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Atlantic Ireland, Kiely East and the next Brent Province

Hugh Mackay,
CEO Europa Oil & Gas

APPEX 2019

Presentation available to download at www.europaoil.com

KIELY EAST PROSPECT – key facts

- FEL 2/13, South Porcupine Basin, Atlantic Ireland
- Europa 100% interest
- 100% covered by 3D seismic data: 2013 proprietary 3D, 2018 proprietary reprocessed PSDM 3D data and TGS CREAN multiclient 3D data
- Upper Jurassic marine source rocks - proven
- Middle Jurassic marine sandstone reservoir – not proven yet
  - But might be by CNOOC's 2019 Iolar well 70km to south in FEL 3/18
- Large tilted fault block structure
- Analogue Brent province
- 280 million boe gross mean un-risked prospective resources on block
  - Could double with contribution from structure in open acreage
- Seeking farm-in partner to drill an exploration well

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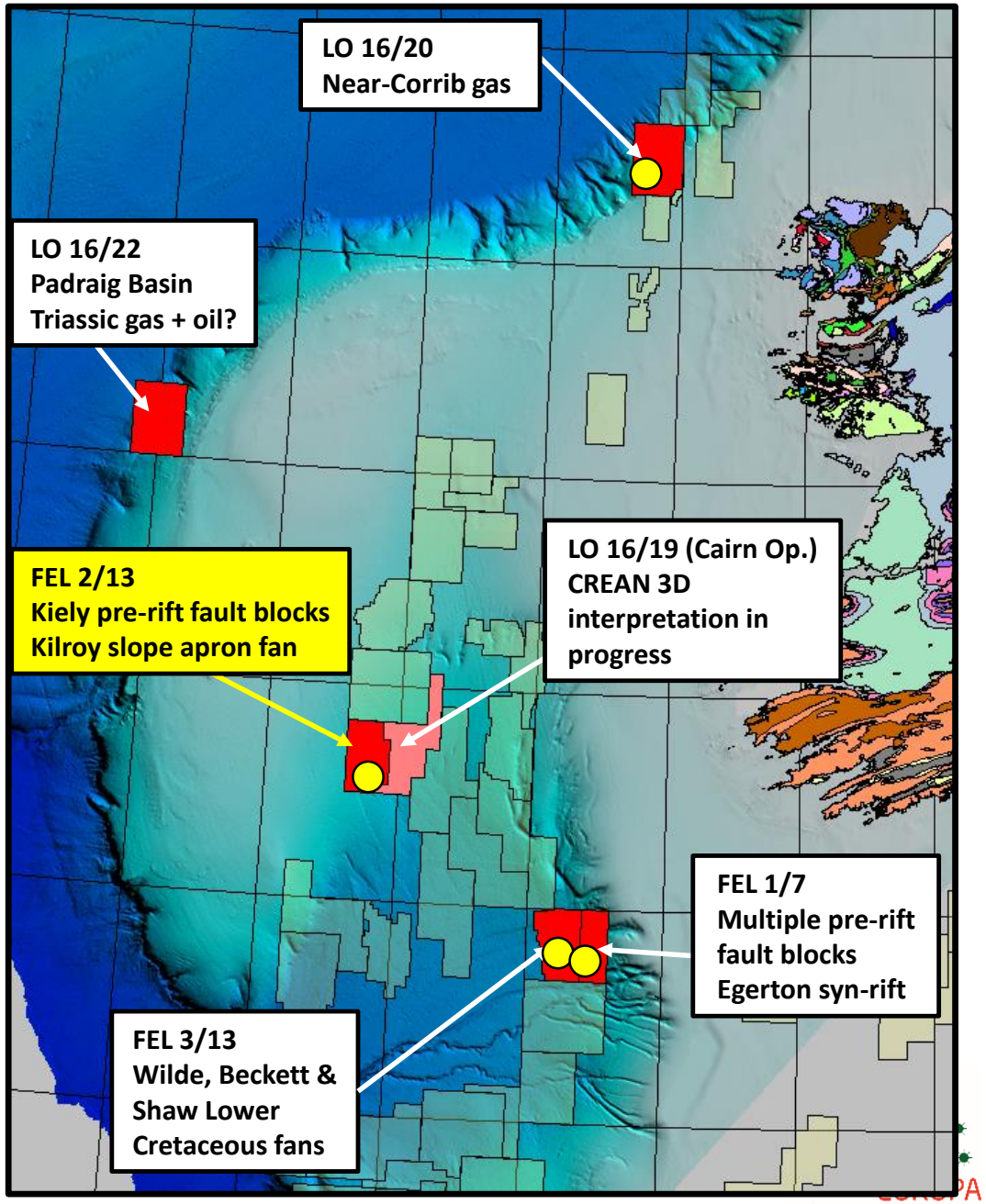
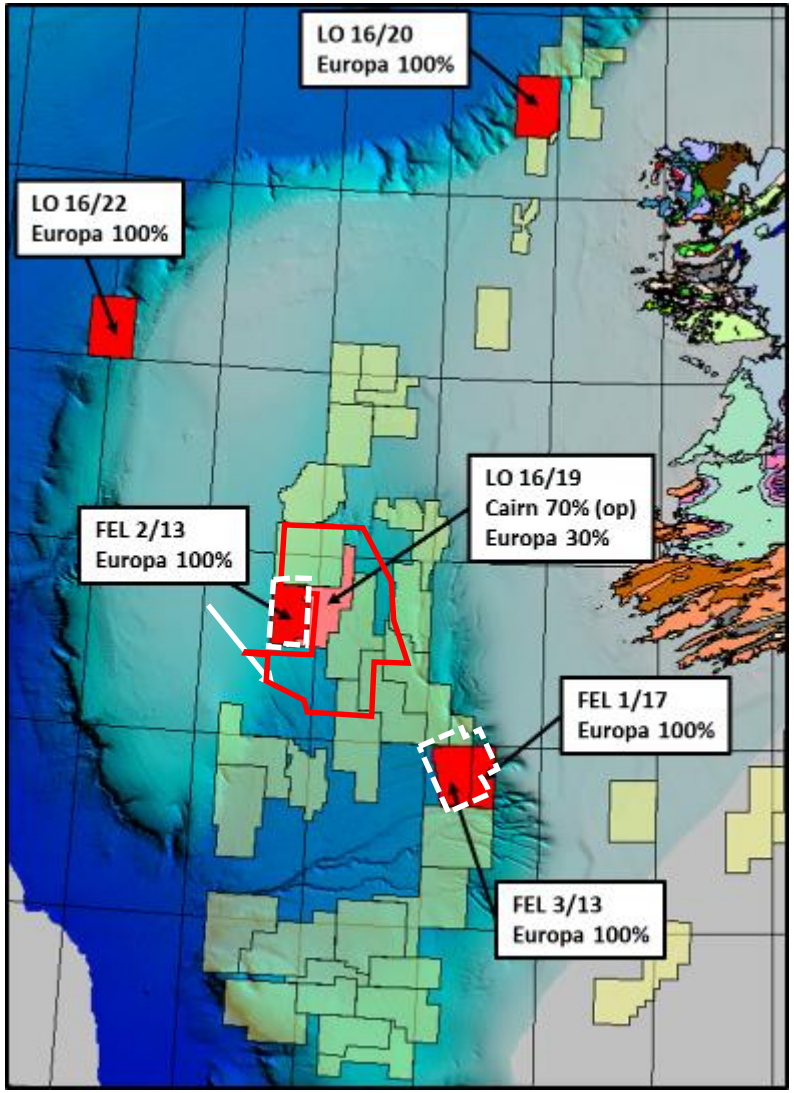
EUROPA IRELAND 2019

- **Six licences or licensing options.**
- **Play diversity – Cretaceous fans, Jurassic pre- and syn-rift, Triassic gas.**
- **Four Europa-operated licences covered by new 3D PSDM seismic, leading to well-defined drill ready prospects.**
- **Expect to survey drill sites for three leading prospects in 2019:**
  - LO 16/20 Inishkea Triassic gas
  - FEL 1/17 Edgeworth fault block
  - FEL 2/13 Kiely East fault block
- **Focus here is on FEL 2/13 on west flank of South Porcupine basin and our farmout to drill the Kiely East prospect**



WHY SHOULD I BE INTERESTED?



