Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 12134.00 FEET
SAMPLE NUMBER: 1 CK-McCormick

PLATE 3

T.O.C.: 0.01% (weight percent)

This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

12134.00'
Plate 3

Weatherford LABORATORIES

A

1X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 12134.00 FEET
SAMPLE NUMBER: 1 CK-McCormick

PLATE 3

T.O.C.: 0.01% (weight percent)

Lithology: Fluorite/dolomite/barite-rich limestone

Texture: Chaotic (possible slumping/collapse or fault-shear zone); highly fractured with fractures crisscrossing at multiple angles; organic-rich stylolites and bitumen-filled fractures; a prominent pyritized, horizontal stylolite separates the lower section from the upper section; the lower section consists of highly fractured peloidal, intraclast-rich wackestone to packstone with isolated patches of peloidal grainstone (this lower portion appears to have been under represented in the XRD sampling); the upper section is crystalline and chaotic with numerous cemented fractures containing fluorite, calcite, and barite (this upper section appears to be most represented in the XRD results)

Detrital Grains/Allochems: Micritic peloids; intraclasts; minor quartz and trace feldspar grains (coarse silt to fine sand sized); echinoderm fragments; trilobite fragments; and trace organic fragments

Matrix: Common to abundant partially recrystallized micrite occurs in the lower section; rare to trace amounts of clay occur predominantly along stylolites (XRD clay distribution by weight: 1% illite/mica and traces of chlorite, kaolinite, and mixed-layer illite/smectite)

Cements and Replacement Minerals: Common to abundant crystalline calcite (28% by weight, total calcite), fluorite (33% by weight), and barite (16% by weight) occluding fractures and voids (mineral identification was also verified by SEM/EDS); common calcite replacement/recrystallization of matrix and grains/allochems in the lower section; common dolomite (18% by weight, total dolomite/Fe-dolomite) occurs mostly in the lower section as replacement of matrix along stylolites and replacement of grains/allochems; minor pyrite (1% by weight) occurring as a replacement of organic material (mostly along stylolites) and as a lesser replacement of unstable grains/allochems; trace bituminous organic material concentrated along stylolites; trace quartz/feldspar overgrowths on detrital grains and euhedral crystals replacing unstable calcareous substrate

Pore System: Trace secondary porosity occurs along some stylolites and fractures with incomplete cementation

Magnification: B: 50X C: 200X

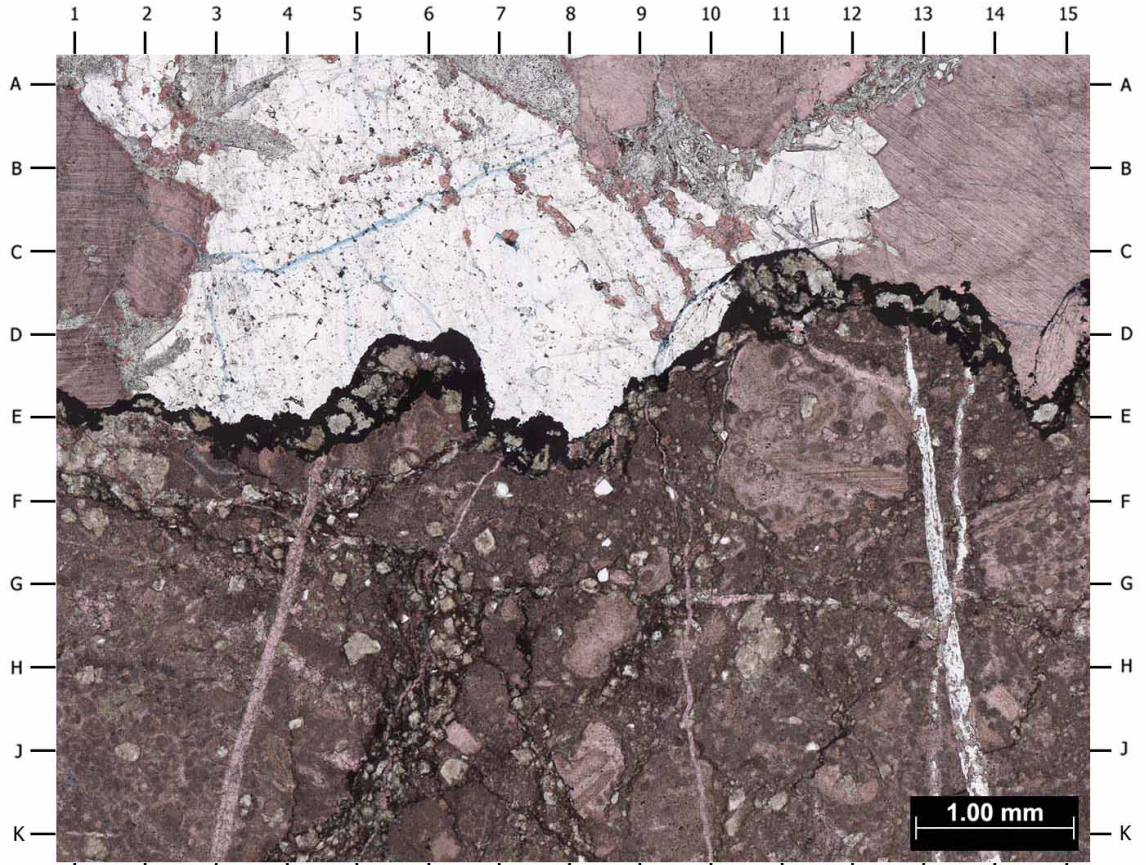
B) This photo documents a pyritized stylolite (E1 to DE15; black) that delineates the two main textures represented in this limestone sample. The upper section (above the largest stylolite) is dominated by large crystals of fluorite (white; CD3-10, BC11.5, A2), calcite (stained red; BC13-15, A10.5, BC1-2.7, AB8.5), and barite (A1, AB3, A7.5, B9.5, A12.7). The lower section is a chaotic mix of intraclasts (FG14-15, EF10-12.5), micritic peloids, and echinoderm fragments (GH8.5) in a partially recrystallized micrite matrix with numerous cemented fractures (DE12.5-J13.9, EF4.5-K3) and microstylolites crisscrossing the sample.

C) This photomicrograph provides a high magnification view of the area centered near FG5 in Photo B. Partially pyritized bituminous organic material (black) occurs concentrated along stylolites (A1-7) and microstylolites (D1-A15, D1-JK12.5). Dolomite crystals precipitate along these stylolites (B9, J11.5, FG2). Calcite-cemented microfractures occur at K2-BC4 and GH10.5-BC14.3.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

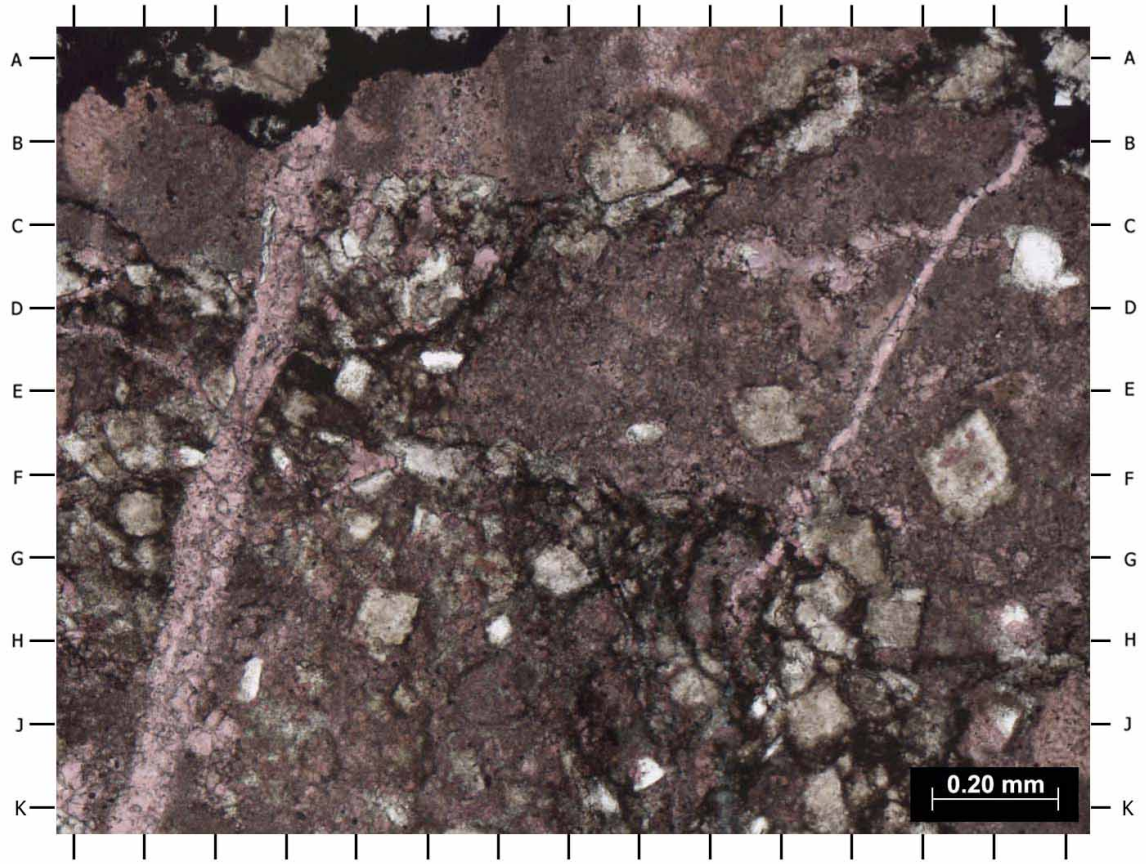
12134.00'
Plate 3

Weatherford LABORATORIES



B

50X



C

200X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 12153.00 FEET
SAMPLE NUMBER: 2 CK-McCormick

PLATE 4

T.O.C.: 0.01% (weight percent)

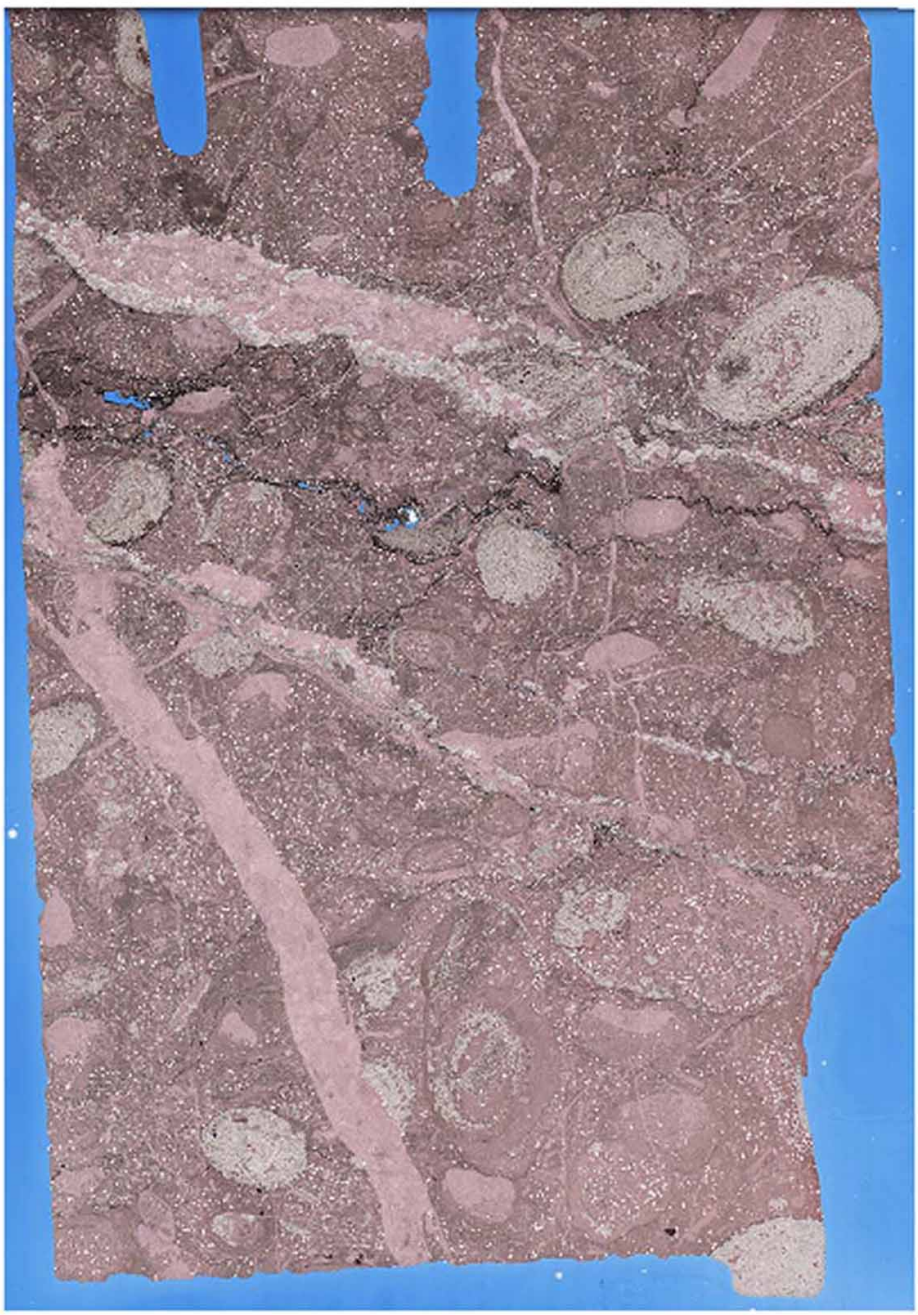
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

12153.00'
Plate 4

Weatherford LABORATORIES



A

1X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 12153.00 FEET
SAMPLE NUMBER: 2 CK-McCormick

PLATE 4

T.O.C.: 0.01% (weight percent)

Lithology: Slightly silty/sandy, slightly dolomitic limestone

Texture: Massive, pisoidal, intraclast-rich, partially recrystallized wackestone to packstone with rare localized patches of grainstone; large calcite-cemented fractures; organic-rich stylolites and microstylolites

Detrital Grains/Allochems: Common pisoids and intraclasts (up to 9mm in diameter; commonly dolomitized); minor to common micritic peloids; minor coarse silt to fine sand-sized grains of potassium feldspar (7% by weight) and quartz (3% by weight); plagioclase feldspar grains are rare (trace, by weight, XRD); trilobite carapace fragments; and echinoderm fragments

Matrix: Common partially recrystallized micrite; rare clays were detected in XRD and are likely associated with microstylolites (XRD clay distribution by weight: 1% illite/mica and traces of chlorite, kaolinite, and mixed-layer illite/smectite)

Cements and Replacement Minerals: Abundant recrystallization/replacement of matrix and grains/allochems (72% by weight, total calcite); common dolomite (17% by weight, total dolomite/Fe-dolomite) occurring as replacement of grains/allochems and in lesser amounts as replacement of matrix and minor dolomite cement occurring along fractures and microstylolites; minor sparry calcite cement occluding fractures; rare interparticle sparry calcite cement; trace pyrite occurring as mostly replacement of organic material along microstylolites; and trace feldspar/quartz overgrowths

Pore System: Trace secondary pores occurring along some fractures and microstylolites

Magnification: B: 50X C: 200X

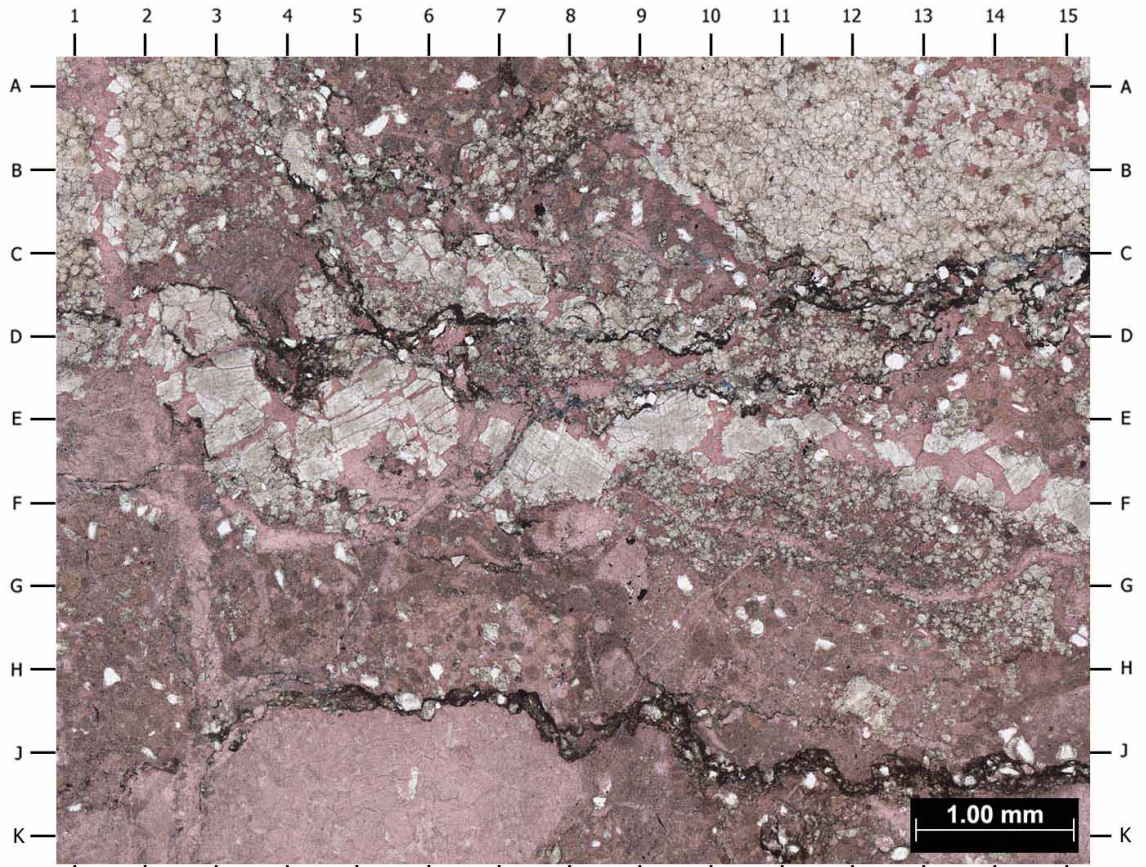
B) This slightly silty/sandy, slightly dolomitic limestone contains large intraclasts (JK2-8, H6-8, H9-HJ14); partially dolomitized pisoids (AB9-15; vague concentric rings are visible in macro photo A); fractures (A1-H3, E1-F15) cemented by dolomite (E3, E5.5, EF8, F15) and sparry calcite (stained red); and organic-rich microstylolites (HJ4-JK15, CD5.5-CD13.5). The matrix between grains/allochems is predominantly partially recrystallized micrite (C3.5, JK9). The intraclast at H6-8 exhibits a peloidal grainstone texture.

