DISPLAY H1

Turbidite Reservoirs of the Sele Formation, Central North Sea

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These cored sections have been chosen to illustrate variation in the Forties reservoir from relatively proximal in the main Forties fan (Nelson) to more distal (Pierce) and distal with significant deformation in a lateral fan (Merganser).

The two Nelson cores show the contrast between what have been defined as channel and interchannel areas, with channel areas carrying permeabilities of the order of 300 mD.

Three sections from the Pierce well 23/22a-3 have been selected to show the persistence of channelised sands into distal areas of the fan, along with finer grained intervals.

The two Merganser sections show relatively undeformed Forties sandstones with a basal faulted contact, overlying Lista heterolithics with the pervasive deformation that often occurs where fields are affected by salt growth during and shortly after deposition.

Plate A

Well: UKCS 22/11-N9 Interval: 7854 ft – 7872 ft

N9 is a producer from the central part of the Nelson Field. N9 penetrated a thick (>200ft) section of Upper Forties amalgamated channel sands deposited within the central fairway and the core shows all the typical features of the high N/G turbidite channel-axis deposits.

Plate B

Well: UKCS 22/11-N16y Interval: 10774 ft – 10795 ft

N16y is a producer from the margin of the western channel fairway of the Nelson Field. Note the lower N/G sections with current ripples, finely laminated muds and silts, and sand injection structures. Also the channel margin sands that show very good reservoir quality and heavily oil staining.

Plate C

Well: UKCS 23/22a-3 Interval: 2740 m – 2747 m

Although Pierce is regarded as occupying a distal setting within the Forties depositional system, significant channel networks persist into this area. Channel fills are, however, heterogeneous with medium and coarse sandstone bodies (base of section) supplemented by laminated sandstones (centre of section), heterolithics and debrites (top of section).

Plate D

Well: UKCS 23/22a-3 Interval: 2755 m – 2759 m

Minor scour channels show coarse basal lags and associated laminated 'by-pass' sands. Local dewatering and minor slumping as well as frequent dish structures and water escape pipes within 'back-fill' sands. The debrites at the base of this section are an intrinsic feature of the Forties in this area.

Plate E

Well: UKCS 23/22a-3 Interval: 2793 m – 2796 m

Intercalation of scour-fill and abandonment deposits. Evidence of micro-scale isoclinal slump or drag folding (*circa* 2794.5 m), auto-brecciation fabric associated with pervasive injection (*circa* 2794.8 m) and more discrete penetration of baffles by minor sand injection (9795.1 m).

