NW NE NW 23, T. 29S., R. 41 W.
15-187-20632

KENDRICK 23-1
J.M. Huber Corp.

SUMMARY

This 85-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 --- above the Pennsylvanian/Mississippian boundary. The core has been divided into four intervals that contains five lithofacies. This core represents a transgressive estuarine valley-fill sequence overlain by shoreface deposits.

The basal interval (**Unit 1**) consists of fine-grained sandstones, commonly massive and very rarely planar cross-bedded (lithofacies A). It records deposition in fluvial environments during a lowstand. A transgressive surface separates this unit from the overlying unit 2. **Unit 2** comprises flaser- and wavy-bedded fine-grained sandstones and siltstones with clay drapes (lithofacies C). This unit represents deposition in tidal flats and channels of the upper estuarine environment. **Unit 3** consists of dark gray to black shales with thin sandstone lenses (lithofacies D) interbedded with matrix-supported pebble conglomerates and very coarse- to medium-grained sandstones (lithofacies H). This unit records fine-grained sediment fall-out in the middle estuary close to the turbidity maximum with pulses of coarse-grained sedimentation derived from the estuary mouth and accumulated in tidal inlets, washover fans and flood deltas. The whole unit 3 reflects transgression of the estuary mouth bar over the central bay complex. Unit 3 is separated from unit 4 by the wave ravinement surface. **Unit 4** is composed of fossiliferous planar cross-bedded matrix- to rarely clast-supported conglomerates and very coarse- to medium-grained sandstones with stilolitized clay drapes (lithofacies I). This unit represents deposition in the seaward side of the estuary mouth bar and in upper shoreface environments.

NOTES

UNIT 1

Fine-grained sandstone; light gray to yellowish gray; massive to rarely poorly-defined high angle planar cross-bedding, some foresets delineated by small flattened coal intraclasts; carbonate cemented; glauconite and pyrite.

UNIT 2

Fine-grained sandstone and siltstone; light gray to yellowish gray; wavy- and flaser-bedding (single and flaser-wavy), planar cross-bedding and ripple cross-lamination, mud drapes, reactivation surfaces, rare herringbone cross-stratification; carbonate cemented; glauconite and pyrite; bioturbation increases towards the top of the package.

UNIT 3

Shale with thin sandstone lenses interbedded with matrix-supported pebble conglomerates and very coarse- to medium-grained sandstones; dark and light gray to black; parallel lamination in the shales; subangular to subrounded small to large pebbles and granules, conglomerate matrix fine- to coarse-grained sand, locally silty; silty matrix moderately bioturbated; abundant intraclasts; bioclasts rare to absent (articulate braquiopods, corals).

UNIT 4

Matrix- to rarely clast-supported conglomerates and very coarse- to medium-grained sandstones; light and dark gray; high and low angle planar cross-bedding, stacked normally-graded intervals, stilolitized clay drapes, subrounded to subangular small to large pebbles and granules commonly oriented parallel to the foresets; conglomerate matrix fine- to medium-grained sand and silt; abundant intraclasts; moderate bioturbation; abundant bioclasts (crinoids, solitary and colonial corals, articulate braquiopods).

INTERPRETED DEPOSITIONAL ENVIRONMENT

UNIT 1

Fluvial channels (LST)

UNIT 2

Sand-dominated upper estuarine channels (TST)

UNIT 3

Mud-dominated estuarine central basin and back barrier estuary mouth (TST)

UNIT 4

Upper shoreface and estuary mouth bar (TST to HST)

OPERATOR: J.H HUBER CORP
NAME: KENDRICK N° 23-1
LOCATION:

Reported Core Interval:
Log Interval: 5459.7 - 5375
Producing Interval:

Approx. Feet Recovered:
Quality: (E) G F P
Source: Kansas Geological Survey, Lawrence, Ks.

