

# **Enclosure 8: Field photographs and annotations, in Sherwood, K.W., and Amoco Oil Co., 1977 geologic field investigations, Point Lay area, North Slope, Alaska**

Amoco Oil Co.

GMC DATA REPORT 445E

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State of Alaska  
Department of Natural Resources  
Division of Geological & Geophysical Surveys  
**GEOLOGIC MATERIALS CENTER**

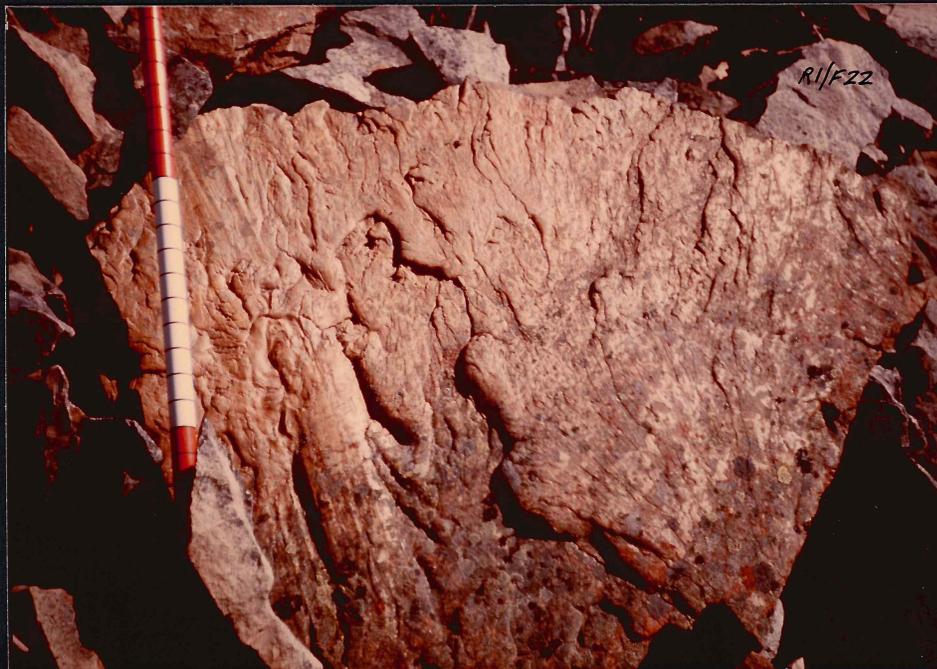




R1/F10: View east of Seaview Syncline, Cape Beaufort, Alaska.



R1/F17: View east of Kukpowruk beds on south flank of Blizzard Anticline, west of Kokolik River.



R1/F22: Squamiform sole markings on base of ss bed, Fortress Mountain Formation, Tingmerkup Mountain. Section 20-21, T10S-R45W.



R1/F23: Parting lineations on basal surface of quartz arenite bed, Ting Sand Member, Fortress Mountain Formation, Tingmerkpu Mountain (north flank).



R2/F2: Photo of exposure of section W-11 (Tingmerkpuuk Mountain; (TM)) measured in Tin<sup>g</sup> Sand Member of Fortress Mountain Formation on north face of Tingmerkpuuk Mountain, section 17-T10S-R45W.



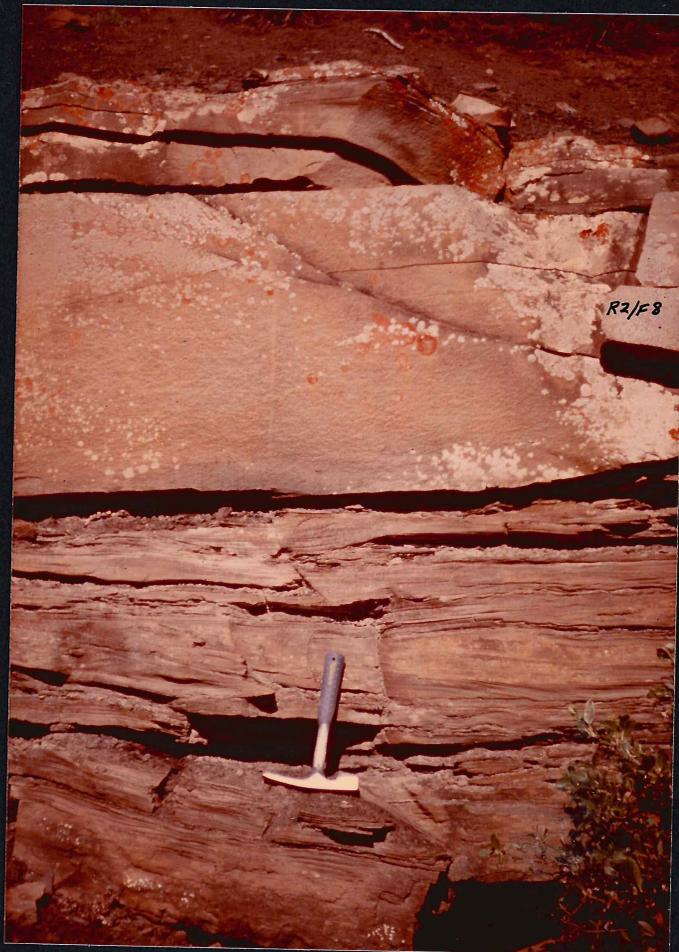
R2/F4: Section W-12 (TC) @32'. Conglomerates of Fortress Mountain Formation.



