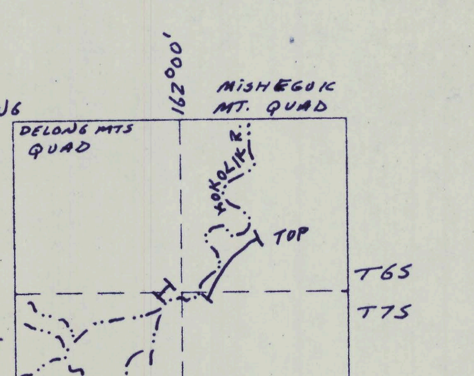
# W-17C

AMOCO PRODUCTION COMPANY
SURFACE LOG

CF 800101

NAME W-17C: SOUTH FLANK OF TUPICHAK SYNCLINE ALONG KOKOLIK RIVER.
AREA OR QUAD: DELONG MTS. AND MISHEGUK MT. QUADS.
STATE: WESTERN NORTH SLOPE, ALASKA
LOCATION: SEC. 36, 1, 6, 32, 28 TWN. 6S, 7S RNG. 43W, 42W
MEASURED BY: R.L. STEWART, K.W. SHERWOOD, CR WILLIAMSON DATE 7/77
INTERVAL: TOROK, KUKPOWRUK AND CORWIN FORMATIONS
REMARKS: SAMPLES DESIGNATED "PL77 TSE-". CORRESPONDS TO U.S.G.S. SECTION #12, CHAPMAN + SABLE, PROF. PAPER 303.




Plotted by Beth King

| PERIOD | EPOCH/STAGE | FORMATION/MEMBER | CUMULATIVE FOOTAGE | SAMPLES WITH LAB DATA OR PALEO DATA | LITHOLOGY | MASTER BEDDING | PALEOCURRENT DATA | INTERVAL THICKNESS | DESCRIPTIONS |
|---|---|---|---|---|---|---|---|---|---|

✱ = SOURCE ROCK ANALYSIS AVAILABLE.

## CRETACEOUS — CORWIN FORMATION

Sandstone #7, W-17C, South Limb, Tupichak Syncline, Kokolik River, USGS Sec 12, 2960-2935' from base of formation.

Top of Section

2710 — Corresponds to 2990' on Chapman and Sable Sec. 12. RLS 128; PL77 TSE-128, Ø = 6.0, Kmd = 0.0134

2700

Photograph R7/F16 trough cross-lamination

2690

Base of Section

- 4.0 Sandstone, f to med g, very calcareous. Sharp erosional base, small scale trough cross bedding in sets 0.2' thick. Top of ridge.
- 2.3 Sandstone, f to med g, lg-scale trough cross-lamination. Bed thickness = set thickness truncated on top by horizontal surface.
- 1.6 Sandstone, f to med g, non-calcareous, one bed, cross-stratification.
- 4.8 Sandstone, f to med g, tan. Thin bedded. Sharp base, eroded into underlying unit. Lg-scale wedge sets of tabular cross stratification - dip to SE. Sharp top, shale pebble conglomerate at top.
- 7.0 Sandstone, f to med g, very-calcareous, mod. sorted. From base: 0-2.1' = sm-scale trough cross lamination. 2.1'-2.6' low angle, sub horizontal forsets, 2.6-5.6' = sm-scale trough cross lamination. 5.6'-6.7' = horizontal lamination. 6.7'-7.0' = climbing ripples erosional top.
- 1.6 Sandstone, fg, lt gr, sharp base, soft-sediment deformation - probably deformed trough cross-lamination. Top gradational.

Sandstone #6, W-17C, South limb, Tupichak Syncline, Kokolik River, USGS Sec 12, ~~2940~~ 2960 Above base of Formation.

