



Frontier Oil Exploration Opportunities Rathlin Trough Offshore Northern Ireland

“Prospects To Go”
Atlantic Ireland Conference

November 11th 2013

Why Rathlin?

- Ballinlea-1 well 2008 – recovered high quality oil from drill string
- Basin has proven reservoir and source, both in deep wells and outcrop
- Analogous geology to EISB – significant volumes of oil and gas discovered
- Overlooked basin - troubles in North in 80s and 90s - geopolitical issues
- Area with existing data, easy to carry out scoping geological assessment



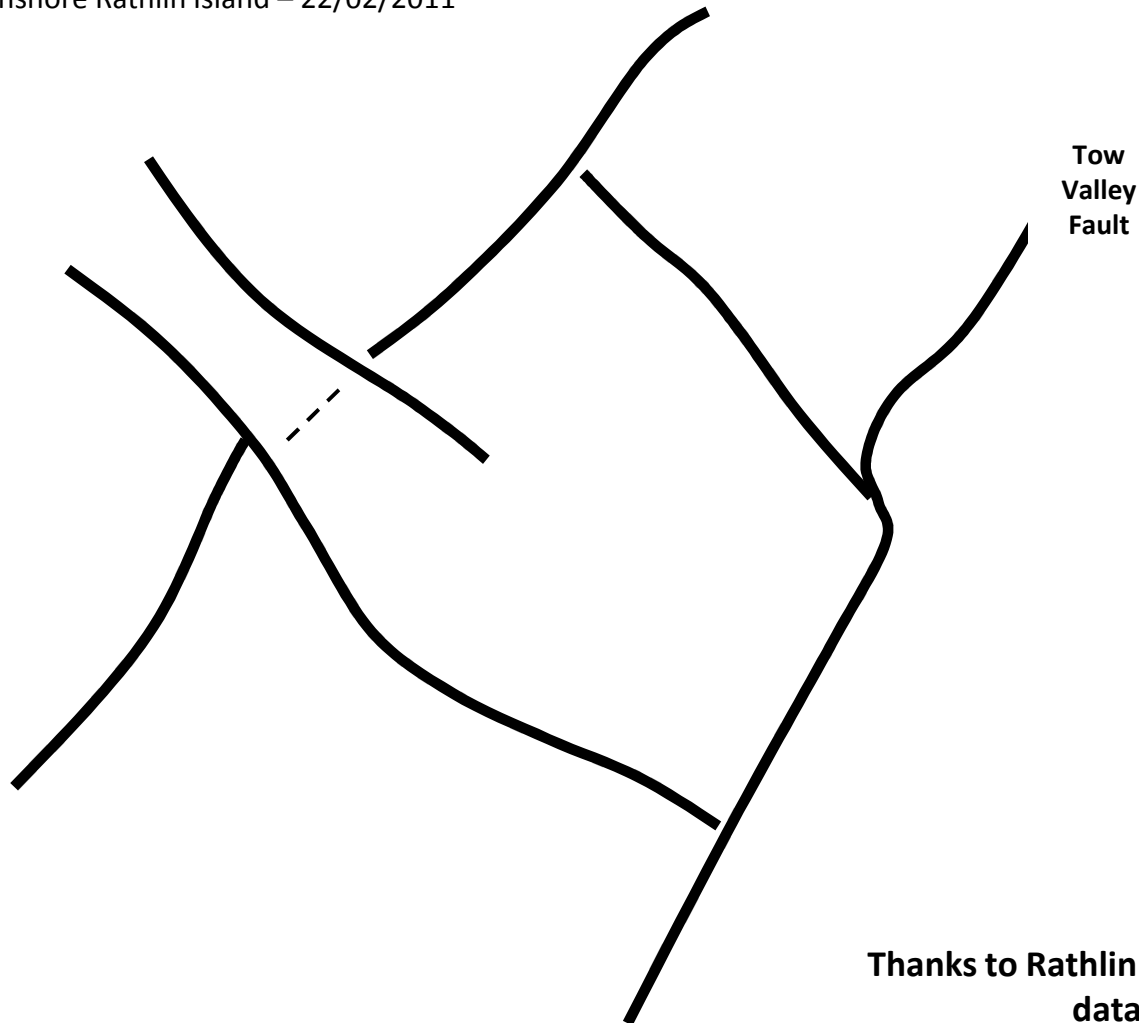
Ballinlea-1 well head

Location of Licence Area

Licence Area

Awarded offshore Licence option P1885 – 01/02/2012

Awarded Onshore Rathlin Island – 22/02/2011

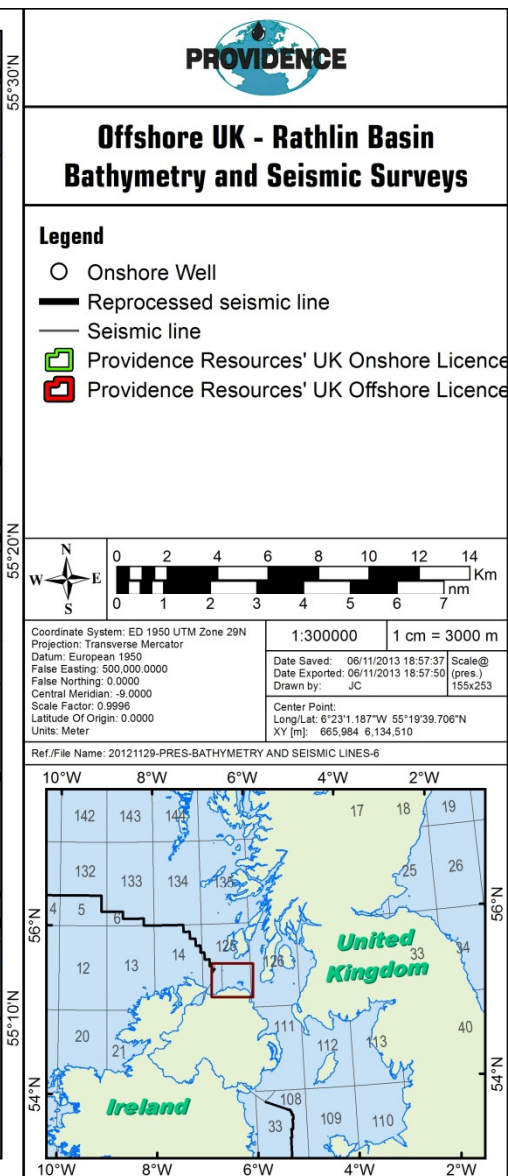


Thanks to Rathlin Energy for allowing use of courtesy data in Rathlin Sound area

Providence Resources Plc (PR UK Ltd) – 100%,
25-240 m water depth


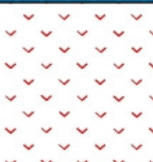
















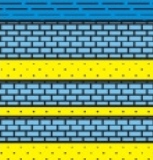


This is a detailed bathymetric map of the Ballinlea-I area. The map features a color-coded depth scale on the left, ranging from 1 to -259 meters. The terrain is marked with numerous black lines representing navigation routes or boundaries, many of which are labeled with codes such as 'HEX81-502', 'MP85WB-97A', and 'MP85WB-99C'. A prominent red line runs diagonally across the upper portion of the map. The map also includes a grid of latitude and longitude coordinates. Key locations labeled on the map include 'P1885', 'PL5/10', 'Port More', 'BATH LODGE no.2', and 'BALLINLEA-I'. The map is oriented with North at the top, and the coastline is visible at the bottom.



Structure & Stratigraphy

- Asymmetric half graben structure – deepens towards the east into TVF
- Lower Carboniferous (~1000m)
 - non marine facies, with marine influence
- Upper Carboniferous – *Variscan Uplift*
- Permo-Triassic (>500m)
 - aeolian-fluvial
- Lower Jurassic
 - marine shales
- No Middle or Upper Jurassic – *Cimmerian Uplift*
- Upper Cretaceous Chalk and Greensand
 - marine
- *Alpine Uplift*
- Cenozoic basalts and sills