Plate F

Well: UKCS 22/30a-14 Interval: 9670 ft – 9691 ft

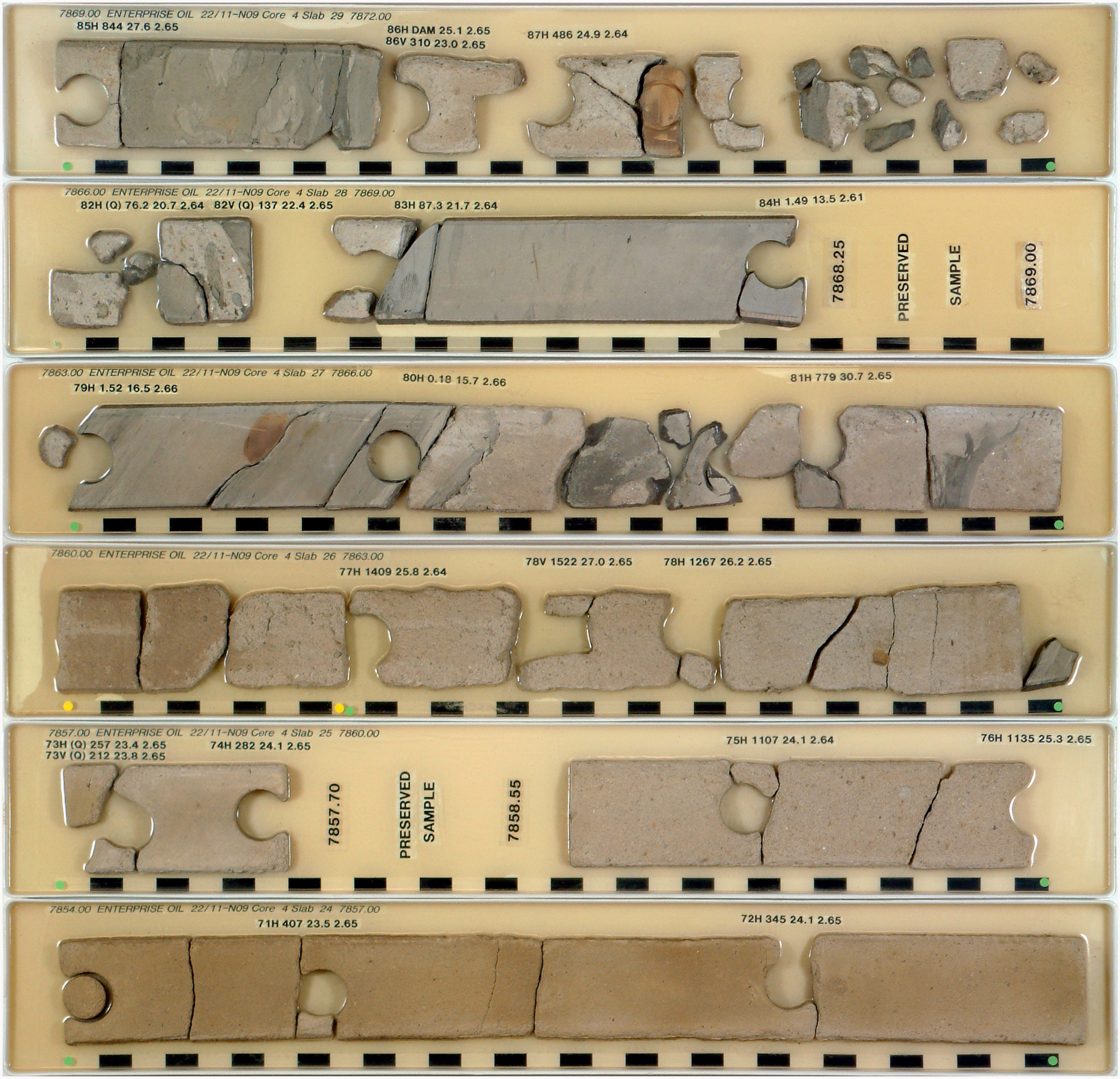
Forties Member sandstones containing abundant deformation seams and some folding, with a mineralised base and underlying rubble zone suggestive of faulting. Two biozones are also missing at the presumed faulted contact.

Plate G

Well: UKCS 22/30a-14 Interval: 9715 ft – 9742 ft

22/30a-14 penetrates steeply dipping, distal turbidites high on the south flank of the Merganser salt diapir. These are from the Lista directly underlying the Forties Member with a faulted contact. Early post depositional movement of these sediments is indicated by soft sediment deformation, particularly along muddy slide planes. Note also irregular contacts of injected sands and dewatering features in the thicker sands.