C) This photomicrograph provides a high magnification view of the area centered near DE13.5 in Photo B and documents a small area between a microstylolite (AB1-12) and a cemented fracture (GJ1-K12.5). The fracture is predominantly cemented by sparry calcite (J8, H1, H5) with lesser rhombic dolomite crystals also filling the fracture (HJ4, JK5.5, K8, J11). The microstylolite contains partially pyritized bitumen (black, AB1-2, A11) with additional dolomite (AB10, B3, AB3.5) replacement of the matrix occurring along the stylolite's margins. Visible grains/allochems include quartz grains (DE13.5, DE10, C9.5), feldspar grains (DE4, FG7.8), and vague partially recrystallized peloids (G9, H13). Sparry calcite cement (BC9, EF13.5, EF8.5) occludes the interparticle spaces within this localized area, while in other areas outside this view, the matrix is dominantly micritic.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

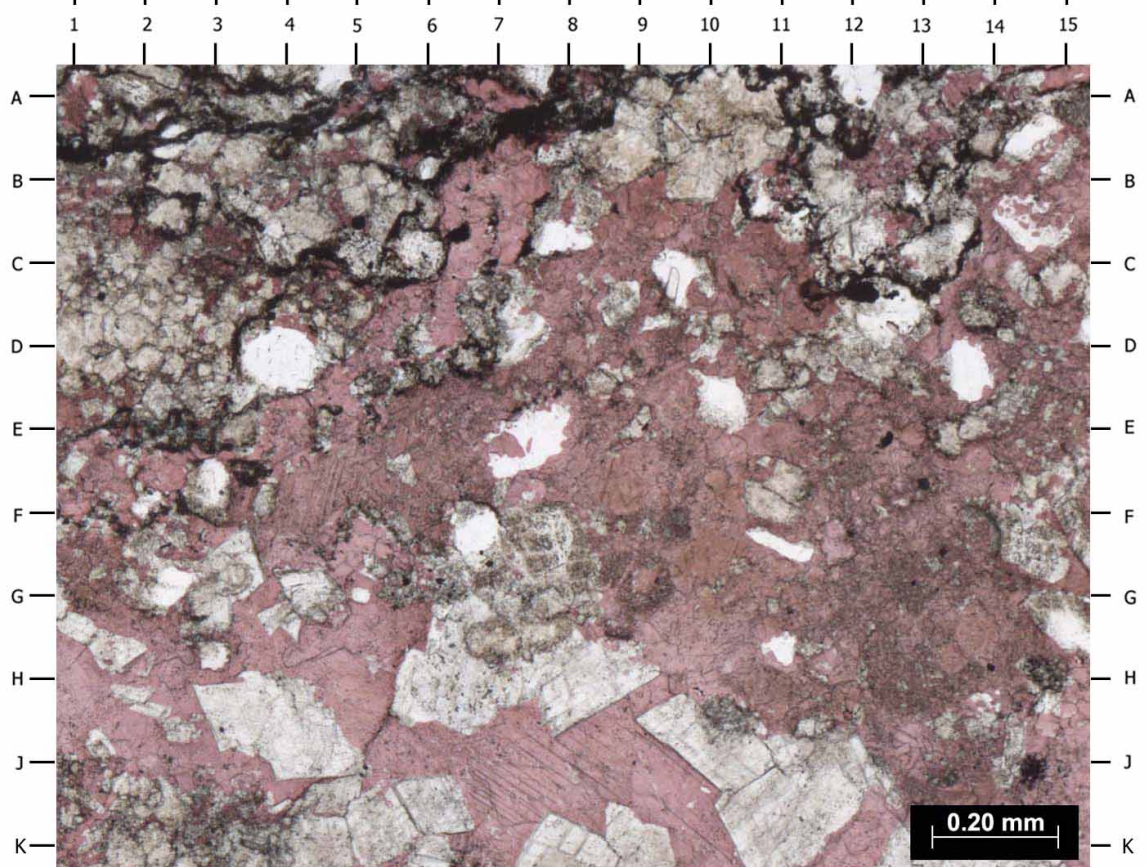
12153.00'
Plate 4

Weatherford LABORATORIES



B

50X



C

200X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 12156.00 FEET
SAMPLE NUMBER: 3 CK-McCormick

PLATE 5

T.O.C.: 0.01% (weight percent)

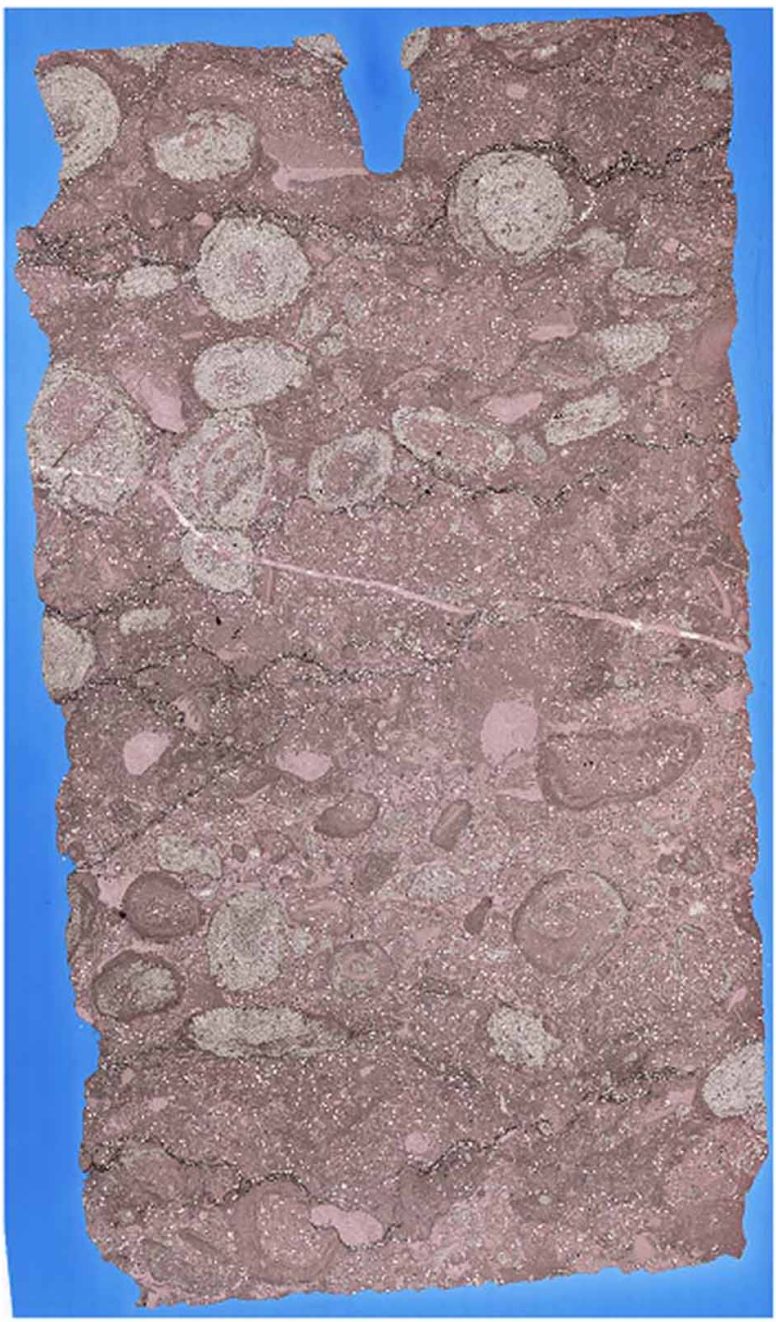
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

12156.00'
Plate 5

Weatherford LABORATORIES



A

1X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 12156.00 FEET
SAMPLE NUMBER: 3 CK-McCormick

PLATE 5

T.O.C.: 0.01% (weight percent)

Lithology: Slightly silty/sandy, dolomitic limestone

Texture: Massive, pisoidal, mostly partially recrystallized packstone to wackestone with localized patches of peloidal grainstone; calcite-cemented fractures; organic-rich stylolites and microstylolites

Detrital Grains/Allochems: Common pisoids and intraclasts (up to 5mm in diameter; commonly dolomitized); minor to common micritic peloids; minor coarse silt to fine sand-sized grains of potassium feldspar (7% by weight) and quartz (2% by weight); plagioclase feldspar grains are rare (trace, by weight, XRD); trilobite carapace fragments; and echinoderm fragments

Matrix: Common partially recrystallized micrite; rare clays were detected in XRD and are likely associated with microstylolites (XRD clay distribution by weight: 1% illite/mica and traces of chlorite, kaolinite, and mixed-layer illite/smectite)

Cements and Replacement Minerals: Abundant recrystallization/replacement of matrix and grains/allochems (63% by weight, total calcite); minor to common interparticle sparry calcite cement occurring in localized zones; common to abundant dolomite (27% by weight, total dolomite/Fe-dolomite) occurring as replacement of grains/allochems (especially pisoids) and matrix (especially along stylolites); rare sparry calcite and trace dolomite occurring as fracture-filling cement; trace pyrite replacement of organic material (mostly along stylolites) and other unstable particles; and trace bituminous organic material concentrated along stylolites

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

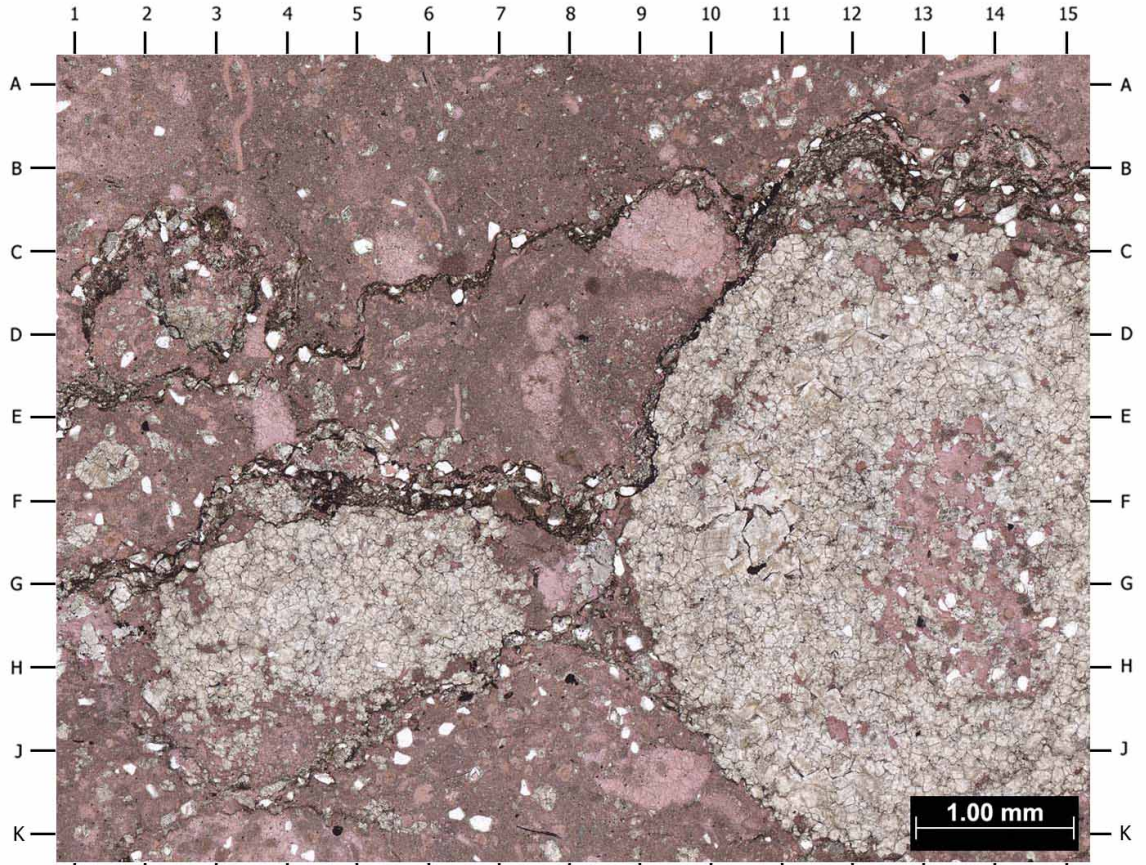
B) A dolomitized pisoidal grain (CK9.5-15) and organic-rich microstylolites (G1-F8.5, E1-B15) are documented within a slightly silty/sandy, dolomitic, partially recrystallized packstone to wackestone. Minor zones outside of this view exhibit peloidal grainstone texture. Other grains/allochems pictured include dolomitized (GH2.3-GH7) and calcareous intraclasts (BC9.5, JK9.5, D2, K2-4), quartz/feldspar grains (white; C5, JK6.8, J5.6), micritic peloids (A11, AB11.3), and trilobite fragments (AB3.2).

C) This photomicrograph provides a high magnification view of the area centered near EF5.5 in Photo B. Partially recrystallized micrite matrix (AB14, C12.5, DE1) supports undifferentiated, recrystallized, calcareous allochems (DE12.5, CD14, A2.5, BC10.5, DE3), quartz grains (FG13, AB5.2, G11), and feldspar grains (E9, E13.8). Common to abundant dolomite occurs as replacement of grains/allochems (K2-JK15, HJ2-5, CD6.5, EF13, EF12, C14.3, CD9) and replaces the matrix along organic-rich microstylolites (C2, AB5.9, EF6-8, EF9, GH12.9, H8-10.5).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

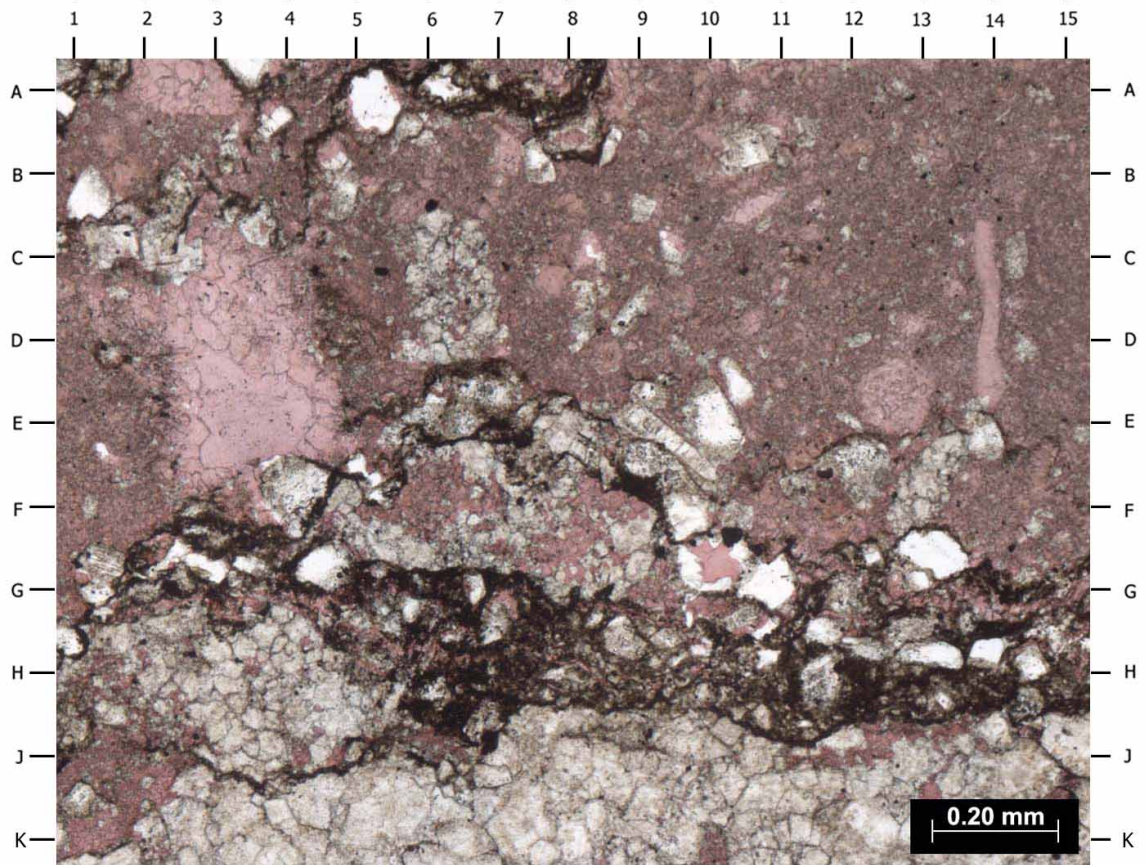
12156.00'
Plate 5

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13642.00 FEET
SAMPLE NUMBER: 44 CK-McCormick

PLATE 35A

T.O.C.: 0.17% (weight percent)

This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13642.00'
Plate 35

Weatherford LABORATORIES

A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13642.00 FEET
SAMPLE NUMBER: 44 CK-McCormick

PLATE 35

T.O.C.: 0.17% (weight percent)

Lithology: Limestone

Texture: Laminated; burrowed; thin carbonaceous/clay-rich laminations alternating with peloidal grainstone layers; wackestone/mudstone along thin laminations and within burrowed areas; rare thick carbonaceous/clay-rich laminations (or thin carbonaceous mudstone beds); trace bitumen-filled microfractures

Detrital Grains/Allochems: Abundant micritic peloids (medium silt sized); minor to common undifferentiated calcareous fossil fragments; minor silt-sized grains of plagioclase feldspar (5% by weight, XRD), quartz (4% by weight), and potassium feldspar (4% by weight); muscovite and biotite mica; trace trilobite carapace fragments; trace echinoderm fragments; and trace organic (plant/algal) fragments

Matrix: Minor to common partially recrystallized micrite concentrated along thin laminations and within burrowed areas; minor to common detrital clay occurring along lamination and thin beds (XRD clay distribution by weight: 5% illite/mica, 3% mixed-layer illite/smectite, 2% chlorite, and trace kaolinite) intermixed with low amounts of bituminous organic material

Cements and Replacement Minerals: Abundant interparticle microsparry calcite cement (occurring along peloidal grainstone layers); abundant calcite replacement/recrystallization of matrix and grains/allochems (73% total calcite by weight); minor dolomite (3% total dolomite by weight) occurring as replacement of matrix and unstable grains/allochems; minor pyrite (1% by weight) occurring as replacement of organic material and other unstable particles; and trace authigenic quartz and feldspar replacement of calcareous material

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

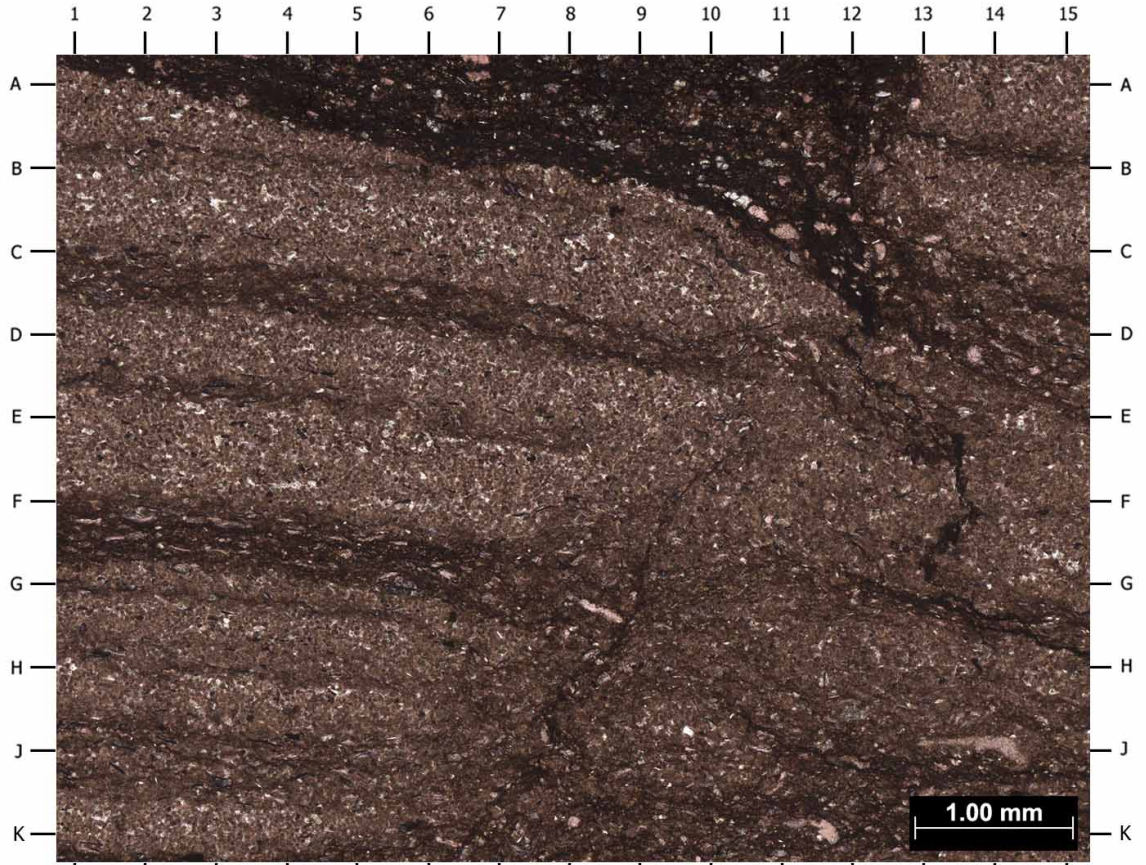
B) This photo documents the area top-right of center in Photo A. Interlaminated layers of peloidal grainstone (BC1-CD10, D1-E9.5, EF1-F7.5, GH1-6) and clay/organic-rich laminations (darker; C1-DE10, FG1-7), visible on the left side of the image, are disturbed due to burrowing at GH7 to CK14. The edge of a thick carbonaceous/clay-rich lamination is visible at A2-AC12. Bitumen occurs concentrated along irregular microfractures within the burrowed zone (DE12-G13, GH8.5-J8, GH12-15).