Top of Section

TSE 247: Ø = 7.0 Kmd = 0.089
TSE 248: Ø = 2.9 Kmd = 0.0045

2680 — Corresponds to 2960' on Chapman and Sable Sec. 12 (USGS PP 303) RLS 247, 248; PL77 TSE-247, 248

2670 — RLS-127; PL77 TSE-127, Ø = 7.6, Kmd = 0.123

Photographs R6/F26, 27

2660

Base of Section

- 10.0 Sandstone, med-g, lt gr-tan, non calcareous. Thin-bedded, horizontal lamination. (Traced laterally for 5.2 mi. to East. Sampled: RLS-247, 248)
- 7.0 Sandstone, fg, lt gr, non-calcareous, thick bedded. Sharp base. Lower 1.5' trough cross-lamin. (sets 0.8'). Upper part lg-scale trough cross-laminated (sets 2.0' thick). Sharp top.
- 3.6 Sandstone, med g, lt-gr-brn, non calcareous. Base covered, bed 0.2-0.5', no visible stratification. Interbeds of fine grained platy sandstone, abundant wood and plant material. Top, sharp.

## CRETACEOUS — KUKPOWRUK FORMATION

STOP #6, W-17C, South Limb, Tupichak Syncline, Kokolik River, USGS Sec 12. 2870' above base of formation.

Top of Section

2590 — Corresponds to 2870' in Chapman and Sable Sec. 12. (USGS PP 303)

2580

- 20.0 est + top of hill - probably similar to 9.7' unit facies.
- 8.0 est - covered

2570

✱ RLS-126; PL77 TSE-126

- 9.7 Sandstone, vfg, silty, poorly sorted, very calcareous, well cemented. Siltstone interbeds ~90% sandstone. Beds 0.2' to 0.4' thick, nodular and uneven. Heavy bioturbation, rippled upper surface. Abundant plant material.
- 0.6 Siltstone, dk-gr, organic rich.
- 1.3 Siltstone, reddish lt. brn, slightly calcareous. Bedding 0.2' to 0.5' thick with shale interbeds. Nodular even bedding. Heavily bioturbated. Abundant plant material.

Base of Section (River)

Sandstone #5 - W-17C, South Limb, of Tupichak Syncline, Kokolik River, USGS Sec #12 2360' Above base of formation.

Top of Section

2150 — Corresponds to 2430' on Chapman and Sable Sec 12 (USGS PP 303).

2140

2130 — Photograph R4/F11: Massive channel sands scouring underlying Distributary channel sequence.

2120 — Photographs R4/12, 13, 14 Panoramic view of channel sequence.

2110

- 13.0 Sandstone, med g, Thick bedded, lg-scale, low angle trough cross-stratification with sets 1.0-3.0 thick. Top covered. General trend of channels ~ Northerly.
- 1.9 Sandstone, med g at base, fine at top. Thin bedded, horizontal lamination w/rippled Beds.
- 5.0 Sandstone, med g, slightly calcareous. Thick-bedded, lg-scale trough cross-stratification. Sets (1-2.0'). Lower part no visible stratification.
- 4.8 Sandstone, med-grained, lt-gr, mod friable. Med bedded over steepened. Tabular cross-stratification. Lg-scale trough cross-stratification. Numerous scours. Top burrowed. Abundant wood fragments.
- 0.6 Sandstone, med-gr, dk gray, pebbly, drapes underlying erosional surface.
- 4.5 Sandstone, med g, lt brn, slightly calcareous. Plant material at base, sharp erosional base. Whole unit channelized. Tabular cross-stratification (<1.0) high flow angle types filling scours. Middle, bed: undulatory laminae. Top eroded (2.0') by overlying unit. Zones of sedimentary pebbles.
- 7.0 Sandstone, med g, lt gr, moderately well sorted, slightly calcareous, covered base. Lg-scale tabular cross-stratification (sets to 6.0' thick). Upper contact erosional by overlying channels.
- 8.0 Sandstone, med g, lt gr, moderately well sorted, slightly calcareous, covered base. Lg-scale tabular cross-stratification (sets to 6.0'). Upper contact erosional by overlying channels.

| Lg-scale Tabs |
|---|
| N37E |
| N57E |

| Lg-Scale Tabular | | |
|---|---|---|
| N48E | S12W | N45E |
| N67E | N3W | S38W |
| N47E | N59E | N62E |
| N46E | N65E | N57E |

S26E N=15

Base of Section

SANDSTONE #4, W-17C South Limb of Tupichak Syncline Kokolik River USGS Section #12 2000' Above base of formation.