STRATIGRAPHY			LITHO- LOGY	PLAY FUNCTION	THICKNESS [m]
TERTIARY	U-Olig.	Lough Neagh Clays		SEAL	0-350
	Paleocene-Eocen	Upper Basalts			0-850
		Lower Basalts			
		Hibernian Sandstone			
CRET.	White Limestone		? SOURCE	0-150	
JUR.	Lower Lias			0-200	
TRIASSIC	upper	Penarth Group		SEAL	0-1000
	middle	Mercia Mudstone Group			
					
	lower	Sherwood Sandstone Group			
PERMIAN	upper	Permian Upper Marls		SEAL	1-1500
		Magnesian Limestone		RESERVOIR	
	lower				
					
					
CARBONIFEROUS	upper	Westphalian		SOURCE	0-2000
	Namurian				
	lower	Dinantian		RESERVOIR SOURCE	
					
					
DEV.	Old Red Sandstone		RESERVOIR	0-1000	
LOWER PALAEOZOIC			metabasement	? SOURCE	

Reservoir

Triassic



Known in Larne, Rathlin and Lough Neagh Basins
Broadly alluvial/fluvio-deltaic
Average - 17% porosity (core poro-perm)

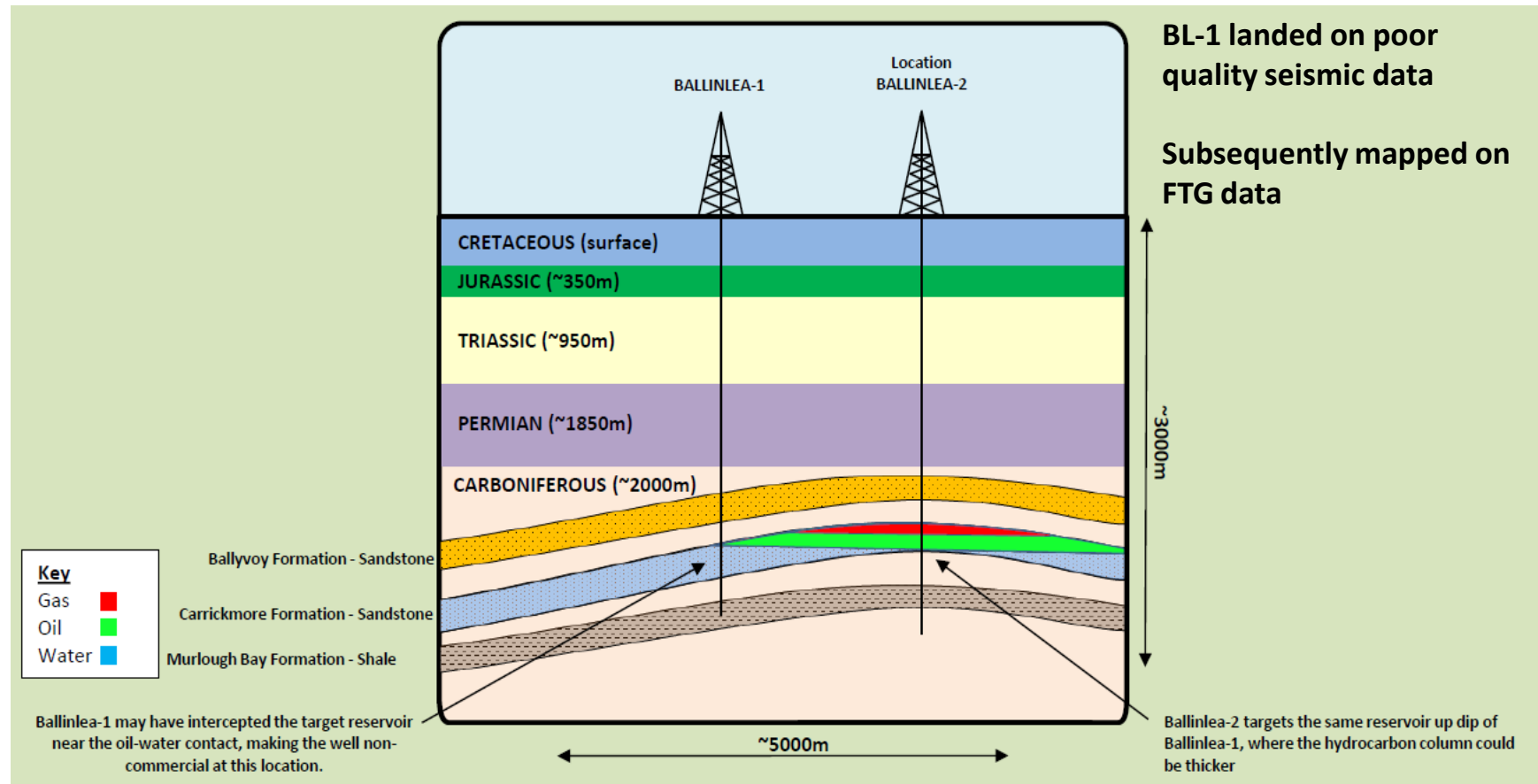
Carboniferous



Deltaic Sandstones
15-17% porosity (core poro-perm deep borehole)
Onshore lateral continuity of sands known from outcrop and wells

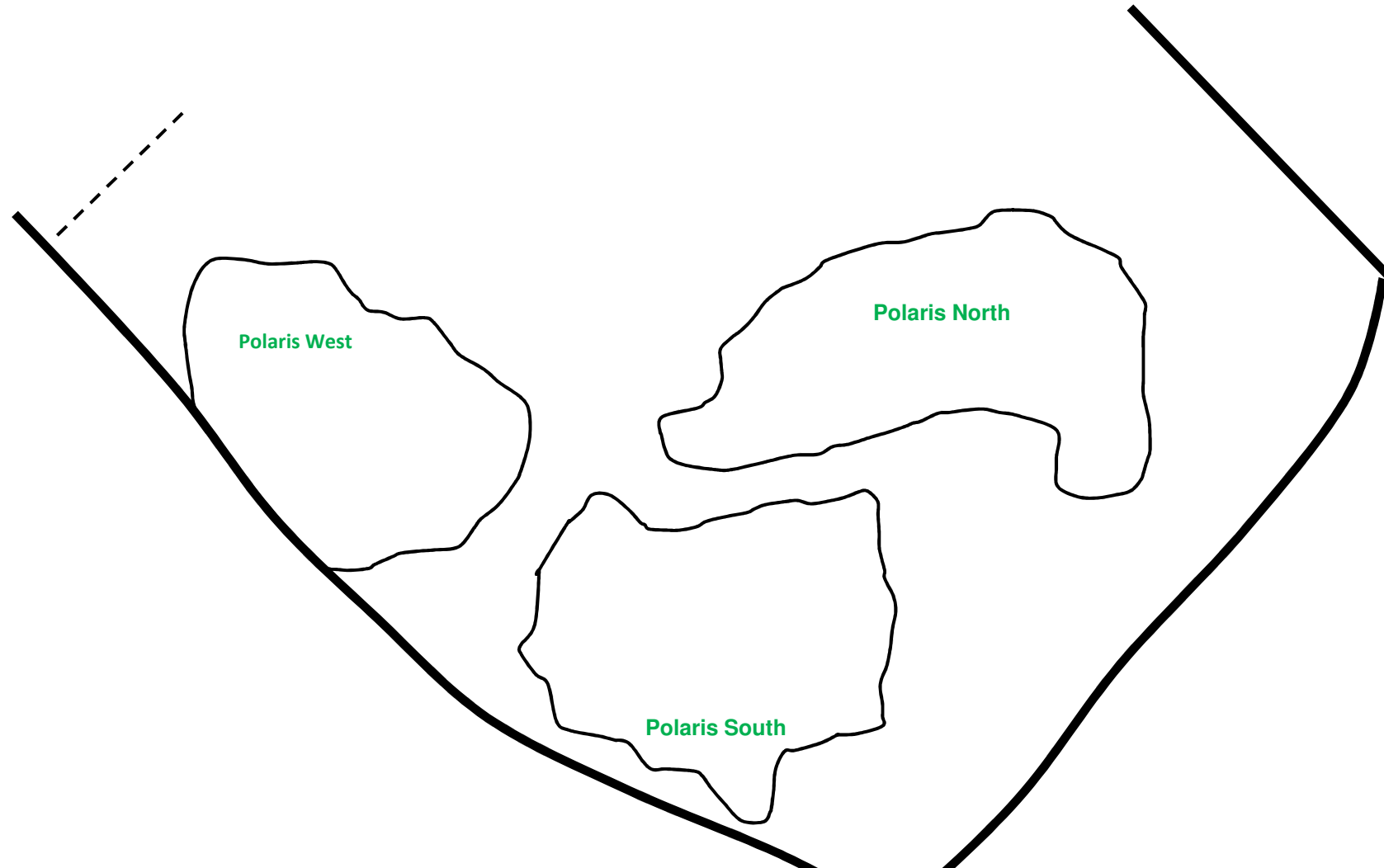
Ballinlea – 1 Well (2008)