R2/F5: Reversed grading in Fortress Mountain conglomerate bed. Section W-12 (TC) @152'.



R2/F6: View southwest of plunging syncline NW of Tingmerkpuuk Mountain, in conglomerates of Fortress Mountain Formation. Section W-12 (TC) measured at eastern terminus. Tingmerkpuuk Mountain in immediate background.



R2/F8: Distributary channel sands of Kukpowruk Formation scouring thinly laminated and cross-laminated tidal flat sands. Section W-13 @73'. North flank Kukpowruk Syncline along Kukpowruk River.



R2/F9: Kukpowruk Formation. Prodelta shales and sands, grading upward into channel-mouth bar sand - truncated at top by channel sand. North flank of Kukpowruk Syncline along Kukpowruk River, section W-13 (KKs) @160'.



R2/F10: Kukpowruk Formation. Accretionary structures (shale drapes) on channel-mouth bar sand. Inclined shale drape at top of Jacob staff. North flank of Kukpowruk Syncline along Kukpowruk River. Section W-13 (KKs) @130'.



R2/F12: Kukpowruk Formation. Linear ripple marks on upper surface of sand bed. North flank of Kukpowruk Syncline along Kukpowruk River. Section W-13 (KKs) @10'.



R2/F13: Kukpowruk Formation. Exposed along north flank of Kukpowruk Syncline along Kukpowruk River. Location of measured section W-13 (Kks).



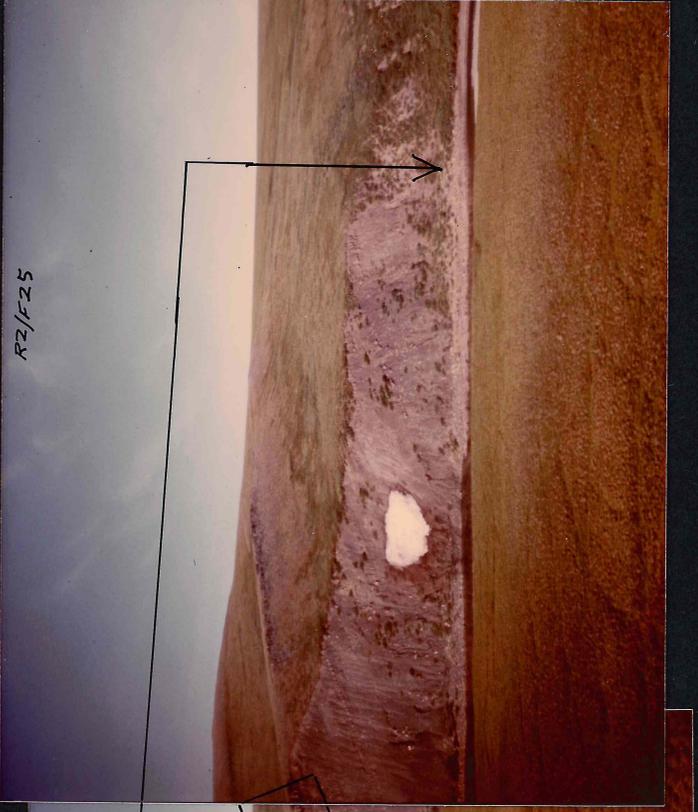
R2/F16: Fortress Mountain Formation (?). Tight Chevron folds in green and black cherts exposed on southwest flank of Tingmerkpu Mountain.



R2/ F17: Kukpowruk Formation. Progradational sand sequence - prodelta or interdistributary shales and sands grading upward into distributary channel and channel-mouth bar sand complex. North flank of Archimedes Ridge Anticline along Kukpowruk River; section W-15 @620'.



R2/F23: Kukpowruk Formation. Sand with root structures at top. North flank Archimedes Ridge Anticline along Kukpowruk River; section W-15 @852'.



R2/F25



R2/F29

SECTION W-15

Photo  
R2/F17



R2/F30

R2/F25, 29, 30: Panoramic view of interval 0'-1900' in section W-15 in Kukpowruk Formation exposed on north flank Archimedes Ridge Anticline along Kukpowruk River. Prominent sand exposed in center is approximately 60 feet thick (interval 600'-660', section W-15 (KA)).



R2/F31: Kukpowruk Formation. Preferential burrowing of clay drapes in ripple troughs. North flank of Archimedes Ridge Anticline along Kukpowruk River; section W-15 (KA) @1983'.



