

PIP

Petroleum
Infrastructure
Programme



31st October and 1st November Atlantic Ireland 2017

Clayton Hotel - Burlington Road
Upper Leeson Street, Dublin 4

Europa Oil & Gas Progress and Prospects

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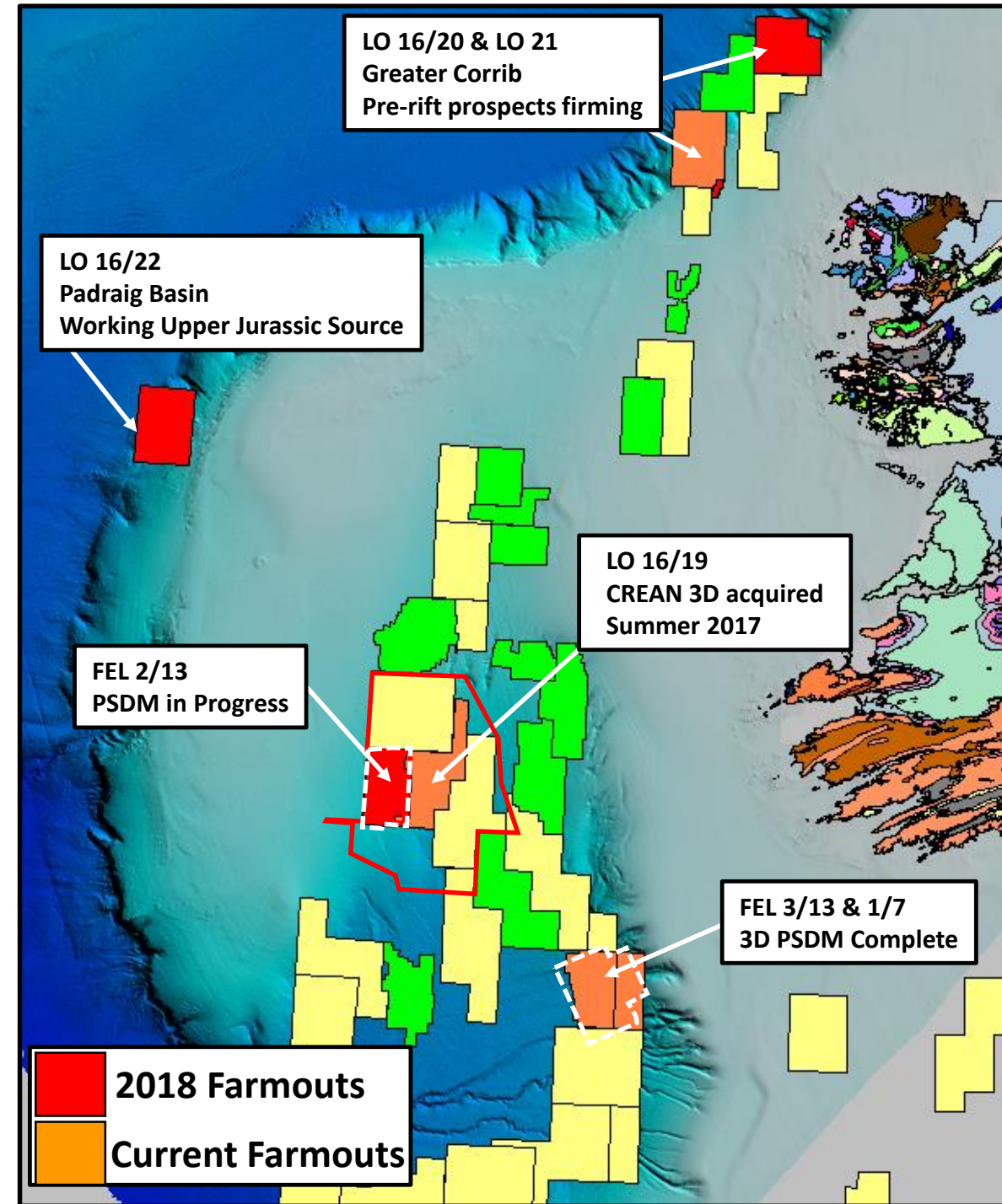
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EUROPA PORTFOLIO

- 3 FEL's and 4 LO's, each with demonstrable prospectivity and representing a diversity of play types, risk and phasing.
- We believe that Atlantic Ireland is entering a phase of sustained drilling.
- Our objective is to deliver half a dozen drill-ready prospects and to be part of the drill phase.



Europa Portfolio

Licence	Europa equity	Op	Area km ²	Basin	Term / phase	GMUPIR*		3D	CPR
						Oil bn boe	Gas tcf		
FEL 2/13	100%	Europa	768	Porcupine	Phase 1	1.1		2013	
FEL 3/13	100%	Europa	782	Porcupine	Phase 1	1.5		2013	yes
FEL 1/17	100%	Europa	523	Porcupine	2 yr	0.9		2013	yes~
LO 16/19	30%	Cairn	976	Porcupine	2 yr	0.7		2017	
LO 16/20	100%	Europa	945	Slyne	3 yr		1	2002	
LO 16/21	100%	Europa	832	Slyne	3 yr		0.5	no	
LO 16/22	100%	Europa	992	Padraig	3 yr	0.5		no	
Total			5,818			4.7	1.5		

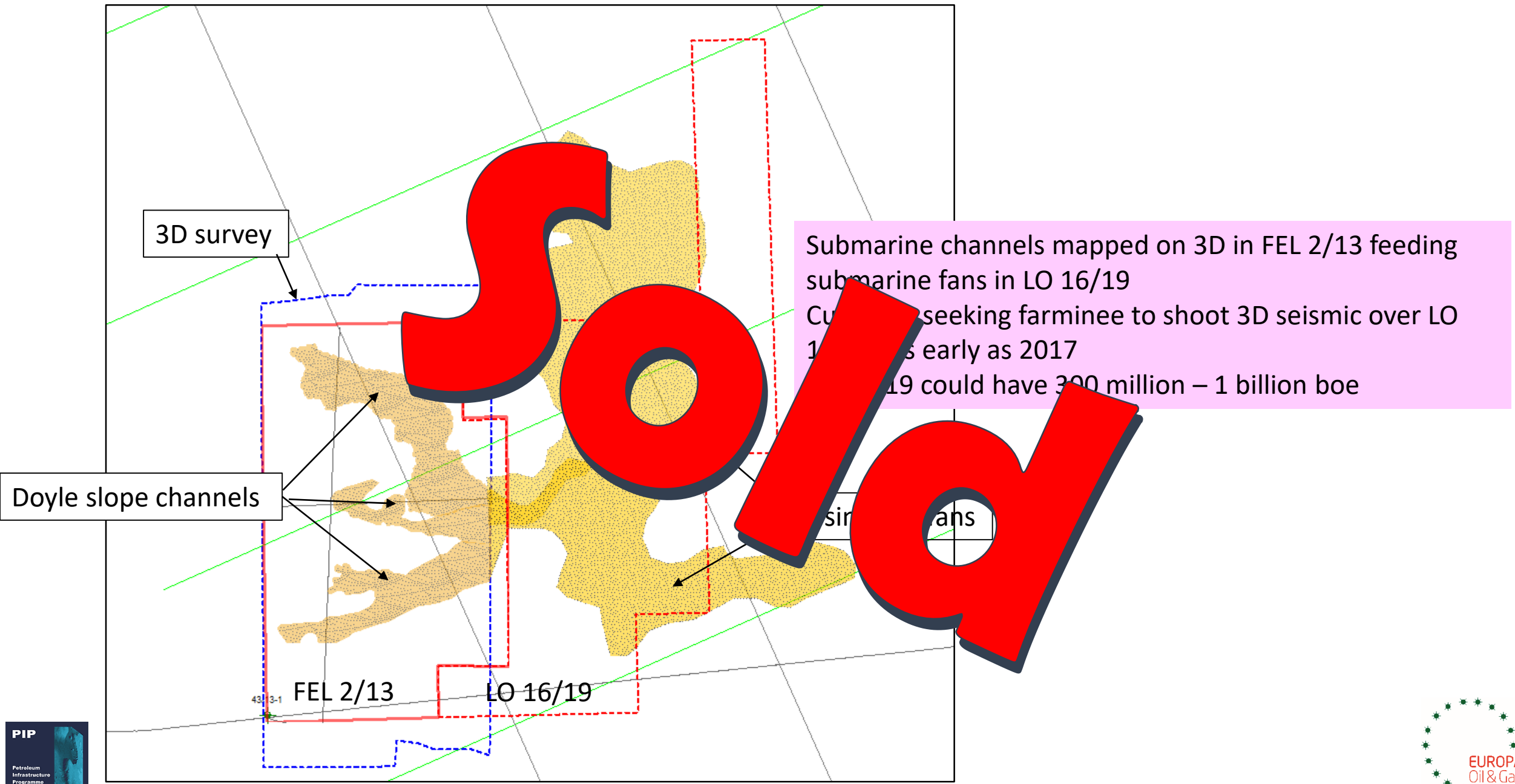
- Gross Mean Unrisked Prospective Resources
- ~ mix CPR and in-house

Europa: portfolio play diversity

		Basin						
		South Porcupine				Slyne		Padraig
		FEL 2/13	FEL 3/13	FEL 1/17	LO 16/19	LO 16/20	LO 16/21	LO 16/22
P l a y	Paleocene							
	Cretaceous Fan							
	Cretaceous Slope							
	Synrift							
	Pre-Rift							
	Triassic gas							