Meet the neighbours

CNOOC INTERNATIONAL

eni

equinor

ExxonMobil
Energy lives here

VERMILION ENERGY

REPSOL

Woodside

PROVIDENCE

Cairn

TOTAL

CPP INVESTMENT BOARD

Faroe

Active companies in Atlantic Ireland
Europa #1 in 2015 licence round, =1 with CNOOC International for operated licences

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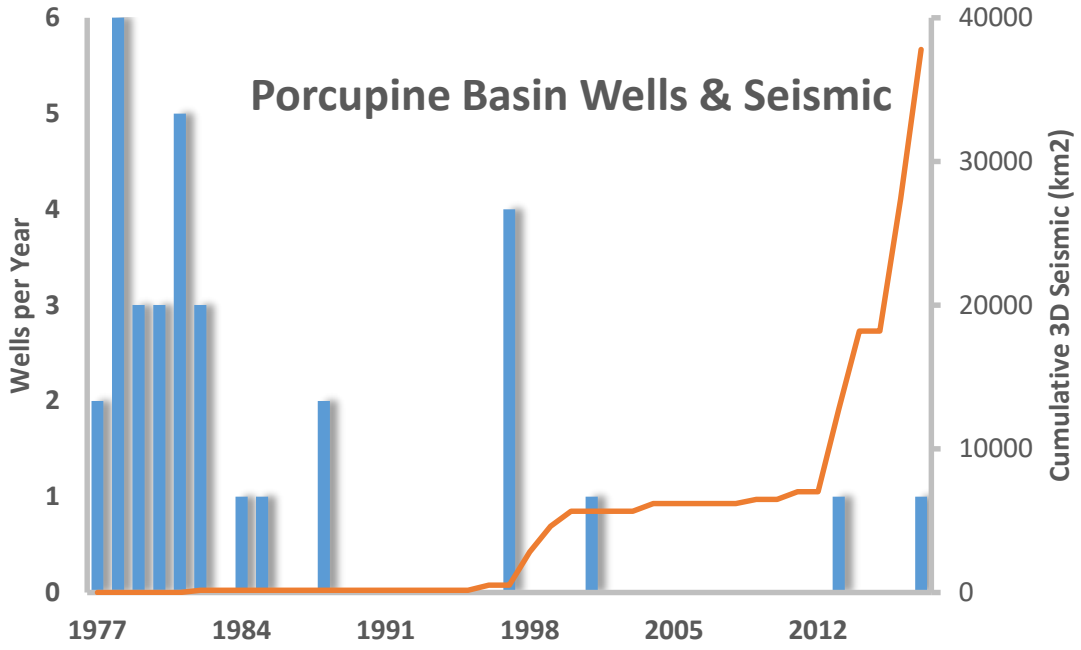
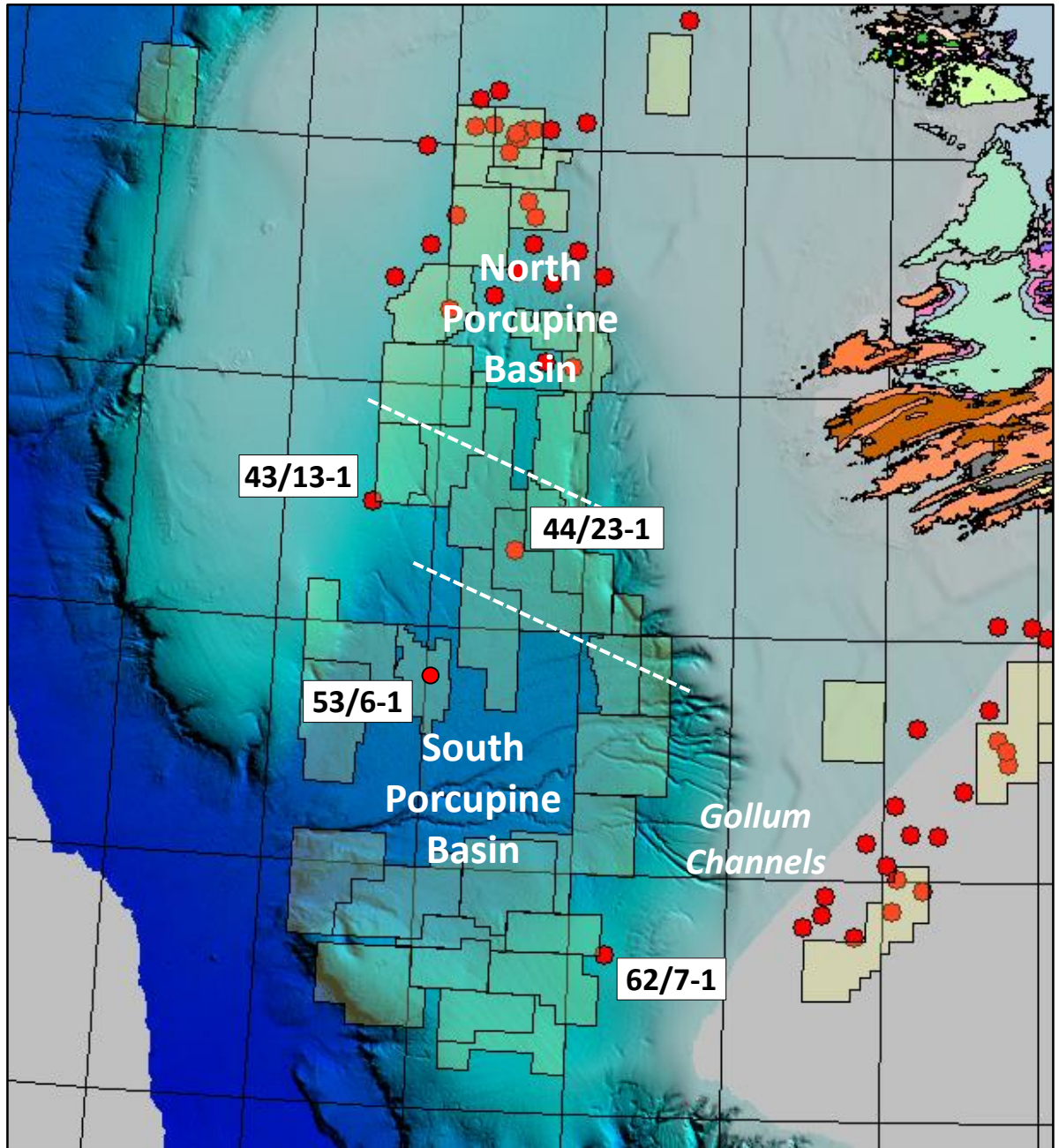
PORCUPINE DRILLING HISTORY



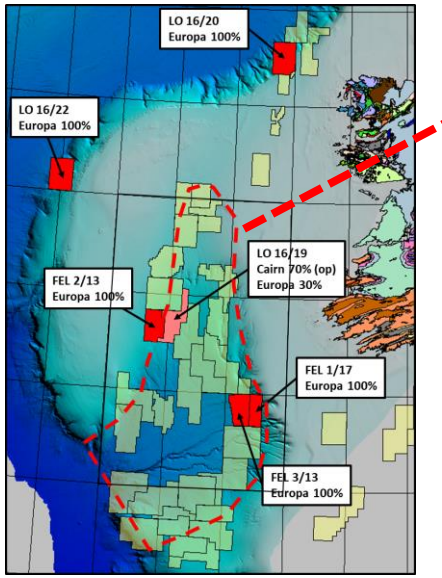
1. South Porcupine basin is under explored with three wells in forty years
2. ~30,000 km^2 3d acquired in last six years
3. New phase of drilling about to start – enabled with new technology and new ideas