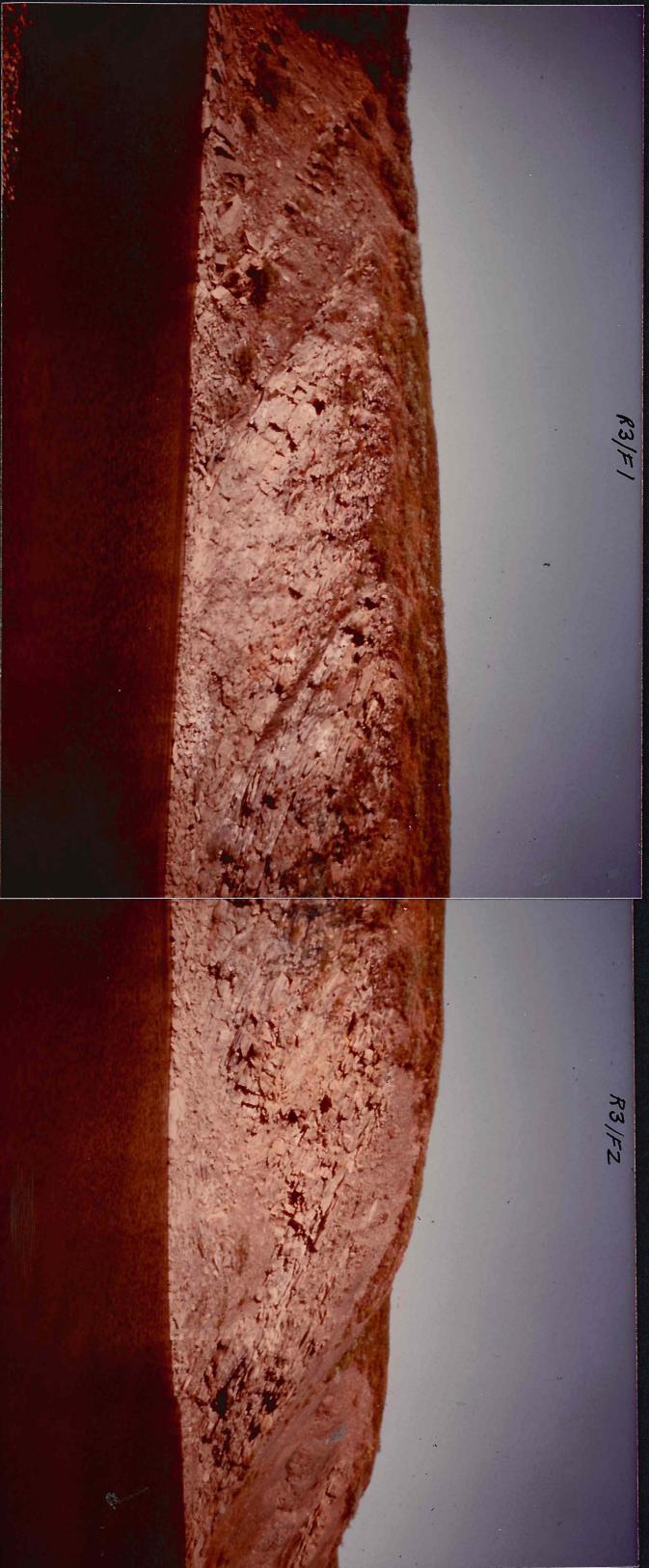
R2/F32: Kukpowruk Formation. Ball and pillow structures in 2 foot-thick interval in center of possible bar margin-distal bar facies progradational sand. North flank of Archimedes Ridge Anticline along Kukpowruk River; section W-15 (KA) @2087'.



R2/F33: Kukpowruk Formation. Trace fossils on lower surface of sandstone bed. North flank of Archimedes Ridge Anticline on Kukpowruk River. Section W-15 (KA) @2090'. R, possible *Rhizocorallium*; A, partially preserved *Asterozoma*.



R2/F34: Kukpowruk Formation. Internal scour and channel structure within channel sand body (point-bar sequence) in upper part of Kukpowruk Formation. North flank Archimedes Ridge Anticline on Kukpowruk River. Section W-15 (KA) @2300'.



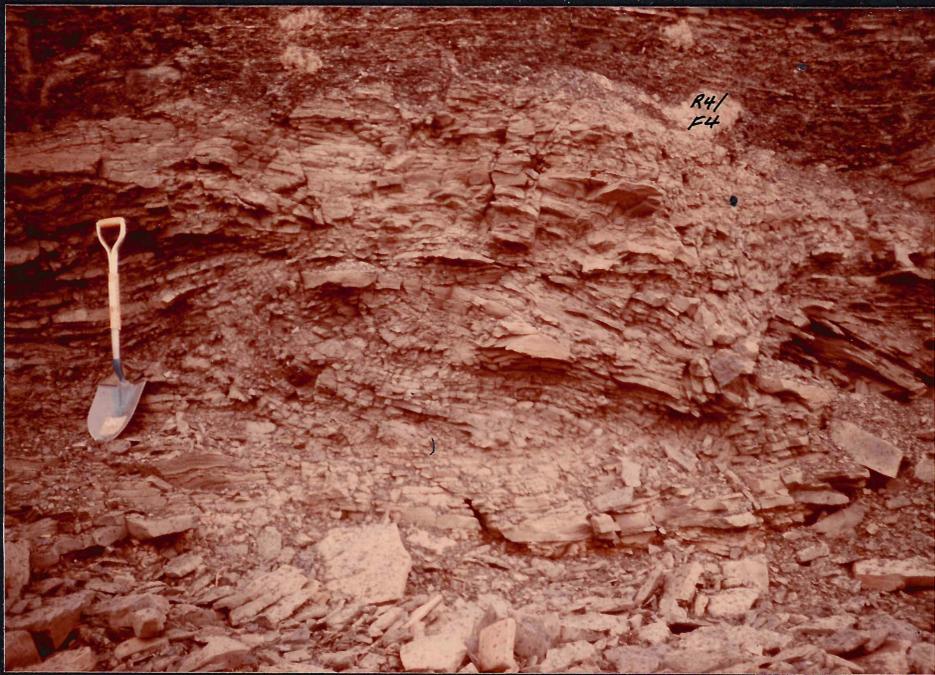
R3/F1, 2: Panoramic view to west of stacked point-bar sand sequences in Gorwin Formation. North flank Archimedes Ridge Anticline on Kukpowruk River. Section W-15 (KA), interval 2520' - 2670'. Sand sequence approximately 100' thick.