 play type possible

Farmout progress in 2017

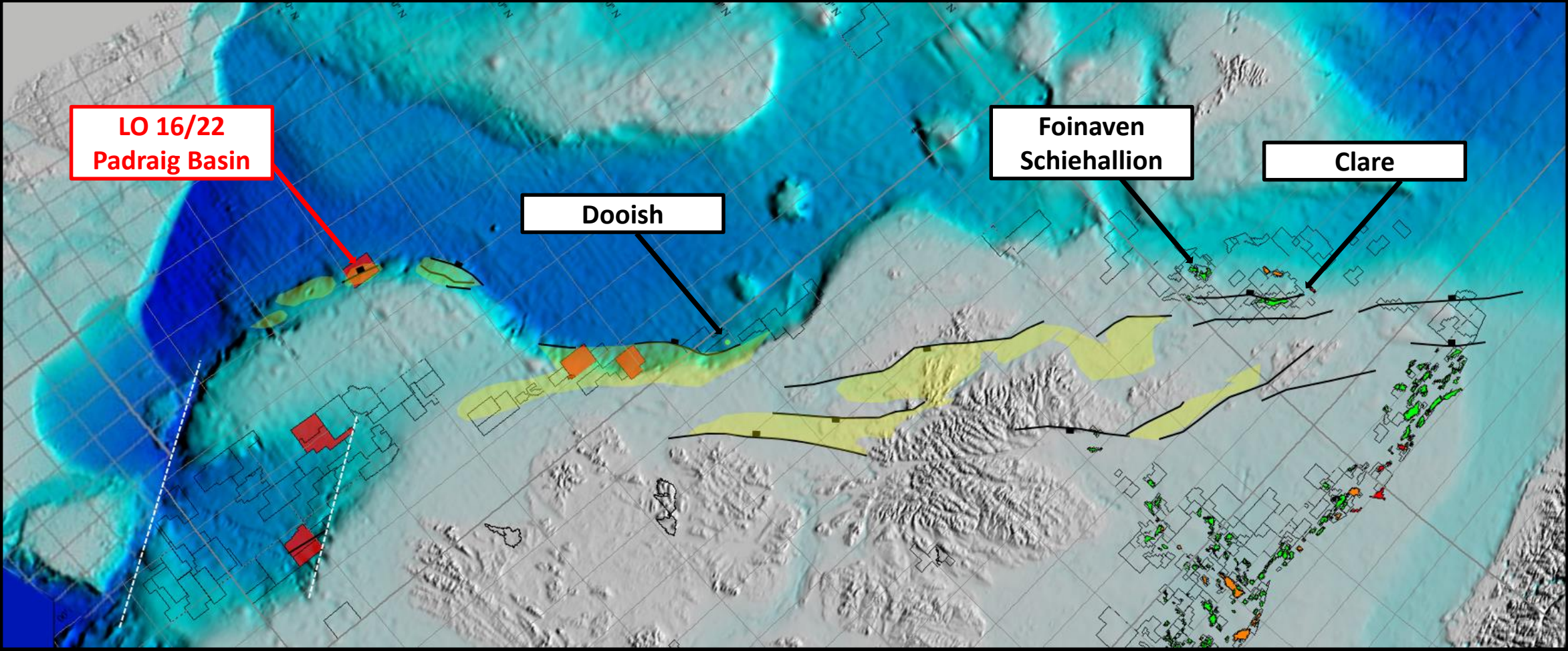


Next Farmouts

Licence	Europa equity	Basin	Licensing Option	FEL phase 1	FEL phase 2
FEL 2/13	100% operator	South Porcupine	n/a	5 July 2013-4 July 2019	5 July 2019-4 July 2023
LO 16/21	100% operator	Slyne Basin	1 July 2016-30 June 2019	1 July 2019-30 June 2022	1 July 2022-30 June 2026
LO 16/22	100% operator	Padraig Basin	1 July 2016-30 June 2019	1 July 2019-30 June 2022	1 July 2022-30 June 2026

LO 16/22 Padraig

PADRAIG BASIN – bisnorhopane biomarker – Atlantic Margin Address



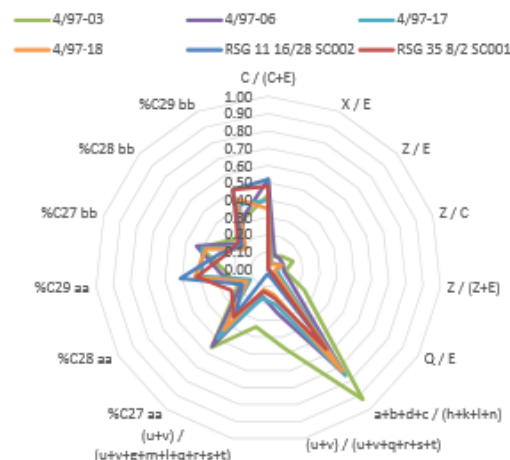
New proprietary geochemical work



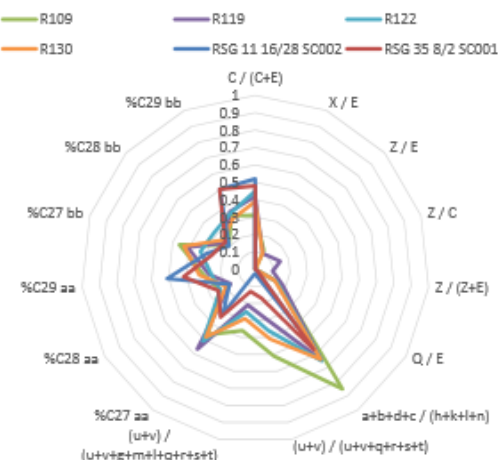
Review of geochemical data from shallow cores – Rockall Basin, Offshore Ireland



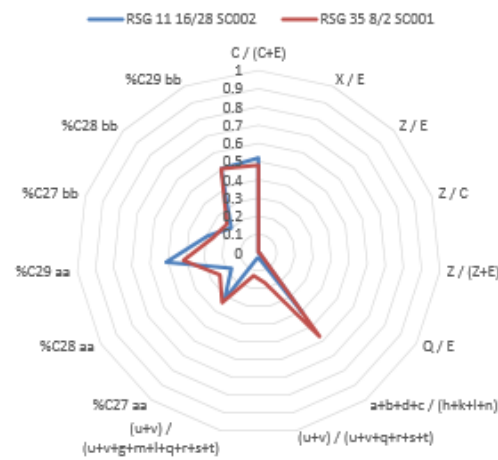
GC-MS Source Related Biomarkers 4/97 Series Cores



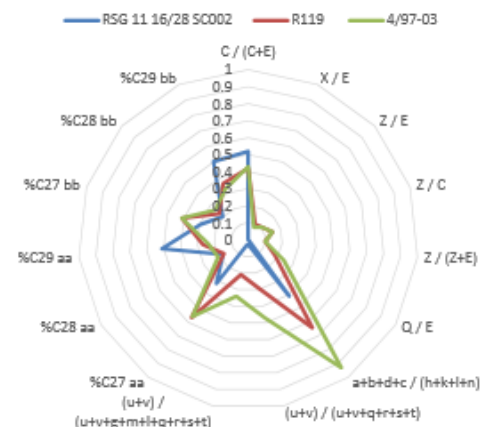
GC-MS Source Related Biomarkers SGS 96 Cores



GC-MS Source Related Biomarkers PIP 98 Cores



GC-MS Source Related Biomarkers Comparison



GC-MS Source Related Biomarker Ratios

Collective biomarker ratios that are considered to reflect source characteristics rather than thermal maturity are depicted in these four radar plots. The upper three relate to the samples series (4/97, SGS 96 and PIP 98) for which data were available and the lower plot is a comparison of data for representative samples from each of the sample series. Perhaps the most striking feature of these plots is that these are broadly similar for each sample set. This would suggest that all samples come from a similar source, however, it must be considered at the same time that all samples, to some degree, contain proportions of recent organic matter (ROM) in addition to thermogenically evolved organic matter. As the ROM is significantly composed of long chained hydrocarbons, these will invariably affect some GC-MS biomarker ratios. These are perhaps more readily separated using the maturity related ratios than those that respond more to source when assessing shallow cores. Nevertheless, there are some subtle and important variations that can be seen in a number of samples (especially the R119 and 4/97-03 samples). These samples exhibit sample but nevertheless significant concentration of bisnorhopane. The importance of this biomarker is discussed below.

PADRAIG BASIN

Previously Triassic targets – but by analogy with W. Shetlands...could be Jurassic or Aptian-Albian