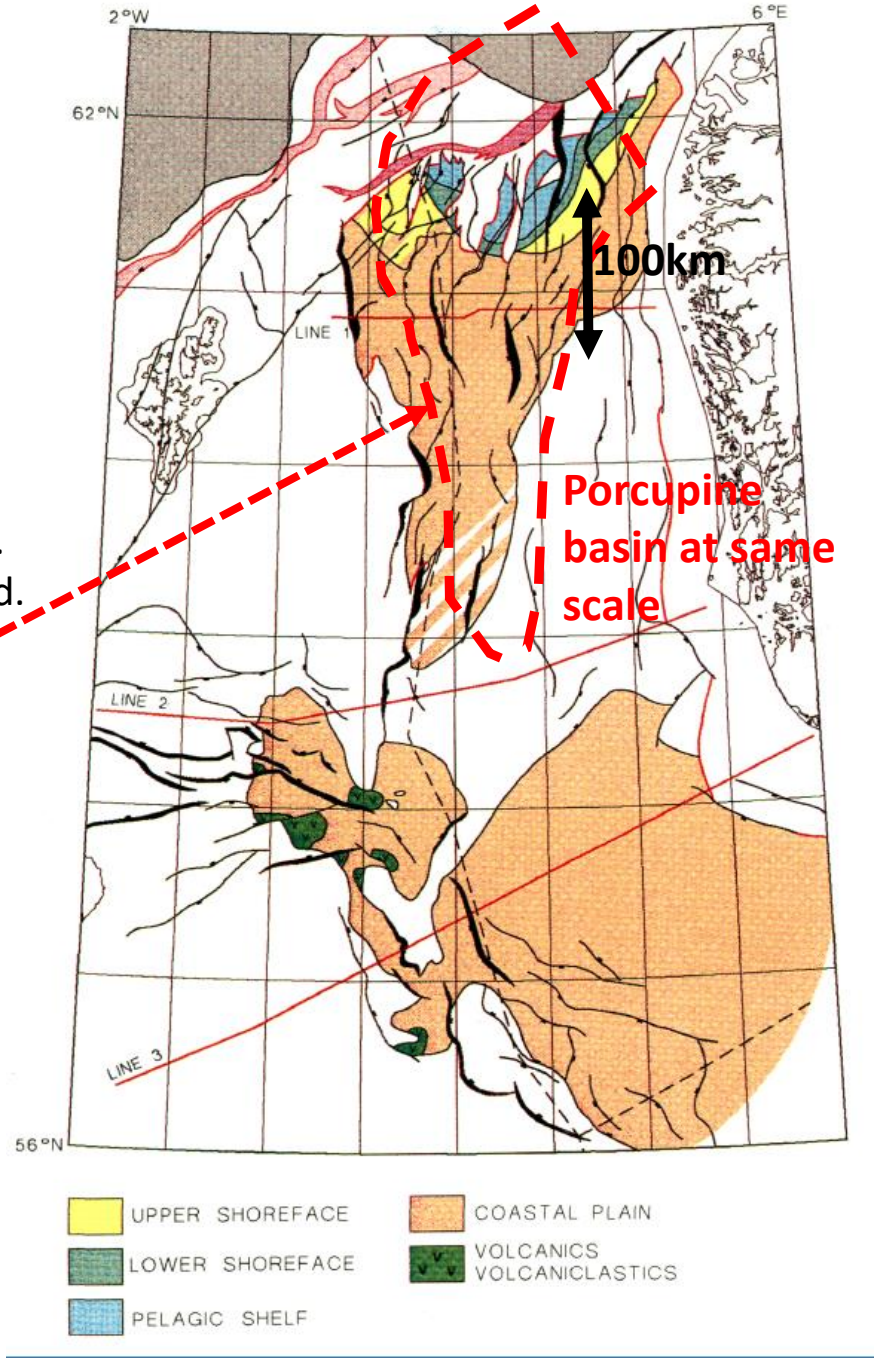
Mid-Jurassic Regional Facies - 1

Shoreface sandstones provide improved porosity and better connectivity. They are the critical difference between highly productive reservoirs (such as the Brent Group of the North Sea) and the more difficult, largely non-marine, reservoirs of the Northern Porcupine (such as Connemara).

But note the limited spatial extent of the shoreface. The Brent Province occupies little more than a Quad.



North Sea Bajocian paleogeography
(Rattey & Hayward, 1993)



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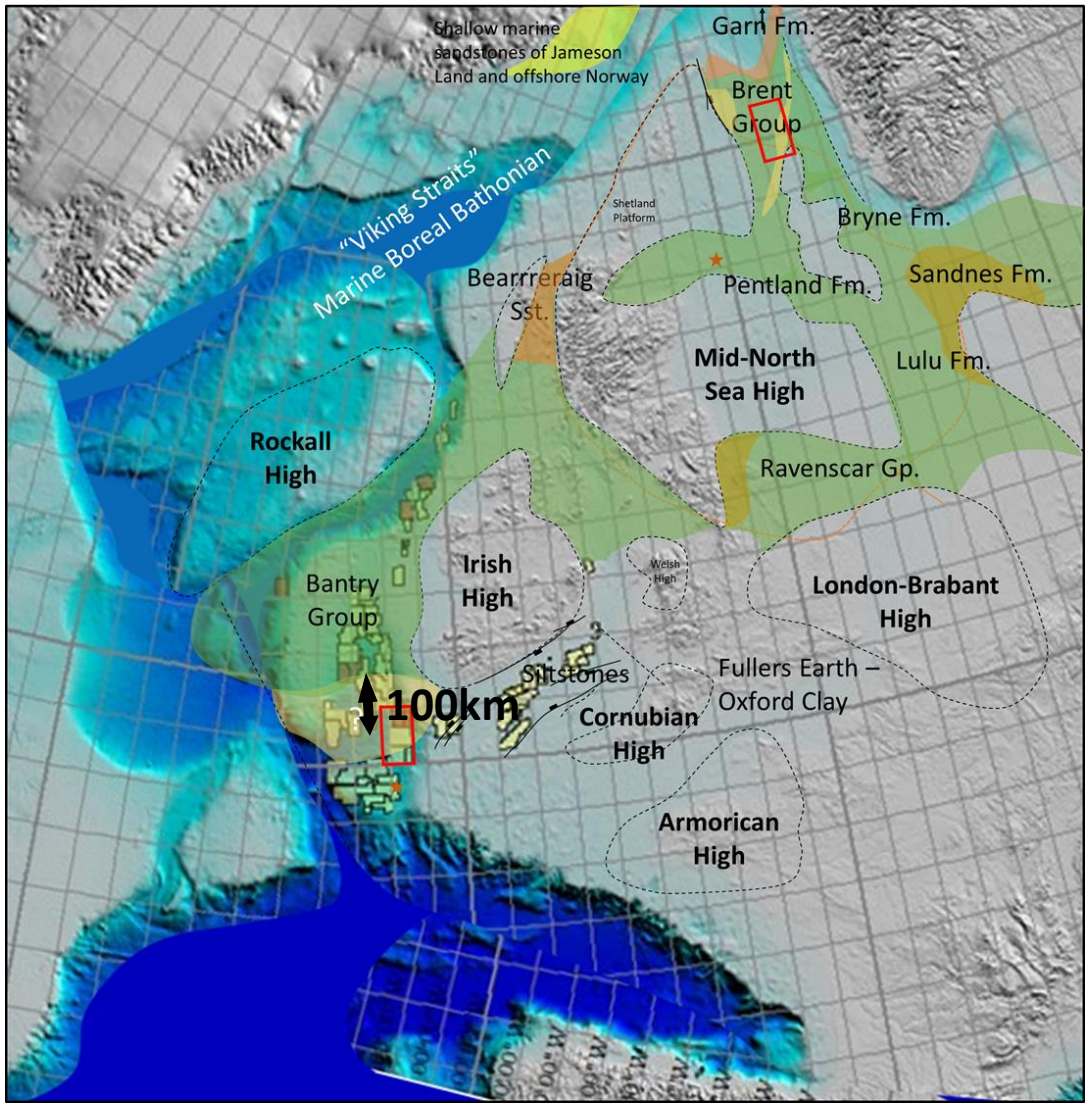
Middle Jurassic Regional Facies - 2

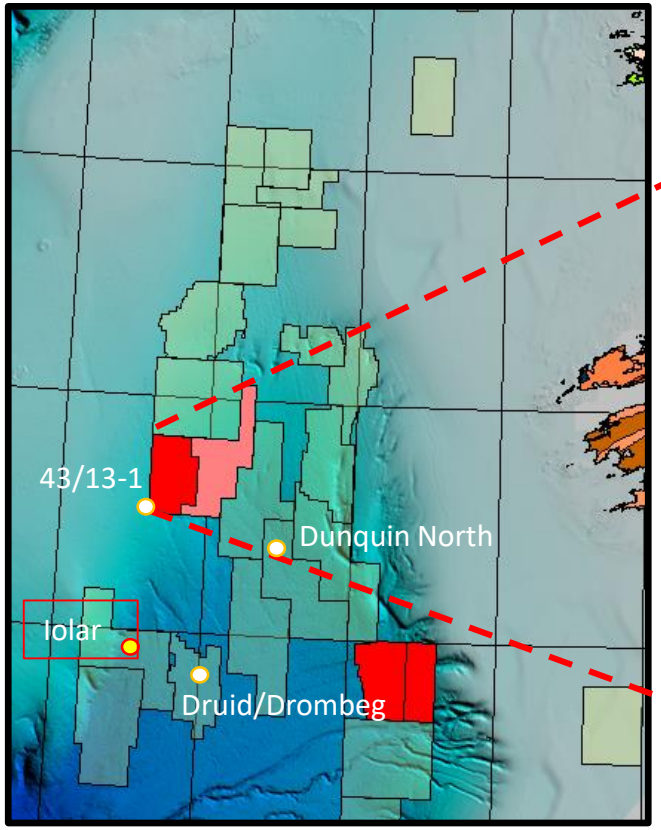
The Middle Jurassic of the European Area is dominated by paralic sediments, but shallow marine sediments (Brent Gp., Bearreraig sandstone, Sandnes Fm., Ravenscar Gp.) are developed in many places around the periphery.

