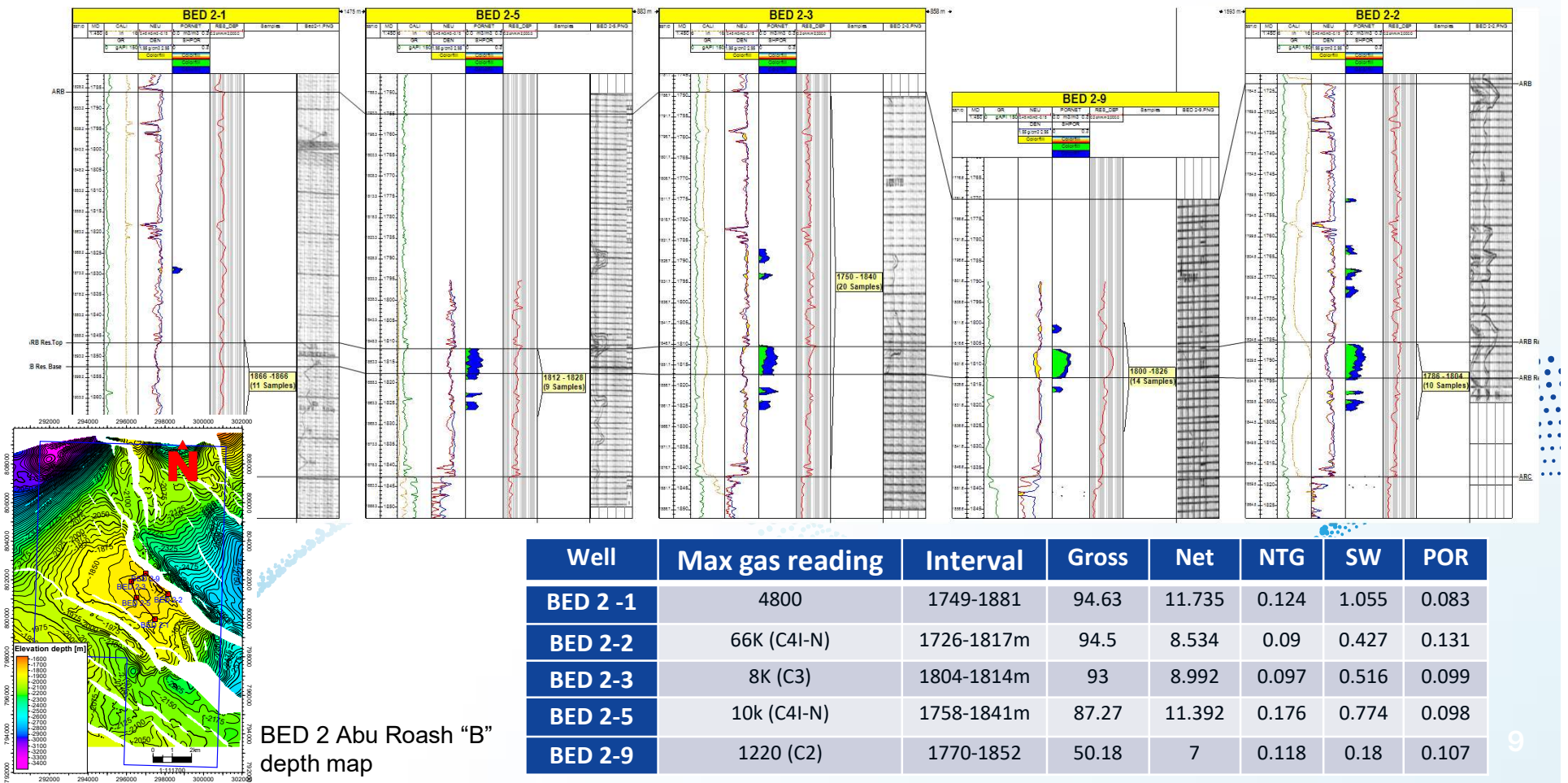
Key Carbonate Reservoir Types – Bapetco Portfolio