Display H1 Plate A
Well UKCS 22/11-N9



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

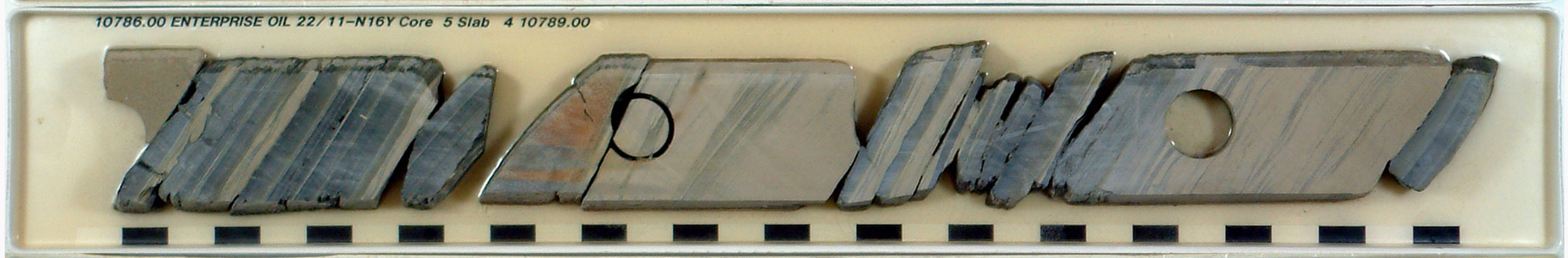
decimal feet
inches
cm

Display H1 Plate B
Well UKCS 22/11-N16y

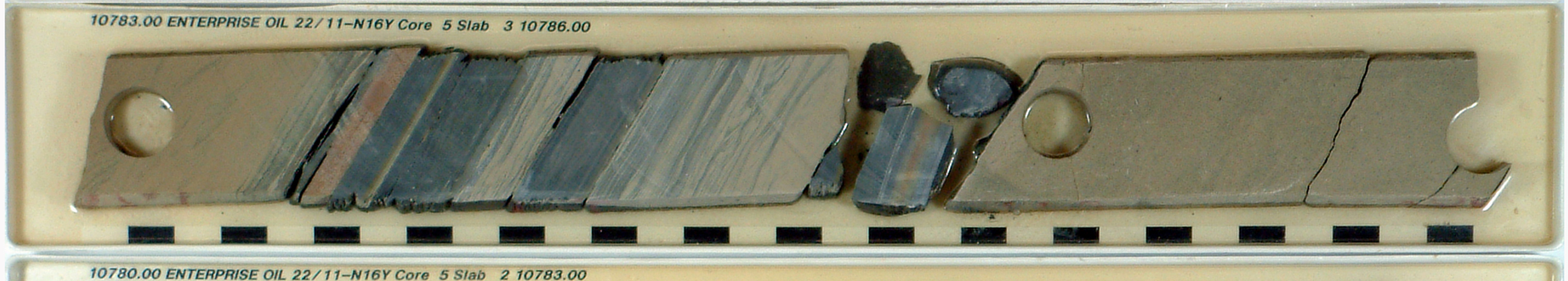
10792 ft

10789 ft

10786 ft



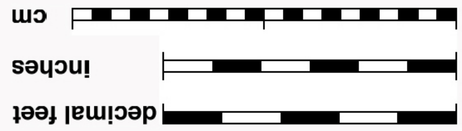
10783 ft



10780 ft

10777 ft