R3/F5: Kukpowruk Formation. Steeply plunging fold in diapiric core of Snowbank Anticline. North flank of Snowbank Anticline along Kukpowruk River; section W-16 (SA) @30'.



R3/F34: Kukpowruk Formation. Thin point-bar sand overlain by 10 feet of wavy-nodular bedded very-fine-grained silty root-mottled natural levee or splay sands in upper part of Kukpowruk Formation. North flank of Snowbank Anticline along Kukpowruk River. Section W-16 (SA) @1650'.



R4/F4: Torok Formation. Slump deformation in prodelta shales and siltstones of Torok Formation on south flank of Tupichak Syncline along Kokolik River. Section 14-T7S-R43W. Shovel for scale.



R4/F6: Torok Formation. Slump deformation and unconformity in prodelta shales and siltstones of Torok Formation on south flank of Tupichak Syncline along Kokolik River. Section 14-T7S-R43W. Brunton compass for scale.

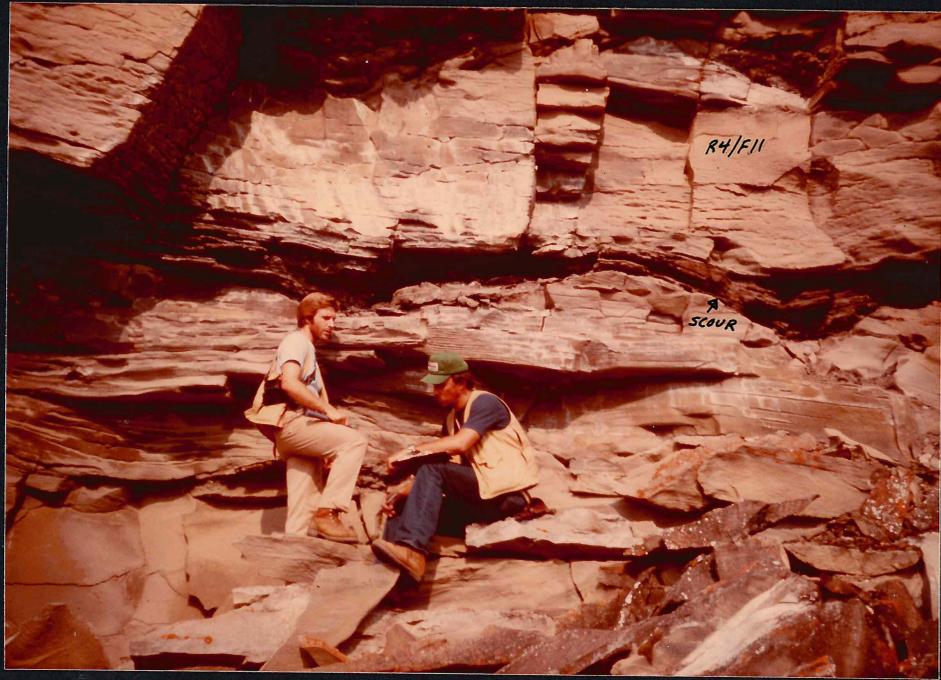


R4/F8

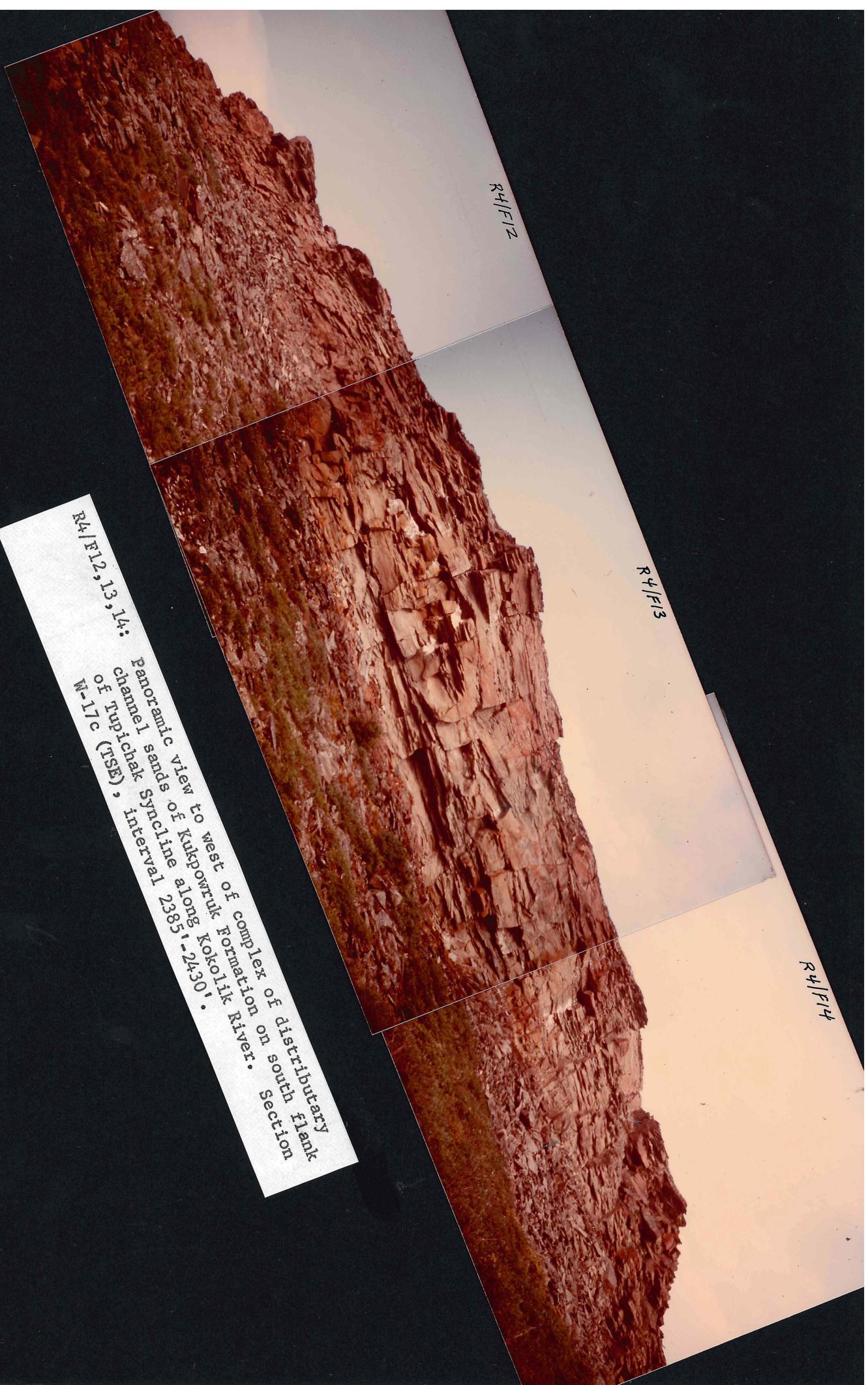
R4/F8: . View east of terraces created by resistant sandstone beds of Kukpowruk and Corwin Formations in Tupichak Syncline along Kokolik River.



