DISPLAY E4

Managing Reservoir Uncertainty after 5 years of field life – Britannia Field

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The Britannia reservoir consists of deep-water sandstones of mass flow origin, ranging from high density "clean" turbidites to non-reservoir facies consisting of debris and slurry flows. Britannia reservoir models rely on over 20,000 ft of core to define the reservoir zonation and facies scheme within the static reservoir model.

Recent core-based reservoir studies, including a refinement of the depositional models for upper reservoir Zones 50, 45, and 40, fault seal property evaluation, and detailed diagenetic studies, have further benefited the earth model. A rigorous re-correlation study based on biostratigraphy and geochemical chemostratigraphy have led to refined flow unit definition.

The main rock types in the Britannia field are S3 Clean, Banded, and Mixed Slurry Sandstones. Each of these has its own particular petrophysical characteristics that decrease in reservoir quality as listed above. Therefore it is essential to understand each rock type's depositional and sedimentary architecture. In addition, remobilisation of sediments means that the initial depositional orientation may not necessarily reflect resultant slump orientation.

Cores from the Zone 40 sandstone are displayed together with well cross-sections to demonstrate variations in gross lithological distributions, both geographically and stratigraphically.

Plate A

Well: UKCS 15/30-10 Interval: 12885 ft – 12903 ft

Conoco 15/30-10 subsea area well showing entire Zone 40 Sand interval as S3 Clean Sandstone.

Plate B

Well: UKCS 16/26-B05 Interval: 13898 ft – 13934 ft

BOL 16/26-B05 platform well showing Zone 40 Sand interval Mixed Slurry cap on S3 Clean Sandstone. Basal unit is Banded Sandstone separated stratigraphically from overlying S3 sands by intervening shale unit.

Plate C

Well: UKCS 16/26-B01 Interval: 13154 ft – 13203 ft

BOL 16/26-B01 platform well showing Zone 40 Sand interval S3 clean sandstones stratigraphically above a well-developed Mixed Slurry interval.

Plate D

Well: UKCS 16/26-24 Interval: 12997 ft – 13014.6 ft

Chevron 16/26-24 platform area well showing upper Zone 40 Sand interval well-developed Banded Sandstone.

Plate E

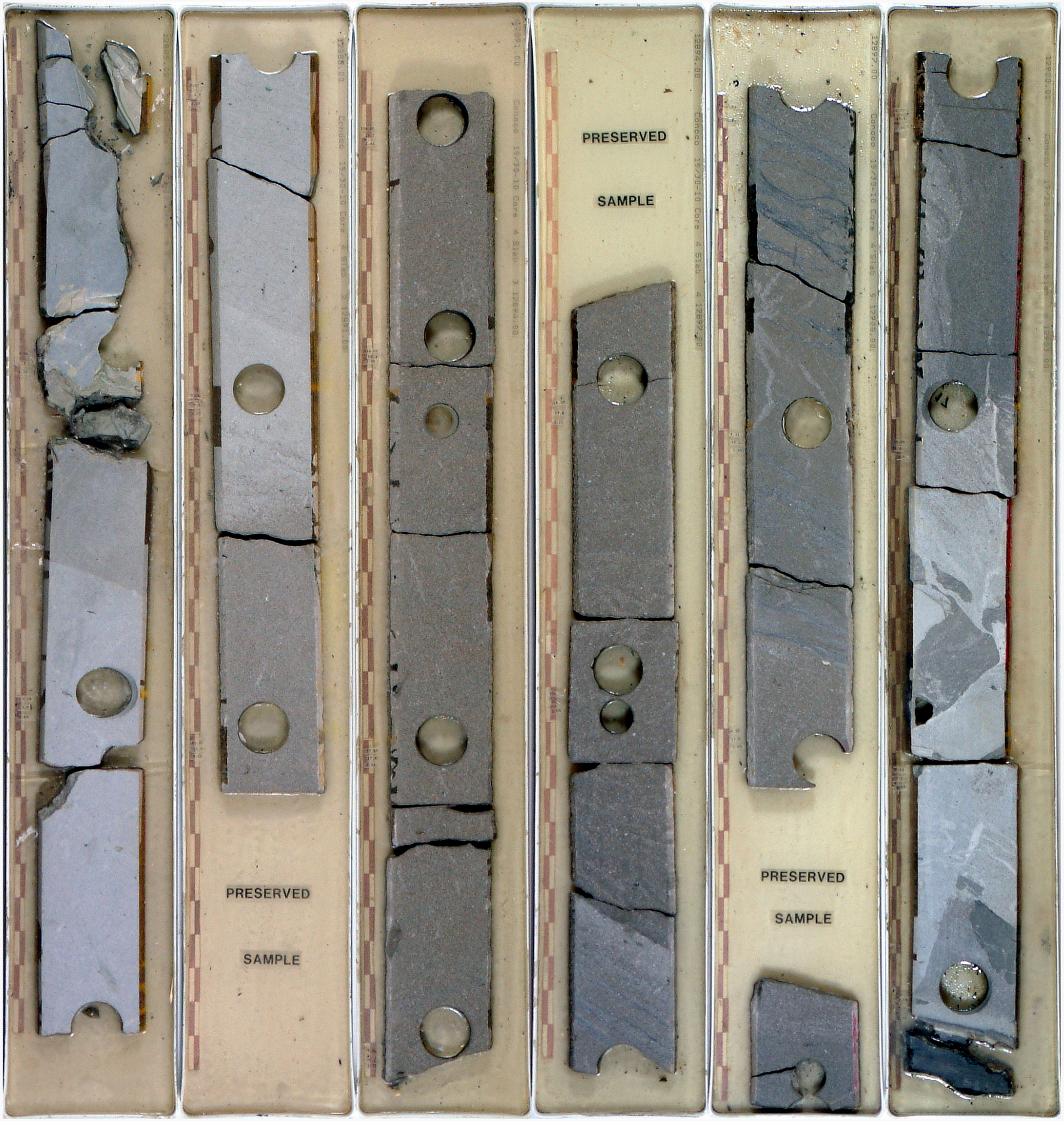
Well: UKCS 16/26-24 Interval: 13043 ft – 13055 ft