C) This photomicrograph provides a high magnification view of the area centered near E11.5 in Photo B and focuses on the edge of the burrowed area. Preserved portions of the peloidal grainstone layers contain medium silt-sized peloids cemented by microsparry calcite (AC1-6). The matrix in the disturbed areas contains partially recrystallized micrite mixed with low amounts of clay and organic material. Bitumen concentrated along possible irregular microfractures occur at B11 to G11-14 (black). Visible grains/allochems include peloids (B4.3, HJ6.6, A2), quartz/feldspar (BC5, JK8.3, A1, FG4), muscovite (CD14.7), and undifferentiated calcareous fossil fragments (DE14.2, D12.5, DE8.2, DE7). Minor dolomite replaces unstable particles (D4, CD11.4, E10).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

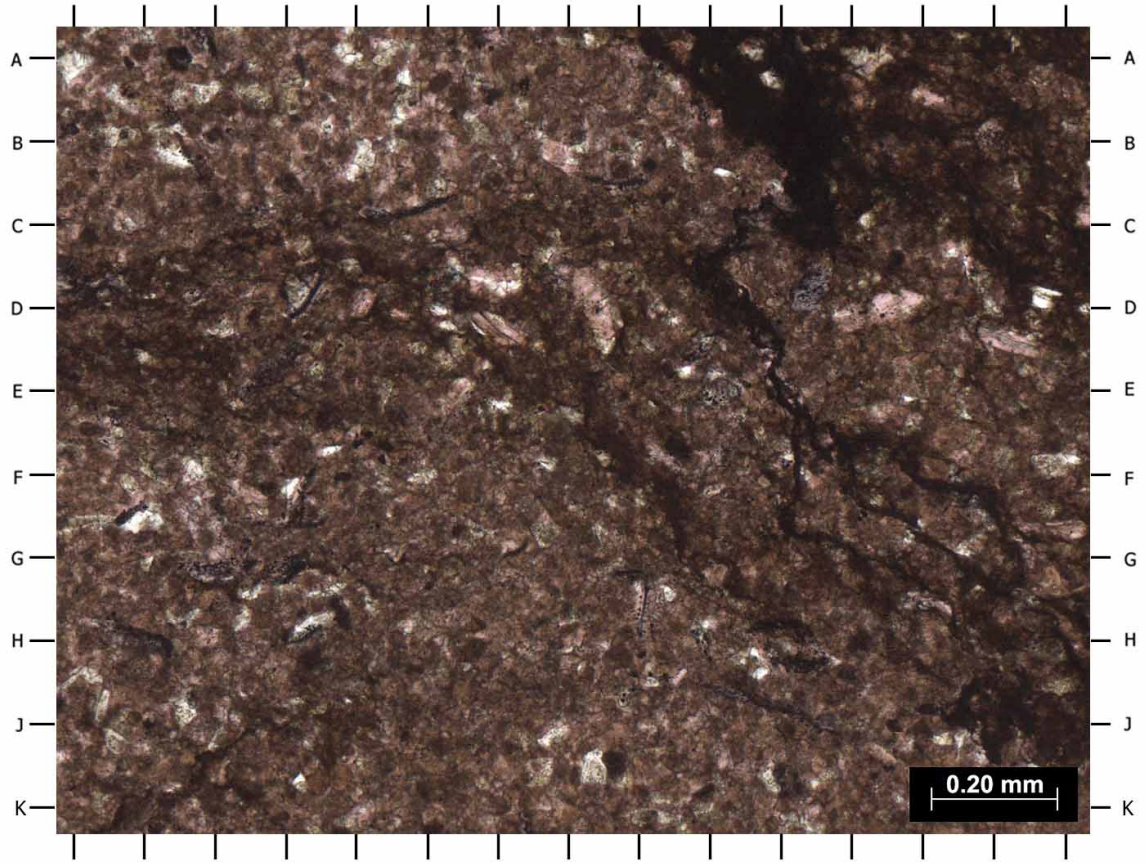
13642.00'
Plate 35

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13652.00 FEET
SAMPLE NUMBER: 45 CK-McCormick

PLATE 36A

T.O.C.: 0.33% (weight percent)

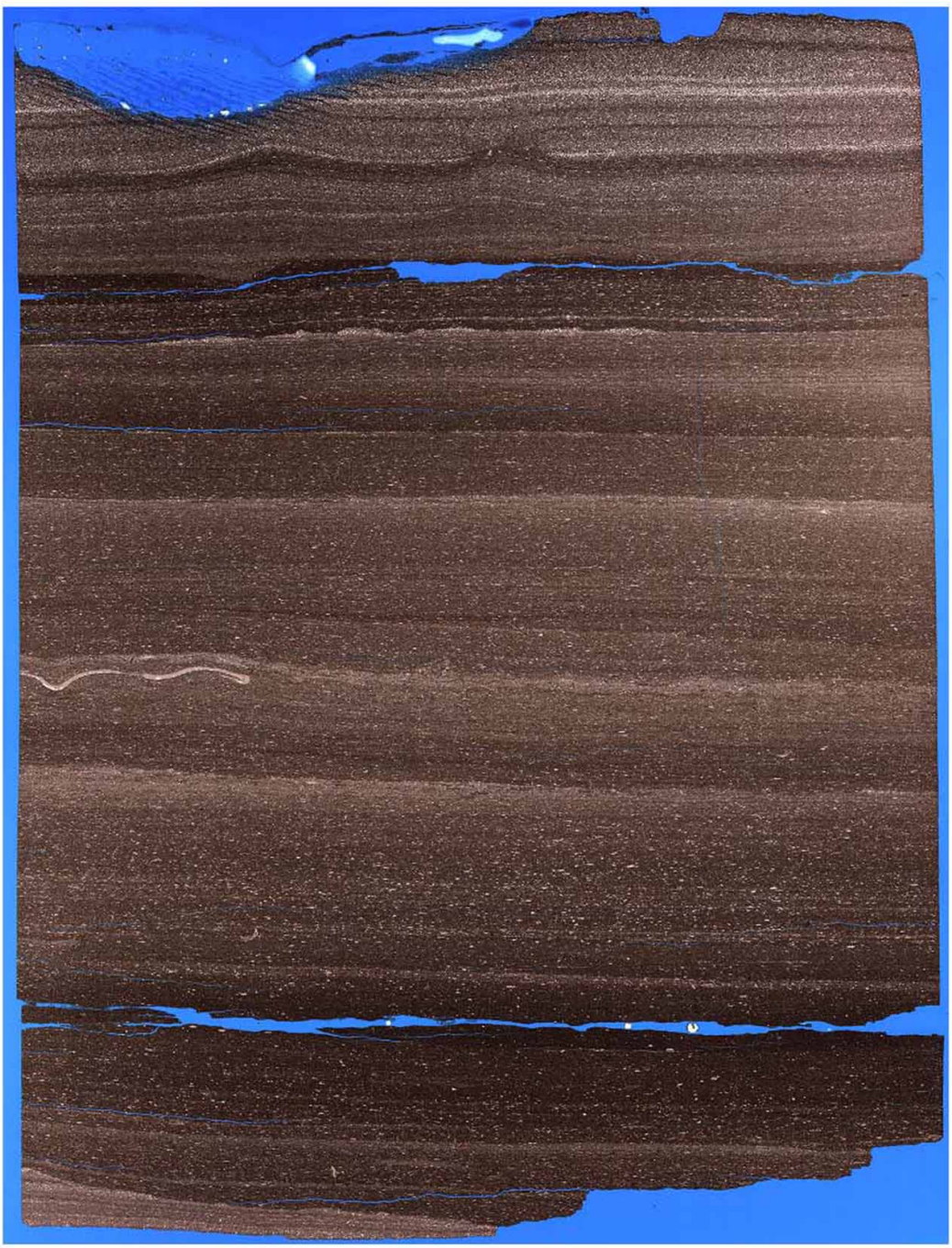
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13652.00'
Plate 36

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13652.00 FEET
SAMPLE NUMBER: 45 CK-McCormick

PLATE 36

T.O.C.: 0.33% (weight percent)

Lithology: Argillaceous limestone

Texture: Laminated wackestone to mudstone

Detrital Grains/Allochems: Common to abundant undifferentiated calcareous fossil fragments; minor trilobite carapace fragments; minor silt-sized grains of quartz (6% by weight), potassium feldspar (4% by weight), and plagioclase feldspar (4% by weight); minor micritic peloids; and rare organic (plant/algal) fragments

Matrix: Abundant partially recrystallized micrite intermixed with common amounts of detrital clay (XRD clay distribution by weight: 11% illite, 9% chlorite, 3% mixed layer illite/smectite, and trace kaolinite) and low amounts of bituminous organic material

Cements and Replacement Minerals: Very abundant calcite replacement/recrystallization of matrix and grains/allochems (57% total calcite by weight); minor dolomite (4% total dolomite/Fe-dolomite by weight) occurring as replacement of unstable grains/allochems and matrix material; minor pyrite (2% by weight) occurring as replacement of organic material and other unstable particles; trace authigenic quartz and feldspar replacement of calcareous fragments; and trace gypsum occurring along artificially induced horizontal fractures (likely formed recently after core extraction)

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

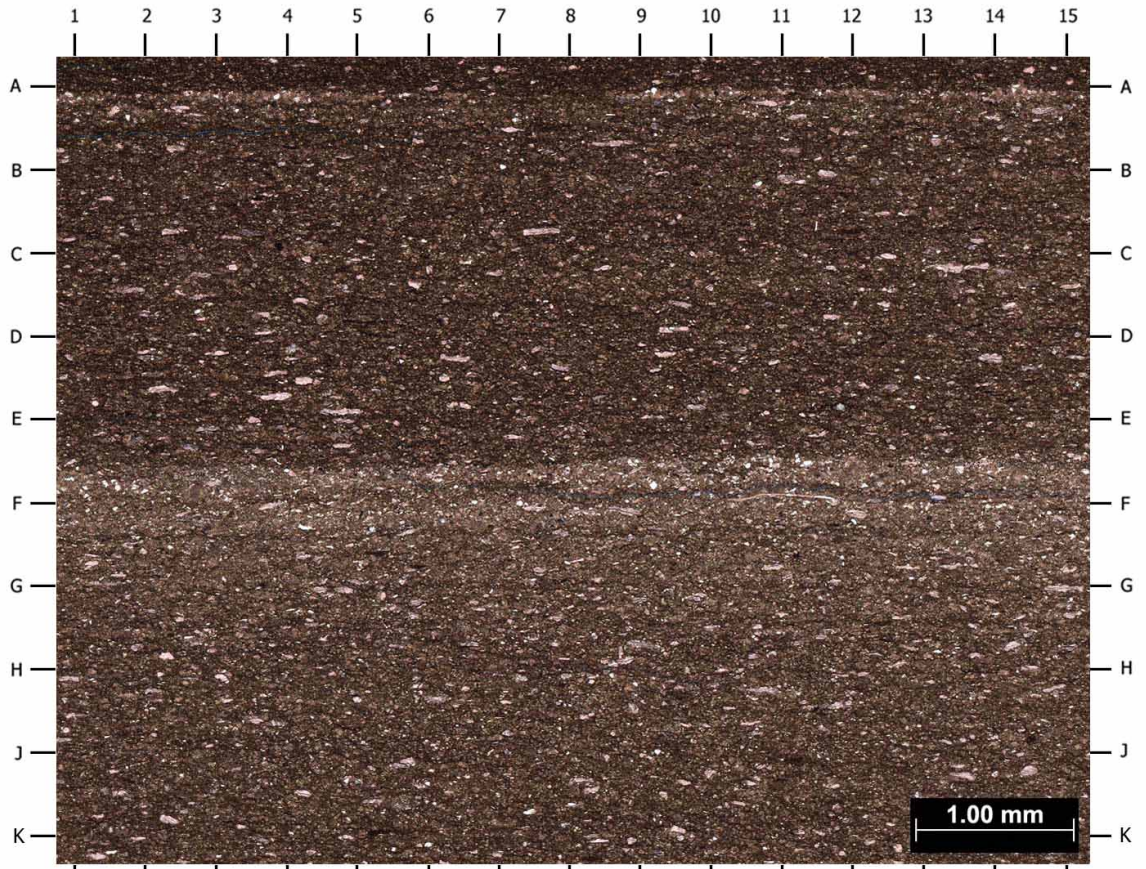
B) This argillaceous limestone exhibits a laminated wackestone to lime mudstone texture. Individual layers vary in clay and organic content with darker bands likely containing slightly higher concentrations of clay and/or organic material (AE1-15).

C) This photomicrograph provides a high magnification view of the area centered near AB12 in Photo B. Grains/allochems visible in this view include undifferentiated calcareous fossil fragments (AB2, A6, CD1.5, DE3, GH2.7, G5, EF11), silt-sized grains of quartz/feldspar (GH1, CD4, C4.5, E11, HJ10.6), muscovite mica (JK4.3, FG3.7), and altered organic plant/algal fragments (black; C13.5, DE10, EF13, H5.9). The matrix consists of abundant partially recrystallized micrite intermixed with common detrital clay and low amounts bituminous organic material.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

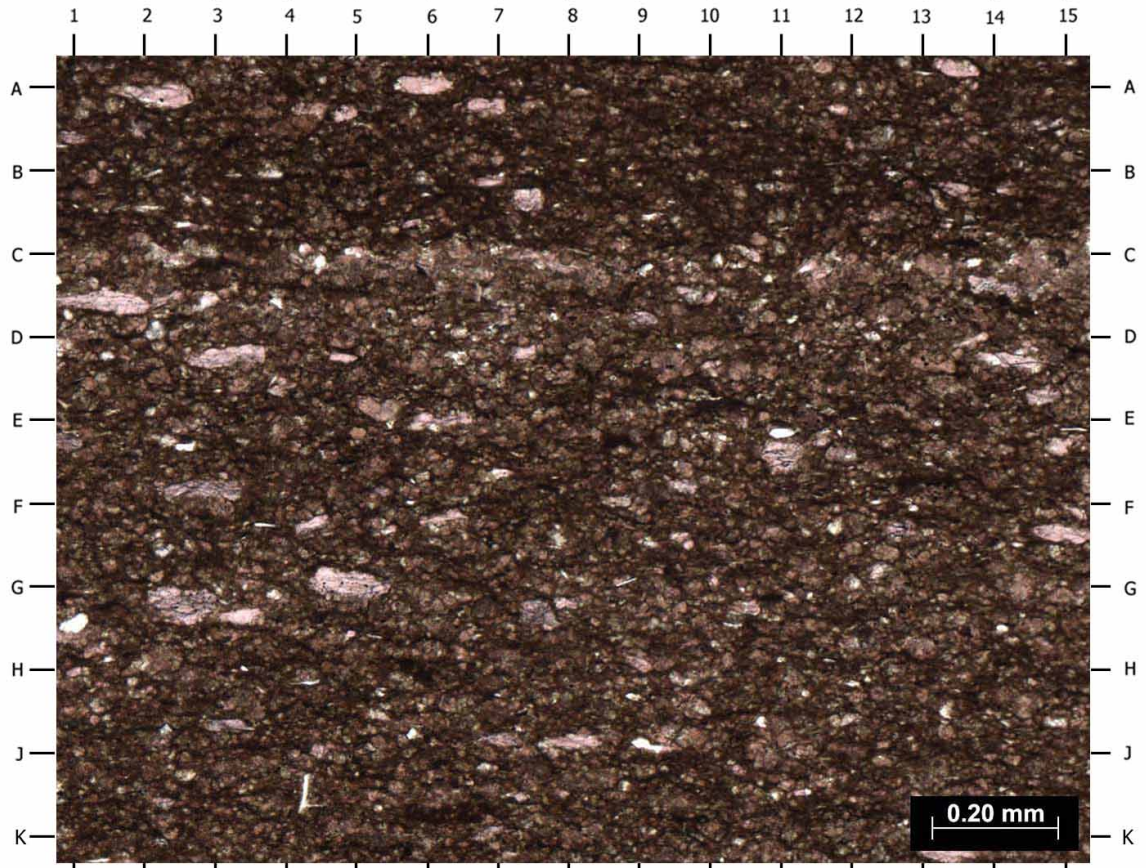
13652.00'
Plate 36

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13661.40 FEET
SAMPLE NUMBER: 46 CK-McCormick

PLATE 37A

T.O.C.: 0.17% (weight percent)