FEL 2/13 is nearly 100km from the nearest Jurassic well control. There is a high likelihood that shallow marine sediments exist somewhere in the South Porcupine as the Jurassic seaway opens towards the propagating Atlantic Ocean.

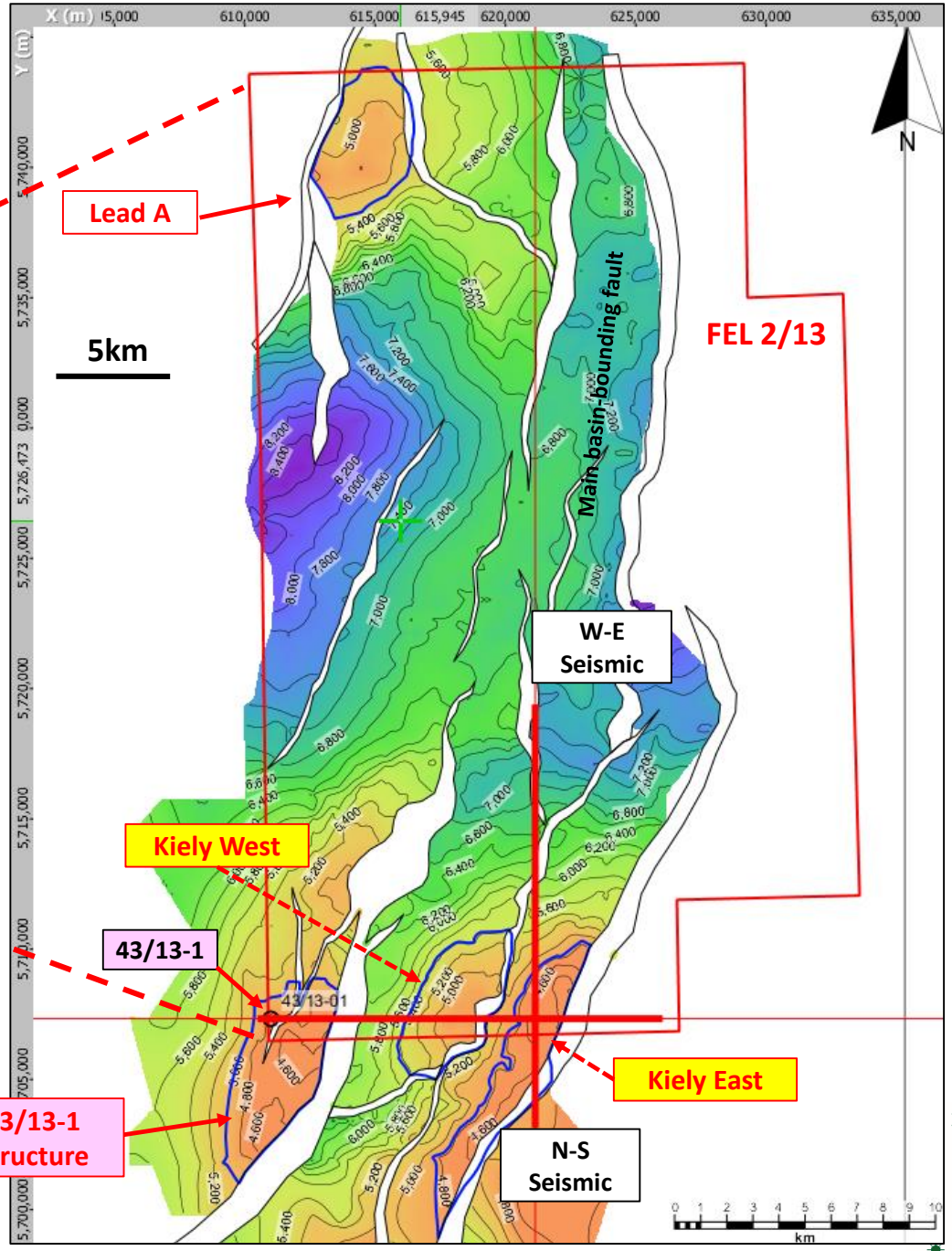
The presence of shallow marine mid-Jurassic on FEL 3/13 could be the key transformative factor for Porcupine reservoir commerciality.



LOCATION



- 1988, 43/13-1, oil shows and source
- 2013, Dunquin North, Cretaceous carbonates, 44 m residual oil column
- 2017, Druid/Paleocene Drombeg/Cretaceous fan
- 2019, Iolar drill this summer



Europa Top Pre-Rift (C.I. 200m)

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Kiely Prospects - Key Features

- Large west-tilted fault blocks with Middle Jurassic to Oxfordian reservoir sequence. Extends south into open acreage.

- BP 43/13-1 tried the play with a very ambitious well for the date (1988). Latest biostratigraphy (Merlin/PIP) shows that they did not penetrate the pre-Kimmeridgian sequence.

- 43/13-1 did prove Tithonian/Kimmeridgian source rocks and had shows in thin latest Kimmeridgian sand stringers which proved that this source was oil-mature down dip.

- The seismic character of the pre-rift over Kiely and the overlying highly erosive rift-onset unconformity encourages the possibility of older (and potentially shallow marine) Middle Jurassic reservoirs – upside reservoir quality compared with further north. The nearest Jurassic well control is over 100km to the north.