PIP comparative stratigraphy study initiated along East flank of Rockall Basin

REALISTIC POTENTIAL FOR GOOD QUALITY SANDSTONES AND AN OIL PLAY

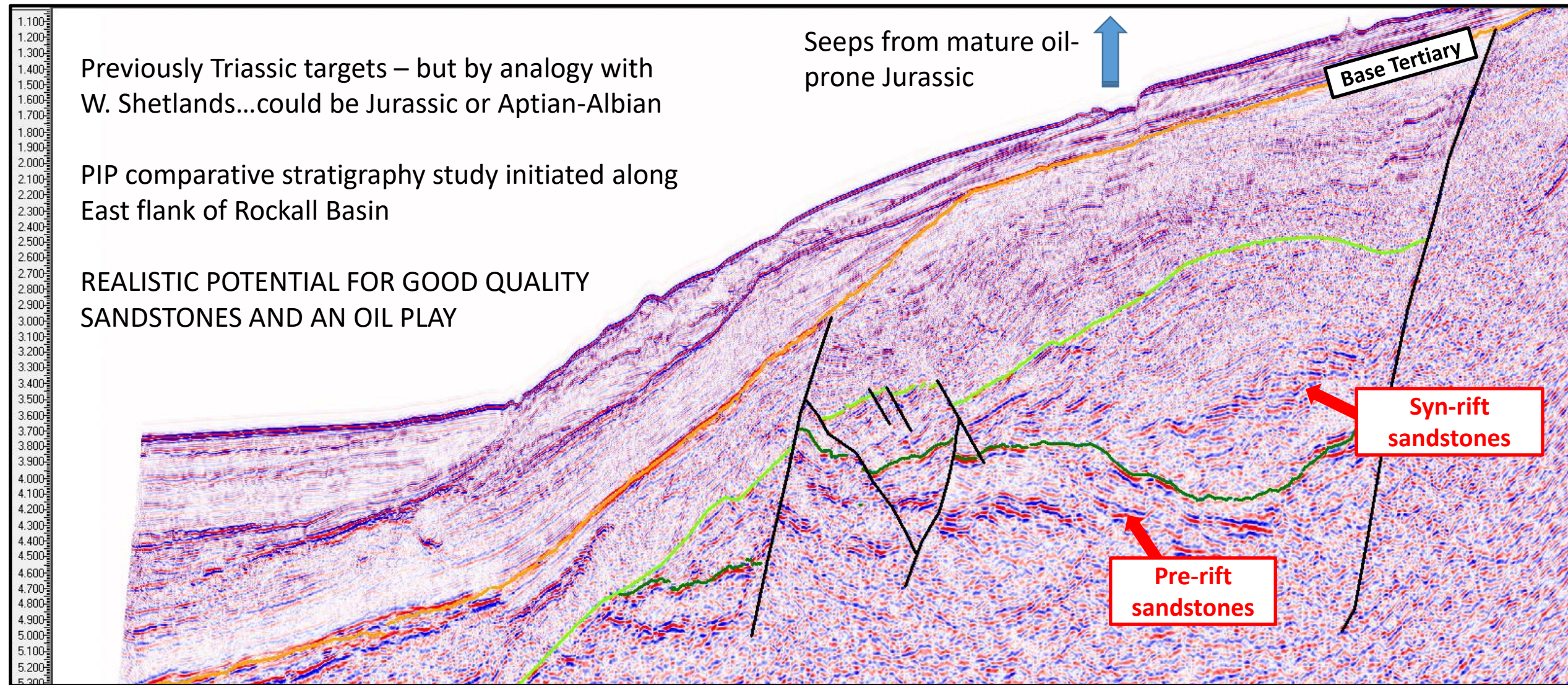
Seeps from mature oil-prone Jurassic



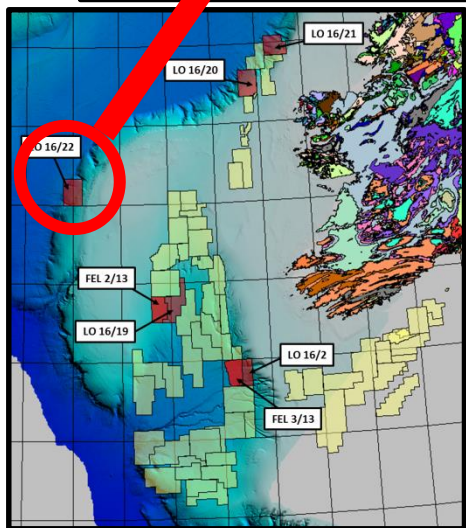
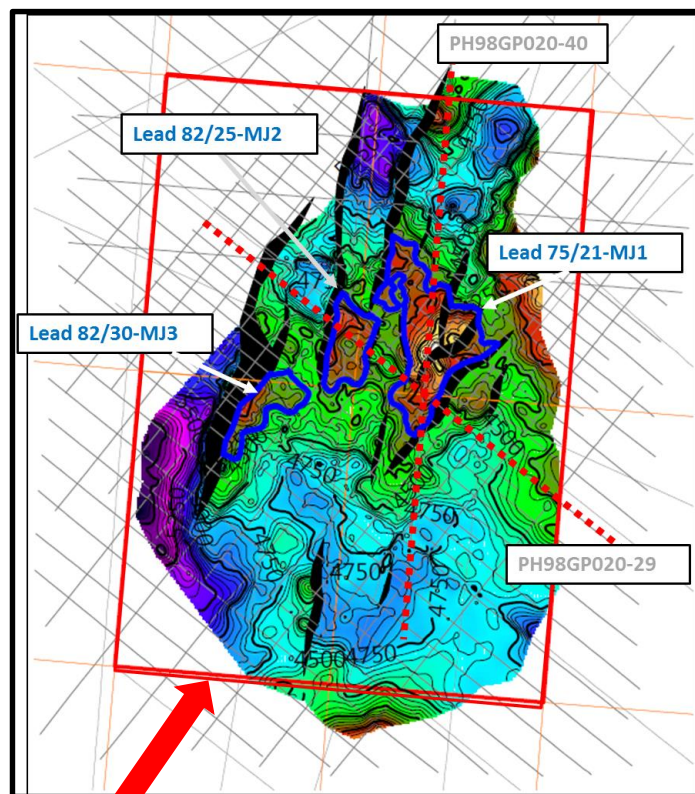
Base Tertiary

Syn-rift sandstones

Pre-rift sandstones



PADRAIG SUMMARY



- 150km west of the Connemara discovery, 300km west of Galway, 800-1200m water depth – not so remote.
- Modern review of 1997 drop core data suggests working oil-prone Upper Jurassic source, similar to West of Shetlands and Northern North Sea.
- Good quality 2D seismic grid (Phillips 1998) defines large Mesozoic structural traps. 6 leads, 300-600 mmbbl.

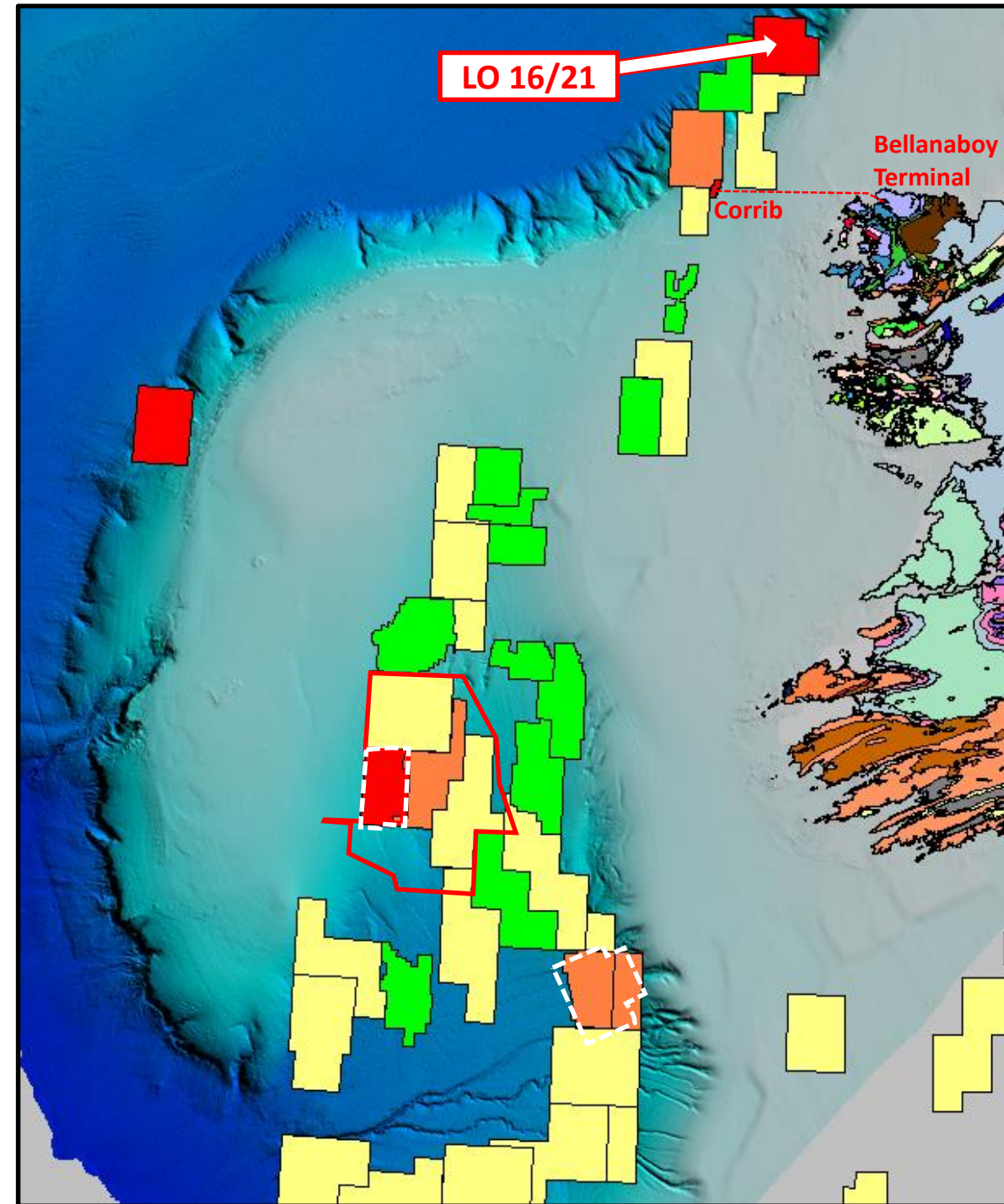
PLAN

- Re-map with focus on reflector identification by comparison with other Atlantic Margin basins (and shallow borehole ties).
- Petroleum Systems Modelling.
- Possible 2D reprocessing.

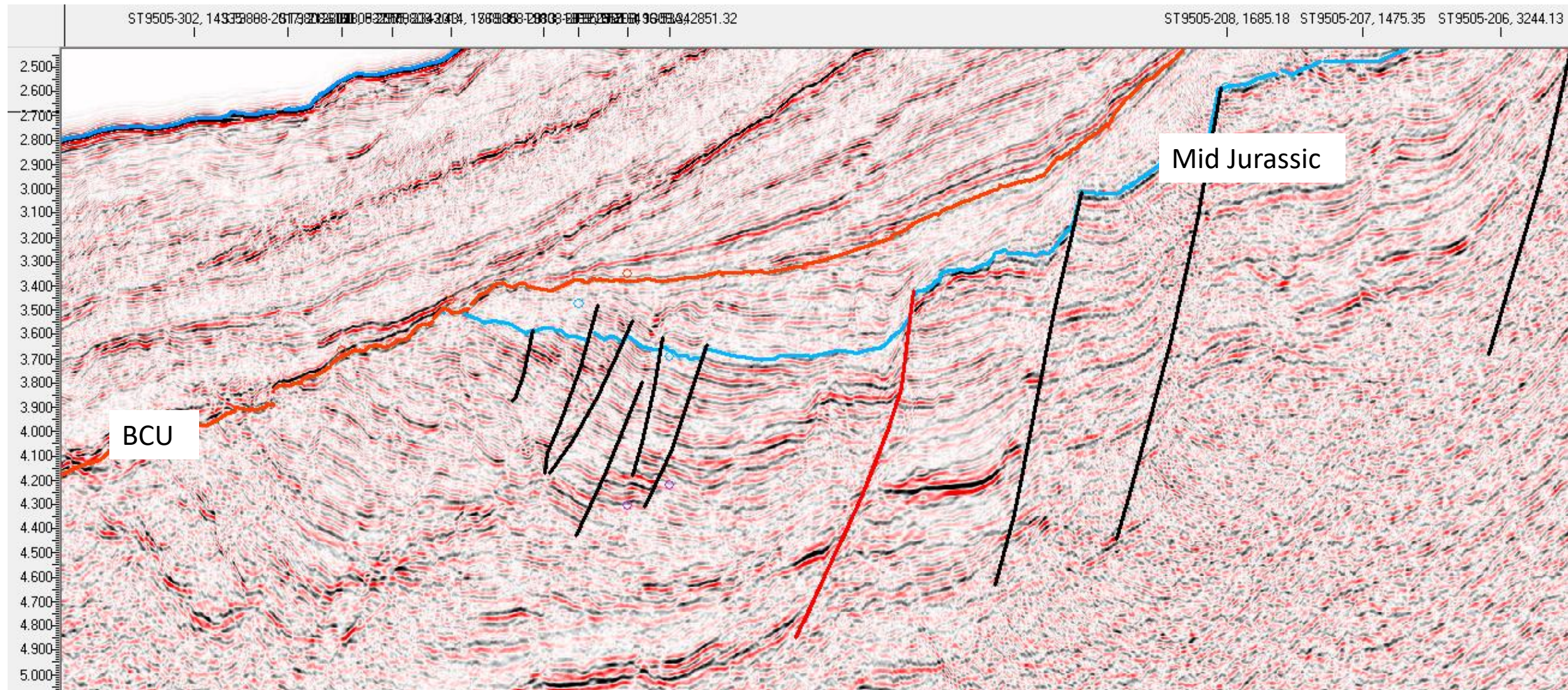
LO to 30th June 2019. Hard launch of farmout H2 2018, Europa ready to engage in preliminary discussions now with interested parties.