R4/F9,10: Kukpowruk Formation. Small scale climbing trough cross-stratification in crevasse splay (?) sand. South flank Tupichak Syncline along Kokolik River. Section W-17c (TSE) @2010'.



R4/F11: Kukpowruk Formation. Massive channel sands filling channel or scour incised into lower distributary channel sequence. South flank Tupichak Syncline along Kokolik River. Section W-17c (TSE) @2410'.

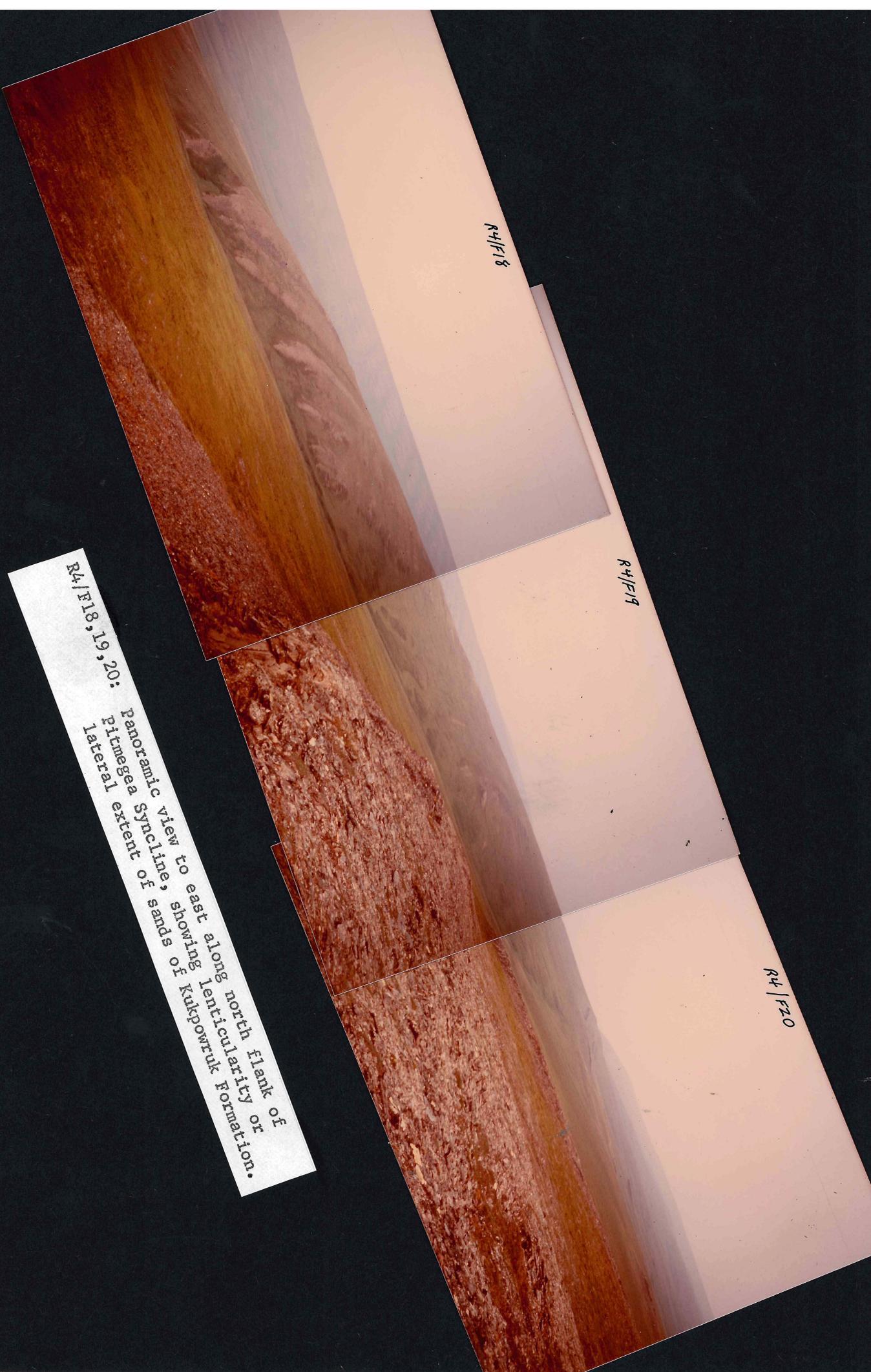


R4/F12