10774 ft



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Display H1 Plate C

Well UKCS 23/22a-3

2740 m | 2741 m | 2742 m | 2743 m | 2744 m | 2745 m | 2746 m

decimal feet | inches | cm

KODAK Gray Scale

KODAK Color Control Patches

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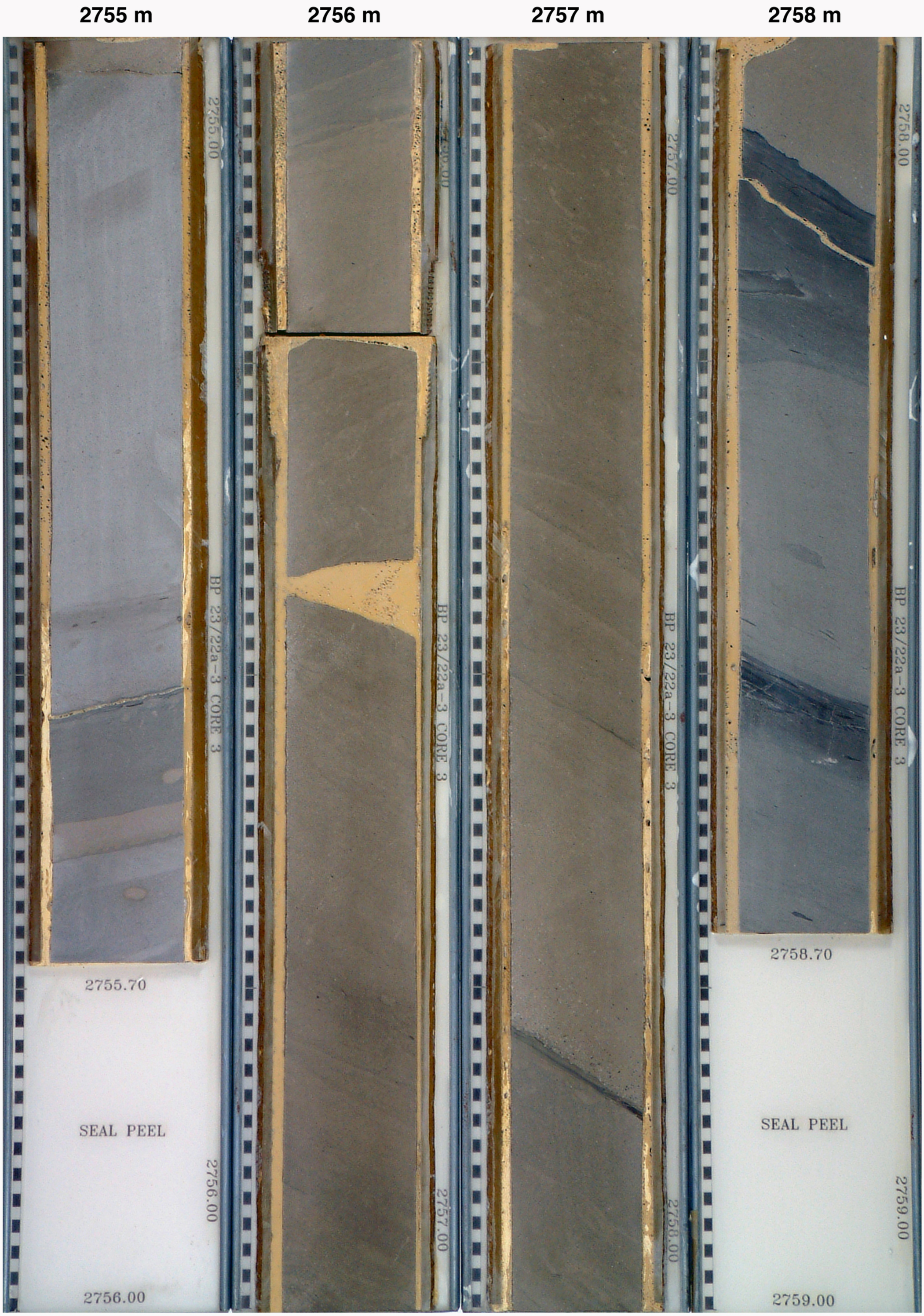
Display H1 Plate D