LO 16/21 Slyne

- 70km NE of Corrib and 80km from Bellanaboy Terminal.
- Main prospect is the Innes Mór structure: a large structural trap with Middle and Upper Jurassic in subcrop to BCU/Tertiary (previously identified by Statoil).
- 2D re-mapping in progress.
- **LO to 30th June 2019. Hard launch of farmout H2 2018, Europa ready to engage in preliminary discussions now with interested parties.**



LO 16/21 Innes Mór Structure



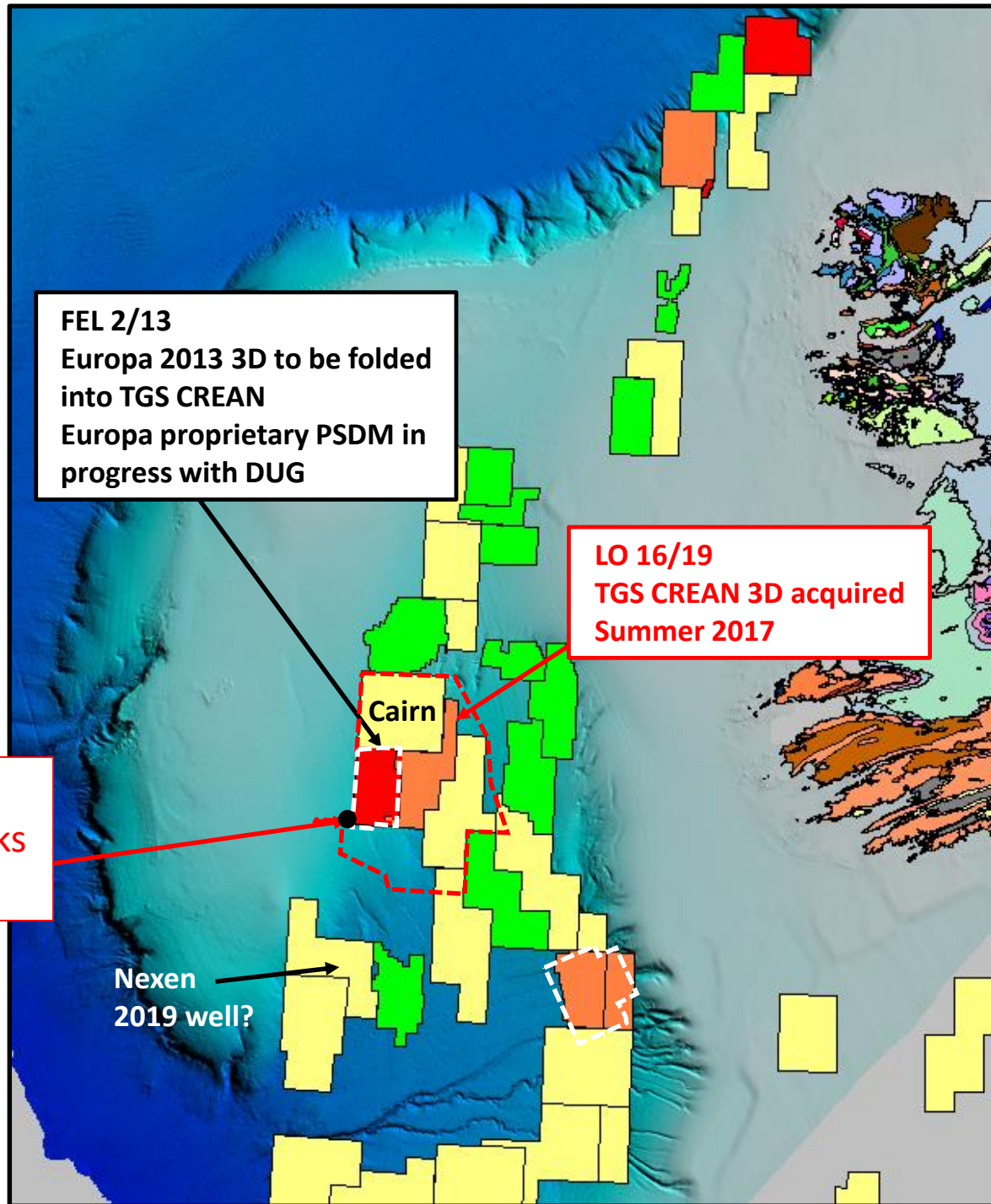
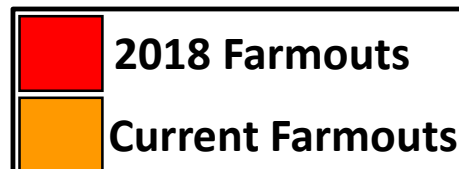
FEL 2/13 Porcupine

FEL 2/13

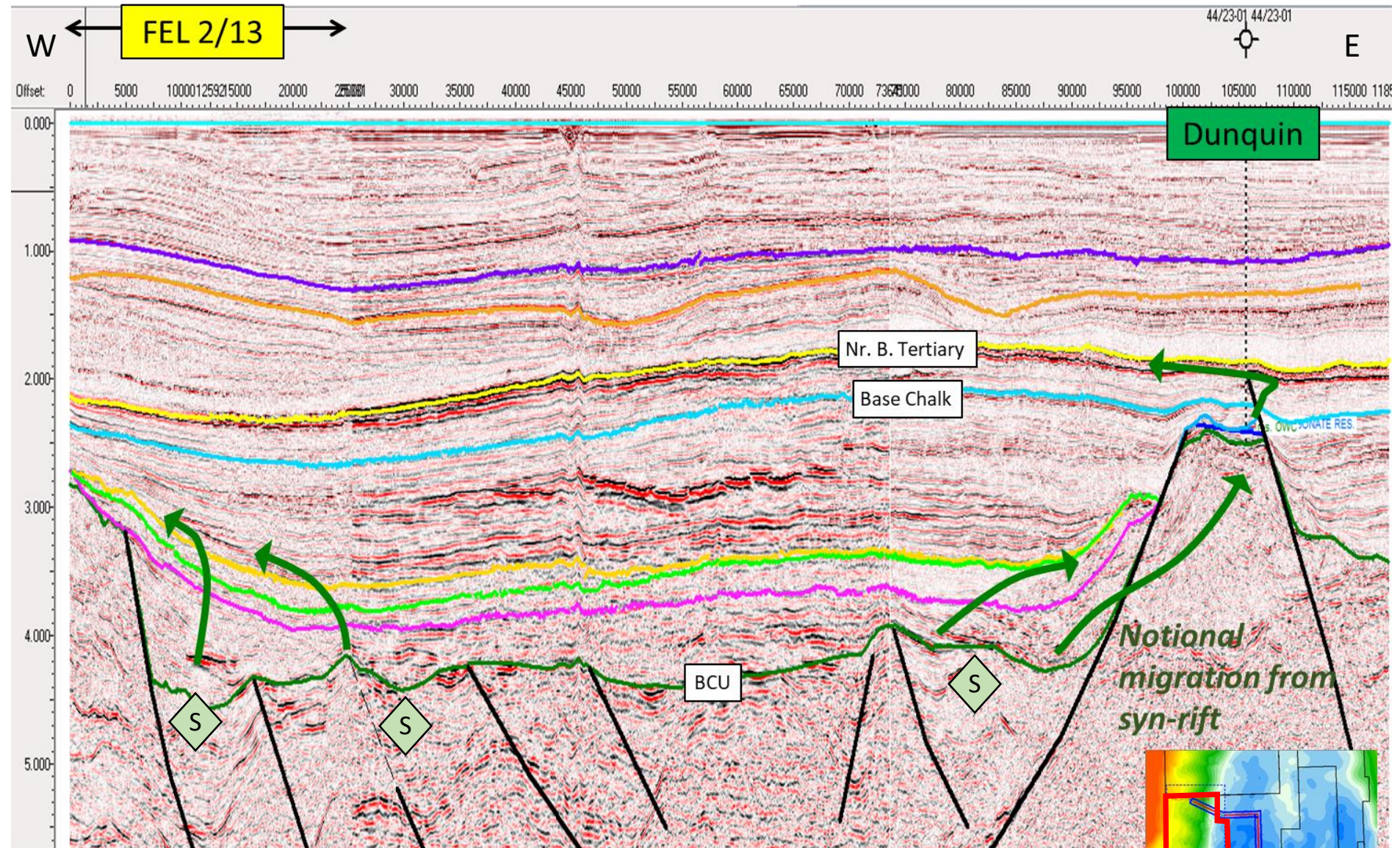
- West flank of South Porcupine basin
- Prospectivity at pre-rift, syn-rift and post-rift levels.

Licence	Europa equity	Basin	Licensing Option	FEL phase 1	FEL phase 2
FEL 2/13	100% operator	South Porcupine	n/a	5 July 2013-4 July 2019	5 July 2019-4 July 2023

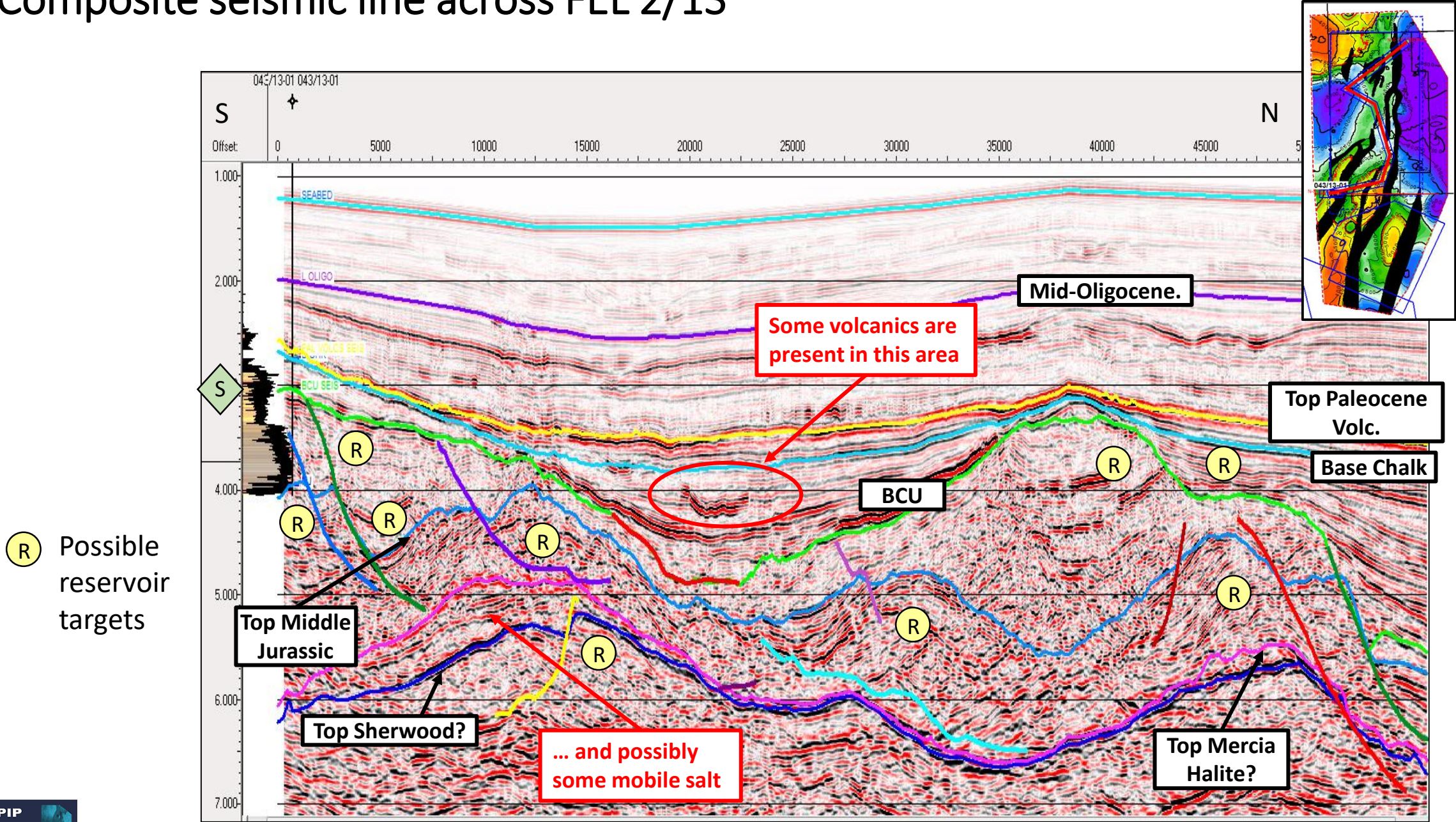
Proven mature
Tithonian Source Rocks
at 43/13-1