Top of Section

1830 — Photographs R4/F10, F9 Climbing small-scale trough cross-stratification.

1820 — RLS-125; PL77 TSE-125, Ø = 4.5, Kmd = 0.031

1810

1800 — Corresponds to 1980' on Chapman and Sable Sec 12 (USGS PP 303)

1790

- 16.5 Sandstone, fg, lt brn-gr, very calcareous. Sharp base, Thin-bedded, papery thin near top. Sm-scale trough cross-lamination with a few climbing ripples. Correlative laterally with conglomeratic lens (2-3' thick) sandstone, shale + ironstone pebbles.
- 11.9 Sandstone, f to Med, lt brn-gr, slightly calcareous. Gradational base. Thin-bedded, horizontal lamination with thin beds of small-scale tabular cross-stratification (<1.0'). Bed of lg-scale trough cross-stratification (1.5') about 2.0' from base.
- 11.3 Sandstone, med-grained, lt brn-tan, slightly calcareous. Base covered, small to lg-scale trough cross-stratification.

S0: N25W, 16NE

Base of Section

SANDSTONE #3, W-17C, South Limb Tupichak Syncline, Kokolik River, USGS Sec 12. 1360' Above base of formation

Top of Section

1290 — RLS-124; PL77 TSE-124, Ø = 6.8, Kmd = 0.0125

1280

1270

1260 — Corresponds to 1450' on Chapman and Sable Sec 12 (USGS PP 303)

1250

1240 — ✱ RLS-123; PL77 TSE-123

1230

- 11.5 Sandstone, fine, med. gr-brn, slightly calcareous. Thick-bedded, no visible stratification. Top covered.
- 13.0 Covered, probably sandstone
- 1.5 Sandstone f to med, med gr, mod sorted, slightly calcareous, well cemented. Horizontal lamination. Top covered.
- 5.4 Sandstone, f to med, med gr-brn, slightly calcareous, wavy sharp base, soft-sediment deformation. Lower 2.3' horizontal lamination. 1.0' sm-scale trough cross-lamination, 2.0' horizontal lam. indistinct. Burrowed at base.
- 1.5 Shale, sandstone-deformed casts, ball + pillow as below. Thins to shale in 30 yds.
- 1.8 Sandstone, fine, slightly calcareous, well-cemented. Lg-scale, broad, low angle cross beds. Sharp base at top. Top surface hummocky. Set thickness.
- 3.2 Shale + sandstone - sand ball + pillows, deformed sandstone lenticular shape. Thins to 1.0'. Abundant organic material.
- 1.4 Sandstone, vf, med-gr, well cemented. Horizontal lamination, base and top sharp?
- 3.6 Covered, probably shale.
- 2.7 Sandstone, med, lenticular, sharp base, w/sm-scale trough cross-lam.
- 0.8 Shale, dk gr w/0.3' thick sandstone bed in center. Trough cross stratified.
- 1.7 Sandstone, med g, med gr to brn, moderately calcareous. Sharp base. Shale pebbles at base. Lenticular to 0 ft in 30 ft. Sm-scale trough cross-lamination.
- 5.5 Sandstone + shale interbedded. Sandstone bed 0.1-1.5, near top. About 50% sandstone, fine, med-gr, well-cemented, mod. calcareous. Sm-scale trough cross-lamination, upper surface rippled. Some flaser bedding. Shale, dk gray to blk. Base covered, sharp top.