Well UKCS 23/22a-3



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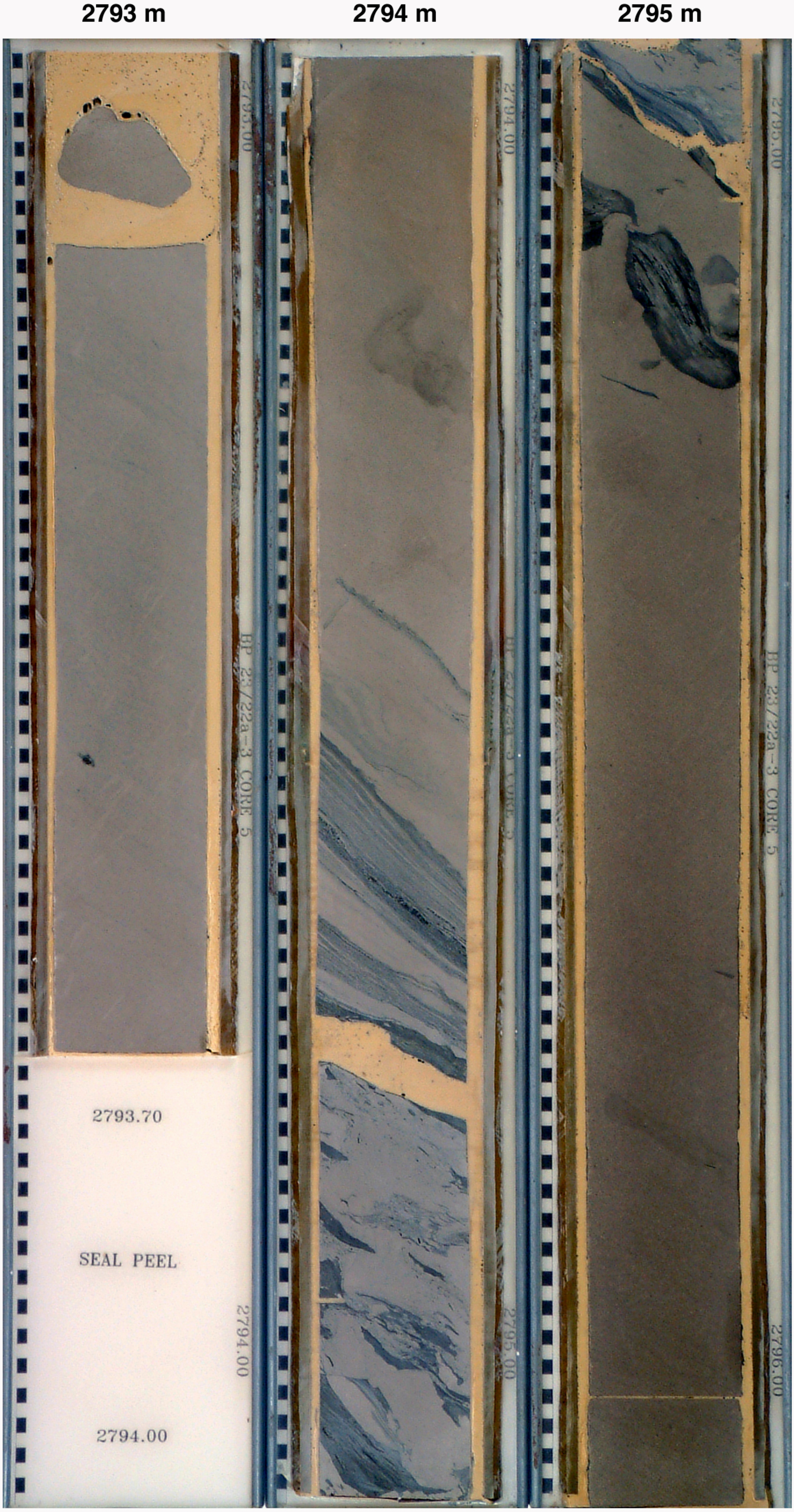
Colin Oakman (Colin Oakman Associates)