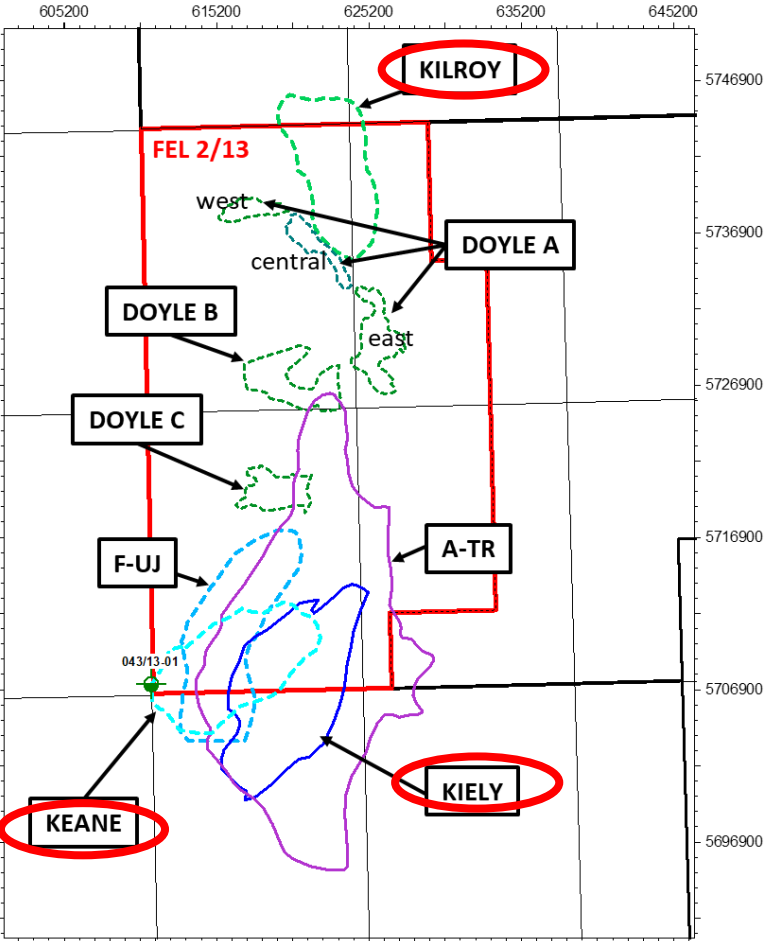
Regional tie to Dunquin



Composite seismic line across FEL 2/13



Current FEL 2/13 Prospect Inventory

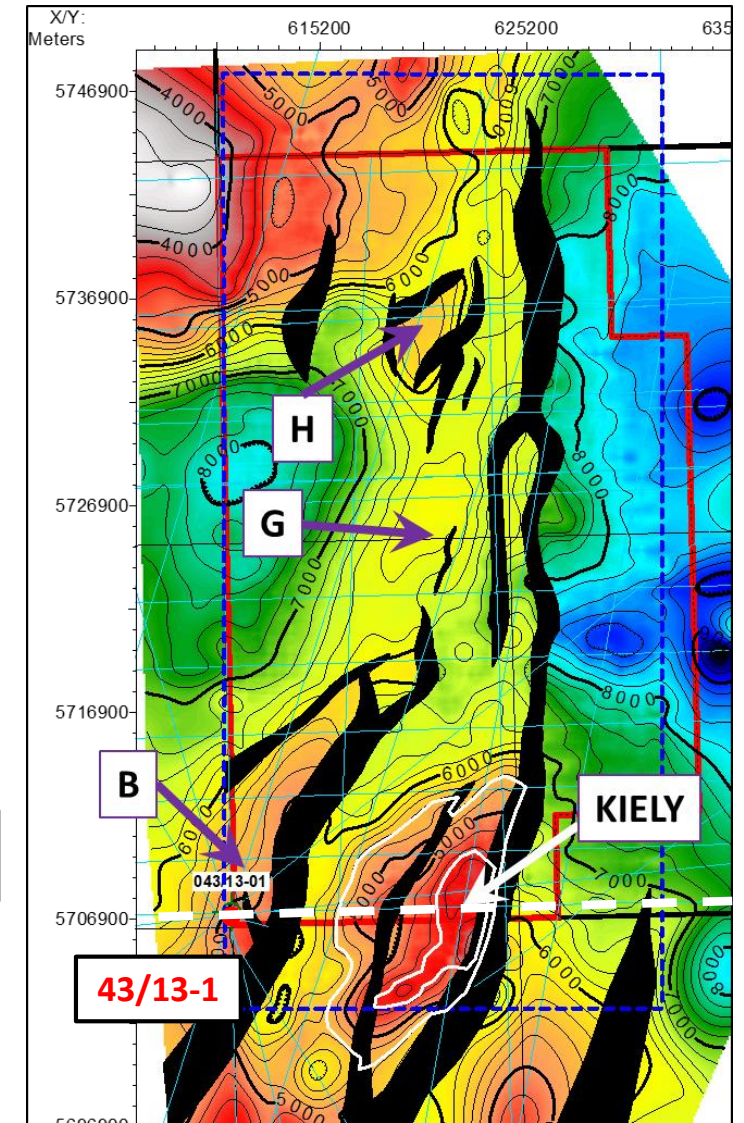
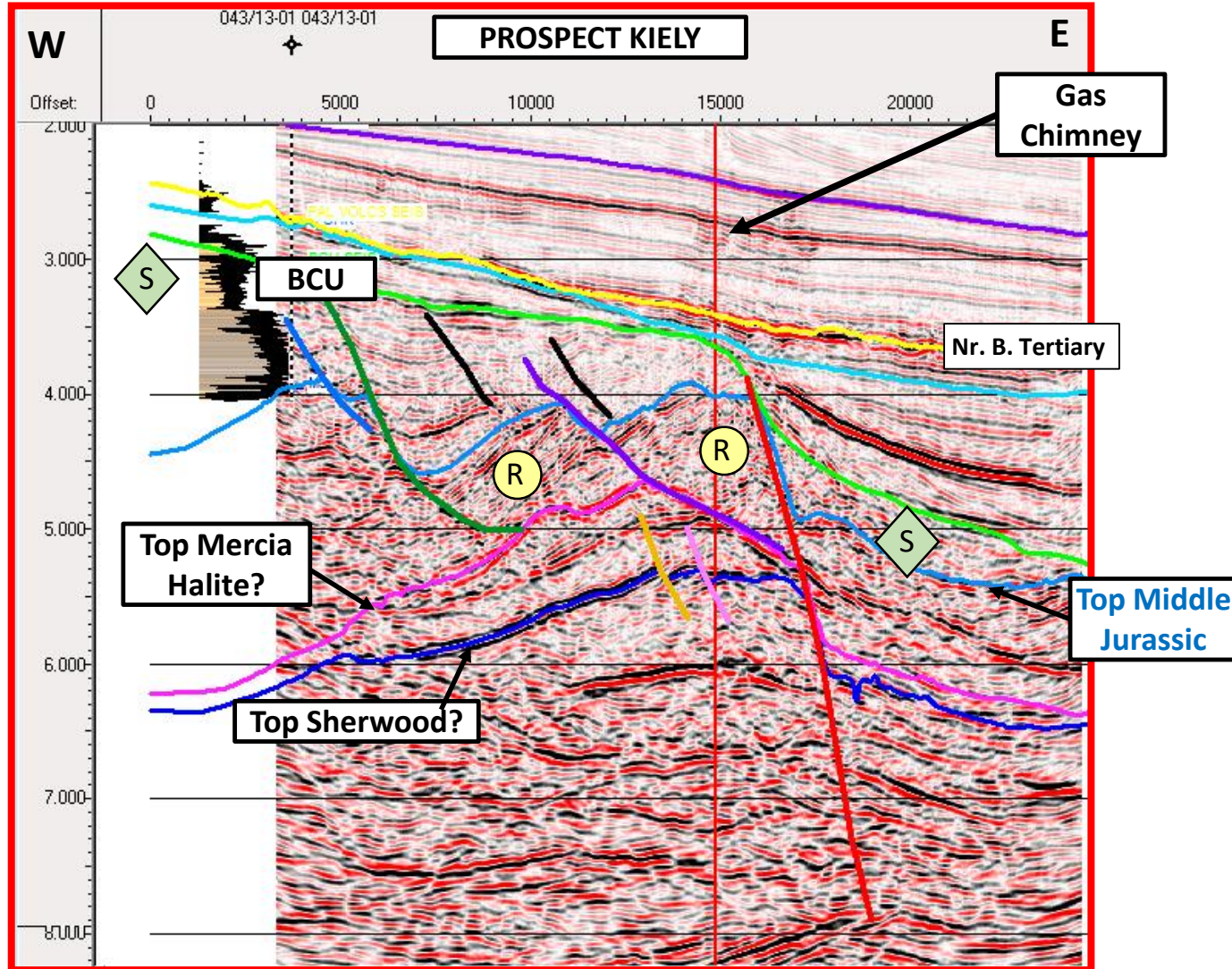


Licence	Prospect	Play	Gross Prospective Resources mmboe*			
			Un-risked			
			Low	Best	High	Mean
FEL 2/13	Doyle A - west	Cret. slope channel	12	38	115	54
FEL 2/13	Doyle A - Centre	Cret. slope channel	16	51	149	70
FEL 2/13	Doyle A - east	Cret. slope channel	36	110	327	154
FEL 2/13	Doyle B	Cret. slope channel	22	76	264	119
FEL 2/13	Doyle C	Cret. slope channel	12	44	155	71
FEL 2/13	Kilroy	Cret. slope Apron	18	85	369	159
FEL 2/13	Lead Keane	Syn-rift	25	117	498	217
FEL 2/13	Lead F	Syn-rift	4	23	102	44
FEL 2/13	Kiely	Pre-rift	18	104	569	236
Total						1123