S0: N40W, 24NE; N12E Ripples

Base of Section

SANDSTONE #2, W-17C, South Limb Tupichak Syncline, Kokolik River, USGS Sec 12, 1330 above base - added to section.

Top of Section

230

220

210 — Corresponds to 1324' on Sec 12 of Chapman and Sable (USGS PP 303).

RLS-122; PL77 TSE-122, Ø = 3.9, Kmd = 0.0106

200

- 6.0 Sandstone, f, lg-scale trough-stratification. Top covered.
- 0.9 Shale, black.
- 7.5 Sandstone, fine, mod-well sorted, sharp base, beds thicken upward 1.2" to 6". Lg-scale trough cross bedding - sets 2.0' thick. Troughs greater than 10.0' wide. Sharp top.
- 0.8 Sandstone, vf to f, slightly calcareous, sharp base, small-scale trough cross-lamination. Top covered.
- 3.3 Covered, possibly shale.
- 0.6 Sandstone, vf to f, slightly calcareous. Sharp base. Sm-scale trough cross-lamination. Top covered.
- 0.4 Shale, dk gray.
- 2.7 Sandstone, med, med gr brn, slightly calcareous. Sharp base, wavy horizontal bedding. Beds 0.1-0.4 thick.
- 0.6 Siltstone, med brn, chalky, noncalcareous, trace carbonaceous material. Sharp top. Trace horizontal lam.
- 6.2 Sandstone, f to med, lt brn-gr. Sharp base, overlies shale, sharp top. Horizontal bedded.

Base of Section

SANDSTONE #1, W-17C, South Limb Tupichak Syncline, Kokolik River USGS Sec 12, 120' above base. Equivalent to sands measured in sections OW 17A and W-17B.

Top of Section

60

50 — Photographs R7/F14, 15

40

30

20

10

0 — Corresponds to 1110' in Sec 12 of Chapman and Sable (PP 303)

- 10.7 Sandstone, f to Med. Lg-scale, low-angle trough cross-stratification. Rippled upper surface, parting lineations. Base transitional. Top covered. Trough Cross Strat.

| Lg-Scale trough |
|---|
| S82W |
| S59E |
| S13E |
| S49W |
| S78W |

- 4.1 Sandstone, fine, lt-gr, horizontal laminae - some wavy very low angle tabular cross-stratification. Very thinly bedded at top.
- 4.7 Sandstone, fine, calcareous. Sm-scale trough cross-lamination (sets 0.4' thick, 3-4' wide). Base cover. Top transitional.
- 2.0 Covered.
- 6.3 Sandstone, fg, lt gr, slightly calcareous. Indistinct horizontal lamination. Base and top covered.
- 8.3 Covered, probably silty shale.
- 3.6 Sandstone, fine to Med, sm-scale trough cross-lamination. Top & base covered.
- 5.0 Covered.
- 1.0 Sandstone, fine, sm-scale trough cross-lamination - low angle
- 2.0 Sandstone, fine, sm-scale trough cross-lamination
- 1.1 Sandstone, fine grained, horizontal lamination.
- 0.4 Sandstone, fine to Med, sharp base, sm-scale trough cross-la[mination]
- 0.6 Sandstone, fine grained, horizontal lamination, shale at base, ripples at top
- 0.9 Sandstone, fine grained, sm-scale trough cross-lamination.
- 4.2 Sandstone, fine to Med, lt gr, mod. well sorted, slightly calcareous. Bottom covered, top sharp. Trough cross-lamin[ation]

BASE OF MEASURED SECTION

✱ PL77 TSE 118 - Shale, 30' above basal Kukpowruk Sand.

✱ PL77 TSE 120
PL77 TSE 119
✱ PL77 TSE 121
} TOROK SHALES✱

Samples 119, 120 from beneath intraformational unconformity in Torok. 120 is from 3' above unconformity.

TSE 119(?) Ø = 5.2, Kmd = 0.061