Display H1 Plate E

Well UKCS 23/22a-3



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Display H1 Plate F

Well UKCS 22/30a-14

9688 ft

9685 ft

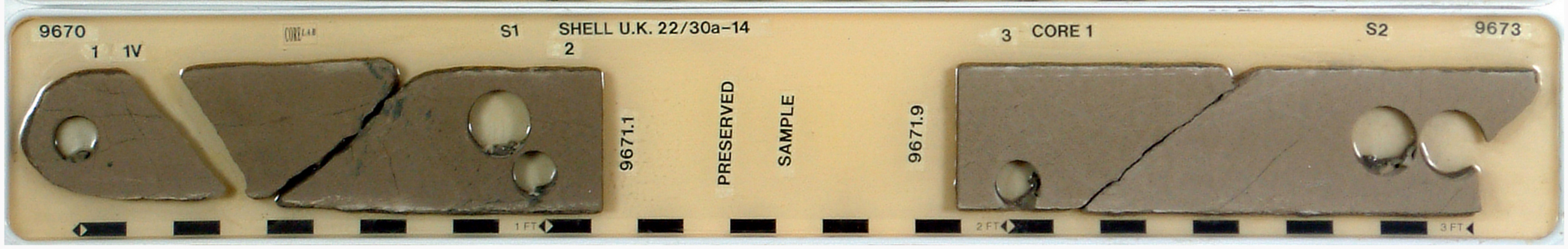
9682 ft

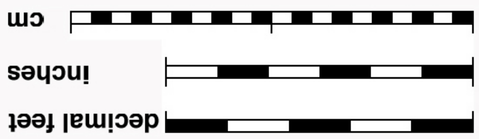
9679 ft

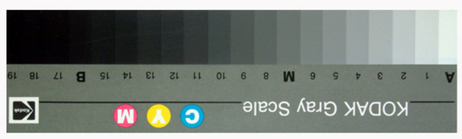
9676 ft

9673 ft

9670 ft







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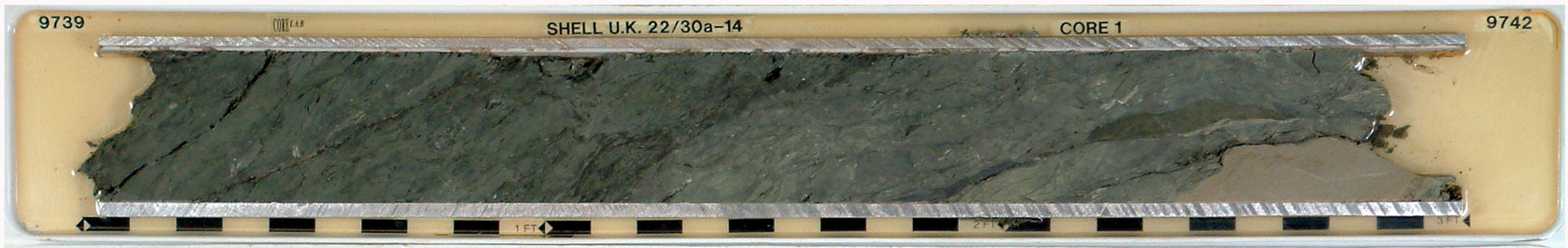
Display H1 Plate G