3D PSDM reprocessing in progress.
Objective: mature prospects and leads to drill ready status

KIELY PROSPECT

Pre-rift tilted fault block, Middle Jurassic SST reservoir
GMUPR 236mmboe



Europa Near Top Middle Jurassic Depth (mss)

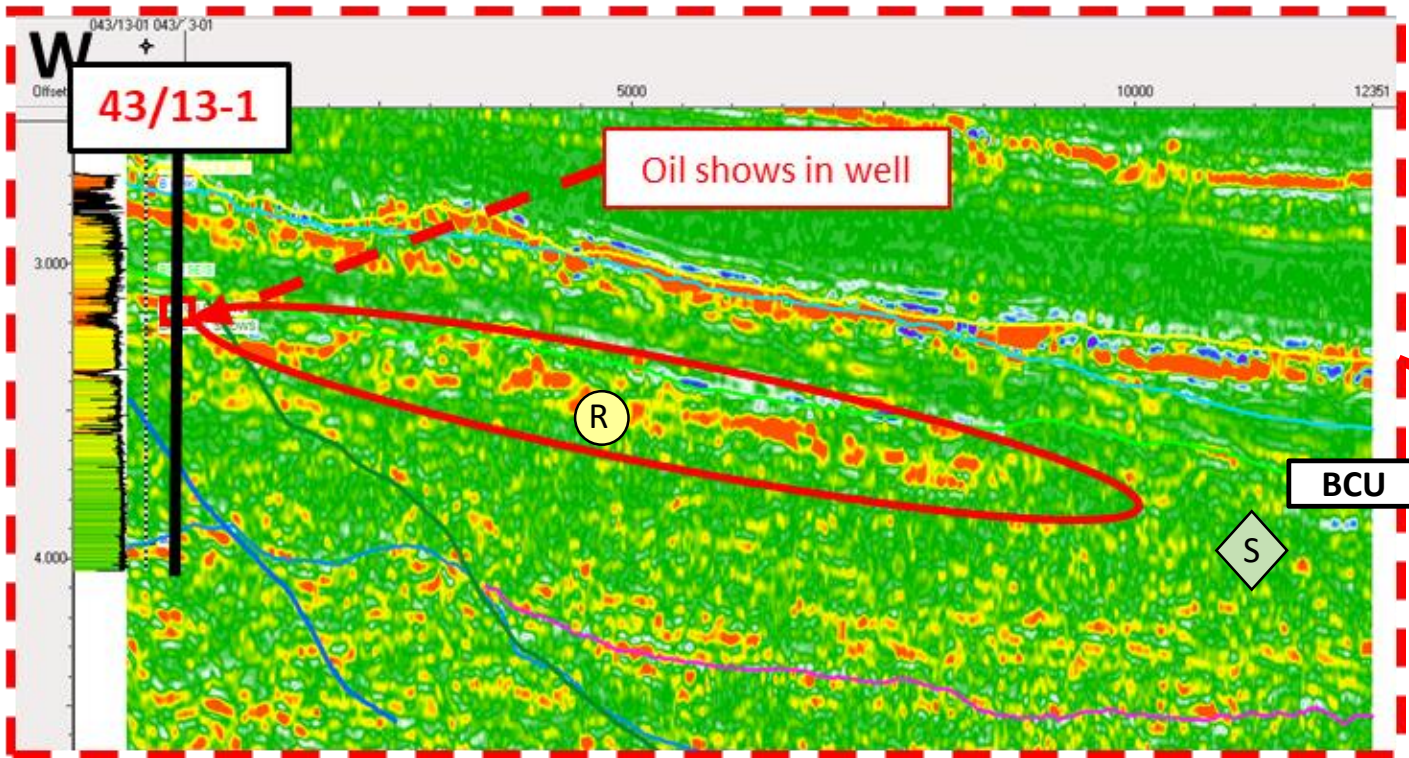
Analogue: Brent Province

KEANE LEAD

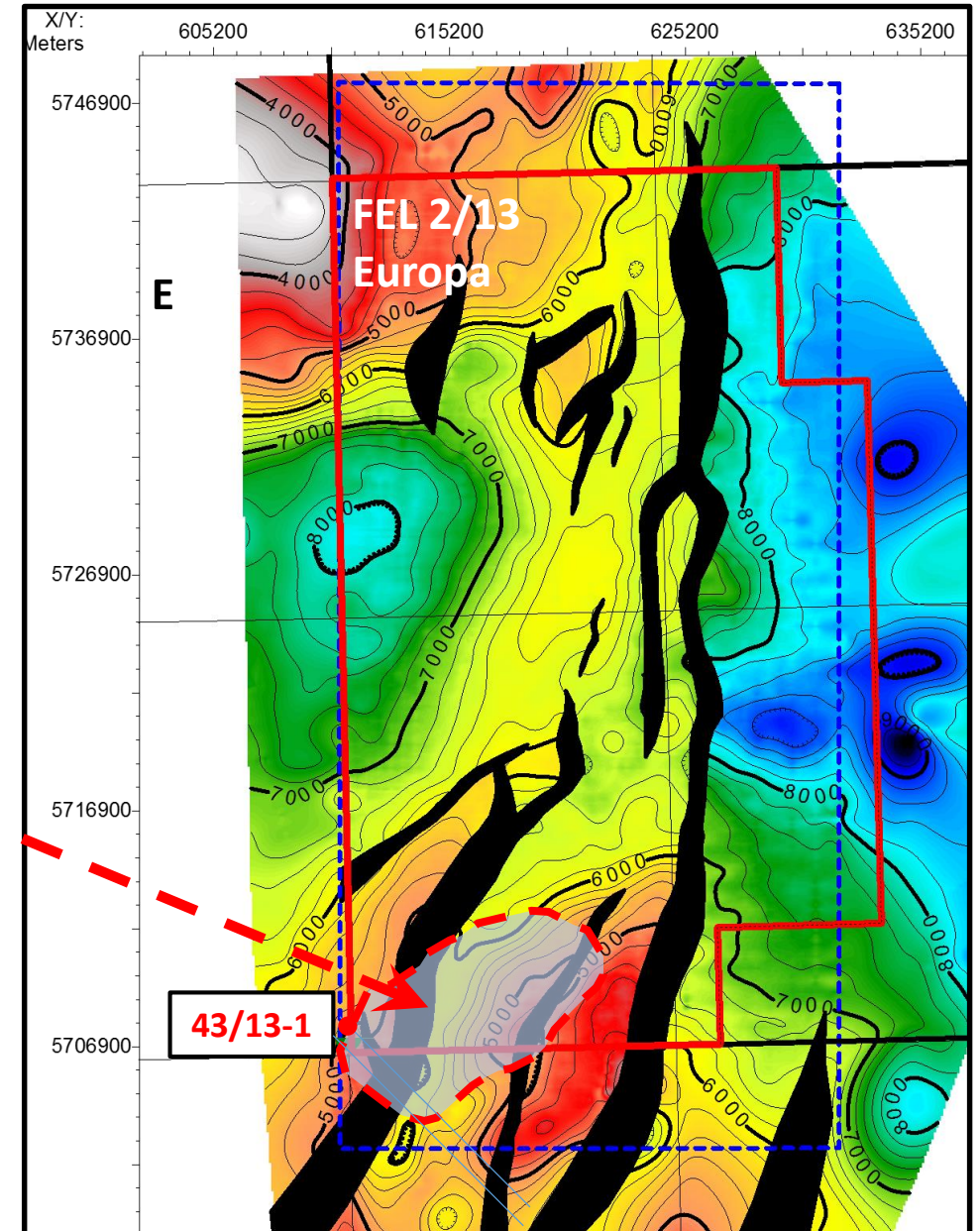
Upper Jurassic Syn-rift fan

Possible AVO anomaly – sands thicken down-dip of known oil-bearing sand stringers in 43/13-1

GMUPR 217mmboe



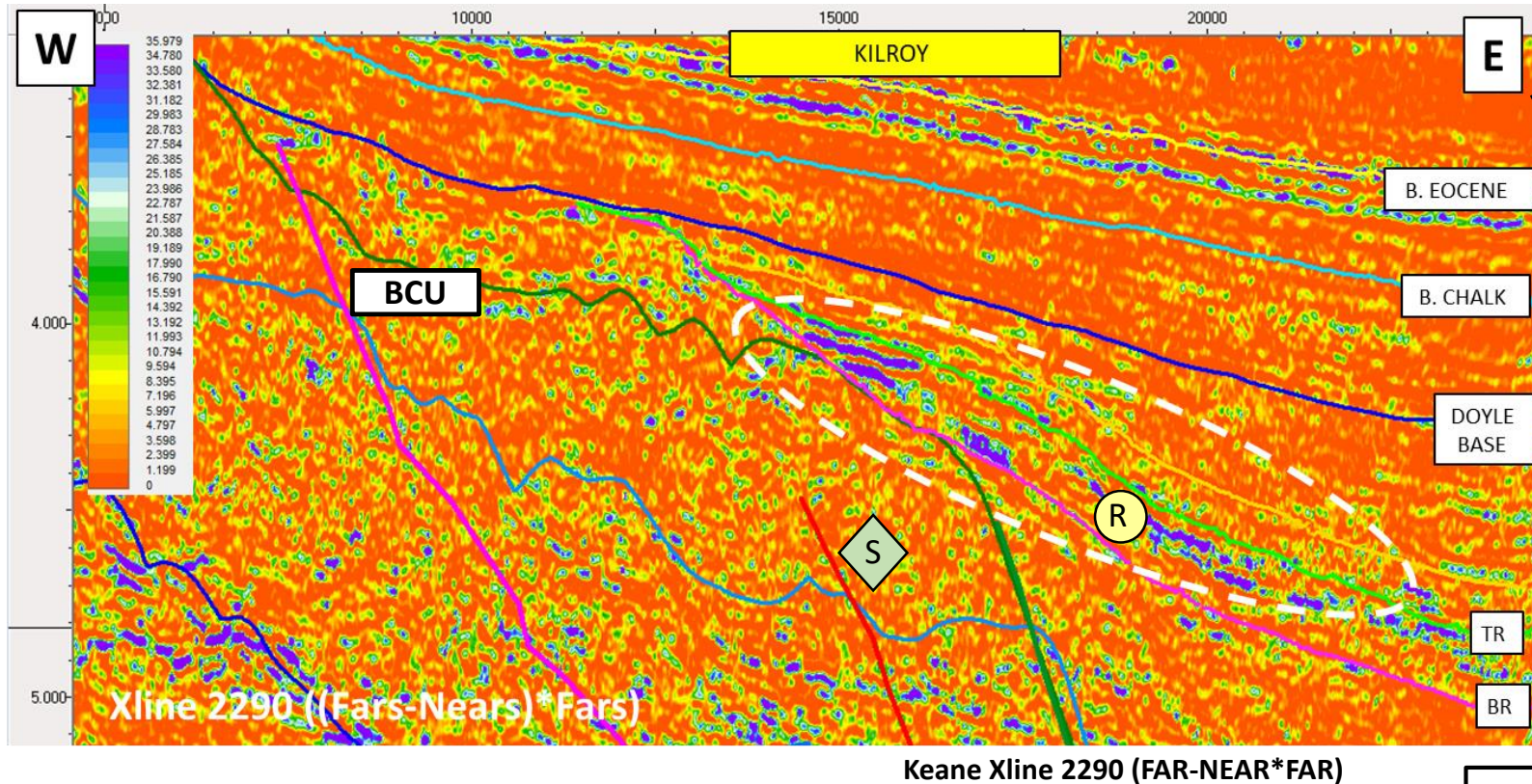
Keane Syn-Rift Fan (FAR-NEAR*FAR)