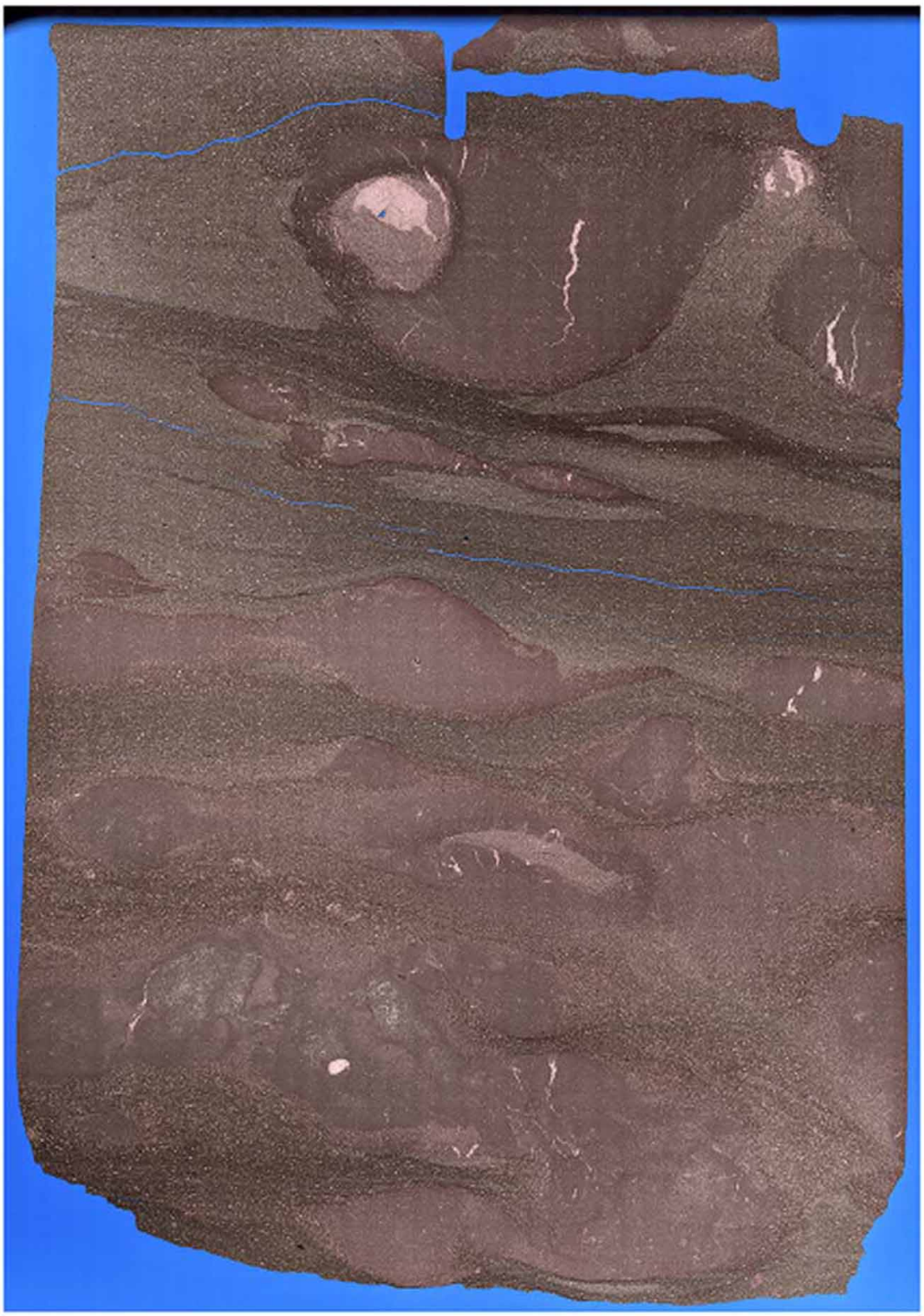
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13661.40'
Plate 37

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13661.40 FEET
SAMPLE NUMBER: 46 CK-McCormick

PLATE 37

T.O.C.: 0.17% (weight percent)

Lithology: Calcareous, dolomitic mudstone with interbedded limestone

Texture: Burrowed/bioturbated; laminated to interbedded; mixing soft sediments; calcareous/dolomitic mudstone interlayered with disturbed partially recrystallized lime mudstone layers and possible oversized limestone intraclasts; layers have been cross-cut and/or disturbed by extensive burrowing; localized calcite-cemented microfractures

Detrital Grains/Allochems: Common to abundant, partially recrystallized, undifferentiated, calcareous fossil fragments; possible over-sized limestone intraclasts; minor silt-sized grains of quartz (8% by weight), potassium feldspar (3% by weight), and plagioclase feldspar (2% by weight); trilobite carapace fragments; micritic peloids; organic plant/algal fragments; and trace muscovite mica

Matrix: Limestone layers are dominated by partially recrystallized micrite (31% total calcite, by weight) and mudstone layers are dominated by detrital clay (XRD clay distribution by weight: 19% illite/mica, 7% chlorite, 4% mixed-layer illite/smectite, and trace kaolinite)

Cements and Replacement Minerals: Common to abundant calcite recrystallization and/or replacement of matrix material and grains/allochems; common to abundant dolomite/Fe-dolomite (25% total dolomite by weight) occurring as replacement of matrix material and unstable grains/allochems and is most common within the mudstone layers; minor pyrite (1% by weight) occurring as replacement of organic material and other unstable particles; minor sparry calcite cement forming along localized fractures (within limestone patches); trace gypsum partially filling open, artificially induced, horizontal fractures (likely formed recently after core extraction)

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

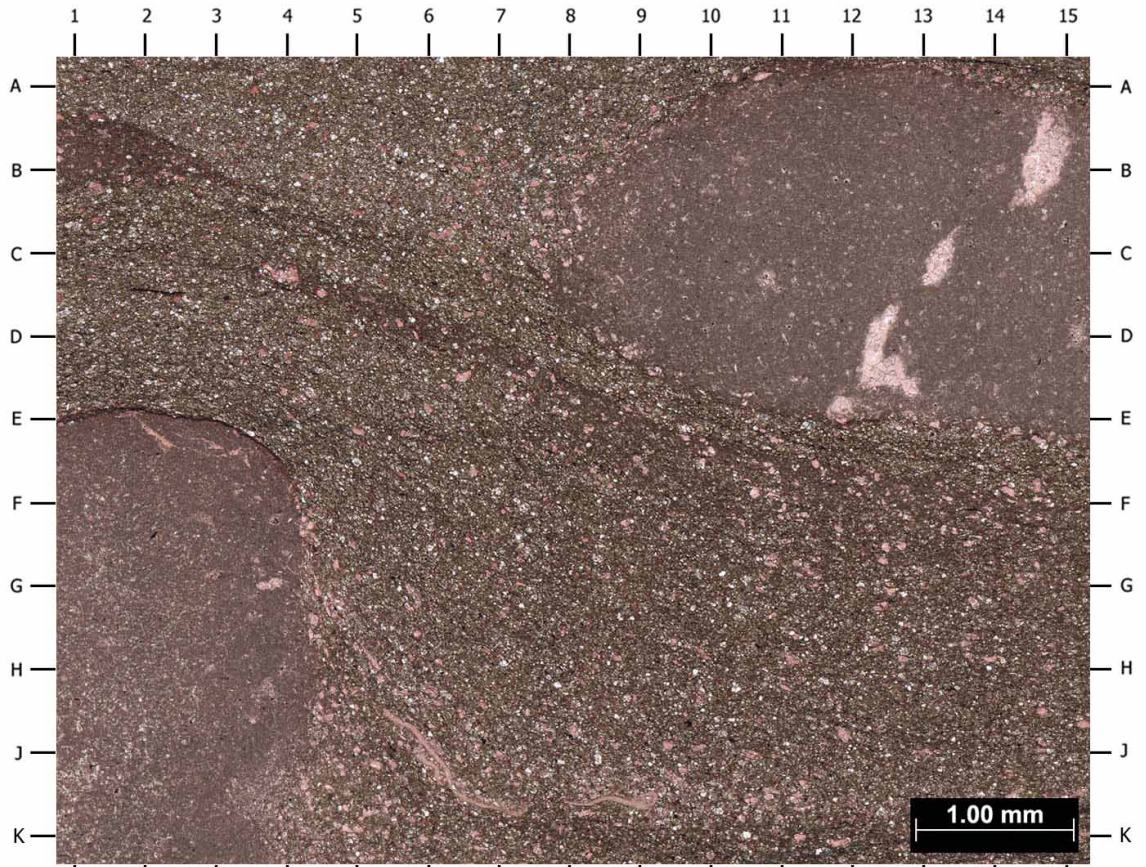
B) This photo documents calcareous, dolomitic mudstone (AE1-8, FK5-15) with chaotic patches of partially recrystallized micritic limestone (C8.5-AE15, EK1-4). A discontinuous, calcite-cemented fracture occurs at B14.7 to DE12. Probable trilobite fossil material is visible at J6 and JK9.

C) This photomicrograph provides a high magnification view of the area centered near DE10 in Photo B and shows a contact between calcareous/dolomitic mudstone (EK1-JK15) and limestone areas (AD1-AJ15). Grains/allochems visible in this view include undifferentiated, recrystallized calcareous fossil fragments (E13.3, GH11, BC4, AB1, B12.4, JK7.9), and silt-sized quartz/feldspar grains (GH4.9, JK11.8). In the mudstone portion, common to abundant dolomite occurs as replacement of matrix material and other unstable particles (GH6, J12.2, JK14.6).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

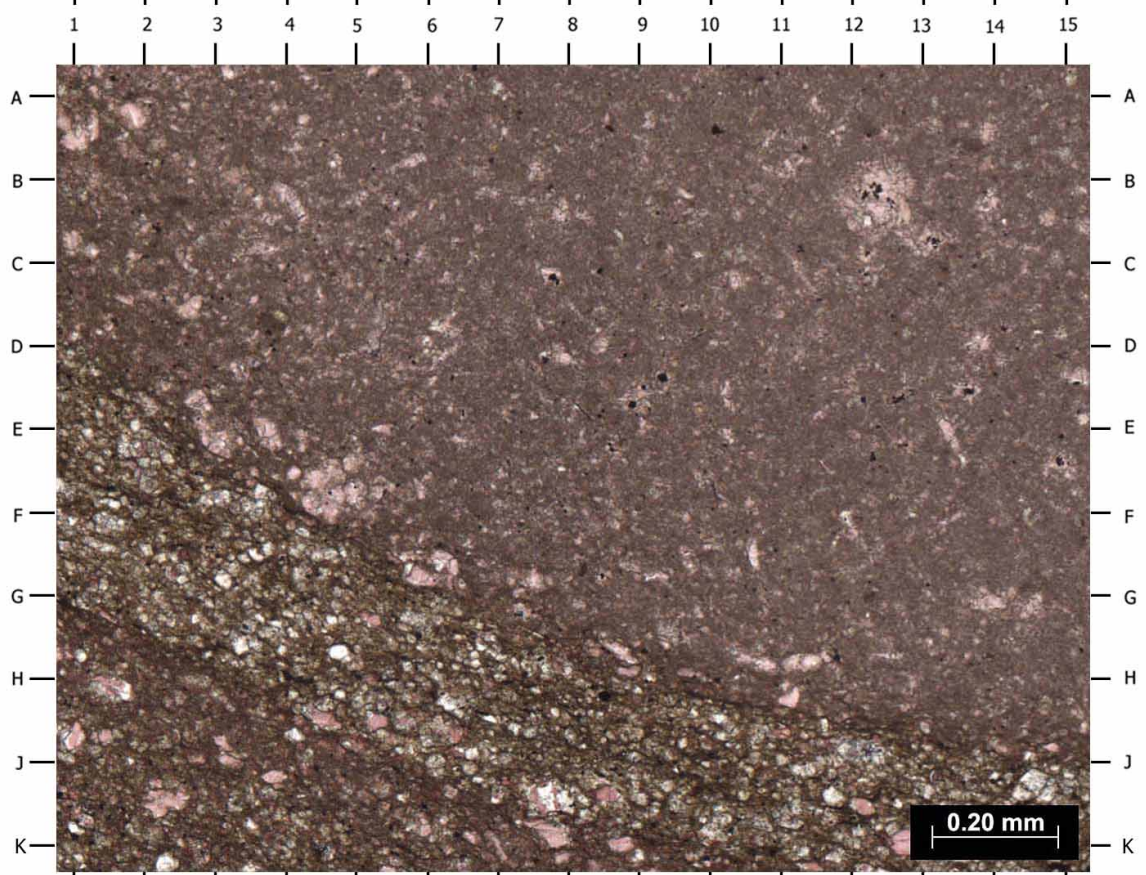
13661.40'
Plate 37

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13661.50 FEET
SAMPLE NUMBER: 47 CK-McCormick

PLATE 38A

T.O.C.: 0.70% (weight percent)

This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13661.50'
Plate 38

Weatherford LABORATORIES

A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13661.50 FEET
SAMPLE NUMBER: 47 CK-McCormick

PLATE 38

T.O.C.: 0.70% (weight percent)

Lithology: Argillaceous limestone (bottom 1/2 of section) transitioning into very calcareous mudstone (middle of section) and to slightly calcareous mudstone (near top of section)

Texture: Laminated; slightly burrowed; parallel laminations with varying concentrations of calcareous/fossiliferous material and silt; horizontal calcite-cemented fractures and open horizontal fractures partially cemented by gypsum

Detrital Grains/Allochems: Abundant partially recrystallized, undifferentiated calcareous fossil fragments; minor silt-sized grains of quartz (6% by weight), potassium feldspar (5% by weight), and plagioclase feldspar (4% by weight); micritic peloids; altered organic plant/algal fragments; muscovite mica; and possible agglutinated foraminifera

Matrix: Abundant partially recrystallized micrite (49% total calcite, by weight; dominant in the limestone portion) intermixed with abundant detrital clay (dominant in the mudstone portion; XRD clay distribution by weight: 20% illite/mica, 5% mixed-layer illite/smectite, 5% chlorite, and trace kaolinite) and trace amounts of bituminous organic material

Cements and Replacement Minerals: Abundant calcite/Fe-calcite replacement/recrystallization of allochems and matrix material; minor dolomite/Fe-dolomite (5% total dolomite, by weight) occurring as replacement of unstable grains/allochems and matrix material (most common within the mudstone portion); minor pyrite (1% by weight) occurring as a replacement of organic material and other unstable particles; trace sparry calcite cement occluding irregular horizontal fractures (natural fractures); trace gypsum cement partially filling open horizontal fractures (likely artificially induced; filled with blue epoxy)

Pore System: No naturally occurring porosity was observed using standard petrographic techniques; open horizontal fractures are observed partially filled with gypsum, but are interpreted to be artificially induced (gypsum crystals have been observed precipitating of the surfaces of core in storage, so the presence of gypsum in these fractures is not evidence that these are natural in occurrence).

Magnification: B: 50X C: 200X

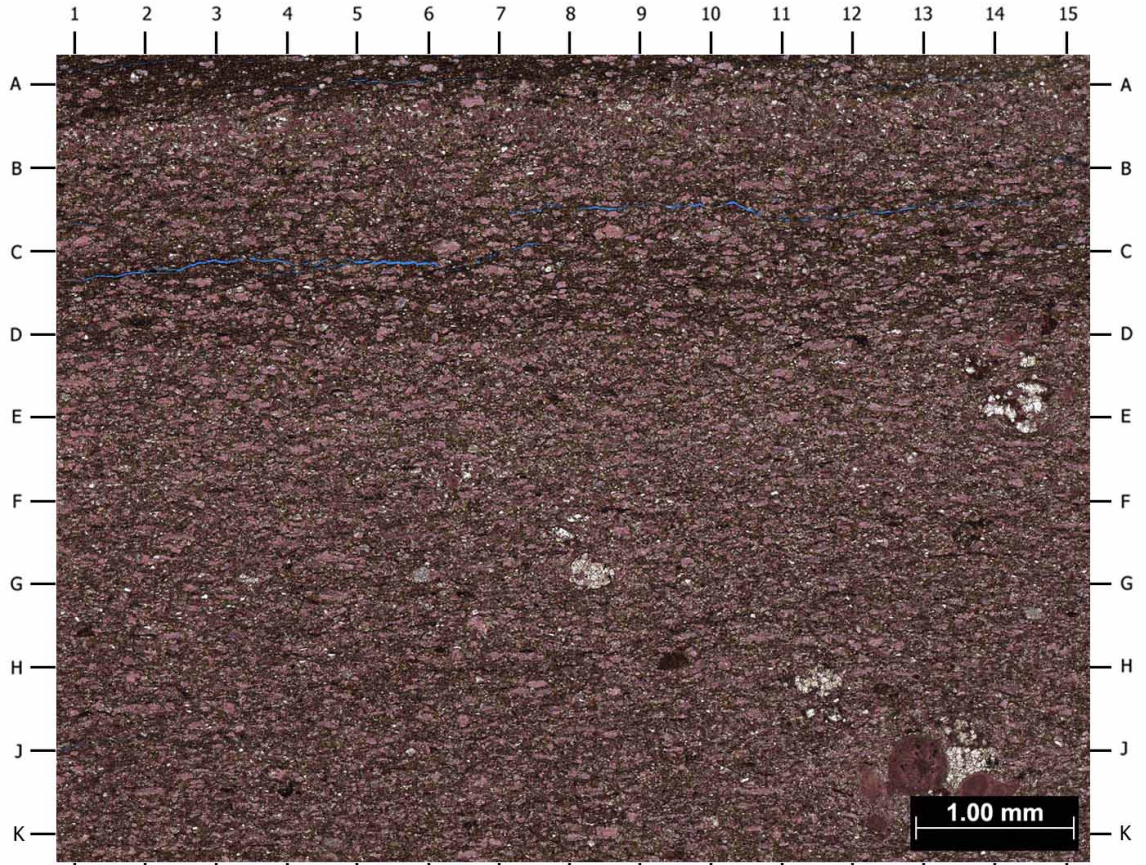
B) This image was taken from the top part of the bottom half of Photo A, within a region that is predominantly argillaceous limestone (DK1-15). Clay-rich laminations occur at CD1-15 and A1-15. Probable agglutinated foraminifera occur at G8, H11.5, and E14.3; and an undifferentiated calcareous fossil fragment occurs at J13. The blue epoxy-filled microfracture at CD1 to BC14 is likely artificially induced.

C) This photomicrograph provides a high magnification view of the area centered near B3 in Photo B. Visible grains/allochems include undifferentiated calcareous fossil fragments (BC2.5, AB9, BC12, K2, HJ13.5), silt-sized quartz/feldspar grains (DE5.5, D13, EF14.9), altered organic plant/algal fragments (FG13-14, GH9, FG4.7, DE6), and muscovite mica (AB2.6). Darker areas of matrix likely contain low amounts of bituminous organic material intermixed within the calcareous/clay-rich matrix (AC1-15).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

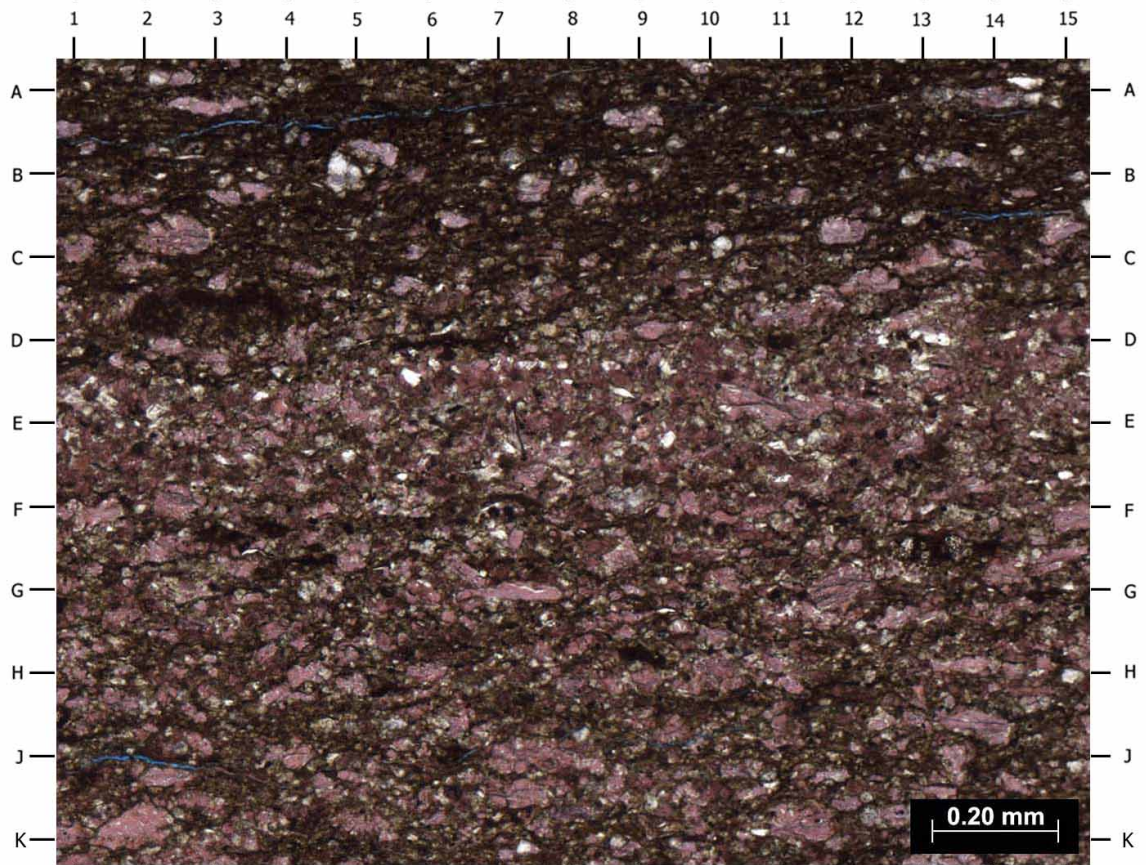
13661.50'
Plate 38

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13662.00 FEET
SAMPLE NUMBER: 48 CK-McCormick

