

SE, 10, T. 33 S, R. 38 W.

15-189-20337

GASKILL A'2

Anadanko Production

SUMMARY

This 133-foot core is from productive lower Morrow Keyes Formation. The top of the core is positioned --- feet below the Morrow/Atoka contact. The base of the core is 19 feet below the Pennsylvanian/Mississippian boundary. The core has been divided into nine intervals that contains five lithofacies. Seven thin sections were studied and eighteen samples were processed for conodonts. This core represents a transgressive estuarine valley-fill sequence overlain by shoreface to offshore deposits.

The basal interval (**Unit 1**) consists of calcareous black shales (facies O) that locally exhibits parallel lamination. It records deposition in an oxygen-depleted shelf environment. A co-planar surface of lowstand estuarine incision and transgressive erosion separates this unit from the overlying unit 2. The base of unit 2 is characterized by a scoured surface filled with pebble conglomerates. **Unit 2** comprises very coarse- to medium-grained sandstones with clay drapes (facies C) forming stacked fining upward intervals. This unit represents deposition in stacked channels of the upper estuarine environment. **Unit 3** is dominated by calcareous black shales with thin sandstone lenses (facies D). It records fine-grained sediment fall-out in the middle estuary close to the turbidity maximum. **Unit 4** is composed of fossiliferous planar cross-bedded medium-grained sandstones (facies H) with interbedded ripple cross-laminated and mud draped fine- and very fine-grained sandstones. This unit represents deposition in a barrier to back-barrier upper shoreface setting close to or at the estuarine mouth. **Unit 5** consists of sandstone-dominated heterolithic facies displaying flaser and wavy-bedding, herringbone cross-stratification and reactivation surfaces (facies E). It records sedimentation in a restricted tidal sand flat. **Unit 6** is a fossiliferous planar cross-bedded coarse- to medium-grained sandstone with mud drapes (facies H). It represents deposition in a barrier to back-barrier upper shoreface environment. Unit 6 is separated from unit 7 by the presence of a

transgressive lag that records the wave ravinement surface. **Unit 7** consists of intensely bioturbated fine-grained sandstones (facies L and M). This unit was formed in a lower shoreface to offshore transition. Fine-grained offshore transition deposits of this unit are truncated by a lowstand incision surface formed during a forced regression. **Unit 8** is composed of highly fossiliferous, normally-graded and planar cross-bedded very coarse-grained sandstones (facies I), stacked forming a fining upward interval with abundant mudstone lenses at the top. Unit 8 represents amalgamated storm events in an upper shoreface setting. **Unit 9** consists of calcareous black shales (facies O) locally with interbedded very coarse- to medium grained sandstones. This package represents deposition in an oxygen-depleted shelf environment punctuated by minor transgressive pulses.

NOTES

UNIT 1

Shale; dark gray to black; parallel lamination locally; calcareous; pyrite nodules; crinoid and articulate braquiopod fragments locally abundant.

UNIT 2

Very coarse- to medium-grained sandstone; light greenish gray; scour filled with pebble conglomerate at the base of the unit; low angle planar cross-bedding; mud drapes, horizontal mud laminae, flattened mud lenses, and contorted mud laminae; stilolites and fractures; glauconite; stacked fining upward intervals; whole unit displays a fining upward trend; package at the top of the unit (6052-6056.2) is a massive to normally-graded medium-grained sandstone with few mud drapes.

UNIT 3

Shale; isolated or conected very fine-grained sandstone lenses towards the base of the unit; dark gray to black; parallel lamination; calcareous; a medium-grained sandstone bed with parallel lamination, ripple cross-lamination, flaser bedding, mud lenses, and scarce fossil fragments (articulate braquiopods, crinoids and fenestrate bryozoans) occurs towards the top of the unit (6034.9-6035.3).

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UNIT 4

Medium-grained sandstone with interbedded fine- and very fine-grained sandstone; light gray, massive to low angle planar cross-bedding; ripple cross-lamination, mud drapes and flaser bedding (wavy type) in the finer-grained interbeds; mudstone intraclasts; crinoid fragments common, articulate braquiopod shells rare.