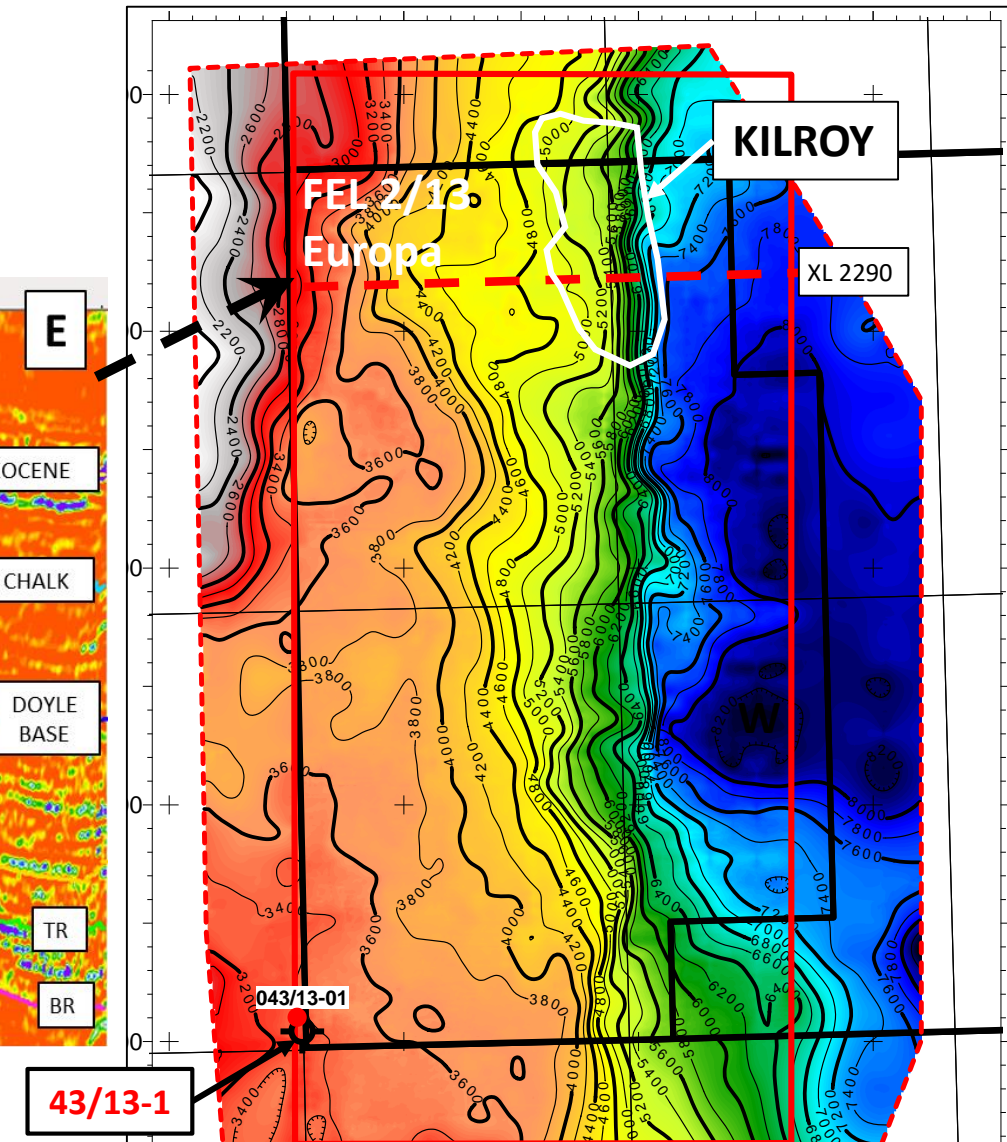
Europa Near Top Middle Jurassic Depth (mss)

KILROY PROSPECT

Cretaceous. Early Post-rift Slope Apron
possible AVO anomaly – close to mature source
GMUPR 159 mmboe



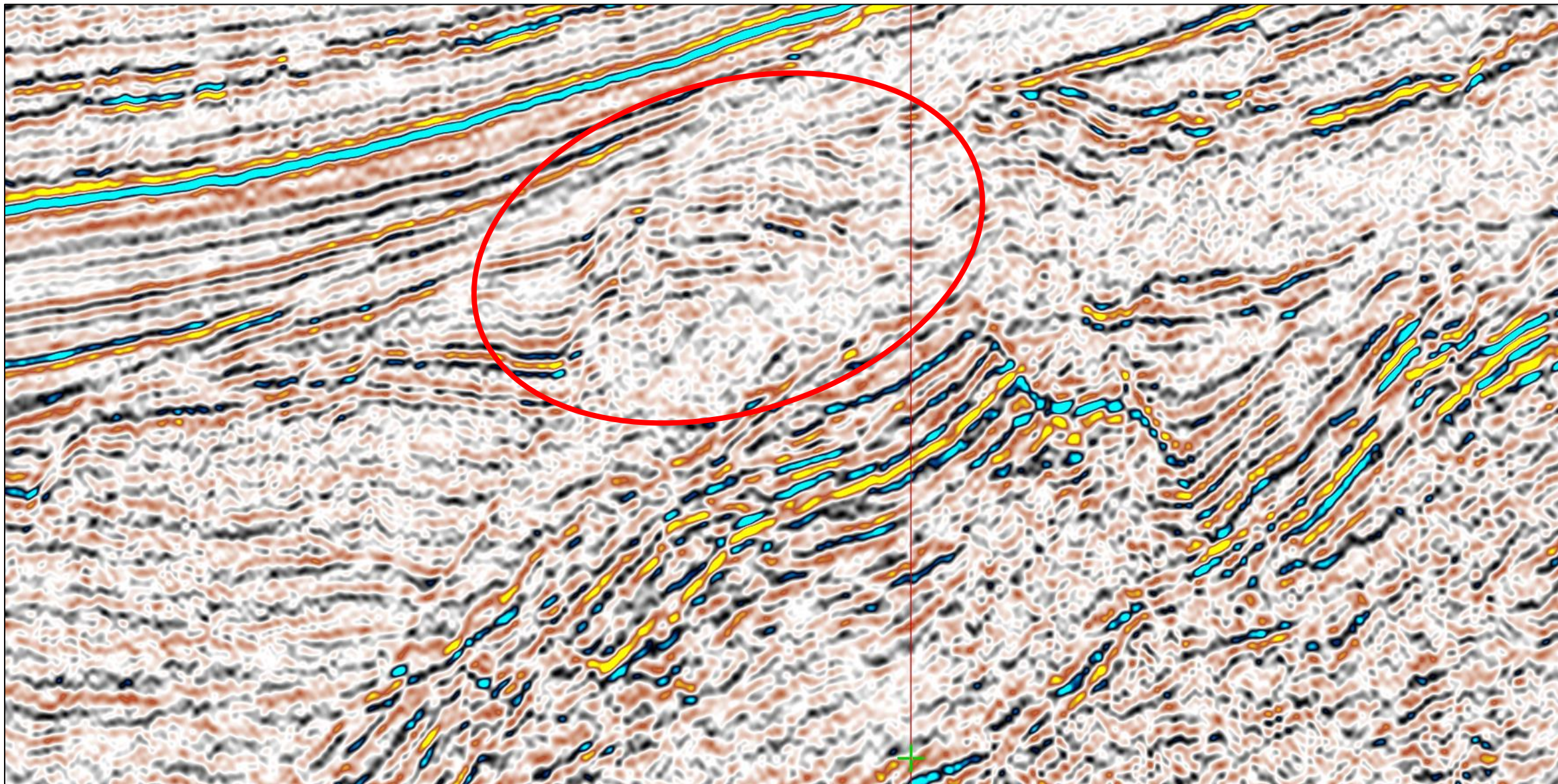
Keane Xline 2290 (FAR-NEAR*FAR)



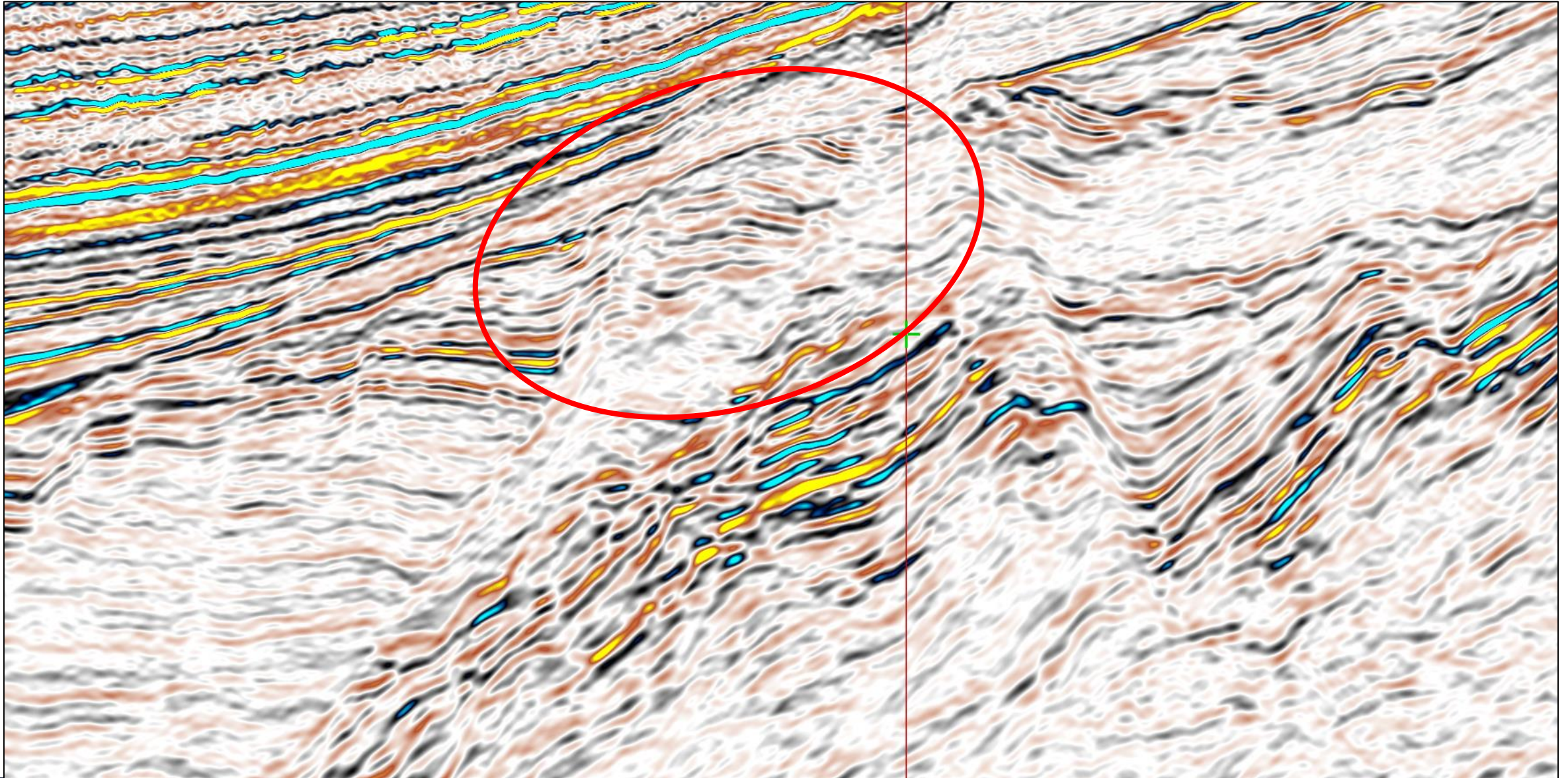
Europa Base Cretaceous Depth (mss)