AR-B Carbonate – Regional Well Correlation

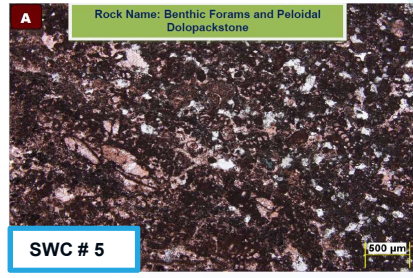
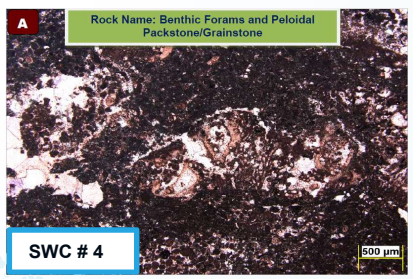
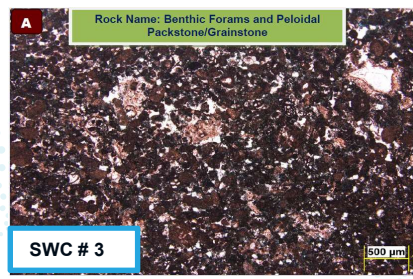
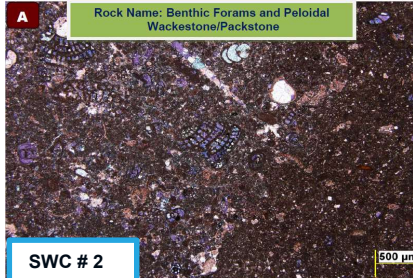
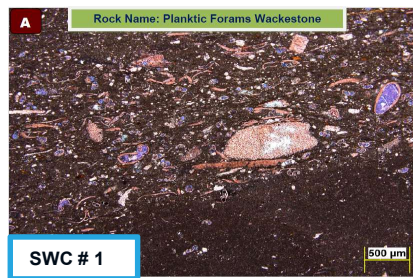
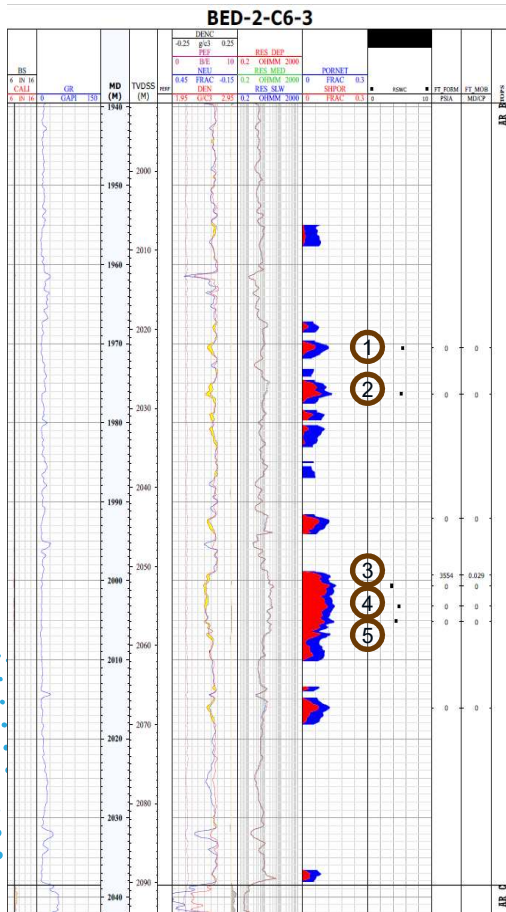