R4/F13

R4/F14

R4/F12, 13, 14: Panoramic view to west of complex of distributary channel sands of Kukpowruk Formation on south flank of Tupichak Syncline along Kokolik River. Section W-17c (TSE), interval 2385' - 2430'.



R4/F18

R4/F19

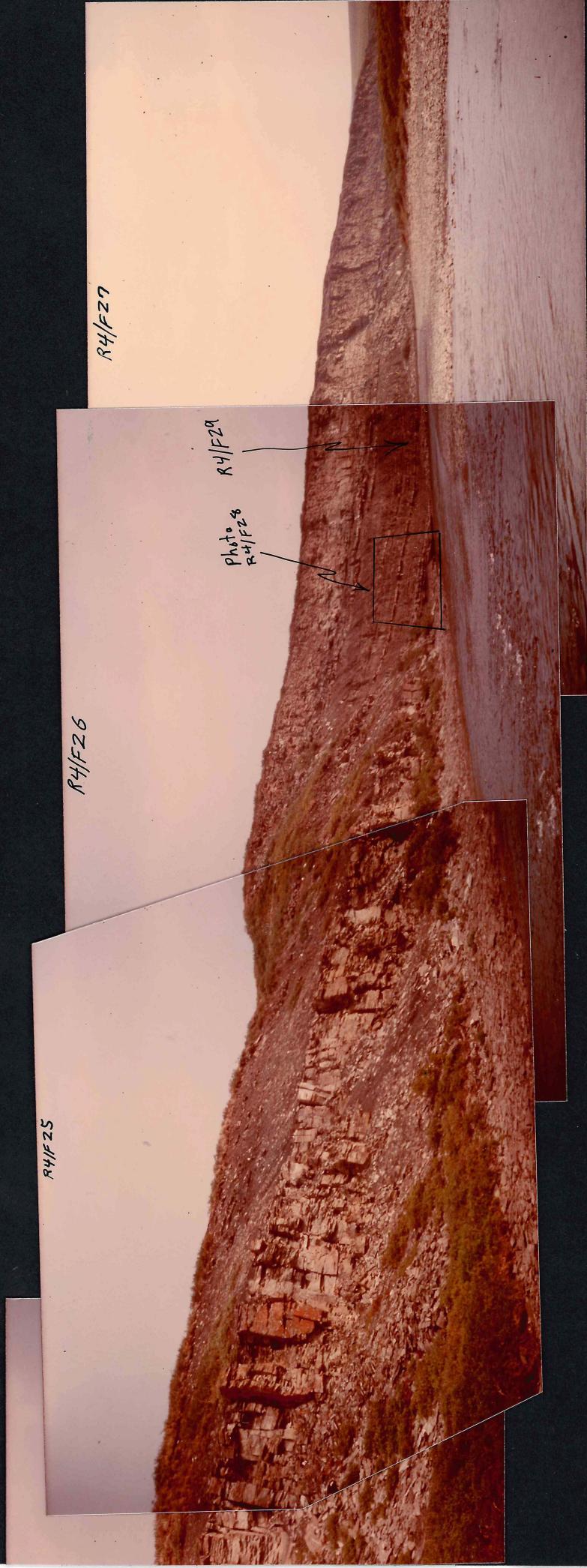
R4/F20

R4/F18, 19, 20:

Panoramic view to east along north flank of  
Eitmegea Syncline, showing lenticularity or  
lateral extent of sands of Kukpowruk Formation.