Chevron 16/26-24 platform area well showing lower Zone 40 Sand interval of S3 Clean Sandstone.

Display E4 Plate A

Well UKCS 15/30-10

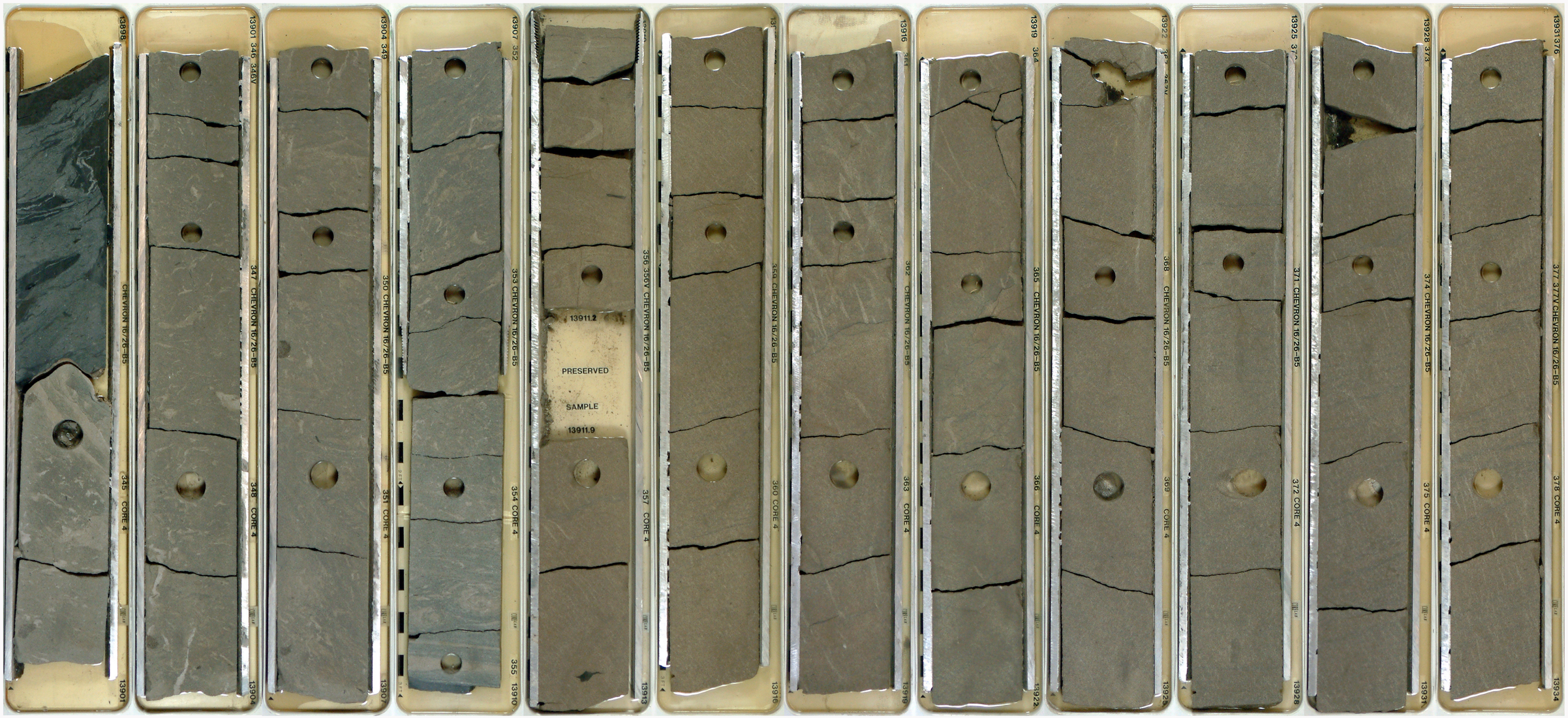
12885 ft | 12888 ft | 12891 ft | 12894 ft | 12897 ft | 12900 ft



