DISPLAY G5

MacCulloch Field; Improving Reservoir Characterisation Through Time Lapse Analysis.

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The MacCulloch field lies in Block 15/24b in the Central North Sea. The field has been on production since 1997.

The primary reservoir is Lower Palaeocene turbidite sandstones of the Upper Balmoral Sandstone unit in the Lower Palaeocene Lista Formation. It is connected to a large aquifer in the underlying Lower Balmoral Sandstone unit.

The field is made up of a number of individual turbidite flows predominantly characterised by clean, high porosity and permeability, high net/gross sandstones. These discrete depositional units can be distinguished on the seismic data and examination of the time-lapse response of these units shows that they have acted as a primary control on the depletion of the field.

The objective of the core display is to show differences between individual massive reservoir sand units from different flow episodes and illustrate some of the more minor reservoir facies encountered in possible overbank deposits or margins to individual flow packages.

Plate A

Well: UKCS 15/24b-3 Interval: 6293 ft – 6305 ft

Amalgamated sandy turbidites passing up into muddy turbidite unit overlain by interval of thin to medium bedded injected sandstones. Capped by mud-dominated debris flow before onset of clean, stacked massive turbidites.

Plate B

Well: UKCS 15/24b-5 Interval: 6227 ft – 6248 ft

Basal amalgamated sandy turbidite showing dewatering followed by interval of thin to medium bedded injected sandstones in background hemipelagic mud overlain by interval of stacked/amalgamated sandy turbidites ad capped by hemipelagic muds with thin injected sandstones.

Plate C

Well: UKCS 15/24b-5 Interval: 6266 ft – 6275 ft

Massive, stacked/amalgamated clean sandy turbidites dominantly dewatered.

Plate D

Well: UKCS 15/24b-6 Interval: 6321 ft – 6330 ft

Stacked/amalgamated massive sandy turbidites, locally clast rich. Individual units display clear fining upwards profiles.

Plate E

Well: UKCS 15/24b-6 Interval: 6339 ft – 6348 ft

Conglomerate unit within massive sandy turbidites. Clasts are both sandstone and claystone, pebble to cobble grade sub-rounded to rounded.

Plate F

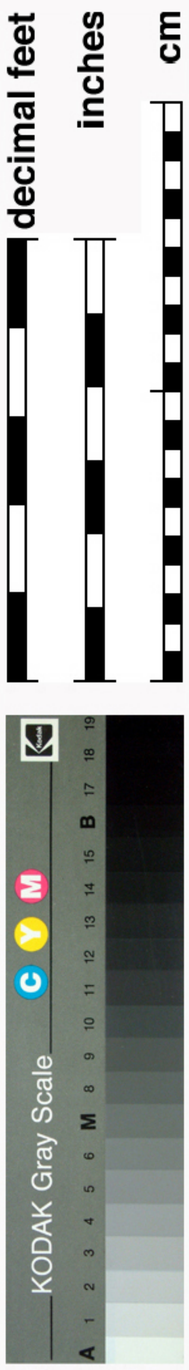
Well: UKCS 15/24b-6 Interval: 6351 ft – 6363 ft

Stacked/amalgamated massive sandy turbidites displaying a crude fining upwards profile. Sandstones are “clean”, bi-modally sorted with and upper fine population admixed with a coarse to granule grade component.