UNITS

MRRW

GR 0 150

SGL 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0

POROSITY | PRODUCTION | SHOW | OIL STAIN

REPORTED CORE DEPTH

SEDIMENTARY & TEXTURE & STRUCTURES
CARBONATES B | GN | PK | WK | M | EVAP.
CLASTICS C | M | F | VF | S | SH

BASIC ROCK TYPE

LITHOFACIES | TRACE FOSSILS | ICHNOFACIES | ICHNOFABRIC

DEGREE OF BIOTURBATION 1 2 3 4 5 6

THIN SECTION | PHOTO

INTERPRETED DEPOSITIONAL ENVIRONMENT

NOTES

5440
5445
5450
5455
5460

C
SK
Pa
Sk/Gr
Pa
A
Pa ? Pa
Pa

EST. CHANNEL (TST)

FLUVIAL (LST)

UNIT 2

UNIT 1

OPERATOR:
NAME: KENDRICK
LOCATION:

Reported Core Interval:
Log Interval:
Producing Interval:

Approx. Feet Recovered:
Quality: (E) G F P
Source: Kansas Geological Survey, Lawrence, Ks.

UNITS

MRRW

GR 0 150

SGL 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0

POROSITY | PRODUCTION | SHOW | OIL STAIN | REPORTED CORE DEPTH | SEDIMENTARY & TEXTURE & STRUCTURES | CARBONATES B GN PK WK M EVAP. | CLASTICS C M F VF S SH | BASIC ROCK TYPE | LITHOFACIES | TRACE FOSSILS | ICHNOFACIES | ICHNOFABRIC | DEGREE OF BIOTURBATION 1 2 3 4 5 6 | THIN SECTION | PHOTO | INTERPRETED DEPOSITIONAL ENVIRONMENT | NOTES