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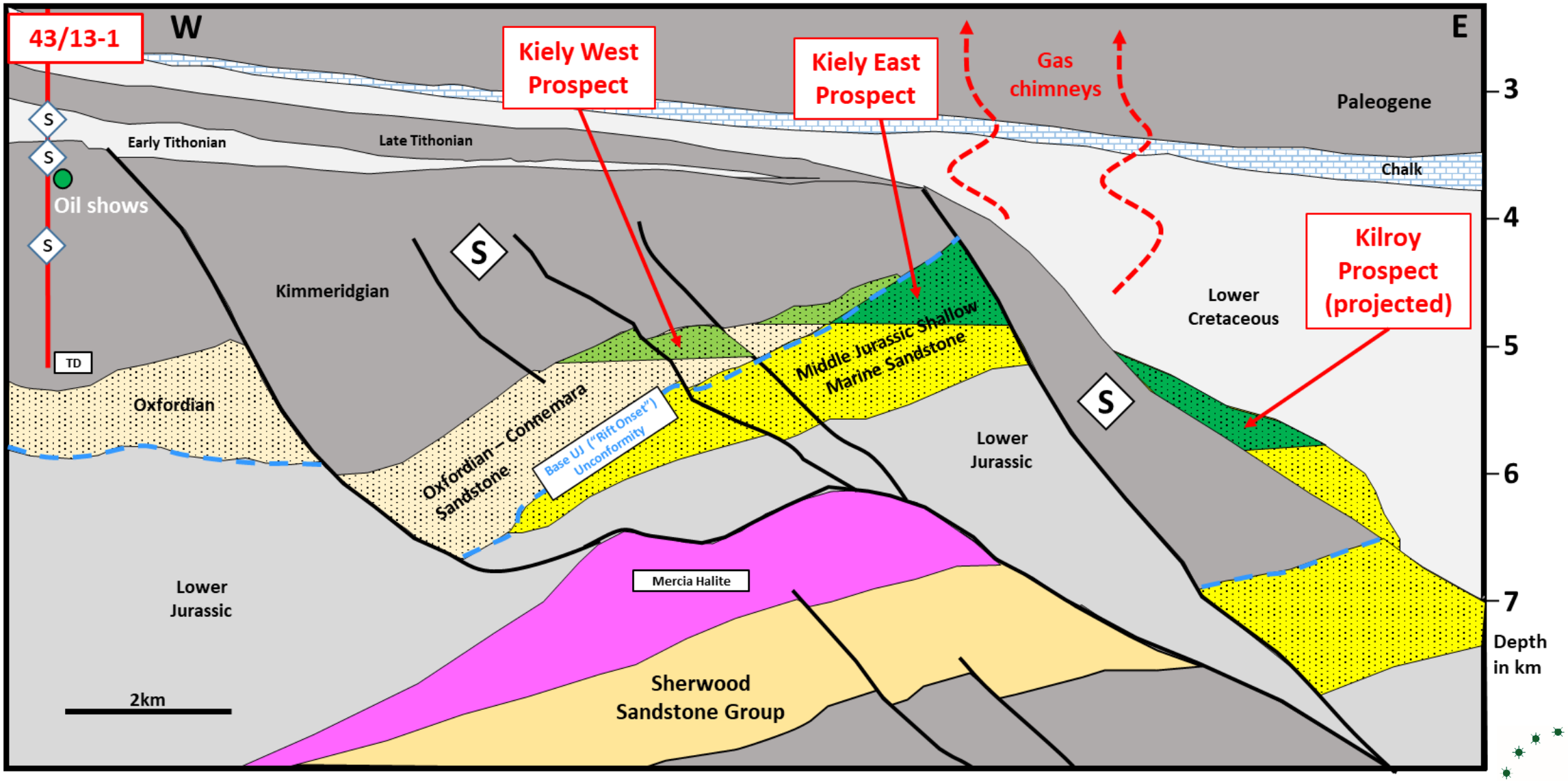
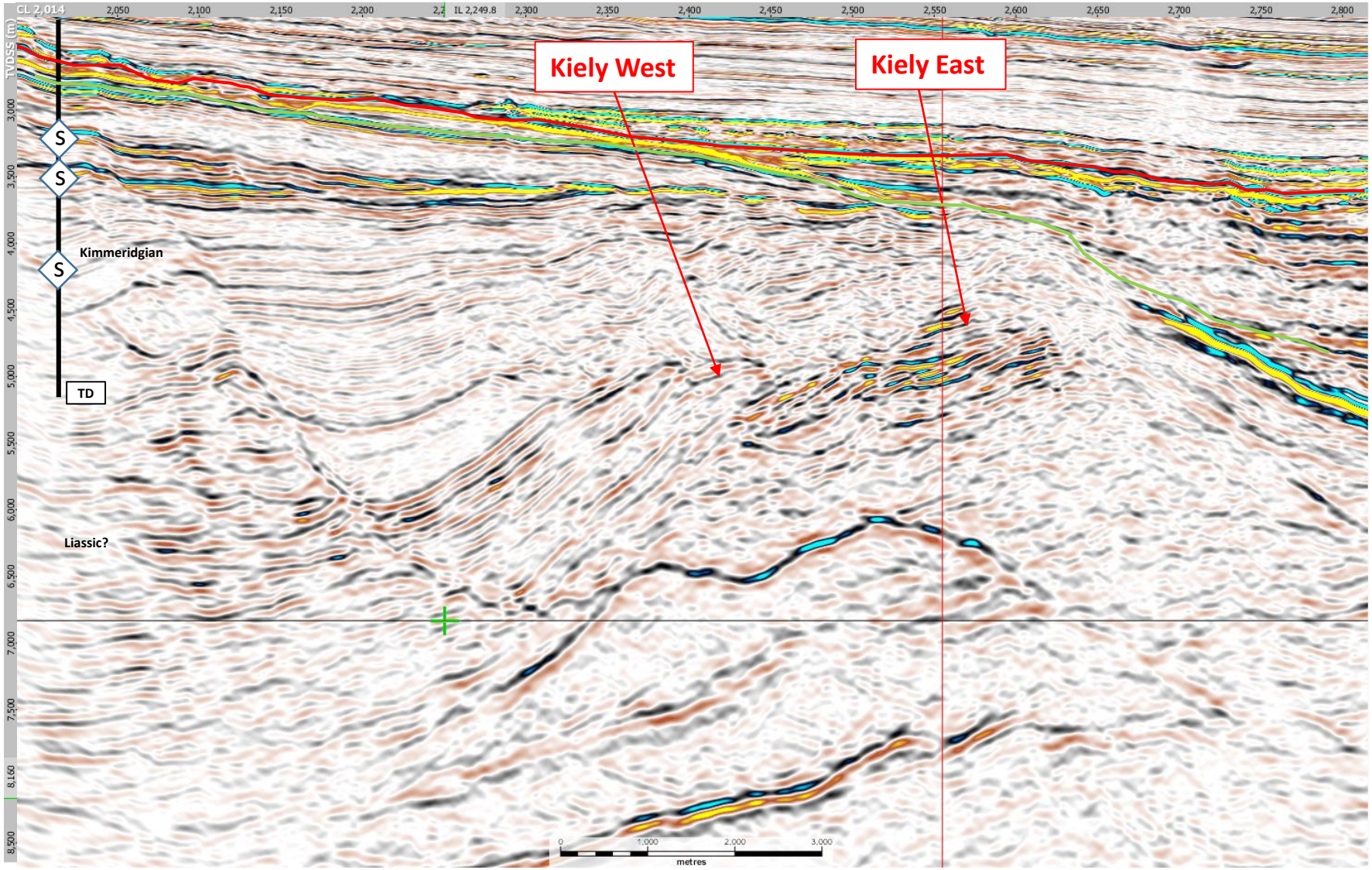
FEL 2/13 Play Schematic



Kiely W-E Seismic Xline 2014 PSDM full offset stack (depth domain)

43/13-1

In line 2555



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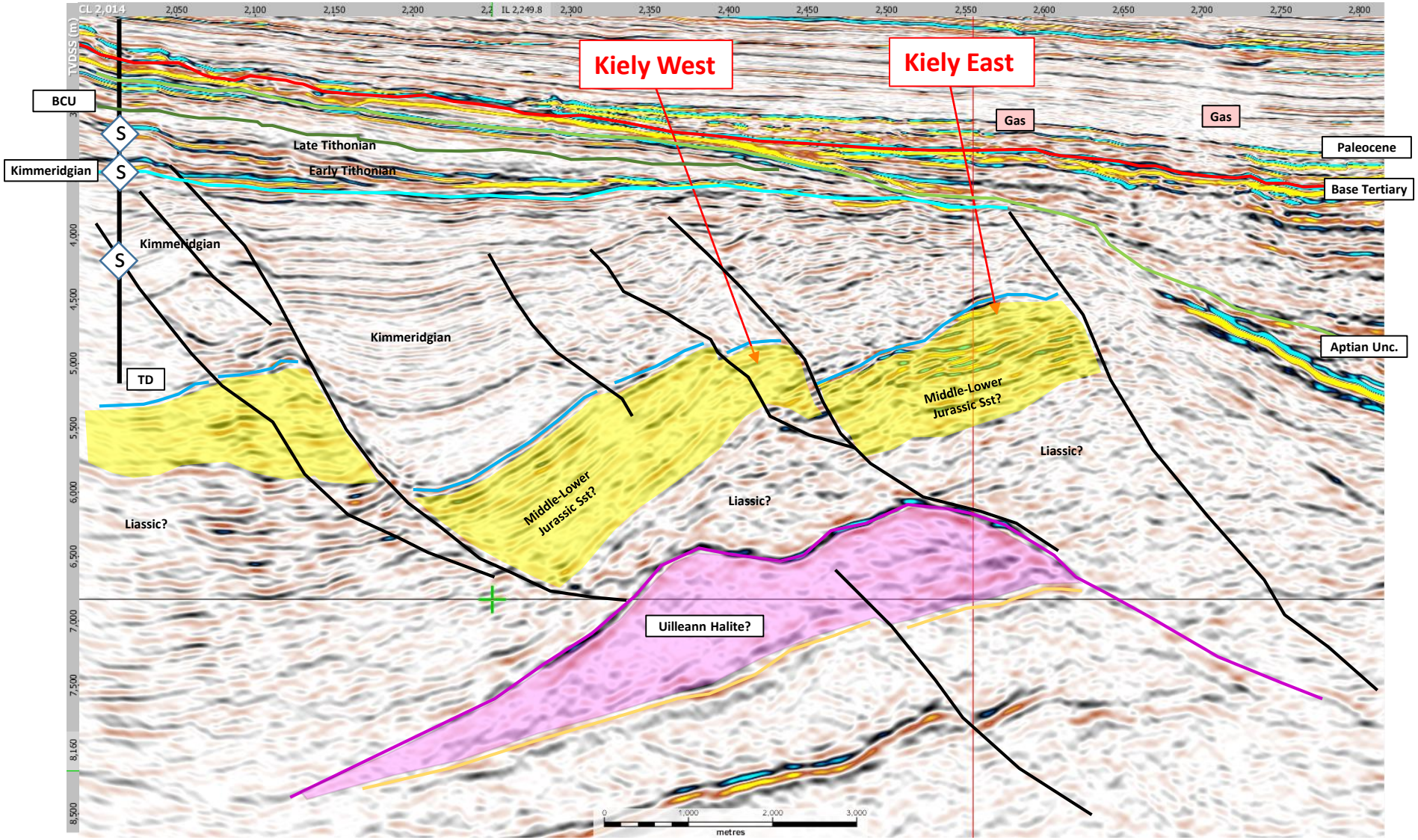
Kiely W-E Seismic Xline 2014 PSDM full offset stack (depth domain)