Display G5 Plate A

Well UKCS 15/24b-3

6293 ft | 6296 ft | 6299 ft | 6302 ft

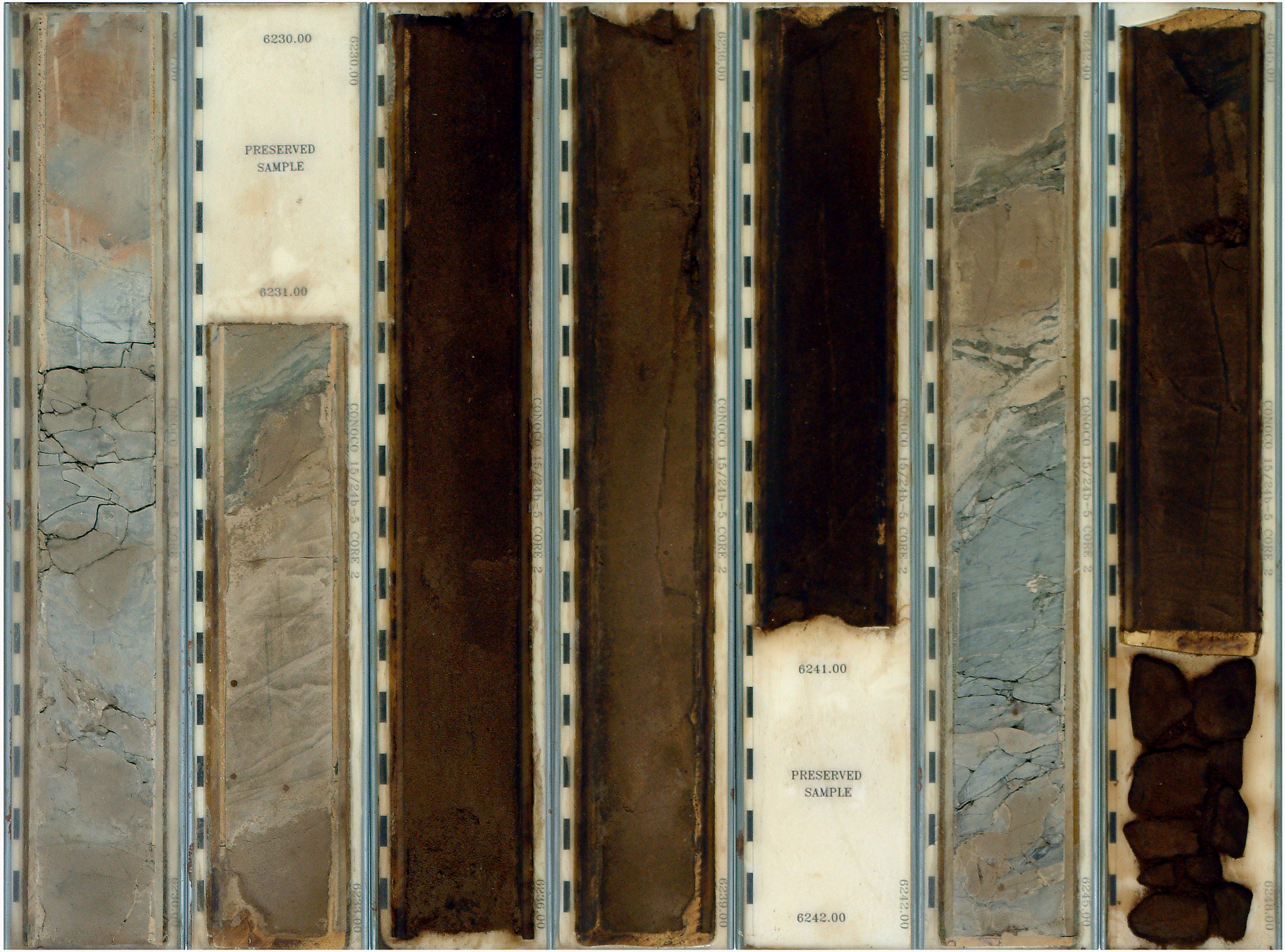


Core photography and digital processing by
Robert Leppard (*Leppard Sedimentology Ltd*)
and
Colin Oakman (*Colin Oakman Associates*)

Display G5 Plate B

Well UKCS 15/24b-5

6227 ft | 6230 ft | 6233 ft | 6236 ft | 6239 ft | 6242 ft | 6245 ft



decimal feet | inches | cm

KODAK Gray Scale

KODAK Color Control Patches

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Display G5 Plate C

Well UKCS 15/24b-5

Core photography and digital processing by

Robert Leppard (Leppard *Sedimentology Ltd*)