Abu Roash-B Carbonate – BED 2 Field Correlation



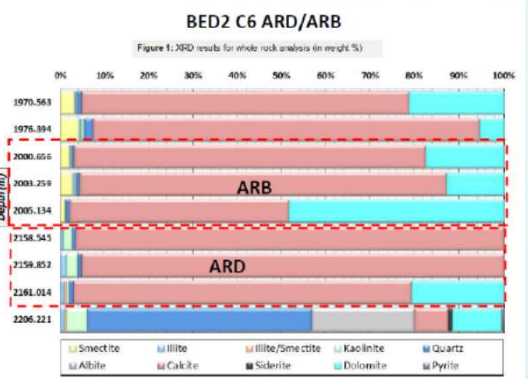
BED 2 Abu Roash "B" depth map

BED 2-C6-3 SWC Analysis

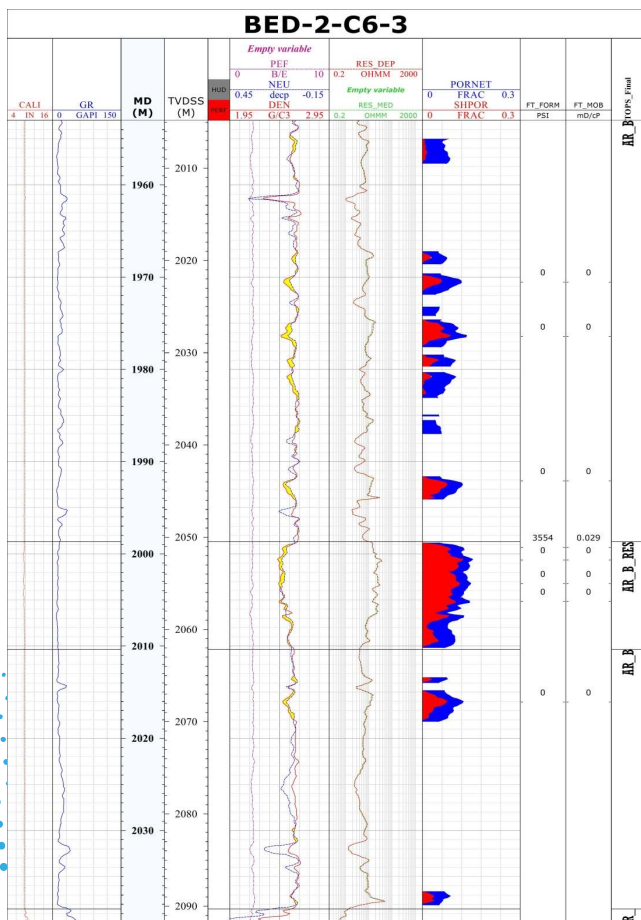


Sample No.	Depth (m)	Nitrogen Permeability mD	RESIDUAL SATURATION BY DEAN STARK		Helium Porosity %	Grain Density gm/cc
			Oil	Water		
1	1970.56	2.86			13.3	2.69
2	1976.39	0.95			11.3	2.66
3	2000.66	3.65			15.8	2.71
4	2003.26	1.95	48.9	36.6	11.3	2.70
5	2005.13	6.52			17.4	2.73