PLATE 39A

T.O.C.: 0.23% (weight percent)

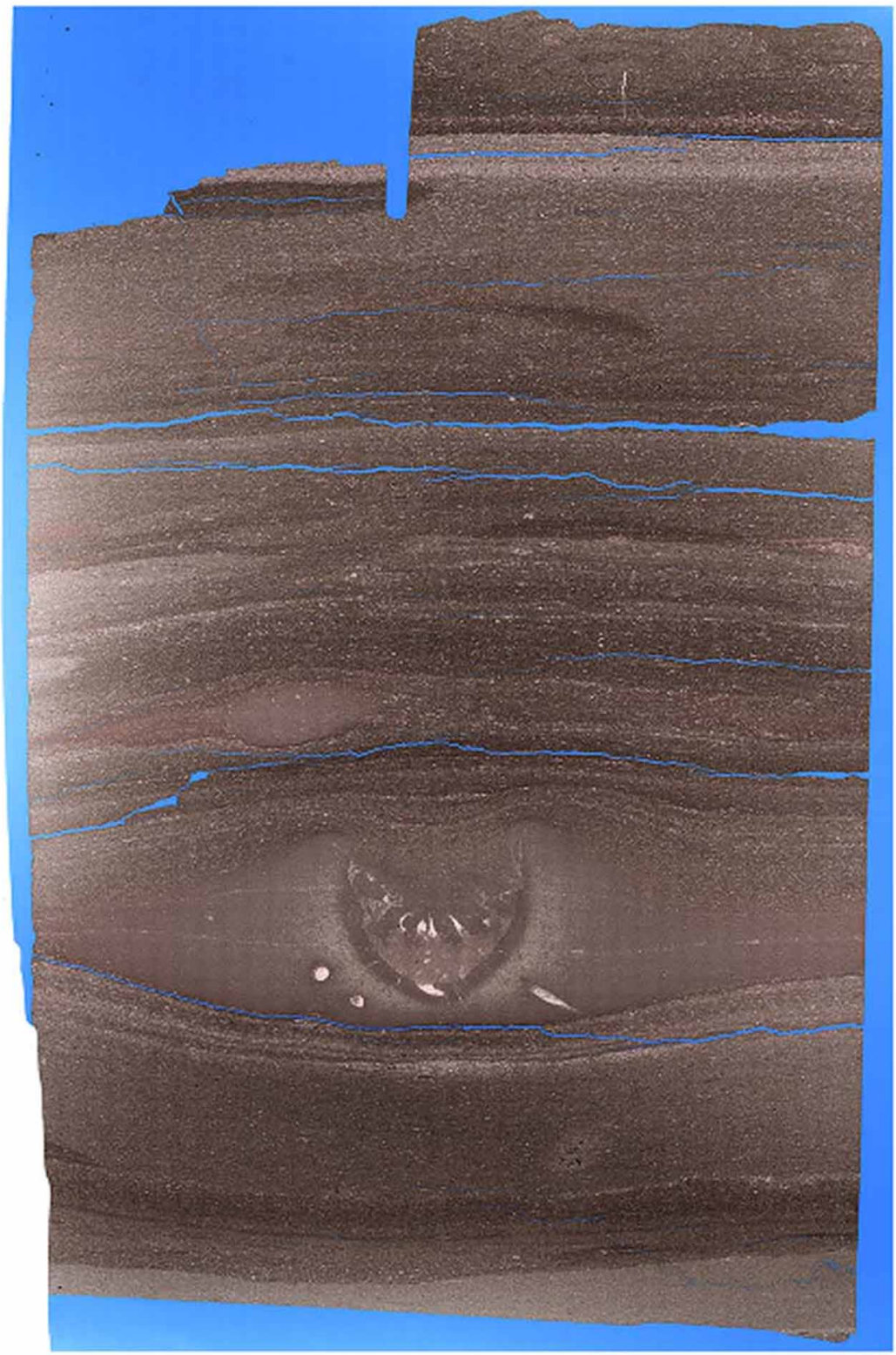
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13662.00'
Plate 39

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13662.00 FEET
SAMPLE NUMBER: 48 CK-McCormick

PLATE 39

T.O.C.: 0.23% (weight percent)

Lithology: Slightly silty, slightly dolomitic, argillaceous limestone to slightly silty, calcareous, dolomitic mudstone

Texture: Laminated; slightly burrowed; lime mudstone (micrite) layers and dolomitic/clay-rich layers; calcareous/fossiliferous laminations

Detrital Grains/Allochems: Common to abundant undifferentiated calcareous fossil fragments; minor to common silt-sized quartz grains (10% by weight, total quartz); minor silt-sized grains of plagioclase feldspar (3% by weight) and potassium feldspar (1% by weight); possible agglutinated foraminifera; possible fucoid algal fragment (associated with localized thickening of micritic layer); trace trilobite carapace fragments; and trace micritic peloids

Matrix: Abundant detrital clay (XRD clay distribution by weight: 17% illite/mica, 5% chlorite, 4% mixed-layer illite/smectite, and trace kaolinite) intermixed with common to abundant partially recrystallized and/or dolomitized micrite and trace amounts of bituminous organic material; micrite is locally very abundant along minor layers

Cements and Replacement Minerals: Abundant calcite replacement/recrystallization of matrix and grains/allochems (43% total calcite, by weight; occurs throughout the sample, but also locally concentrated along laminations); common (16% by weight) to abundant (visual, by volume) dolomite replacement of the matrix and unstable grains/allochems; minor pyrite (1% by weight) occurring as replacement of organic material and other unstable particles; localized calcite-filled fractures associated with soft sediment deformation within a large algal fragment; trace gypsum partially filling open artificially induced fractures

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

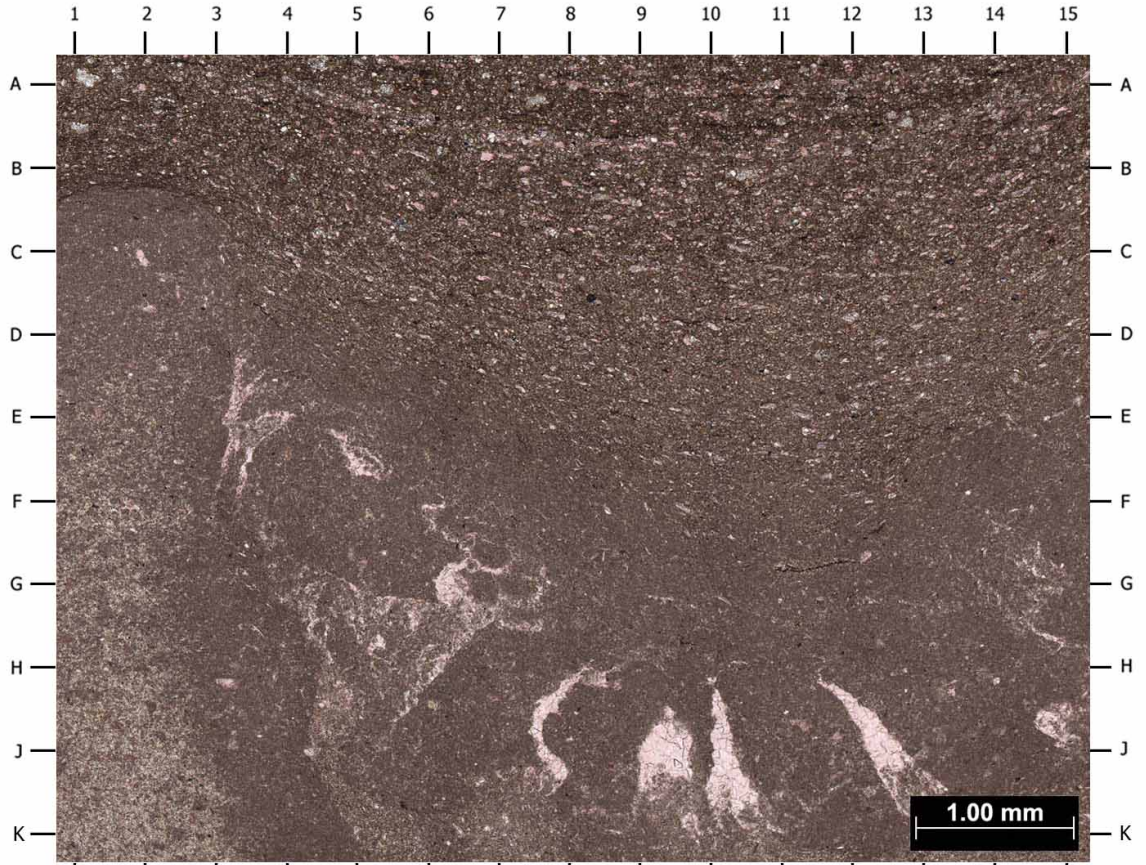
B) The top-left portion of a possible fucoid algal fragment (EK3-15) is documented in this photomicrograph. This possible algal fragment is featured prominently in the center of the lower half of Photo A within a thickened layer of micritic lime mud (possible algal mat). This potential algal fragment, with a micritic wall (E3 to K4), exhibits the appearance of an open bowl with marine sediment deposited inside; localized calcite-filled microfractures (E3, GH6, J7.7, J9.5, J10.4, HJ12.3) associated with probable soft-sediment collapse are featured inside the “bowl”. Dolomitization of the micritic matrix forms a halo around the outside of the bowl-shaped algal structure (F1-2 to K1-3).

C) This photomicrograph provides a high magnification view of the area centered near C5 in Photo B. The matrix material represented from AB5 to AD15 best represents what is dominant throughout most of this slightly silty, slightly dolomitic, argillaceous limestone to slightly silty, calcareous, dolomitic mudstone. Partially dolomitized and recrystallized micrite is intermixed with detrital clay and low amounts of bituminous organic material. Common to abundant undifferentiated calcareous fossil fragments occur scattered throughout the sample (AB12.5, DE9.9, D5.5).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

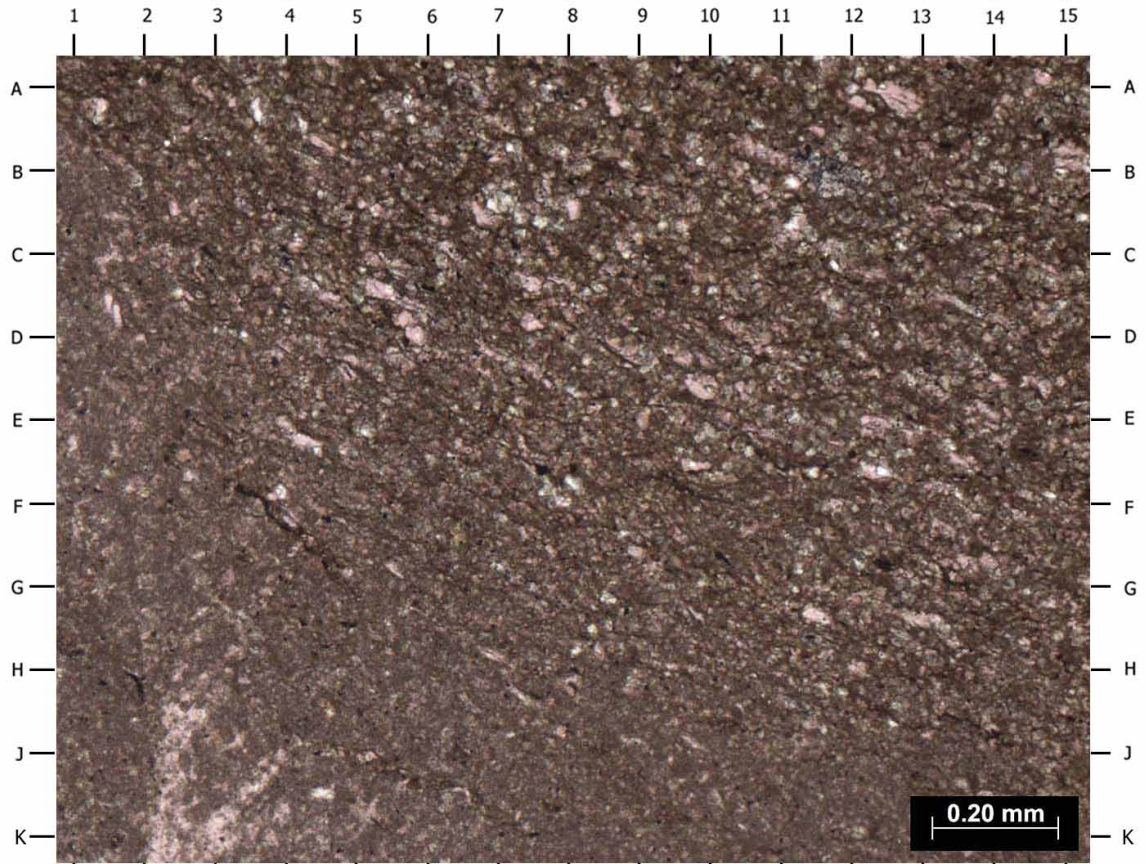
13662.00'
Plate 39

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13675.00 FEET
SAMPLE NUMBER: 49 CK-McCormick

PLATE 40A

T.O.C.: 0.10% (weight percent)

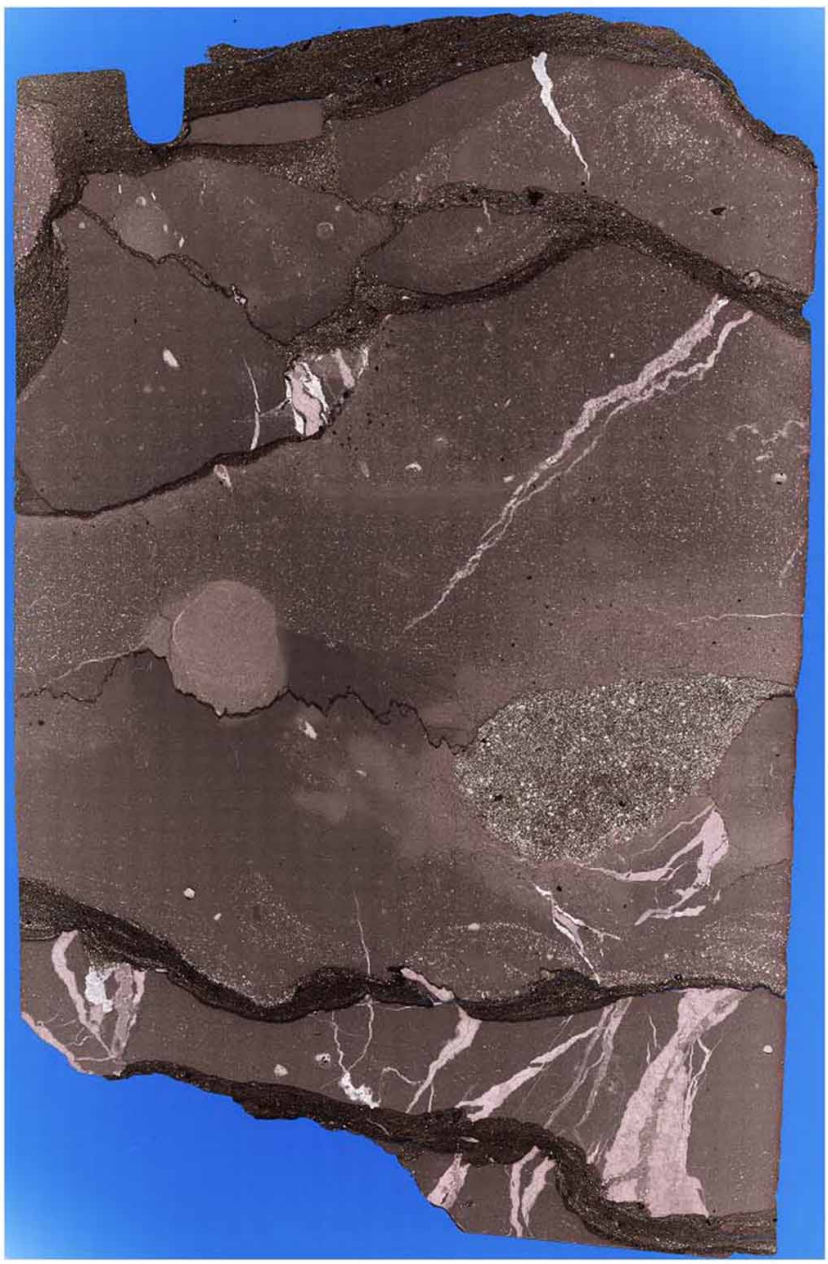
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13675.00'
Plate 40

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13675.00 FEET
SAMPLE NUMBER: 49 CK-McCormick

PLATE 40

T.O.C.: 0.10% (weight percent)

Lithology: Micritic limestone (dominant); dolomitic mudstone (minor lithology at top of section and within fractures/stylolites)

Texture: Highly fractured, bioturbated lime mudstone to wackestone (dominant) in contact with dolomitic mudstone (top of section); calcite-cemented fractures; organic/clay-rich stylolites; large fractures filled with dolomitic mudstone

Detrital Grains/Allochems: Minor silt-sized grains of quartz (9% by weight), potassium feldspar (5% by weight), and plagioclase feldspar (4% by weight); micritic peloids; muscovite mica; altered organic plant/algal fragments; and trilobite carapace fragments

Matrix: Very abundant micrite (80% total calcite by weight); minor to common detrital clay within dolomitic mudstone concentrated along fractures, stylolites, and at top of section (XRD clay distribution by weight: 5% illite/mica, 3% mixed-layer illite/smectite, 2% chlorite, and trace kaolinite); and trace amounts of bituminous organic material occur within the dolomitic mudstone areas

Cements and Replacement Minerals: Common to abundant calcite recrystallization/replacement of micritic matric and grains/allochems; common sparry calcite cement filling fractures; minor pyrite (1% by weight) occurring as replacement of organic material and other unstable particles; minor to visually common dolomite occurring as matrix replacement within mudstone lithology along stylolites and fractures (7% by weight, total dolomite/Fe-dolomite); rare sparry dolomite cement filling fractures; trace gypsum precipitating along partially open (blue epoxy filled) microfractures (likely artificially induced); and trace amounts of bituminous organic material occur concentrated along stylolites

Pore System: No naturally occurring pores are visible using standard petrographic techniques

Magnification: B: 50X C: 200X

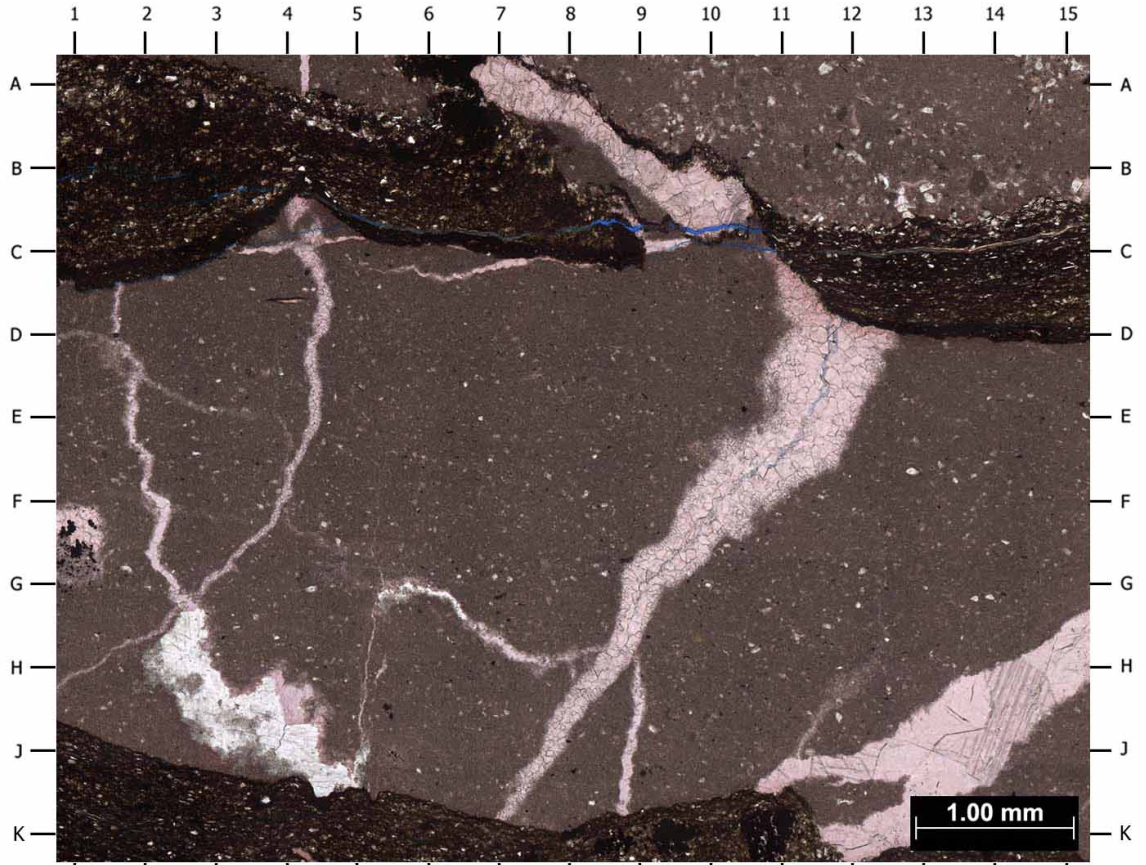
B) The dominant bioturbated micritic lime mudstone to wackestone (DH1-DK15, A4-AB15) contains numerous calcite-cemented fractures (stained red; A7-BC10, D11.5-JK7, K12-H15). Dolomite cement occludes a fracture at H2.5-JK4.5. Dolomitic mudstone occurs concentrated within stylolites and fractures (AC1-CD15, JK1-K11.5).