5120
5130
5135
5140

EST. MOUTH INTERBEDDED WITH CENTRAL BAY

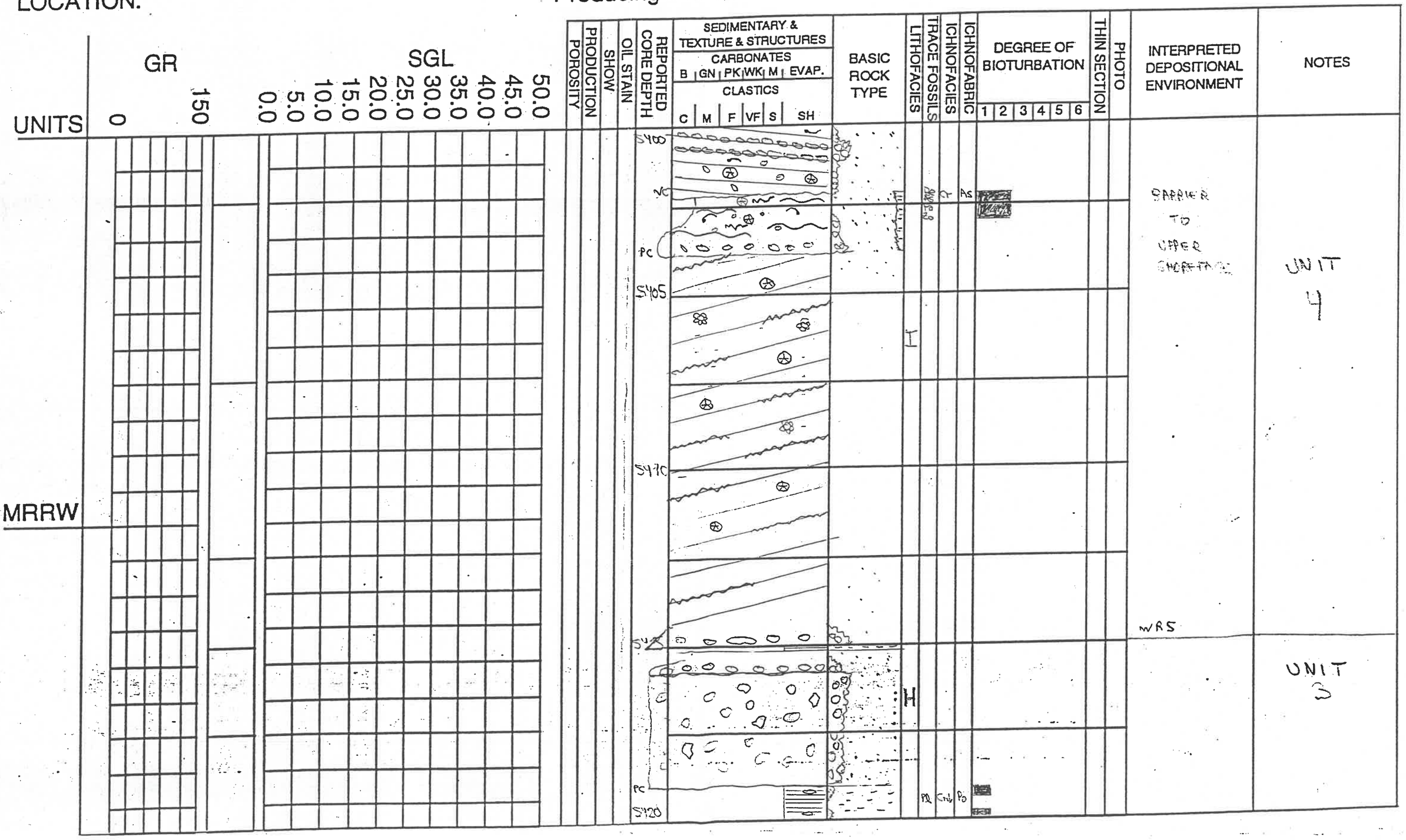
UNIT UJ

UNIT 2

OPERATOR:
NAME:
LOCATION:

Reported Core Interval:
Log Interval:
Producing Interval:

Approx. Feet Recovered:
Quality: (E) G F P
Source: Kansas Geological Survey, Lawrence, Ks.



OPERATOR:
NAME:
LOCATION:

Reported Core Interval:
Log Interval:
Producing Interval:

Approx. Feet Recovered:
Quality: (E) G F P
Source: Kansas Geological Survey, Lawrence, Ks.

UNITS

GR 0 150

SGL 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0

MRRW

POROSITY	PRODUCTION	SHOW	OIL STAIN	REPORTED CORE DEPTH	SEDIMENTARY & TEXTURE & STRUCTURES: CARBONATES (B | GN | PK | WK | M | EVAP.) / CLASTICS (C | M | F | VF | S | SH)	BASIC ROCK TYPE	LITHOFACIES	TRACE FOSSILS	ICHNOFACIES	ICHNOFABRIC	DEGREE OF BIOTURBATION (1 2 3 4 5 6)	THIN SECTION	PHOTO	INTERPRETED DEPOSITIONAL ENVIRONMENT	NOTES
				5380 vc/c												
				5385 c/vc			H	Fo	SK							
				5390 c/vc				Fo	SK							
				5395 C												
				FC PC PC PC												
				5400												

CZT

OPERATOR:
NAME:
LOCATION:

Reported Core Interval:
Log Interval:
Producing Interval:

Approx. Feet Recovered:
Quality: (E) G F P
Source: Kansas Geological Survey, Lawrence, Ks.

UNITS	GR 0–150	SGL 0.0–50.0	POROSITY	PRODUCTION	SHOW	OIL STAIN	REPORTED CORE DEPTH	SEDIMENTARY & TEXTURE & STRUCTURES: CARBONATES (B / GN / PK / WK / M / EVAP.); CLASTICS (C / M / F / VF / S / SH)	BASIC ROCK TYPE	LITHOFACIES	TRACE FOSSILS	ICHNOFACIES	ICHNOFABRIC	DEGREE OF BIOTURBATION (1 2 3 4 5 6)	THIN SECTION	PHOTO	INTERPRETED DEPOSITIONAL ENVIRONMENT	NOTES
MRRW							5375	vc/c; Pa Pa Pa SK OP; Pa										UNIT 4
							5380											