- Hydrocarbon exploration well drilled 2008, onshore Rathlin Basin - Mancal and Rathlin Energy
- Planning application submitted June 2013, drill Ballinlea-2 in 2014, up-dip well



FTG Slice 2 & 3 Residual - Polaris

Highlights anomalies between ~600m-3km (Top Triassic – Base Carboniferous)

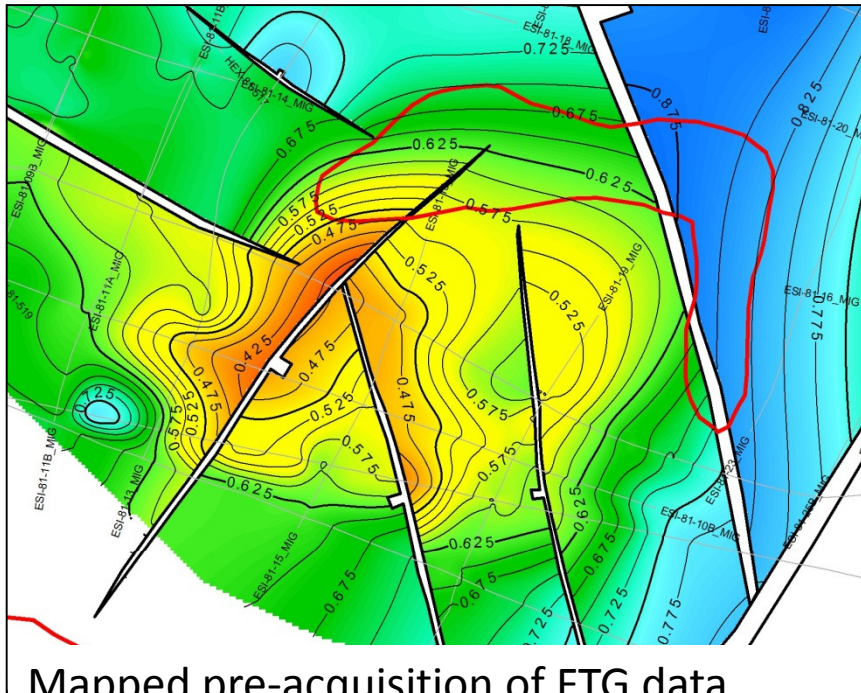


Polaris North and South on trend with Ballinlea Oil Discovery)

Follows main fault trends seen onshore (Tellus Magnetic Data)