43/13-1

Model A

In line 2555



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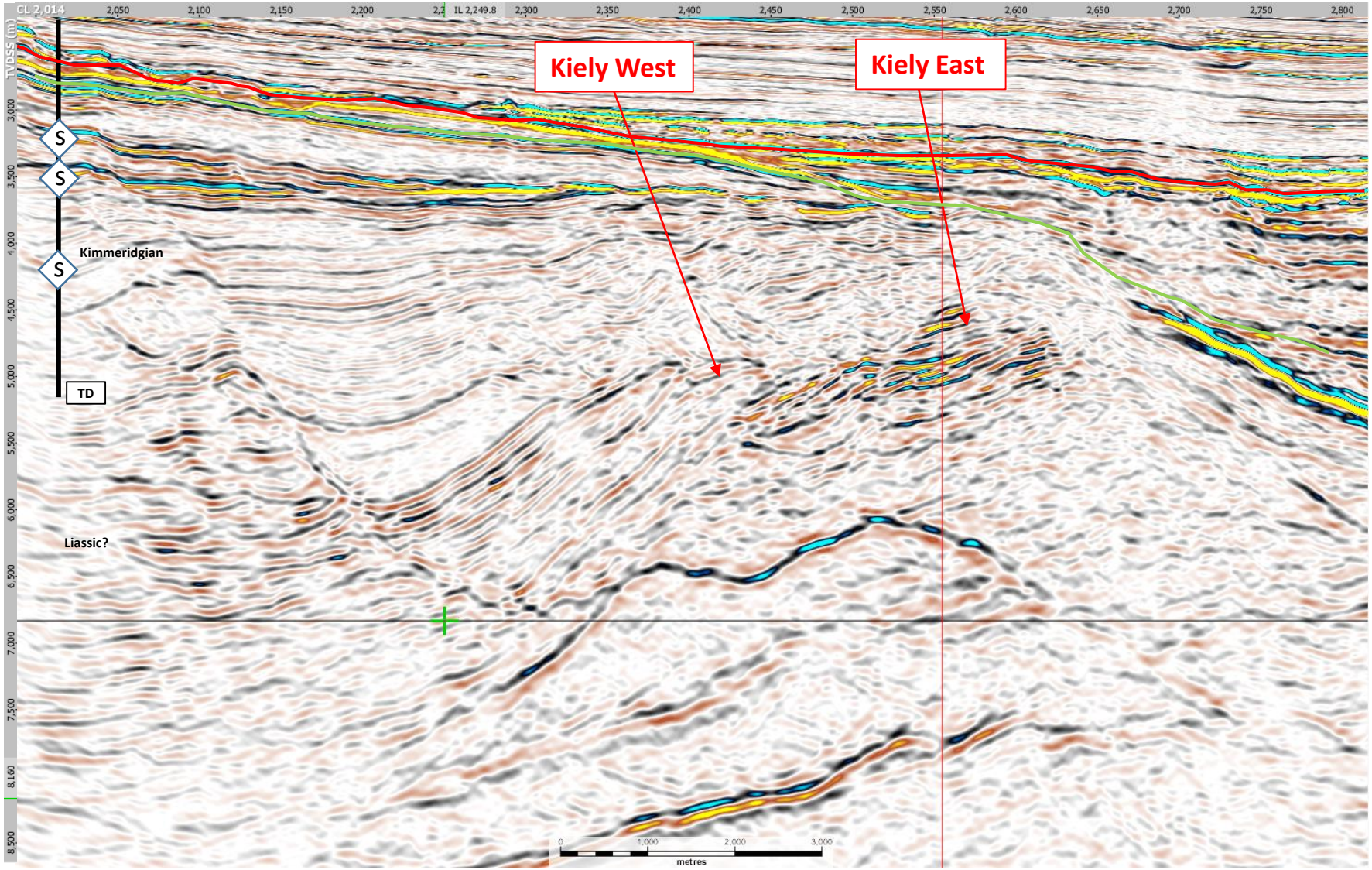

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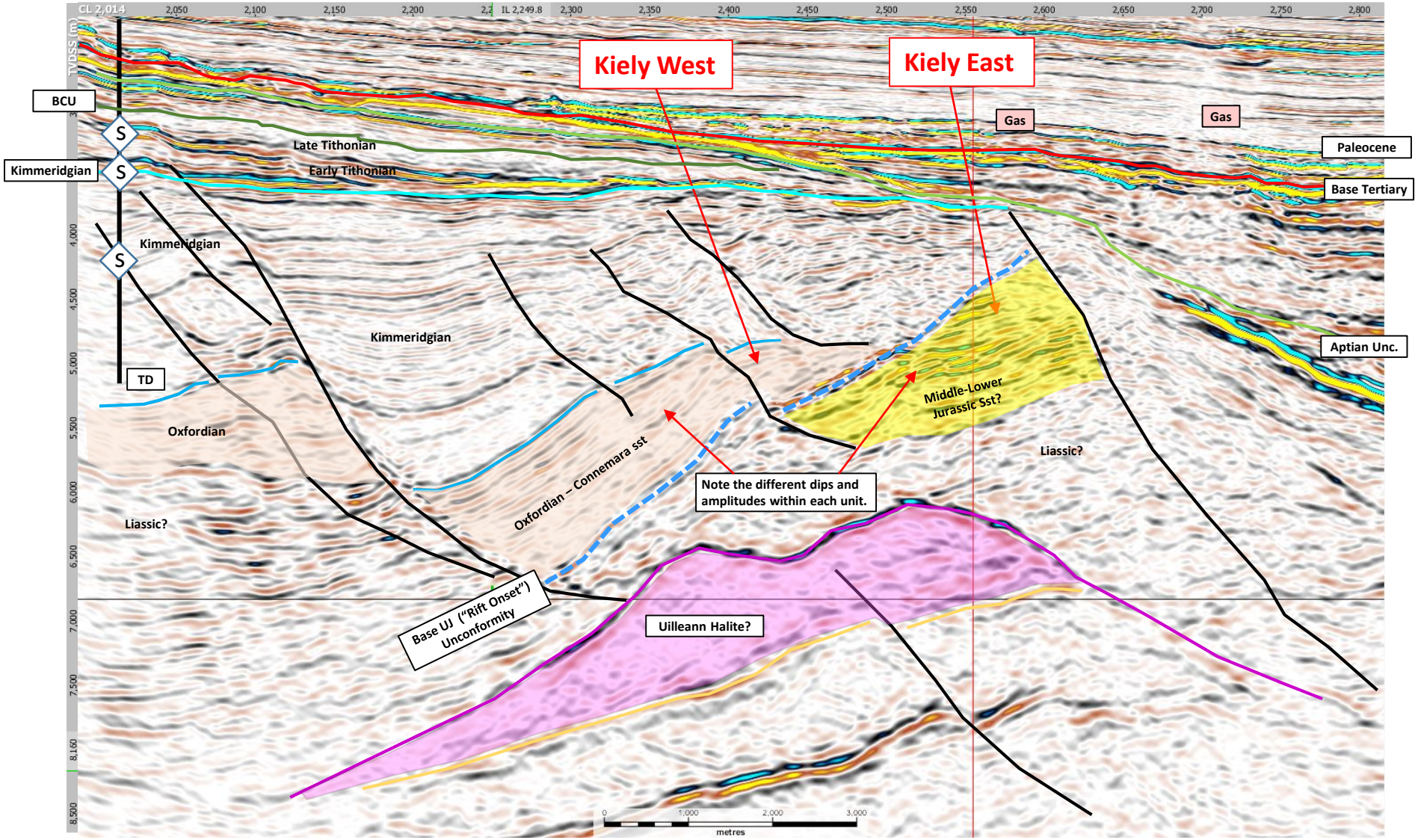
Kiely W-E Seismic Xline 2014 PSDM full offset stack (depth domain)