Fluid Saturation, Porosity and Permeability results For SWC Samples



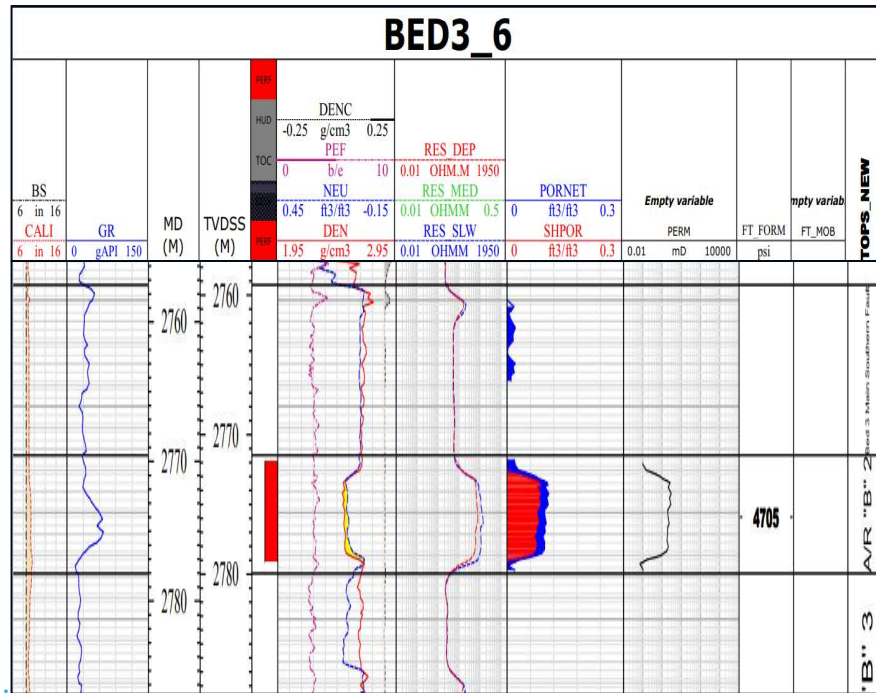
BED 2-C6-3 Petrophysics



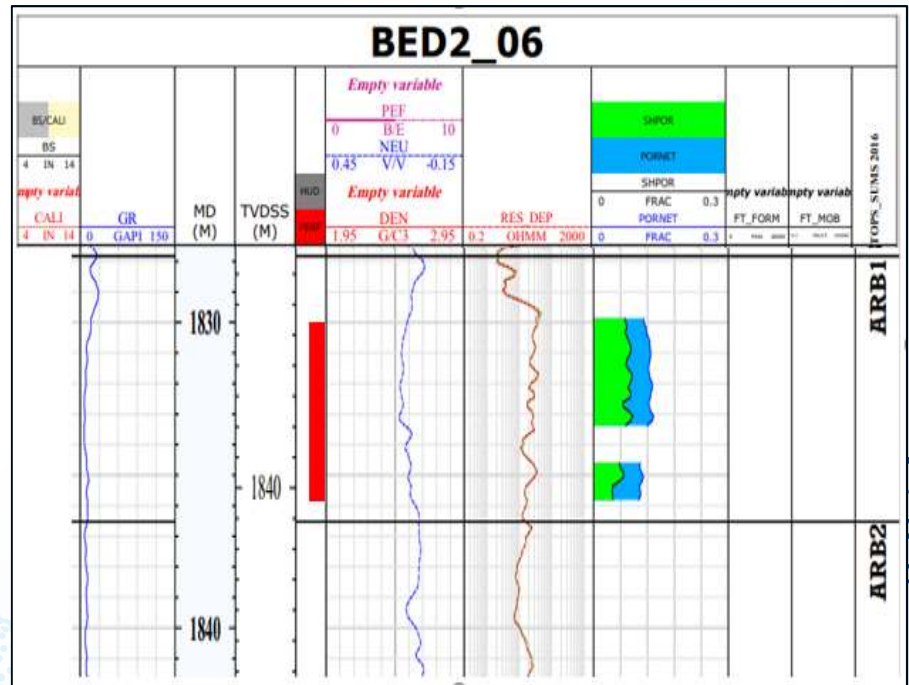
BED2 C6-3 Sums & Avgs "TVDSS"							
Zones	Top	Bottom	Gross	Net	N/G	Avg. POR	Avg. SW
AR_B	1991.35	2090.3	98.95	37.494	0.379	0.089	0.589
AR_B_RES	2050.45	2062.16	11.688	11.498	0.984	0.116	0.39

BED2 C6-3 Pressure data									
Test	MD	TVDSS	FM.	Hydrostatic Press.		Shut in Press	Last Press	Mobility	Comments
	M	M		Before	After	(psi)	(psi)		
1	1970.530	2022.331	AR_B	3708.0	3708.0	N/A	N/A	N/A	UNSTABILIZED
2	1976.430	2028.230	AR_B	3718.0	3718.0	N/A	2025.5	N/A	UNSTABILIZED
3	1992.100	2043.897	AR_B	3748.0	3748.0	N/A	3122.4	N/A	TIGHT
4	1999.300	2051.096	ARB_Res_T	3762.0	3762.0	3553.5	N/A	0.029	NORMAL
5	2000.660	2052.456	ARB_Res_T	3764.0	3764.0	N/A	3498.5	0.181	SUPERCHARGED
6	2003.230	2055.026	ARB_Res_T	3769.0	3769.0	N/A	3335.6	0.040	SUPERCHARGED
7	2005.170	2056.965	ARB_Res_T	3773.0	3773.0	N/A	3423.0	0.023	SUPERCHARGED
8	2016.083	2067.877	ARB_Res_T	3792.0	3792.0	N/A	N/A	N/A	TIGHT