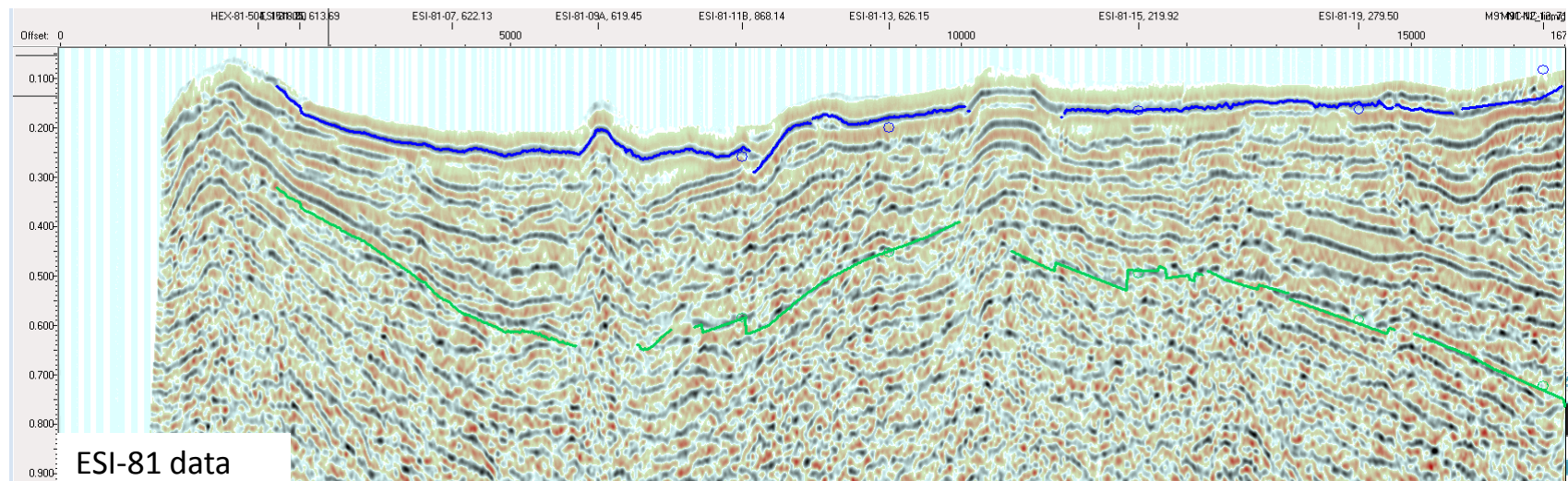


TWTT Near Top Sherwood Map v's FTG Residual



Mapped pre-acquisition of FTG data

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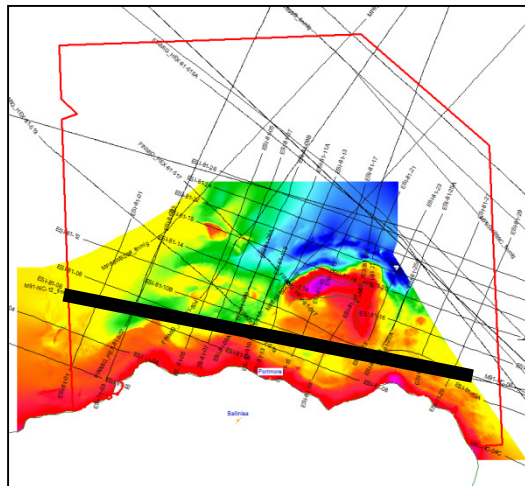
M91-NC-12 – CGG Reprocessed

Polaris South

sill

? Triassic

? Carboniferous



Confirms good quality seismic can be acquired in this basin



Scoping Volumetrics – Polaris South

Input	Low Case	Most likely	High case
Area (acres)	5000.00	7000.00	9000.00
Height (ft)	200.00	300.00	500.00
Net:Gross (decimal)	0.500	0.600	0.700
Porosity (decimal)	0.080	0.100	0.130
Oil Saturation So (decimal)	0.600	0.650	0.700
FVF Bo	1.200	1.200	1.200
STOIIP (MMSTB)	155.16	529.48	1853.19

Inputs

- Area of Polaris polygon is c. 7000 acres (28 sq km)
- Based on Bell Geospace FTG data there is c. 350m (1150ft) of relief on Polaris South.
- Portmore Well - Base Sherwood = 1830m, Top 1317m - *513m thick* (1680ft)
- Average Sherwood porosity c. 8% & N:G c. 60 % based on Portmore borehole petrophysics (log quality questionable, when compared with poro-perm plug data which has 17% avg. porosity)
- Oil FVF assumed 1.2
- Conservative average gross thickness of 300ft relief in P50 volumetric calculation.

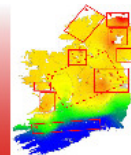


MT Programme - IRETHERM



IRETHERM

Developing a strategic and holistic understanding of Ireland's geothermal energy potential through integrated modelling of new and existing geophysical and geological data



Conclusions

- Providence feel the Rathlin Basin is an exciting and overlooked basin
- Basin has been brought back to life by drilling of Ballinlea-1 well in 2008
- Providence has identified a complex of leads based on FTG data, lots of running room in the basin
- High graded Polaris South lead which may contain up to **1.8 BBO STOIIIP**
- Providence is seeking a co-venture partner for this frontier high potential emerging oil play





www.providenceresources.com