43/13-1

Model B

In line 2555



Source Rock

Marine Tithonian source rock is proven in 43/13-1. The source rock (immature at the well) matches shows in the latest Kimmeridgian. The Kimmeridgian oil is interpreted to have been expelled at a low maturity level, suggesting that down-dip source quality is high.

On a broader scale, Kimmeridgian and Tithonian restricted marine source rocks appear to be widespread and responsible for oils in Connemara, Spanish Point and Burren. The source of the Dunquin oil is unknown to us, but we would expect it to be Upper Jurassic also (Dunquin shares a kitchen with FEL 2/13 – next slide).

34/15-1 (and related oil in 35/6-1) show that source rocks within the Middle Jurassic sequence are capable of contributing a waxy, terrigenous oil.

We interpret a significant Lower Jurassic section in the licence, so this could contribute in FEL 2/13 as it does in 62/7-1, through the Celtic Sea and into southern England.

Gas-prone Carboniferous may also be present at depth beneath the licence.

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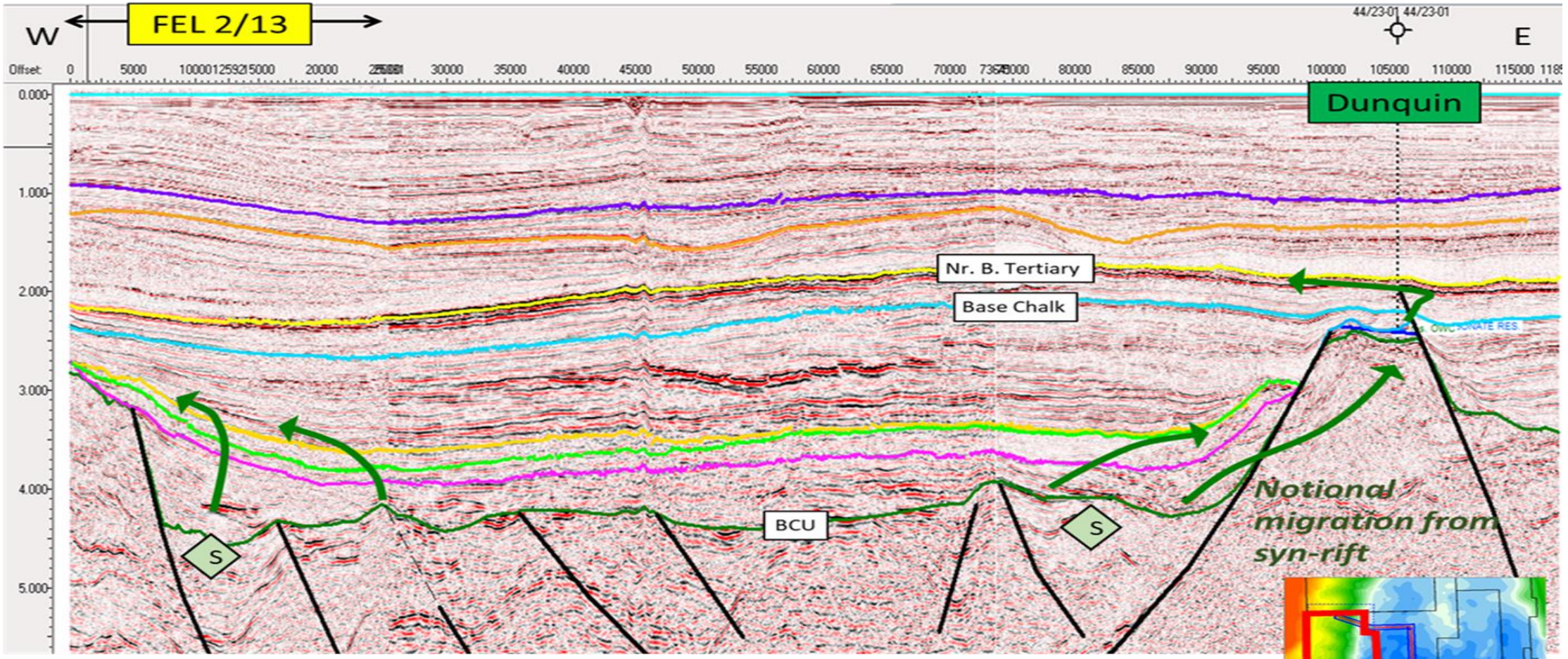
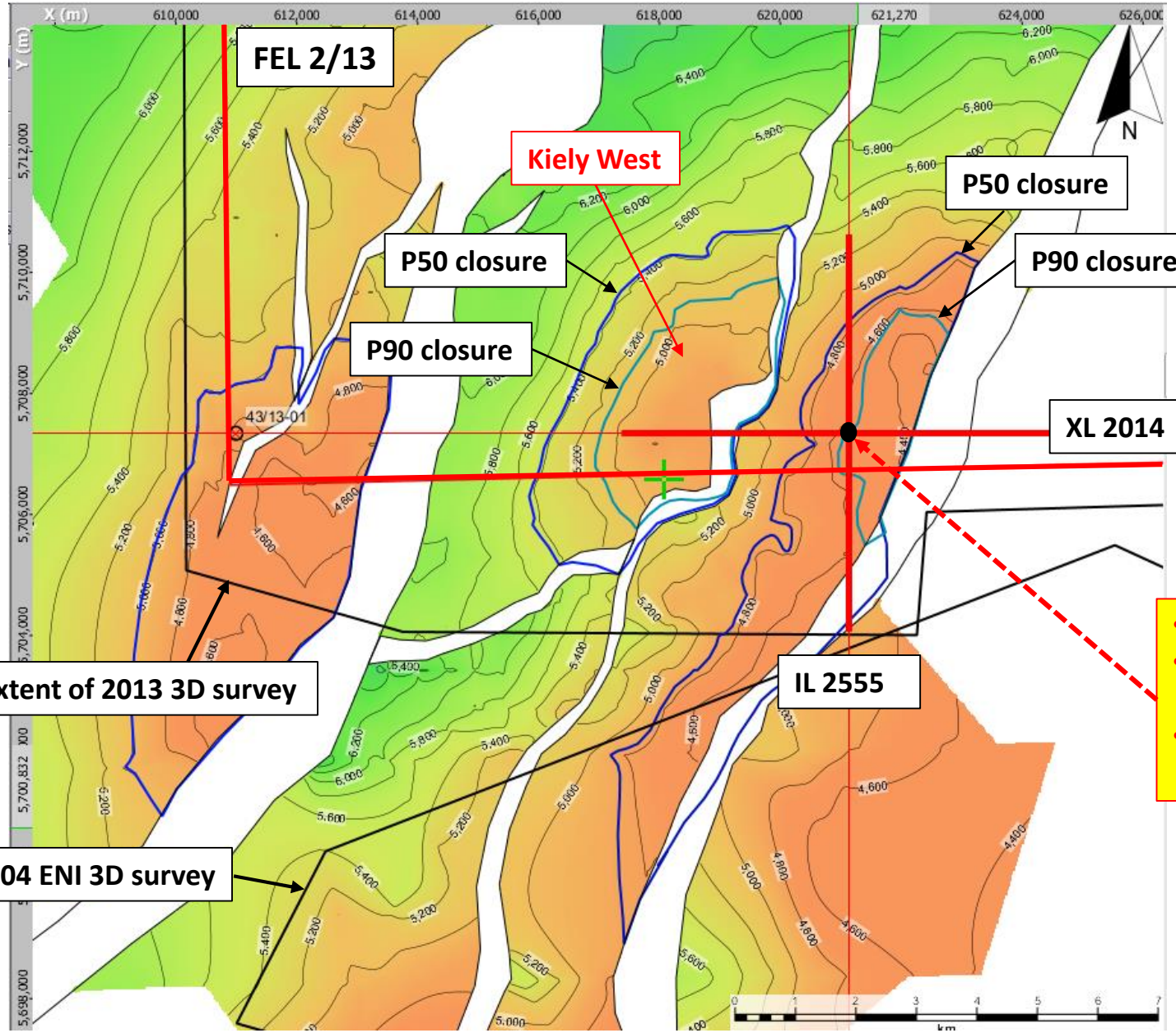
The kitchen is potentially shared with Dunquin



