





Open Block for Appraisal/Development















EG-27: Three commercial fields and the DPP area











Reservoir Summary

The reservoirs in EG-27 have all been found to consist of very high-quality sands but they do vary in terms of depth, structure, size and aquifer size.

The gas composition suggests a very lean dry gas (99.5 - 99.7 % mol) with very small amounts of contaminants. The gas is expected to be saturated with water at the reservoir conditions.

EG-27 reservoirs are shallow, and under moderate temperature and pressure. The properties of the Fortuna and Viscata reservoirs, extracted from the Integrated Production Modelling report are given below.

	Fortuna	Viscata
Reservoir depth at GWC datum (TVDss)	2,563m (8,4000ft)	2641m (8,665ft)
Reservoir pressure at GWC	258 bara (3,741psia)	262 bara (3799psia)
Reservoir temperature at GWC	39°C (102°F)	47°C (117°F)



Water depth: 1070m to 1890m, gradually deepening eastward.

Seabed: Varied morphology with buried relict features (pockmarks, bedforms, faults).

Submarine canyons: Extensive central and southern canyons, smaller ones in the north and east.

Sediment: Soft clay near seabed surface, firmer clay layers below subsurface.







Wells drilled - Results



Well	Result	Year
Tonel North-1	Gas show	2014
Fortuna-2	Gas shows	2014
Silenus East-1	Gas discovery	2014
Fortuna West-1	Gas show	2012
Fortuna East-1	Gas show	2012
Tonel-1	Gas discovery	2012
Fortuna-1	Gas discovery	2008
Lykos-1	Gas discovery	2008
Bythos-1	Gas show	2008
Estrella de Mar-1	Gas discovery	2002
Oreja Marina-1	Gas discovery	2001









2D Seismic & Well Log







EGW-07









3D Seismic

3D Survey Info

Survey Name: Ex Block E Data Area

Year: 1999

Area: 1,922 Km²

Data Type: Full Stack Migration

Recorded by: GECO-PRAKLA

Recorded Date: 1999

Processing Date: 1999/2000

Processing: Migration/Angle Stacks







perceptum





Structural setting



EG-27's structural configuration is influenced by north-east to south-west trending toe thrusts of the Niger Delta and the Cameroon Volcanic Line. Below the Niger Delta, horst and graben structures from the Cretaceous South Atlantic opening can be observed. Gravity-driven tectonic activity occurred mainly during the Middle to Late Miocene, with faulting decreasing in the Pliocene.

The Thrust Belt (figure to the left) in EG-27 consists of imbricate faults in the west transitioning to roll-over structures in the east, with potential for stacked reservoirs. The Fore thrust, an unstructured zone between the toe thrusts and the Cameroon Volcanic Line, features larger traps with a stratigraphic component. Migration focus is crucial for success in this area.





EG-27



Discovery Field Geology Description



The Fortuna channel-levee system is interpreted as a multiple channel levee system that laterally merges. It was deposited in a middle to lower slope setting, characterized by hemipelagic shale, and has been affected by erosion from MTCs (Mass Transport Complexes).

Structurally, Fortuna is in the relatively unstructured forethrust region, between the toe-thrust of the distal Niger Delta and the Cameroon Volcanic Line. The construction of the Fortuna channellevee system occurred in several phases between 5.5Ma and 5.0Ma (figure to the left), involving erosion, deposition of slumps and debrites, and subsequent aggradation of the channel-levee system. The reservoir is open to the southeast, with potential aquifer support in that direction.

Viscata, a gas accumulation, lies beneath Fortuna stratigraphically. It is genetically related to the overlying Fortuna channel-levee complex but is interpreted as a mud-prone channel-levee system deposited between 8.2Ma and 6.3Ma. The field consists of low sinuosity channels and associated levees, with extensive stacked levees and frontal lobes on the northeastern and southwestern flanks.

The seismic resolution within the Viscata field has been limited, making it challenging to differentiate between different depositional units. Efforts are underway in 2016 to conduct focused seismic reprocessing to improve the quality of the seismic data.







Well Data Summary

Wells	Fortuna East-1	Fortuna-1	Fortuna-2	Fortuna West-1 ST1	Silenus East-1	Estrella De Mar-1	Lykos-1	Tonel-1	Tonel North-1
Fluids	Gas/Water	Gas/Water	Gas	Gas/Water	Gas/Water	Gas/Water	Gas/Water	Gas/Water	Gas/Water
Drilled/Logged	Aug 2012	Nov 2008	Oct 2014	Aug 2012	August, 2014	July, 2014	December, 2008	July, 2012	2014
Water Depth	1828 m (LAT)	1691 m (LAT)	1815 m (MSL)	1757.6 m (LAT)	1453.0 mMD	1439.0 mMD	1536.1 mMD (LAT)	1599.2 m (MSL)	1647.5 m (MSL)
Mud System	OBM (Versaclean)	МОВМ	OBM (Versaclean)	OBM (Versaclean)	SOBM (Versaclean)	OBM	WBM (Riser less)	OBM (Versaclean)	LTOBM
Mud Weight	9.2 ppg	9.3 ppg	9.0 ppg	9.1 ppg	9.5 ppg	9.55 ppg	11.0 ppg	9.3 ppg	9.0 ppg
TD	3465 mMD	3402 mMD	2574.25 mMD	3174.5 mMD	2839.0 mMD	3198 mMD (46 deg deviation at TD)	2297 mRT	3103.5 mMD	2844.0 mMD (drillers)
внт	75.6 degC	62.5 degC *	39.5 degC	70.6 degC	68.0 degC	70 degC*	44 degC*	69 degC*	73 degC
Whole Core		-	8.32m, 12.54m, 19.36m, 12.15m	3.95m, 1.58m					
LWD	GR/ARC/ADN/Sonic	GR/RES/DEN/NEU/Sonic	GR/ARC	GR/ARC/ADN/Sonic	No	No	No	Yes	No
Conventional Wireline	ZAIT/PEX/HNGS	-	ZAIT/PEX/HNGS	ZAIT/PEX/HNGS	GR/ RES/Sonic	GR/RES/Dir	GR/RES	GR/ ARC/ADN/SON	GR/ARC/SON
Sonic Logs	MSIP	XMAC	MSIP	MSIP	ZAIT/PEX/HNGS	HDIL/ORIT/ZDL/CN/ DSL/TTRM	DSL/CN/ZDL/HDIL	ZAIT/PEX/HNGS	ZAIT/PEX/HNGS
Image Logs	DOBMI	Earth Imager	DOBMI	DOBMI	MSIP	XMAC	XMAC	MSIP	MSIP
Advanced Logs	MRScanner	-	CMR/ADT/NEXT	MRScanner	DOBMI	-	-	DOBMI	UBI/DOBMI
Seismic	VSI-4	-	-	VSI-4	ADT/ECS/CMR	-	-	MRScanner	-
Wireline Core	CST	SWC	-	CST	VSI-4	CSI (checkshots)	-	-	VSI-4
Well Test	No	No	Yes	No	CST (26/40**, 26/52)	SWC (38/50)	-	CST (55/60)	-
Pressures	MDT	RCI	-	MDT	-	-	-	-	-
Fluid Samples	Gas & Water	Gas & Water	(Well Test) Gas	Gas & Water	MDT	RCI	RCI	MDT	MDT