C) This photomicrograph provides a high magnification view of the area centered near J10 in Photo B. Minor silt-sized grains of quartz and feldspar occur scattered throughout the limestone and mudstone lithologies (most white; AB15, CD6.5, HJ3.7, K6.5). Pyrite (black) replaces unstable particles at JK2, JK5.5, and HK10-12. Small dolomite crystals are prevalent throughout the clay-rich matrix areas (JK8, H8.4).

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

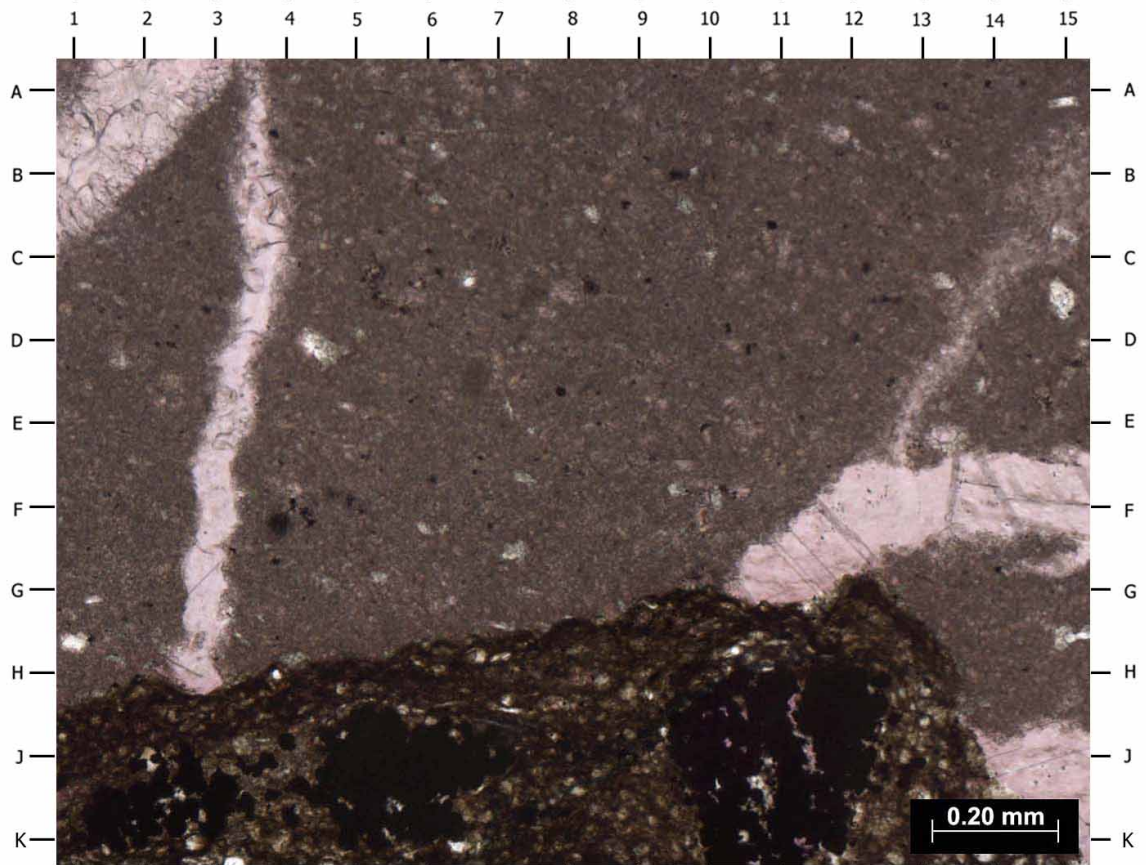
13675.00'
Plate 40

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13688.00 FEET
SAMPLE NUMBER: 50 CK-McCormick

PLATE 41A

T.O.C.: 0.14% (weight percent)

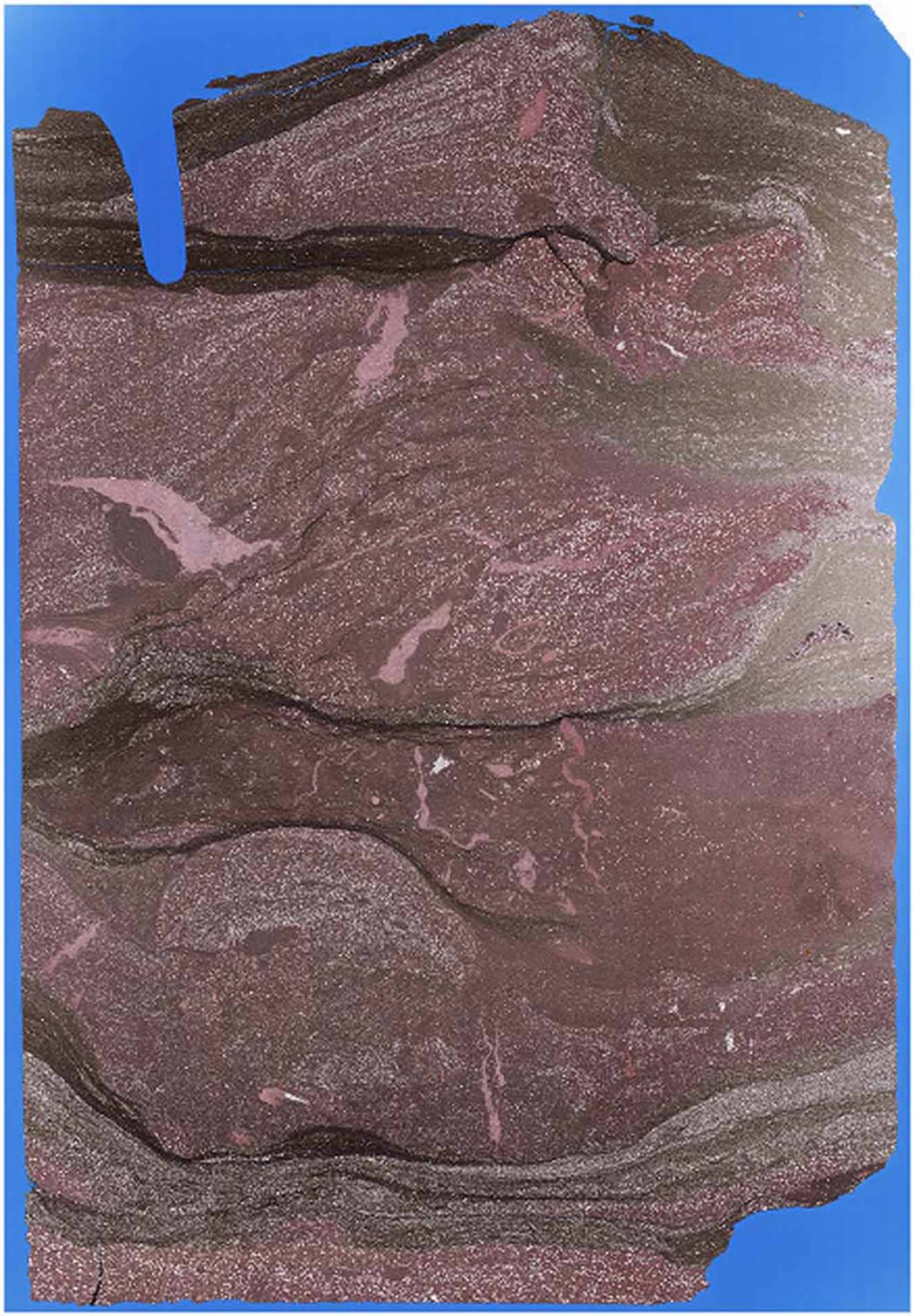
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13688.00'
Plate 41

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13688.00 FEET
SAMPLE NUMBER: 50 CK-McCormick

PLATE 41

T.O.C.: 0.14% (weight percent)

Lithology: Slightly dolomitic, silty limestone; slightly calcareous, silty, dolomitic mudstone

Texture: Burrowed; soft sediment deformation; possible cross-laminations and flaser bedding; partially recrystallized, silty wackestone with patchy silty grainstone/packstone thinly interlaminated/interbedded with slightly calcareous, silty, dolomitic mudstone; mixing marine and terrigenous soft sediments; localized, irregular, calcite-cemented fractures limited to limestone layers, possibly caused by deformation of limestone fabric after initial partial lithification; rare organic-rich microstylolites

Detrital Grains/Allochems: Common to abundant calcareous/micritic peloids (partially recrystallized); minor to common silt-sized quartz grains (9% by weight, total quartz, XRD); minor silt-sized grains of plagioclase feldspar (6% by weight) and potassium feldspar (5% by weight); minor muscovite mica; rare altered organic plant/algal fragments; trace trilobite carapace fragments; trace echinoderm fragments

Matrix: Abundant partially recrystallized micrite (within limestone areas) and common detrital clay (within mudstone areas; XRD clay distribution by weight: 10% illite/mica, 7% chlorite, 4% mixed-layer illite/smectite, and trace kaolinite)

Cements and Replacement Minerals: Abundant calcite replacement/recrystallization of matrix and grains/allochems (47% total calcite, by weight); common dolomite/Fe-dolomite occurring as replacement of matrix material and unstable grains/allochems (most common within mudstone areas; 11% total dolomite, by weight); minor to locally common interparticle microspar calcite cement within grainstone areas; minor authigenic quartz and feldspar overgrowths on detrital grains; minor pyrite (1% by weight) occurring as a replacement of organic material and other unstable particles; rare to minor sparry calcite cement with trace dolomite cement occluding localized fractures; and trace bitumen concentrated along microstylolites

Pore System: No visible naturally occurring porosity using standard petrographic techniques

Magnification: B: 50X C: 200X

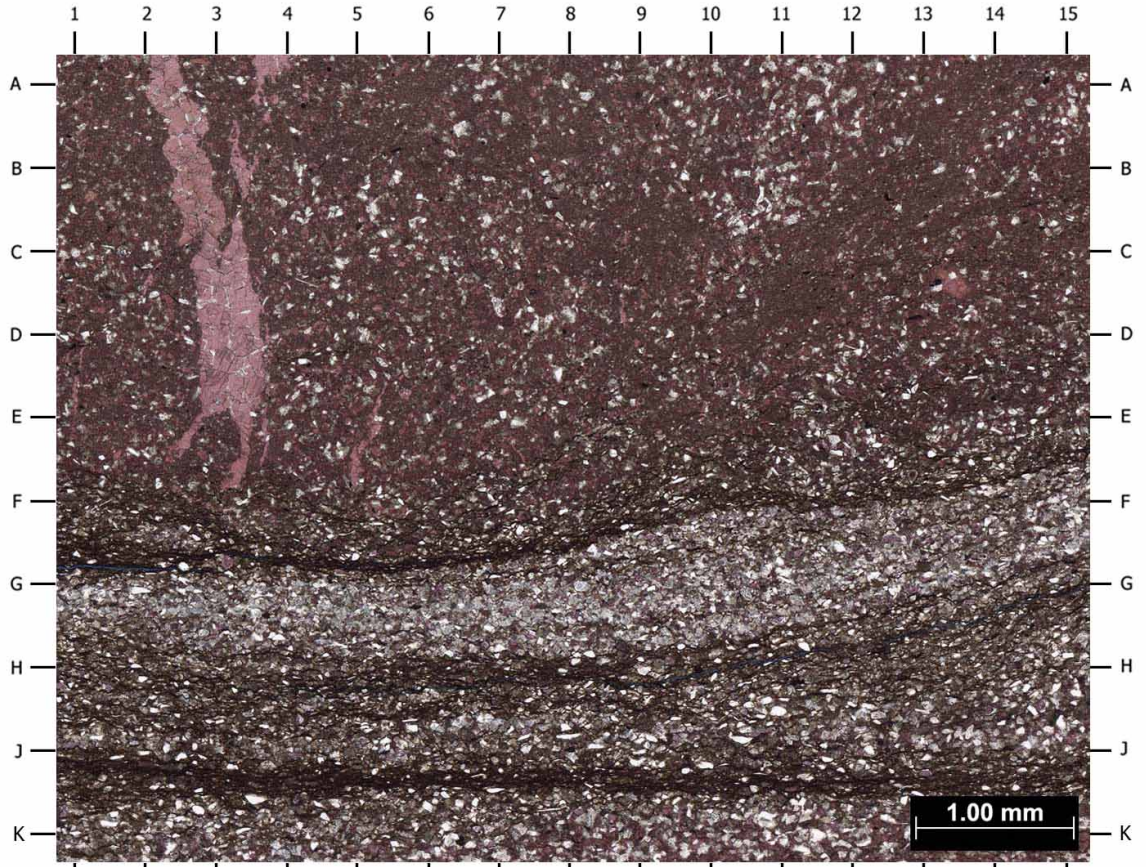
B) This photo documents an area taken from the near the bottom of the section in the macro Photo A. The upper portion of this view represents slightly dolomitic, silty limestone with a burrowed wackestone to packstone texture. The lower portion of the photo documents a layer of slightly calcareous, silty, dolomitic mudstone. The calcite-cemented fractures, such as seen at A2 to EF3, are interpreted to be a result of deformation of the limestone sediment after initial partial lithification had taken place.

C) This photomicrograph provides a high magnification view of the area centered near F6 in Photo B. Grains/allochems visible in this view include silt-sized grains of quartz (FG12.5, G7, BC2.3) and feldspar (DE10.2, J13.4, AB12.5), recrystallized calcareous fossil fragments (B10, C7, BC12.5), and muscovite mica (FG2.7, F4.3, FG13). A smaller calcite-cemented microfracture occurs at D3 to A4 (stained red). Organic material and detrital clay occur concentrated along a thin lamination at H1 to G15. The layer represented at JK1-15 contains higher concentrations of dolomite (K1.5, JK10, J14.2) replacing the matrix and unstable grains/allochems; this same layer is pictured at GH1-F15 in Photo B.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

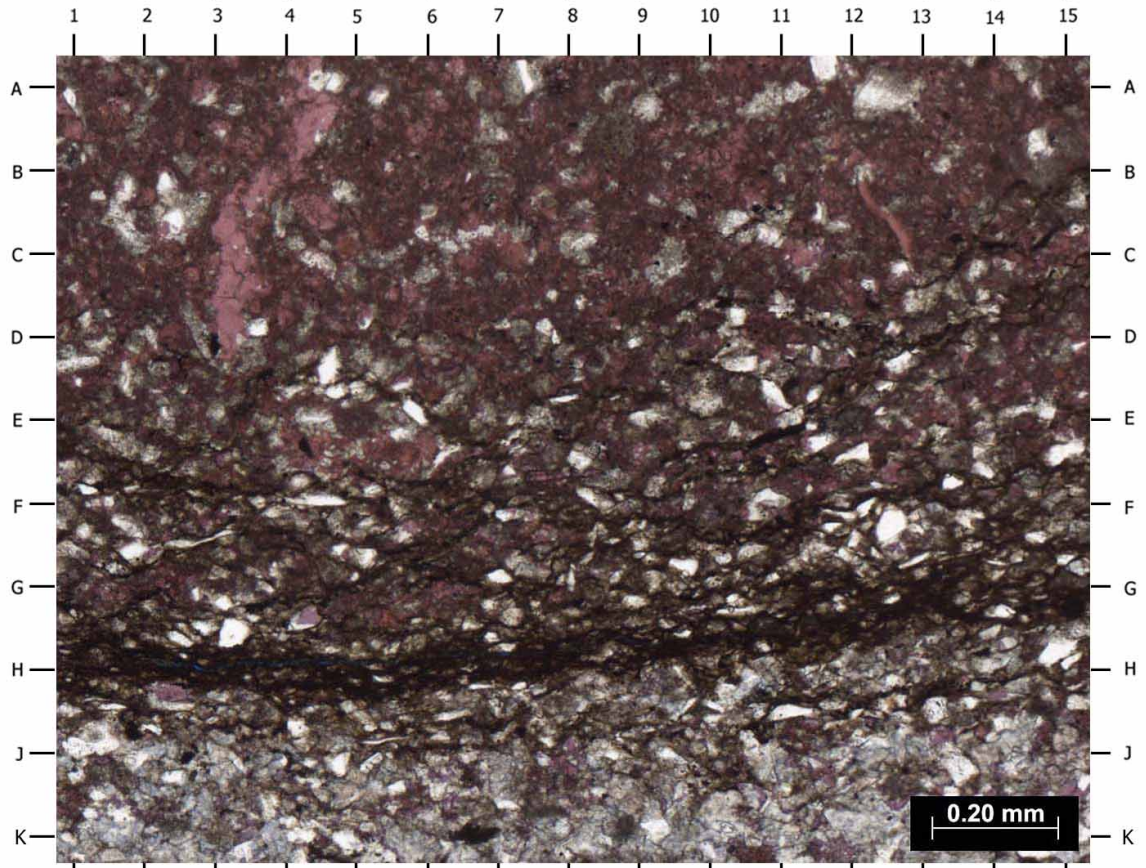
13688.00'
Plate 41

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 13697.50 FEET
SAMPLE NUMBER: 51 CK-McCormick