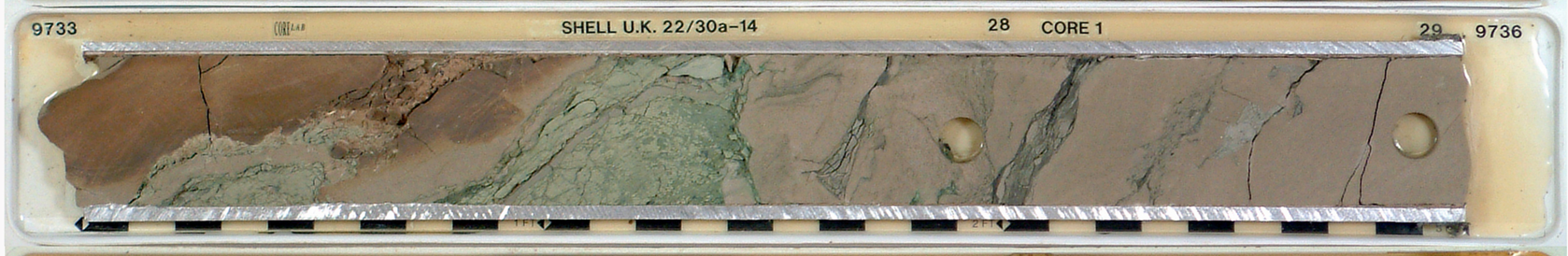
Well UKCS 22/30a-14

9739 ft



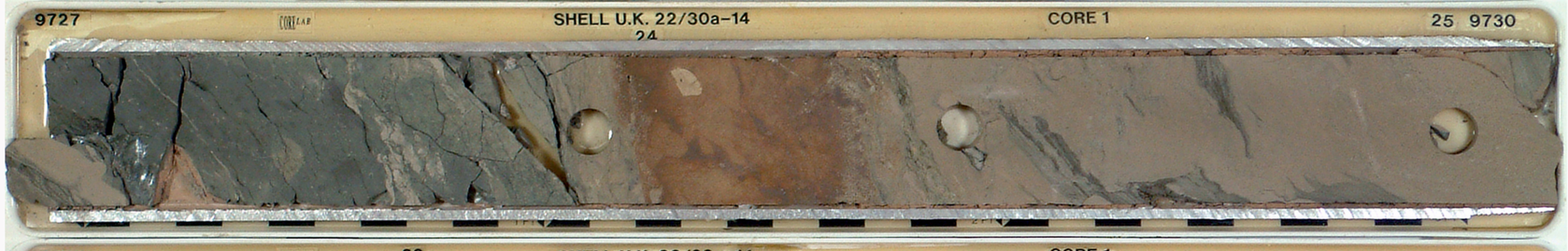
9736 ft

9733 ft



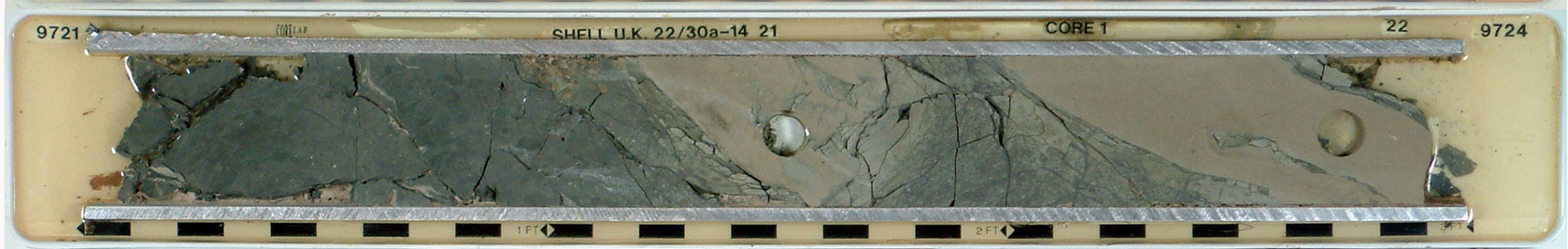
9730 ft

9727 ft



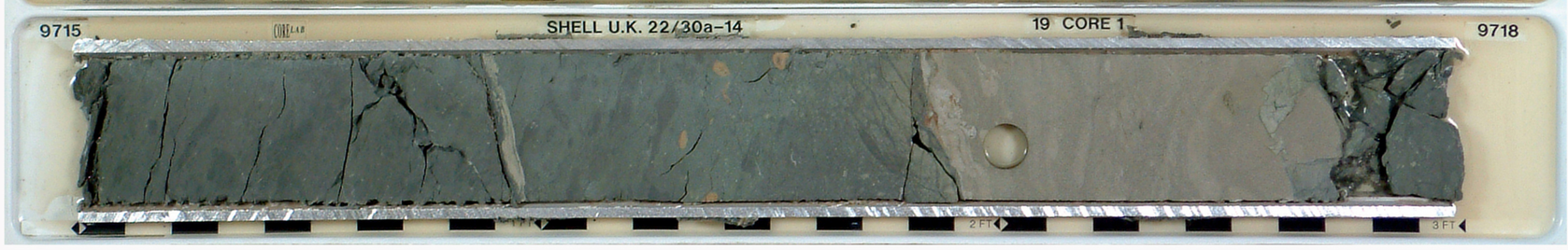
9724 ft

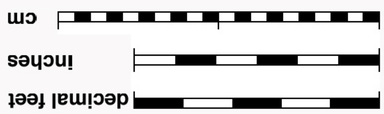
9721 ft

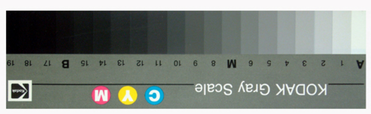


9718 ft

9715 ft







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