Abu Roash-B Carbonate – Rigless Perforation

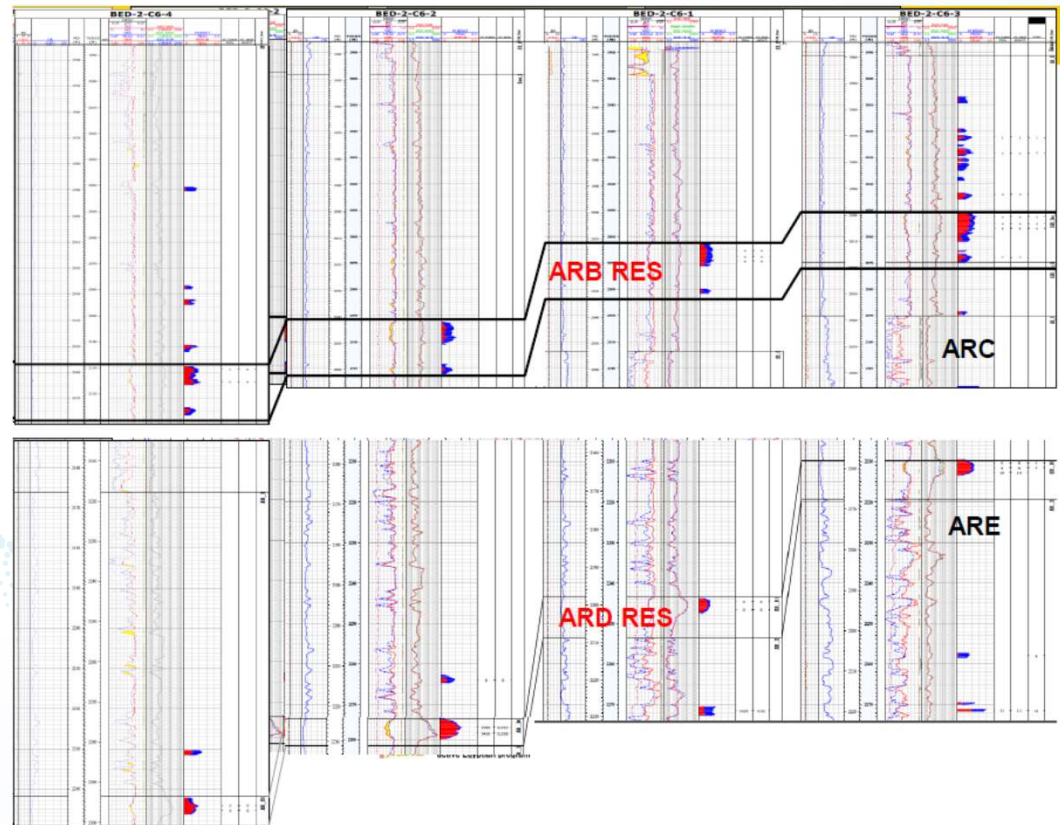
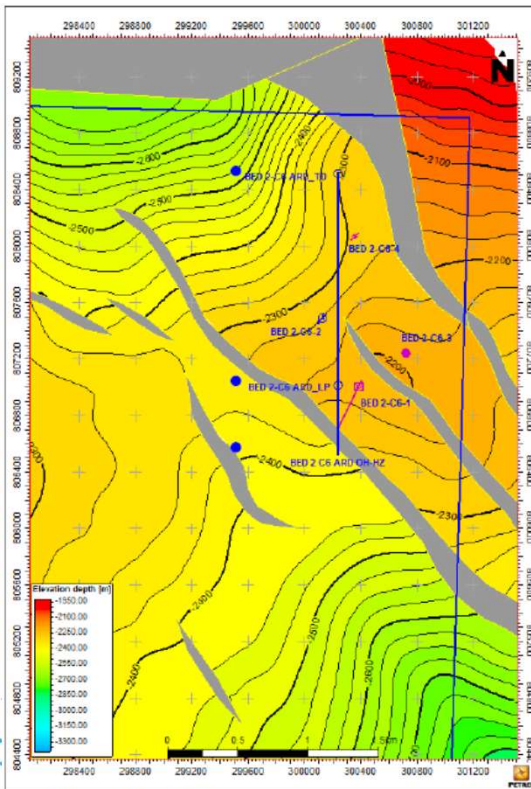


AR-B tested 65 BBL/D



AR-B added 0.5 MMSCFD

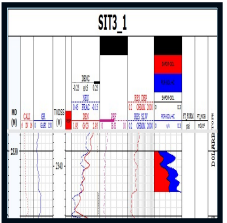
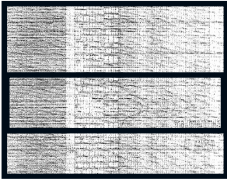
Bapetco Strategic Plan – BED 2 C6 Horizontal Wells Pilot



- AR-D carbonate has been tested with acid wash with no gain
- Then, AR-D has been stimulated with frac and produced 70 BBL/D in single vertical well
- Two horizontal wells are proposed for AR-B and AR-D (will be considered in Q2 2022 drilling sequence)

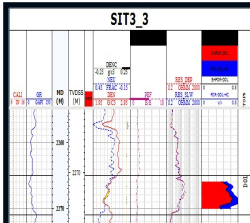
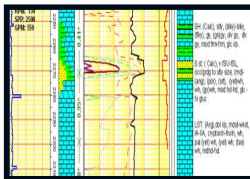
Bapetco Strategic Plan – Sitra Field Potential

SIT3-1



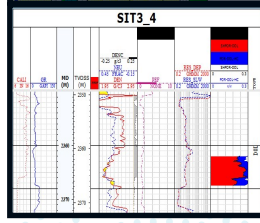
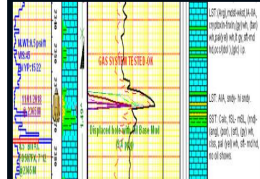
	Low	Base	High
POR	0.17	0.2	0.25
SW	0.38	0.33	0.3