UNIT 5

Very fine-grained sandstone and siltstone, fine-grained sandstone locally interbedded; light yellowish gray, ripple cross-lamination, mud drapes, flaser bedding (bifurcated wavy and, more rarely, wavy), wavy bedding, low and high angle planar cross-lamination, herringbone cross-stratification, reactivation surfaces; coarser grains tend to accumulate in foresets; stilolites; mudstone intraclasts rare; large carbonized wood fragment abundant.

UNIT 6

Coarse- to medium-grained sandstone; light gray, low angle planar cross-bedding, normal grading, mud drapes, mud lenses; stilolites; abundant crinoid fragments, common articulate braquiopod shells and rare bryozoans; whole unit is coarsening upward.

UNIT 7

Fine- to very fine-grained sandstone and siltstone; dark gray to black; intense bioturbation, no primary fabric preserved; whole unit is fining upward.

UNIT 8

Conglomeratic, very coarse- to medium-grained sandstone; light gray; planar cross-bedding, diffuse bed boundaries, bed amalgamation common, shale lenses; abundant crinoids, and common bryozoans, corals and articulate brachiopod shells; skeletal accumulations are bioclast-supported in the lower part of the bed and matrix-supported in the upper one, brachiopod shells are concordant, crinoids, corals and bryozoans do not display any preferential orientation; whole unit is fining upward, package at the top of the unit (6000.6-6002) consists of interbedded medium-grained sandstone and dark mudstones, with thicker and more abundant shale lenses.

UNIT 9

Shale; dark gray to black; parallel lamination; interbedded conglomeratic, very coarse- to medium-grained sandstones; crinoids and corals common and forming matrix-supported fossil concentrations.

INTERPRETED DEPOSITIONAL ENVIRONMENT

UNIT 1

Oxygen-depleted shelf (HST)

UNIT 2

Sand-dominated upper estuarine channels (LST? to TST)

UNIT 3

Mud-dominated estuarine central basin (TST)

UNIT 4

Sand-dominated barrier to back-barrier upper shoreface (estuary mouth) (TST)

UNIT 5

Lower intertidal estuary mouth sand flat (TST)

UNIT 6

Sand-dominated barrier to back-barrier upper shoreface (estuary mouth) (TST)

UNIT 7

Open marine lower shoreface to offshore transition (TST)

UNIT 8

Open marine storm-dominated upper shoreface (LST)

UNIT 9

Oxygen-depleted shelf (TST to HST)

Reported Core Interval: 5952-6085 Approx. Feet Recovered: Page: 1 of 7
Log Interval: 5952 - 6085 Quality: E · G · F (P)
Producing Interval: Source: Kansas Geological Survey, Lawrence, Ks.

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OPERATOR: ANADARKO
NAME: 2 GASKILL A
LOCATION: 10-335-38W STEVENS CO

Reported Core Interval: 5952-6085 Approx. Feet Recovered:
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Producing Interval: Source: Kansas Geologic

Page: 2 of 7

Quality: E G F (P)

Source: Kansas Geological Survey, Lawrence, Ks.

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OPERATOR: ANADARKO

NAME: 2 GASKILL A

LOCATION: 10-33S-38W STEVENS CO

Reported Core Interval: 5952-6085

Log Interval: 5952-6085

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Quality: E G F **(P)**

Source: Kansas Geological Survey, Lawrence, Ks.

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OPERATOR: ANADARKO
NAME: 2 GASKILL A
LOCATION:

Reported Core Interval: 5952-6085 Approx. Feet Recovered:
Log Interval: 5952-6085 Quality: E G F P
Producing Interval: Source: Kansas Geologic

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Quality: E G F P
Source: Kansas Geological Survey, Lawrence, Ks.

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OPERATOR:
NAME:
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Reported Core Interval:
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Source: Kansas Geological Survey, Lawrence, Ks.

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