Analogue: Lower Cretaceous fields of the Outer Moray Firth, e.g. Goldeneye & Britannia

Pre-rift block 2013 PSTM **BEFORE**

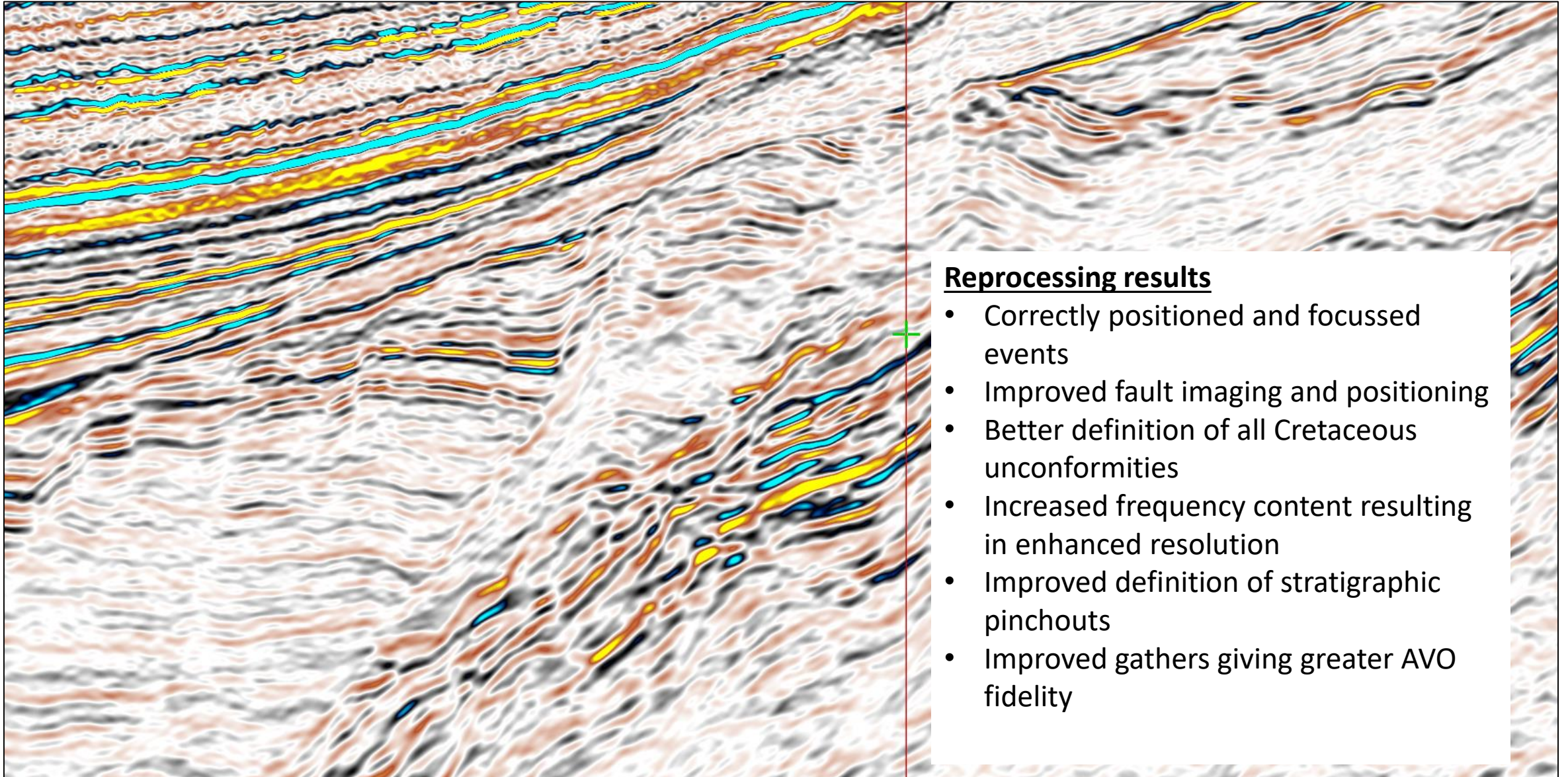


Pre-rift block 2017 PSDM **AFTER**

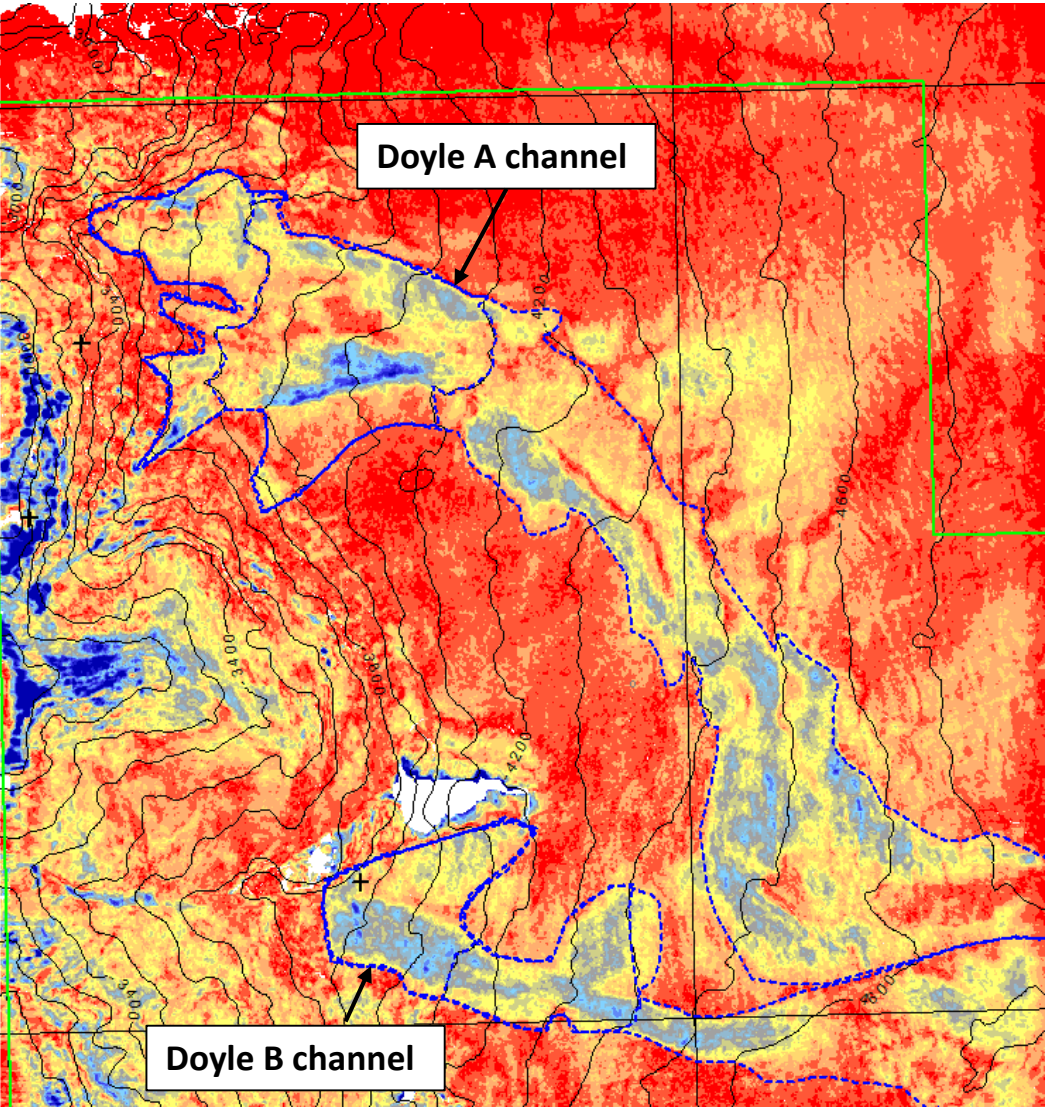


With Structurally Orientated Filter applied (SoF)

Pre-rift block 2017 PSDM **AFTER**



DOYLE PROSPECTS A, B and C



Licence	Prospect	Play	Gross Prospective Resources mmbœ*			
			Un-risked			
			Low	Best	High	Mean
FEL 2/13	Doyle A - west	Cret. slope channel	12	38	115	54
FEL 2/13	Doyle A - Centre	Cret. slope channel	16	51	149	70
FEL 2/13	Doyle A - east	Cret. slope channel	36	110	327	154
FEL 2/13	Doyle B	Cret. slope channel	22	76	264	119
FEL 2/13	Doyle C	Cret. slope channel	12	44	155	71
Total						468

As currently mapped on the 2013 data the Doyle prospects are below the commercial threshold. The results of ongoing 2017 reprocessing project will provide improvements to the mapping of the Doyles. This may increase volumes and decrease risk.

Doyle A and B channels, rms amplitude map with depth contour overlay (mss)

FEL 2/13 FARMOUT TIMETABLE

- Seismic data currently in reprocessing to PSDM with DUG, expected complete April 2018.
- Data room to open May 2018
- Closing date September 2018
- Please contact Europa to arrange a data room visit

PLEASE VISIT OUR STAND FOR FURTHER DISCUSSIONS
WE WILL ALSO BE AT PROSPEX IN LONDON

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Thank you