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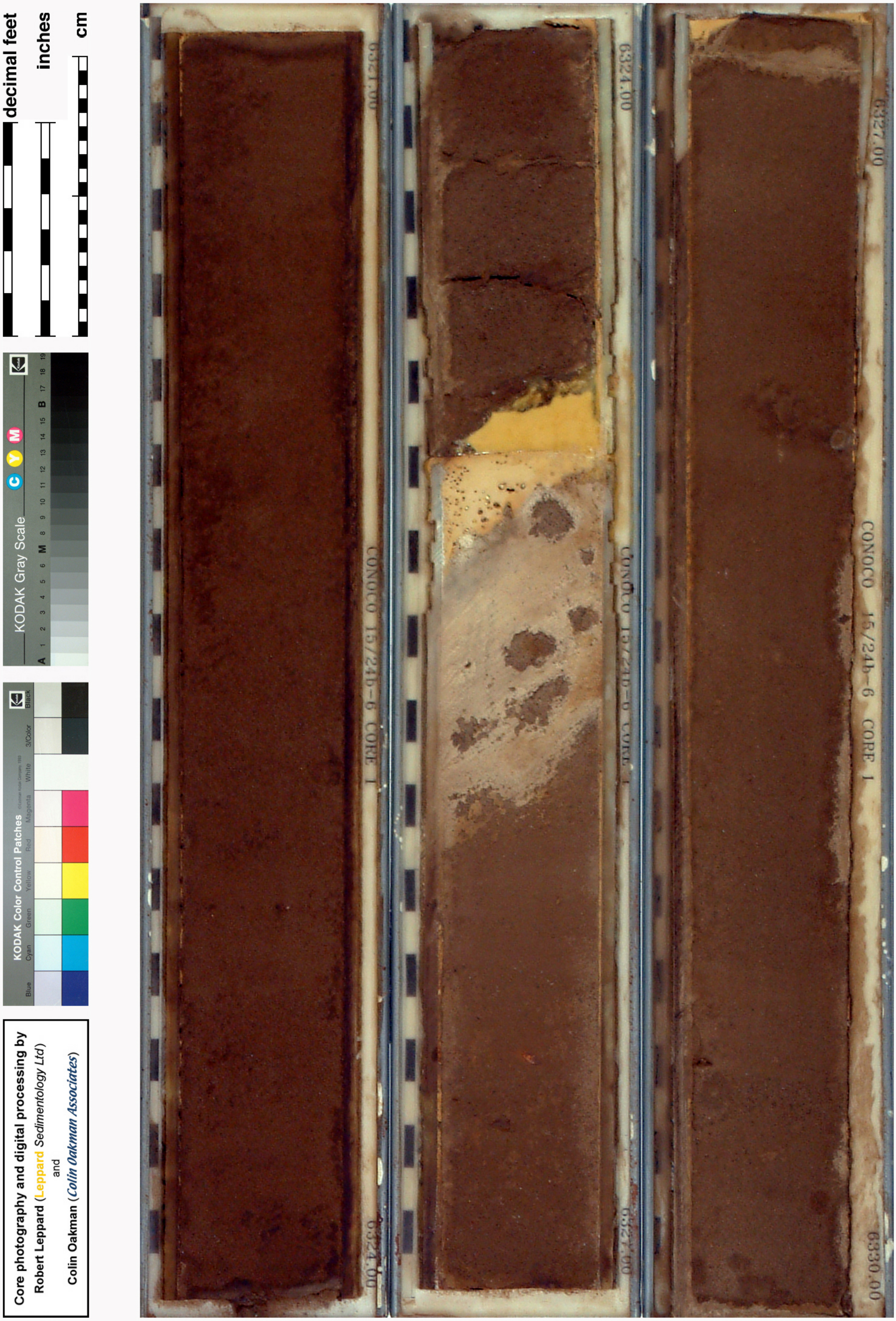
Colin Oakman (*Colin Oakman Associates*)

Display G5 Plate D

Well UKCS 15/24b-6



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Display G5 Plate E

Well UKCS 15/24b-6

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Colin Oakman (*Colin Oakman Associates*)

KODAK Color Control Patches
Blue Cyan Green Yellow Red Magenta White 3/Color Black