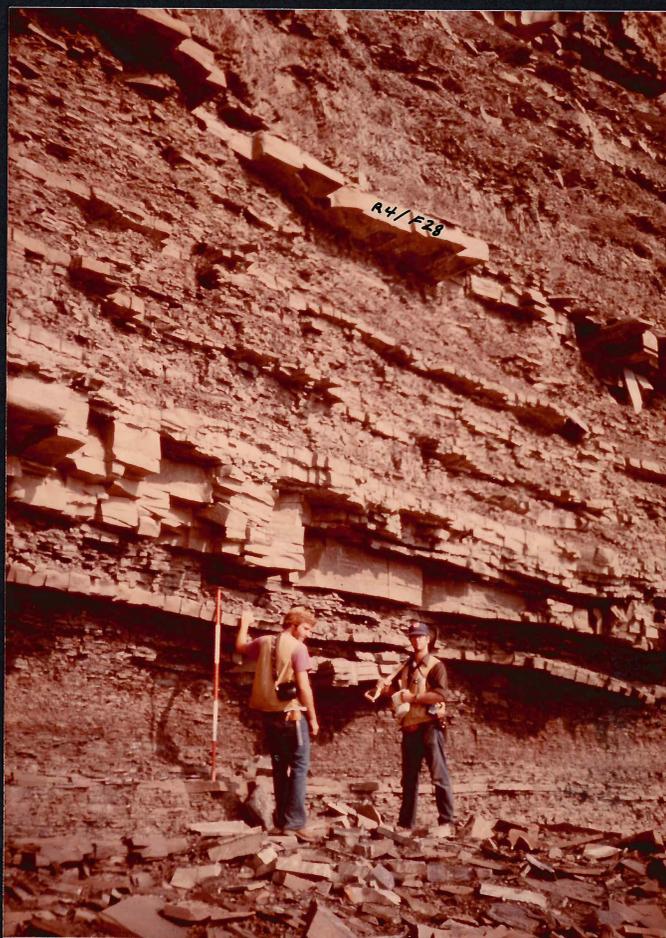


R4/F21: Large scale trough cross-bedding in scour-and-fill structure in sand at top of the Kukpowruk Formation near base of Corwin Formation. North flank of Pitmegea Syncline. Measured section W-20 (PS) @3085' (sand"K").



R4/F23, 24, 25, 26, 27: Panoramic view to north of exposures of Kukpowruk Formation along Utukok River on south flank of Folsom Point Syncline. Measured section W-22 (FP), interval 0'-600'.





R4/F28: Kukpowruk Formation. Lenticular, progradational delta front and prodelta sands interbedded with marine siltstone and shale. South flank of Folsom Point Syncline along Utukuk River, NE/4, section 5-T4S-R37W. Measured section W-22 (FP), interval 135'-160'.



R4/F29: Kukpowruk Formation. Preferential development of subvertical "fracture" or "fluid escape (?)" cleavage in gently dipping tidal flat or delta front siltstones. Siltstone interbedded with flaser interbeds of very fine-grained ripple sandstone. South flank of Folsom Point Syncline along Utukok River. Measured section W-22 (FP), interval 162'-167'.



R4/F30: Kukpowruk Formation. View west showing lenticularity of sands in measured section W-22 (FP) on south flank of Folsom Point Syncline along Utukok River.



R4/F31: Kukpowruk Formation. Low-angle hummocky trough cross-stratification, ripple upper surface. South flank of Folsom Point Syncline along Utukok River. Measured section W-22 (FP), interval "G", footage 118'-122'.



R4/F33: Kukpowruk-Corwin Formation. Ironstone-bearing paleosol horizon truncating tabular foresets in underlying point-bar sand sequence of delta-plain facies near Kukpowruk-Corwin contact. North flank of Snowbank Anticline along Kokolik River. Measured section W-24 (SAE) @1716'.



R4/F34: Corwin Formation. Small shale diapir invading sands at top of marine tongue within lower Corwin Formation. Makeshift jake staff for scale. North flank Snowbank Anticline along Kokolik River. Measured section W-24 (SAE) @2430'.



R4/F35: Kukpowruk Formation. Possible crevasse splay sequence (non-marine tongue?) of interbedded v.f.g. sandstone and siltstone containing abundant root structures and ironstone concretions. Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26 (CB), interval 5533'-5538'.



R/4F36: Kukpowruk Formation. Progradational sand sequence (splay; natural levee;?) truncated at top by massive channel scour sand with pebble lag at base (marked by top of jacob staff). Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26 (CB), interval 6022'-6028'.



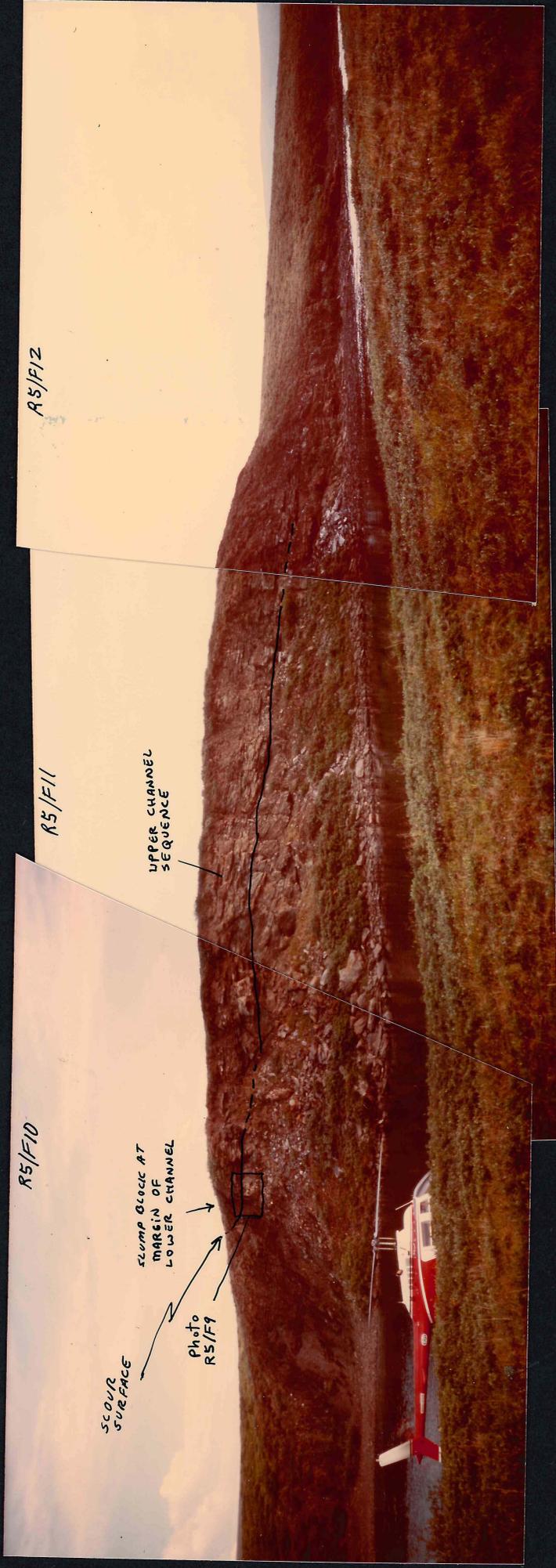
R5/F3: Kukpowruk Formation. View northwest along northeast flank of Coke Basin showing lenticularity and lateral extent of Kukpowruk sands. Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26, approximate interval 3000'-5000'.