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

Display E4 Plate B

Well UKCS 16/26-B05



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

Display E4 Plate C

Well UKCS 16/26-B01

13154 ft
13157 ft
13160 ft
13163 ft
13166 ft
13169 ft
13172 ft
13175 ft
13178 ft
13181 ft
13184 ft
13187 ft
13190 ft
13193 ft
13196 ft
13197 ft
13200 ft

decimal feet
inches
cm

KODAK Gray Scale
KODAK Color Control Patches

Core photography and digital processing by
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Colin Oakman (*Colin Oakman Associates*)

Display E4 Plate D
Well UKCS 16/26-24

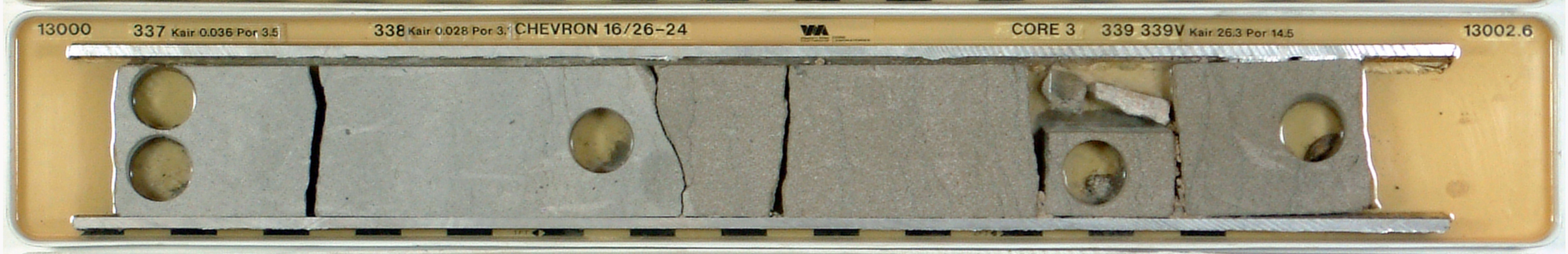
13011.5 ft

13008.6 ft

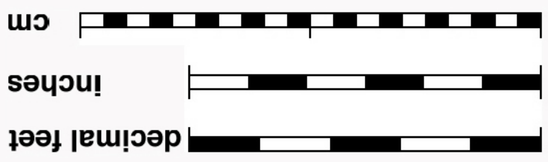
13005.6 ft

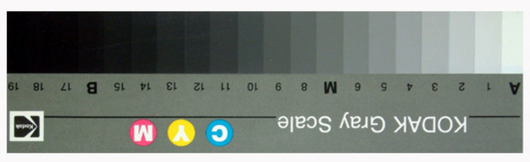
13002.6 ft

13000 ft



12997 ft





Core photography and digital processing by
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Display E4 Plate E

Well UKCS 16/26-24

13043 ft | 13046 ft | 13049 ft | 13052 ft

decimal feet | inches | cm

KODAK Gray Scale

KODAK Color Control Patches

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Robert Leppard (*Leppard Sedimentology Ltd*)
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Colin Oakman (*Colin Oakman Associates*)