KODAK Gray Scale
A 1 2 3 4 5 6 M 8 9 10 11 12 13 14 15 B 17 18 19

decimal feet
inches
cm

6339 ft

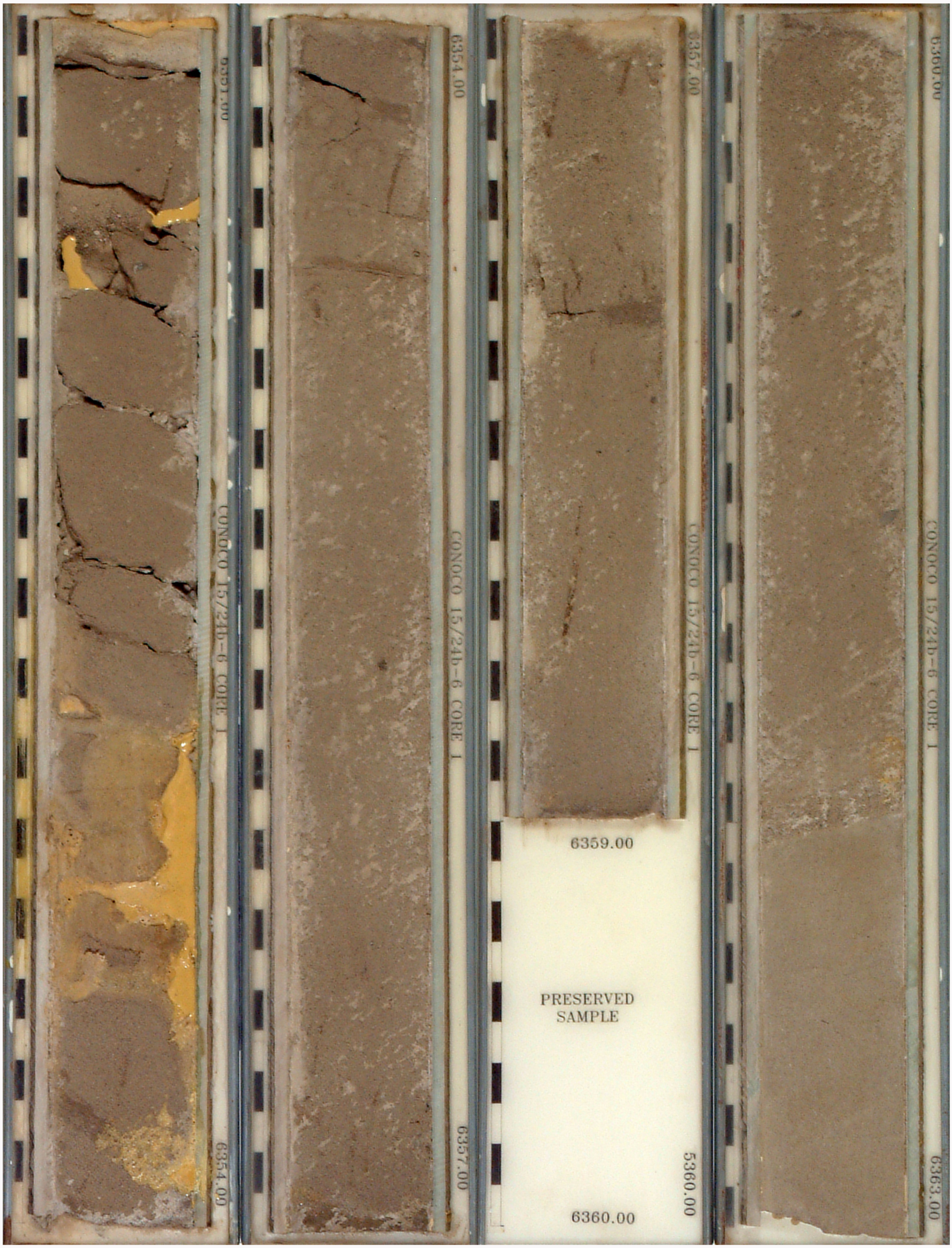
6342 ft

6345 ft

Display G5 Plate F

Well UKCS 15/24b-6

6351 ft | 6354 ft | 6357 ft | 6360 ft



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