SIT3-3



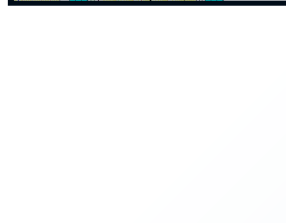
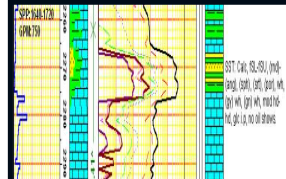
	Low	Base	High
POR	0.18	0.2	0.26
SW	0.31	0.22	0.18

SIT3-4

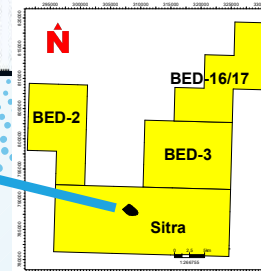
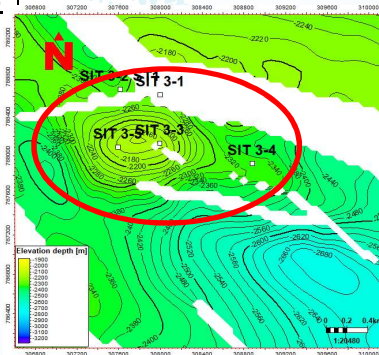
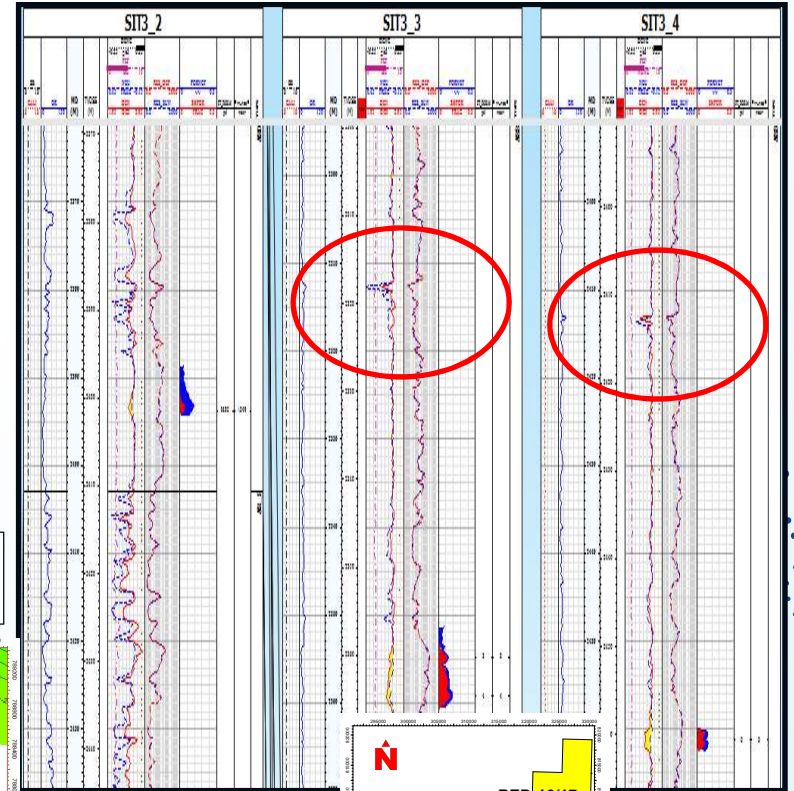


	Low	Base	High
POR	0.19	0.22	0.28
SW	0.33	0.24	0.16

SIT3-5



Opportunity and PP evaluation was done by petrophysicist/ Ibrahim Mabrouk



Conclusions

- **Bapetco has a wide range of carbonate reservoir portfolio**
- **Petrographic and petrophysical analysis show that AR-B is very tight and heterogeneous at different scales**
- **AR-B has been tested with single perf with low production rate**
- **Horizontal wells are proposed to drilled into BED 2-C6 field**
- **Several candidates of AR-B reservoir within Sitra-3 field**
- **Bapetco has just started a mega carbonate project will, hopefully, result in boosting the company production and improve reserve replacement ratio**

A decorative graphic consisting of several parallel, wavy lines of small blue dots, positioned behind the main text.

Thank You

For Your Attention