Depth mapping Kimmeridgian / Oxfordian / Middle Jurassic



- Kiely East well location
- Site survey planned for summer 2019
- Drillable from 2020 onwards

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Kiely MCS

Ireland FEL 2/13		Kiely East Prospect (on block)						
	Units	Distribution	Lo Trunc	Hi Trunc	P90	P50	P10	Mean
Gross Rock Volume	$x10^6m^3$	Lognormal	0.00	15000.00	2625.00	4849.00	8957.26	5323.30
NTG	frac	Lognormal	0.00	0.95	0.10	0.26	0.70	0.30
Porosity	frac	Normal	0.08	0.25	0.11	0.17	0.22	0.17
HC Saturation	frac	Normal	0.40	0.90	0.55	0.65	0.75	0.65
Bo	STB/bbl	Normal	1.10	1.70	1.30	1.45	1.60	1.45
Stock Tank Oil in Place (mmbbl)	$x10^6bbl$				167.94	542.64	1603.58	756.96
Recovery Factor	frac	Normal	0.10	0.70	0.15	0.30	0.45	0.31
Prospective Oil Resources (mmbbl)	$x10^6bbl$				44.68	158.28	516.02	236.00
GOR	scf/STB	Lognormal	100.00	4000.00	400.00	900.00	2025.00	1098.94
Prospective Gas Resouce	scf				31.46	144.49	592.89	261.85
Total Prospective Resources (mmboe)	**$x10^6$ boe**				**52.10**	**187.27**	**612.07**	**279.64**

Ireland FEL 2/13		Kiely West Prospect (on block)						
	Units	Distribution	Lo Trunc	Hi Trunc	P90	P50	P10	Mean
Gross Rock Volume	$x10^6m^3$	Lognormal	0.00	15000.00	1013.00	4027.00	16008.62	4508.54
NTG	frac	Lognormal	0.00	0.95	0.10	0.26	0.70	0.30
Porosity	frac	Normal	0.08	0.25	0.10	0.16	0.21	0.16
HC Saturation	frac	Normal	0.40	0.90	0.55	0.65	0.75	0.65
Bo	STB/bbl	Normal	1.10	1.70	1.30	1.45	1.60	1.45
Stock Tank Oil in Place (mmbbl)	$x10^6bbl$				70.01	360.92	1480.34	614.02
Recovery Factor	frac	Normal	0.10	0.70	0.15	0.30	0.45	0.31
Prospective Oil Resources (mmbbl)	$x10^6bbl$				19.17	103.99	452.94	190.49
GOR	scf/STB	Lognormal	100.00	4000.00	400.00	900.00	2025.00	1099.07
Prospective Gas Resouce	scf				14.65	93.43	492.15	207.88
Total Prospective Resources (mmboe)	**$x10^6$ boe**				**22.48**	**123.16**	**533.86**	**225.13**

Kiely East 280 mmboe gross mean un-risked prospective resources (on block)

37% on block at P50 -> $P50_{total}$ 506mmboe

Kiely West 225 mmboe gross mean un-risked prospective resources (on block)

83% on block at P50 -> $P50_{total}$ 148mmboe

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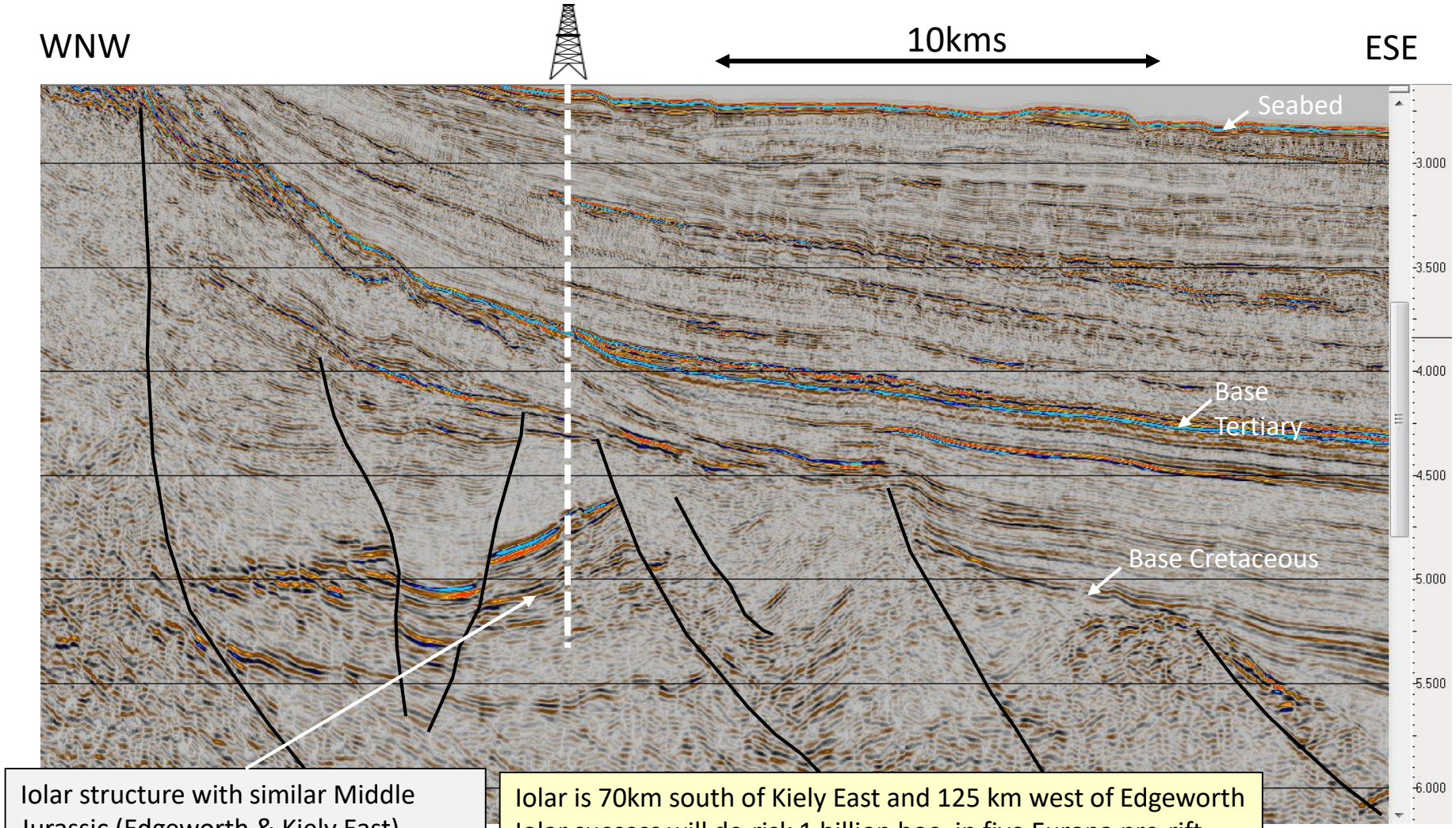
CNOOC International Iolar well, summer 2019, important pre-rift test



Iolar structure with similar Middle Jurassic (Edgeworth & Kiely East) seismic expression and structural style

Iolar is 70km south of Kiely East and 125 km west of Edgeworth
Iolar success will de-risk 1 billion boe in five Europa pre-rift prospects

PSTM Seismic line PAD13-047 reproduced with permission of DCCAE

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THANK YOU
FOR MORE INFORMATION
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mail@europaoil.com
+44 20 7224 3770
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