PLATE 42A

T.O.C.: 0.38% (weight percent)

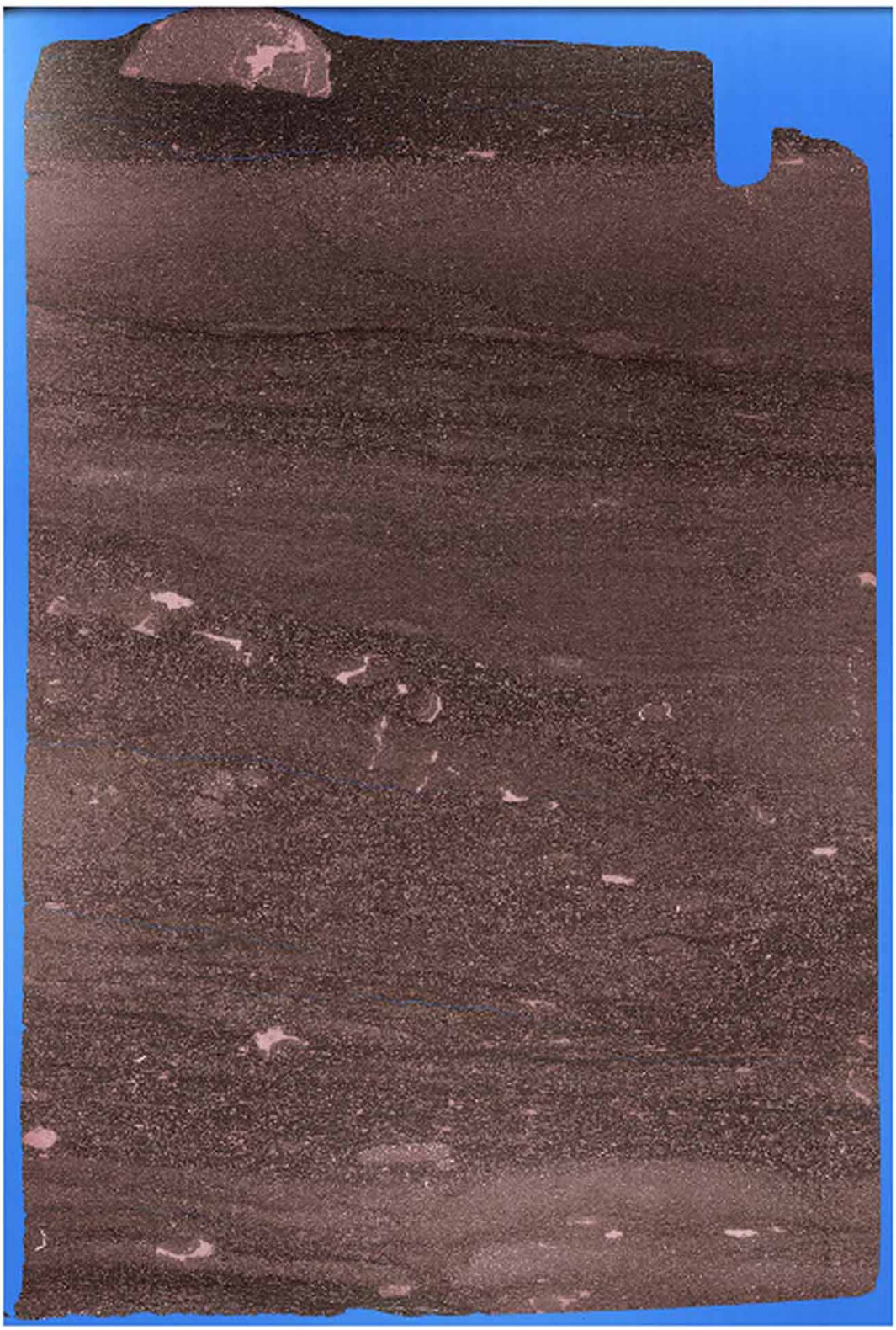
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

13697.50'
Plate 42

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 13697.50 FEET
SAMPLE NUMBER: 51 CK-McCormick

PLATE 42

T.O.C.: 0.38% (weight percent)

Lithology: Slightly silty, very argillaceous limestone (marl)

Texture: Laminated; burrowed; alternating clay rich and calcareous laminations; limy laminations contain patchy areas of grainstone to packstone and argillaceous wackestone

Detrital Grains/Allochems: Abundant undifferentiated/recrystallized calcareous fossil fragments; minor to common silt-sized quartz grains (9% by weight, total quartz); minor silt-sized grains of potassium feldspar (5% by weight) and plagioclase feldspar (4% by weight); minor muscovite mica and biotite; rare altered organic plant/algal fragments; trace trilobite carapace fragments; rare intraclasts with one pebble-sized intraclast (9mm diameter in top-left corner of section in Photo A; this intraclast exhibits a lime grainstone to recrystallized packstone texture with intraparticle calcite-cemented fractures)

Matrix: Abundant partially recrystallized micrite and abundant detrital clay (XRD clay distribution by weight: 17% illite/mica, 8% chlorite, 5% mixed-layer illite/smectite, and trace kaolinite) each locally concentrated along laminations; trace amounts of bituminous organic material are also present within the matrix

Cements and Replacement Minerals: Abundant calcite replacement/recrystallization of matrix and grains/allochems; minor dolomite/Fe-dolomite (7% by weight, total dolomite) occurring as a replacement of the matrix and unstable grains/allochems; minor pyrite (1% by weight) occurring as a replacement of organic material and other unstable particles; minor siderite (1% by weight) occurring as a replacement of the matrix and unstable grains/allochems; and trace authigenic quartz replacement of calcareous fossil fragments

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

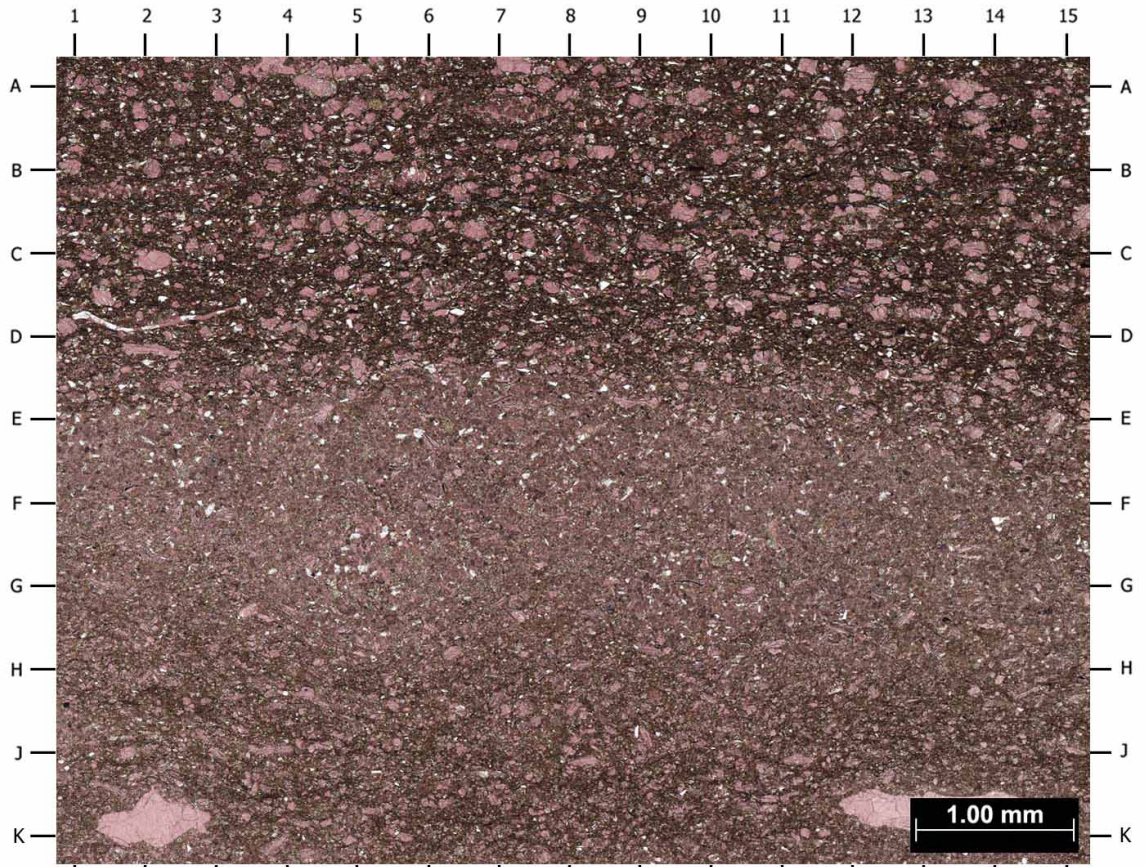
B) This slightly silty, very argillaceous limestone (marl) contains highly calcareous layers dominated by a combination of micritic matrix and interparticle microsparry calcite cement (EK1-15), and layers containing mixed partially recrystallized micrite and detrital clay (AD1-15). A probable trilobite fossil fragment that is partially replaced by quartz occurs at CD1.2-3.4. Other undifferentiated allochems completely recrystallized to sparry calcite occur at JK2 and JK12-14.

C) This photomicrograph provides a high magnification view of the area centered near DE5.5 in Photo B. Grains/allochems pictured in this view include undifferentiated/recrystallized calcareous fossil fragments (stained red; CD1.5, AB5.4, EF6, A15, H4, J10.3, BC10.5, E8.5), quartz (C12, CD5.7, BC5, AB13.8), feldspar (HJ9.8, F7, HJ8.7), micritic peloids (HJ4, F12, HJ13), biotite (G14), organic fragments (C6). The more calcareous layer from GK1-FK15 contains patchy areas interparticle microspar calcite cement (HJ4.9, JK7.3) between silt-sized grains/allochems. Dolomite replacement occurs at HJ11.2, JK7.7, and FG14.4.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

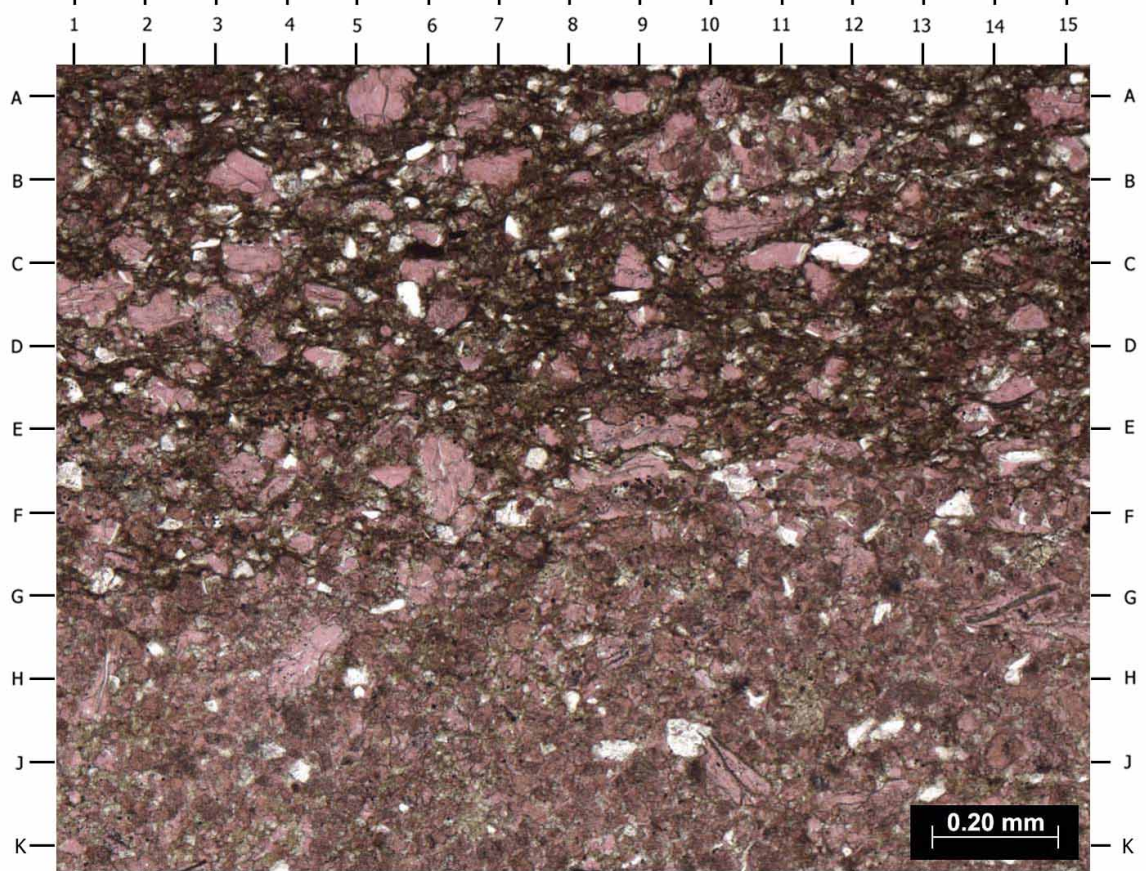
13697.50'
Plate 42

Weatherford LABORATORIES



B

50X



C

200X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

Weatherford File No.: HH-77641

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 16940.00 FEET
SAMPLE NUMBER: 52 CK-McCormick

PLATE 43A

T.O.C.: 0.06% (weight percent)

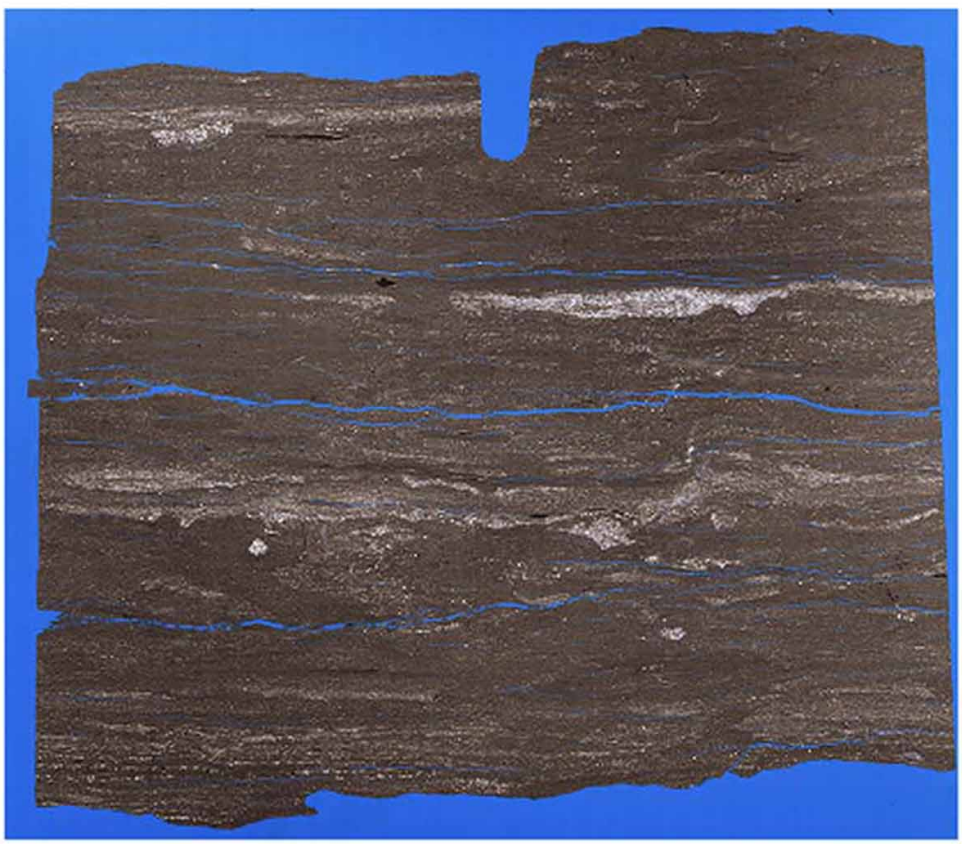
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

16940.00'
Plate 43

Weatherford LABORATORIES



A

1X

Cabot Oil & Gas Corporation **Weatherford File No.: HH-77641**
Cambrian No. 1 Project
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 16940.00 FEET
SAMPLE NUMBER: 52 CK-McCormick

PLATE 43

T.O.C.: 0.06% (weight percent)

Lithology: Silty mudstone

Texture: Burrowed; disturbed silty laminations; silt-filled burrows

Detrital Grains/Allochems: Common silt-sized grains of monocrystalline quartz (21% total quartz, by weight, XRD); minor to common biotite and muscovite mica; minor silt-sized plagioclase feldspar (9% by weight) and potassium feldspar (1% by weight); trilobite carapace fragments; elongate phosphatic fragments (possible altered/replaced biotite); organic plant/algal fragments (orange to black; some replaced and/or filled with carbonate cement); and trace zircon

Matrix: Very abundant detrital clay matrix (XRD clay distribution by weight: 34% mixed-layer illite/smectite, 17% chlorite, 9% illite/mica, and trace kaolinite)

Cements and Replacement Minerals: Minor ferroan calcite replacing fossil fragments and forming patchy intergranular cement within silt-filled burrows and silty laminations (5% total calcite, by weight); minor ferroan dolomite (1% by weight) and dolomite (1% by weight) occurring as a replacement of unstable grains/allochems; minor patchy authigenic chlorite replacement/recrystallization of detrital matrix clays within silt-filled burrowed and along silty laminations; minor pyrite (2% by weight) occurring as a replacement of organic material and other unstable particles; trace authigenic quartz replacement of calcareous fossil fragments; trace siderite replacement of unstable grains/allochems; trace gypsum partially filling artificially induced horizontal fractures

Pore System: No naturally occurring porosity is visible using standard petrographic techniques

Magnification: B: 50X C: 200X

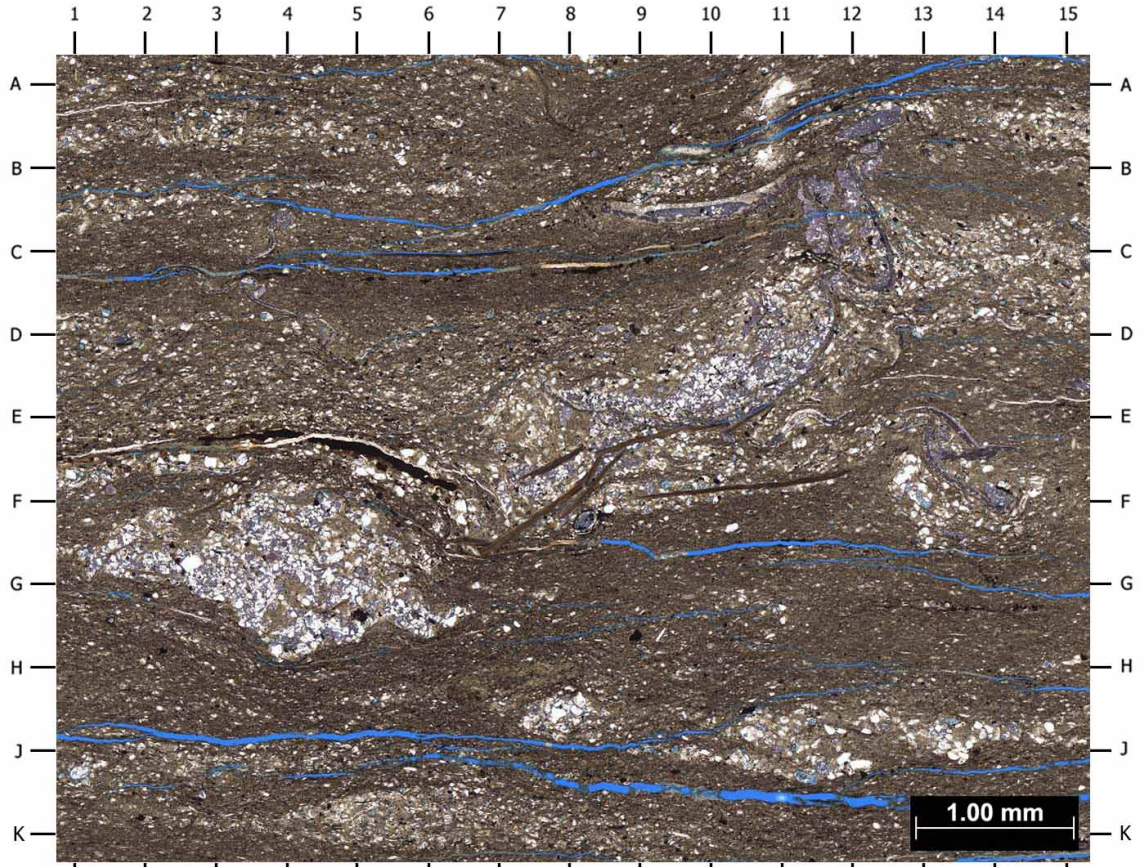
B) This photo demonstrates well the burrowed and laminated texture of this silty mudstone. Common silt-filled burrow structures (FG2-6, HJ8) and disturbed silty laminations (DE1-CD15, JK4-9, J10-15, AB1-6) occur throughout the sample. Open horizontal fractures (blue epoxy; J1-9, JK4-12.5, BC3-A13, FG8-G15) are interpreted to be artificially induced despite gypsum cement (CD8, EF1-5) precipitating along many of them.

C) This photomicrograph provides a high magnification view of the area centered near EF13 in Photo B. In this view, broken trilobite carapace fragments are replaced by ferroan calcite (stained purple; E9, FG10, F7.5,J12), dolomite (E7; not stained), and quartz (EF1-1.3) An elongate phosphatic fragment at H1 to GH3 may represent altered/replaced biotite. A splayed biotite fragment at AB1.5 occurs within a silt-filled burrow with ferroan calcite locally filling the intergranular spaces (AB1.2). Common quartz (GH6.5, AB11.5) and minor feldspar (EF4.8, H12) occur scattered throughout the sample and locally concentrated within burrows and along laminations. Artificially induced microfractures at C5-11 and D12-14.9 (white) are filled with gypsum cement; this gypsum cement likely reprecipitated within these open fractures relatively recently, after core extraction.

Cabot Oil & Gas Corporation
Cambrian No. 1
McCormick Well
Wayne County, West Virginia

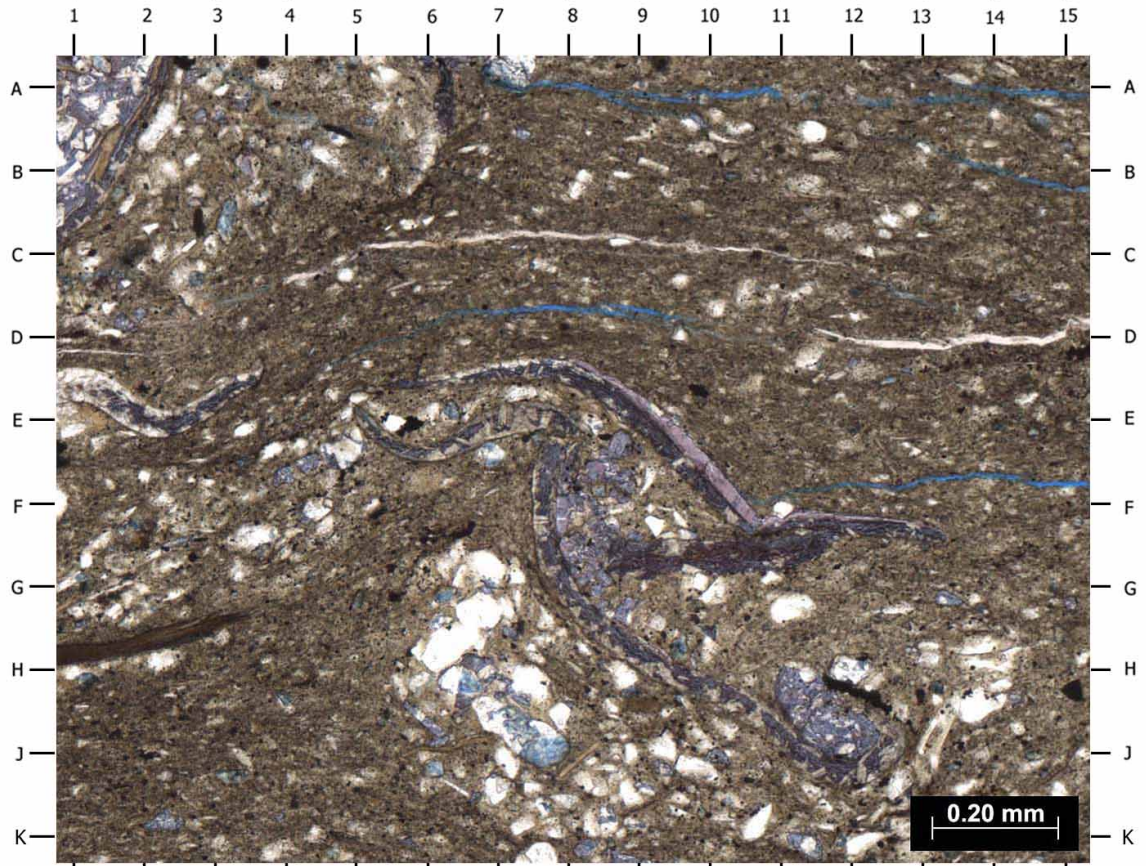
16940.00'
Plate 43

Weatherford LABORATORIES



B

50X



C

200X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION MACRO PHOTO
SAMPLE DEPTH: 18718.00 FEET
SAMPLE NUMBER: 4 CK-McCormick

PLATE 6

T.O.C.: 0.05% (weight percent)

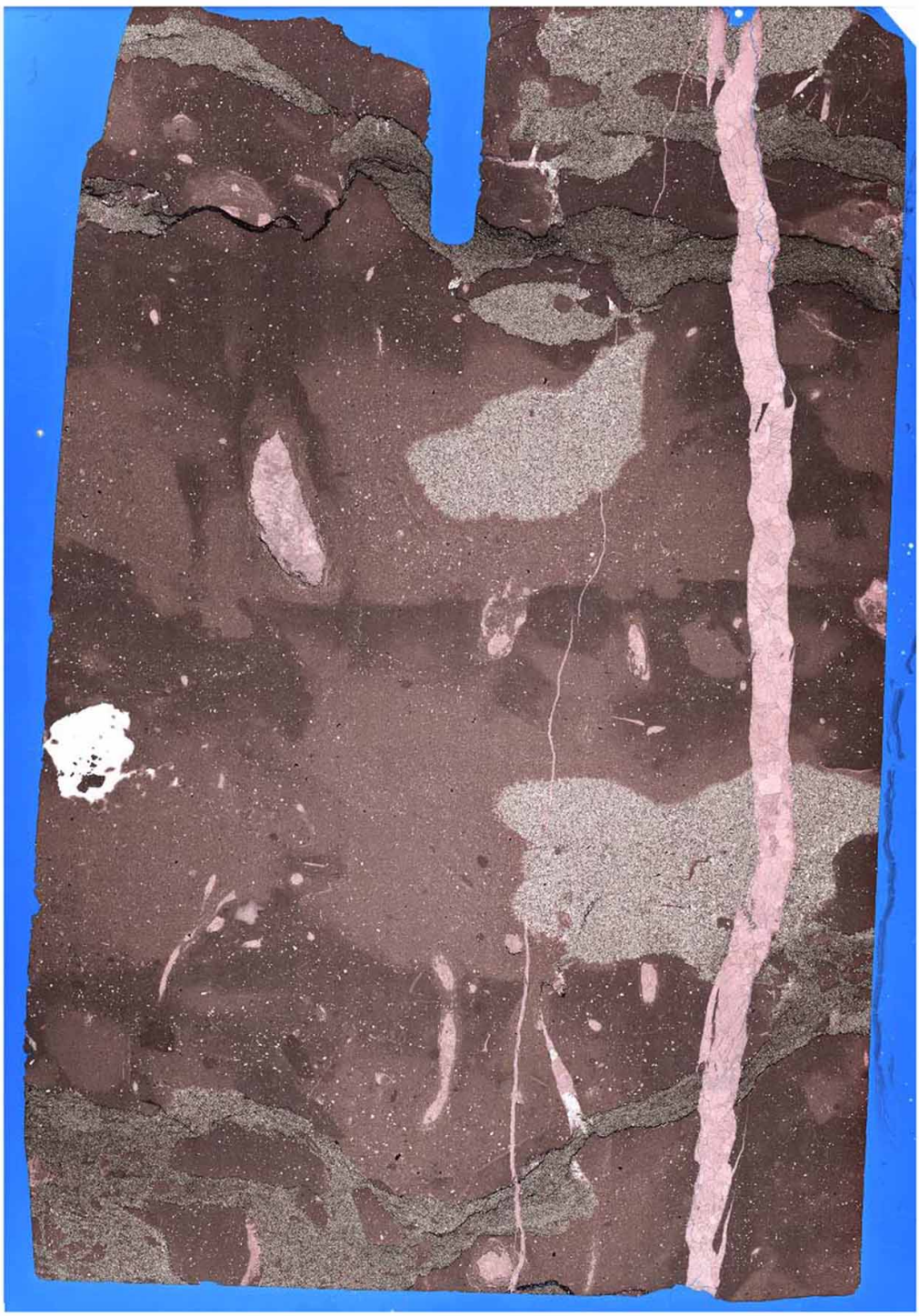
This static macro photo was captured from the high resolution thin section mosaic image and documents the entire thin section slide.

Magnification: A: 1X

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick Well
Wayne County, West Virginia

18718.00'
Plate 6

Weatherford LABORATORIES



A

1X

Cambrian No. 1 Project **Weatherford File No.: HH-77641**
McCormick
Wayne County, West Virginia
Conventional Core Samples

THIN SECTION DESCRIPTION - GENERAL
SAMPLE DEPTH: 18718.00 FEET
SAMPLE NUMBER: 4 CK-McCormick

PLATE 6

T.O.C.: 0.05% (weight percent)

Lithology: Slightly dolomitic limestone

Texture: Burrowed; mottled; soft sediment deformation; minor dolomitic laminations and irregular dolomitized patches (occurring in association with stylolites and possible replaced burrow structures); vertical, calcite-cemented fractures and microfractures; stylolites; lime mudstone to wackestone with patchy matrix recrystallization (possibly associated with various stages of burrowing; difficult to discern the precise nature of the diagenetic overprint)

Detrital Grains/Allochems: Minor quartz and feldspar grains; trilobite carapace fragments; limestone intraclasts; and trace organic fragments

Matrix: Abundant micrite and large patches of recrystallized micrite

Cements and Replacement Minerals: Abundant calcite recrystallization of micritic matrix to very fine to finely crystalline microspar (87% by weight, total calcite); minor replacement/recrystallization of grains/allochems; minor sparry calcite cement occluding fractures and burrow structures; minor to common patches of finely crystalline, euhedral dolomite (8% by weight, total dolomite/Fe-dolomite) replacing matrix along stylolites and within burrow structures; pyrite occurring in trace amounts (by weight) as a replacement of organic material (mostly along stylolites) and replacing unstable particles throughout the sample

Pore System: No visible pores using standard petrographic techniques

Magnification: B: 50X C: 200X

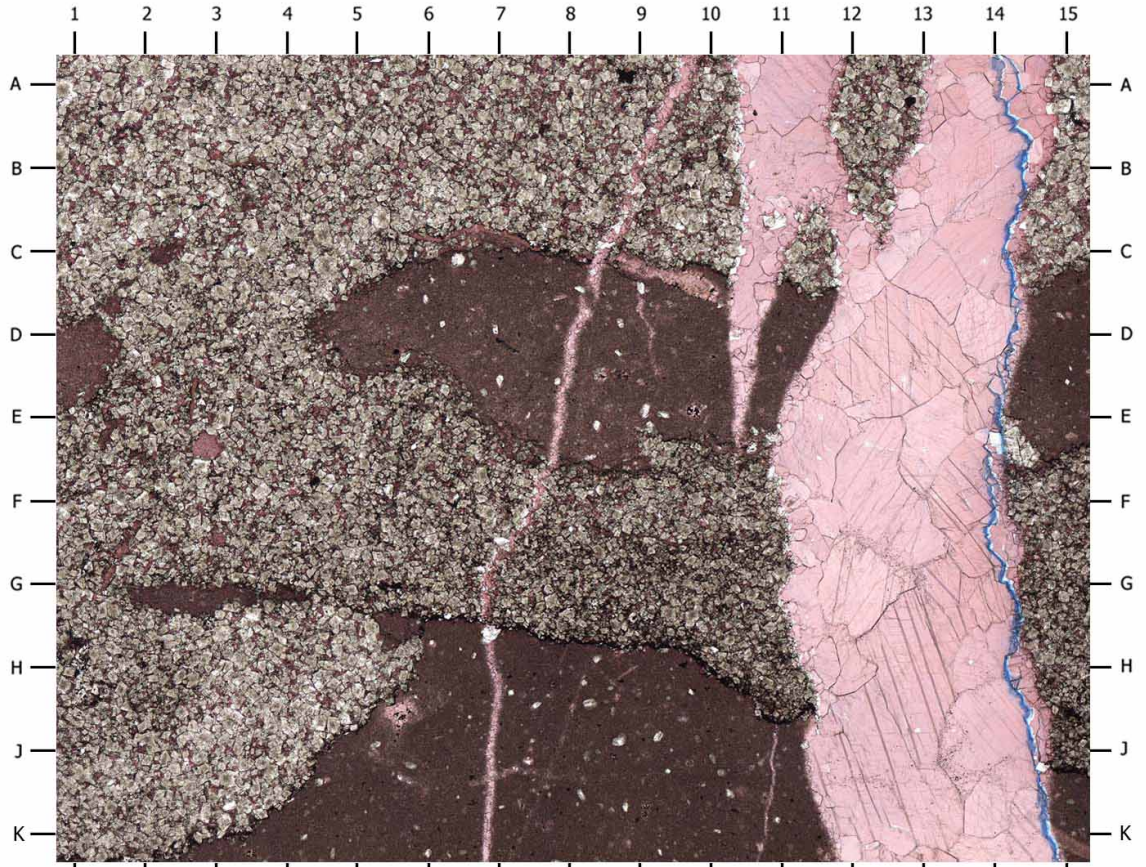
B) This image was taken near the top-right corner within the macro photo A and focuses on an irregular-shaped patch of finely crystalline dolomite (AC1-8, F1-6, HJ1-4, AC15, G8-11, FJ15) replacing the dominant micritic calcite matrix (D5-8, DE9-10, DE15, JK4-6, JK7-11). Although the dolomite appears dominant in this localized area, this sample is predominantly lime mudstone to wackestone (see Photo A), with minor to common dolomitized patches (8% by weight, total dolomite/Fe-dolomite). A large fracture cemented by coarsely crystalline calcite spar (AK13.5) and smaller calcite-cemented microfractures (K7 to A9.6) cut vertically across this slightly dolomitic limestone. An open fracture, filled with blue-dyed epoxy (A14-K15), cuts through the calcite-cemented fracture, but was likely artificially induced during sample preparation or core acquisition.

C) This photomicrograph provides a high magnification view of the area centered near C7 in Photo B and documents a thin, organic-rich, microstylolitic contact (black; H1-GH13) separating the micritic matrix (stained red; HK1-15) from the dolomite-replaced matrix (AG1-15). A calcite-cemented fracture occurs from K12 to DE15. Grains/allochems visible in this view include feldspar grains (GH5.6, K4.7, J3.7, HJ12.4), partially pyritized organic fragments (black; G8, J4.8, GH6.2), and a probable trilobite fragment (F3-FG10).

Cabot Oil & Gas Corporation
Cambrian No. 1 Project
McCormick Well
Wayne County, West Virginia

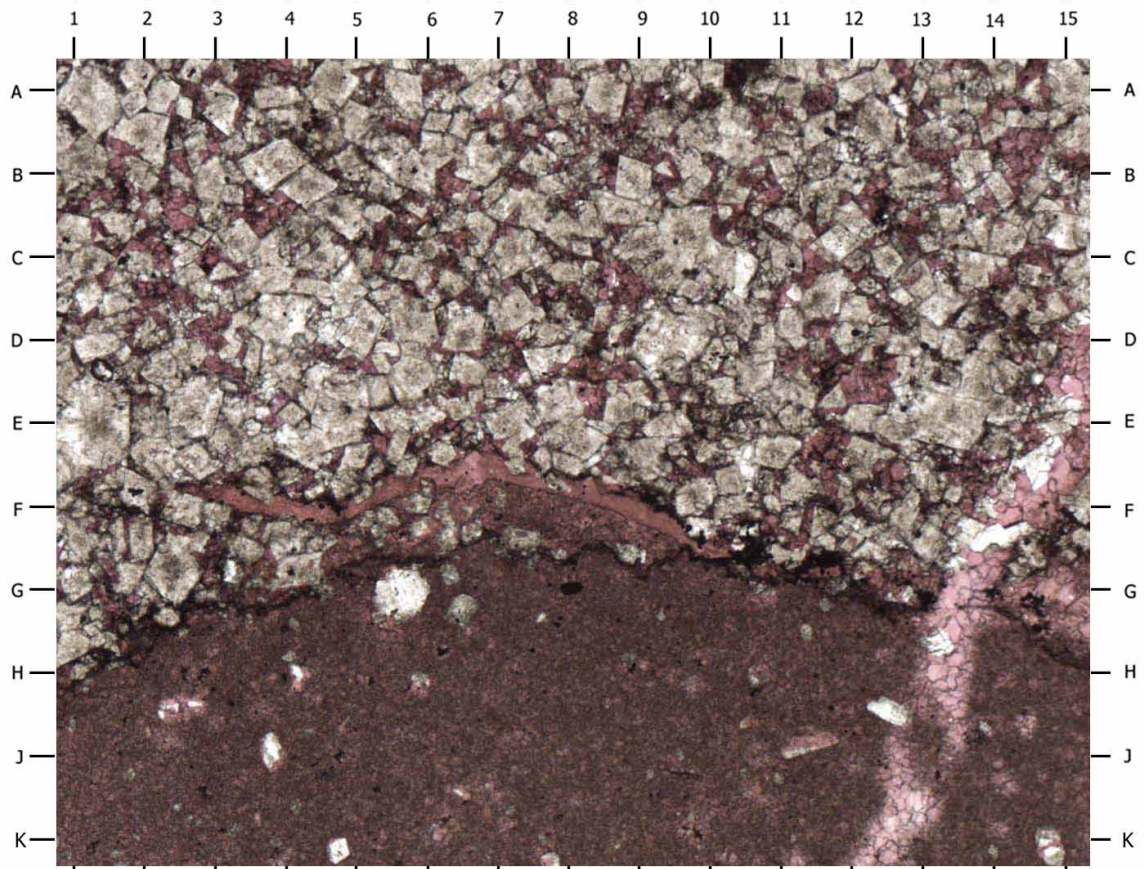
18718.00'
Plate 6

Weatherford LABORATORIES



B

50X



C

200X