R5/F6: Corwin Formation. View southwest showing lentibularity and limited lateral extent of Corwin point-bar sand sequences. Northeast flank of Coke Basin along Kukpowruk River. Thick sands correspond to interval 8340'-9340' in measured section W-26 (CB).



R5/F9: Corwin Formation. Apparent angular unconformity between channel margin slump block of natural levee/overbank (siltstone-shale) sequence and overlying point-bar channel sequence. Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26 (CB) @9798'.



R5/F10. 11, 12: Corwin Formation. Panoramic view of south channel-margin slump and overlying point-bar sequence. Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26 (CB), interval 9680'-9830'.



R5/F17: Corwin Formation. View east along south flank of Beaufort Syncline, showing lenticularity of Corwin Formation point-bar sands (delta-plain facies).



R5/F18: Cape Beaufort Radar installation (abandoned) and air-strip used as base camp.



R5/F26,27: Kukpowruk Formation. Diapiric accentuation of ripple structures in fluidized sand near top of distributary channel sequence. Axes of structures trend N75E. Northeast flank of Coke Basin along Kukpowruk River. Measured section W-26 (CB), interval 1711'-1716'.



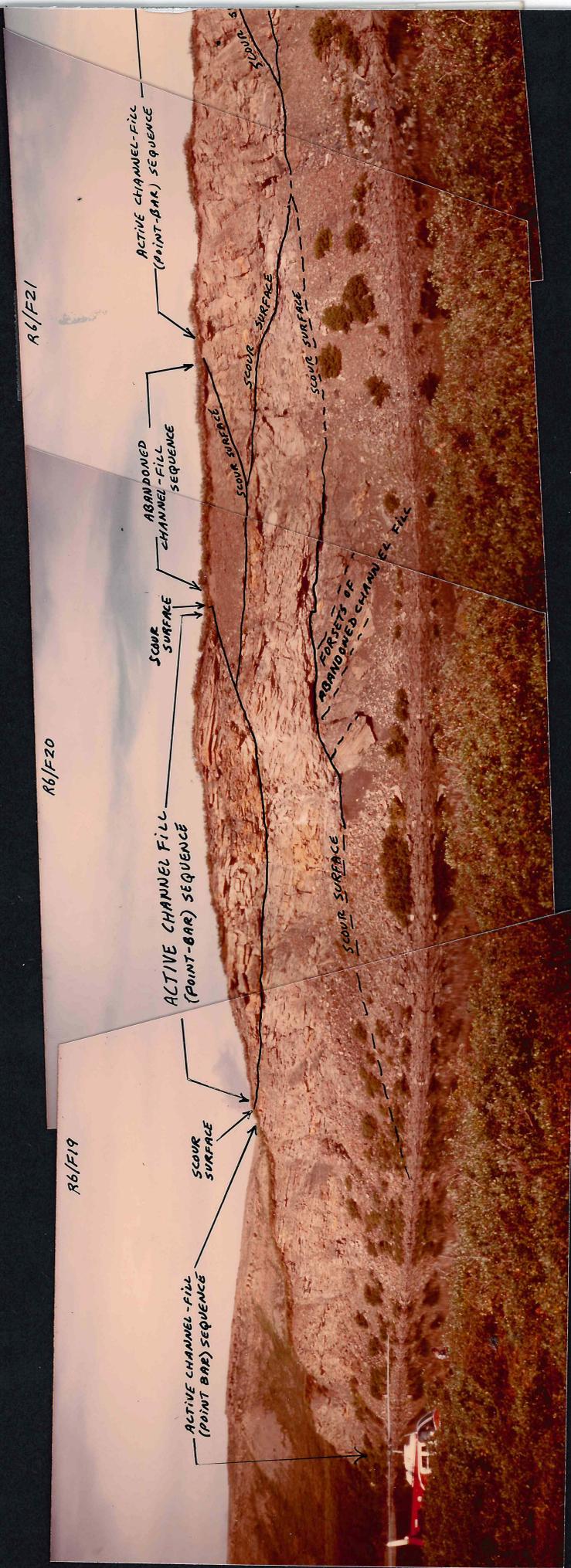
R5/F31: View north of type section of Kukpowruk Formation, showing lateral traceability of sands. North flank of Archimedes Ridge Anticline along Kukpowruk River. Measured section W-15 (KA), 300'-2670'.



R5/F32: Kukpowruk Formation. View west from type section showing lateral traceability of sand bodies. North flank Archimedes Ridge Anticline along Kukpowruk River. Section W-15 (KA), approximate interval 300'-2670'.

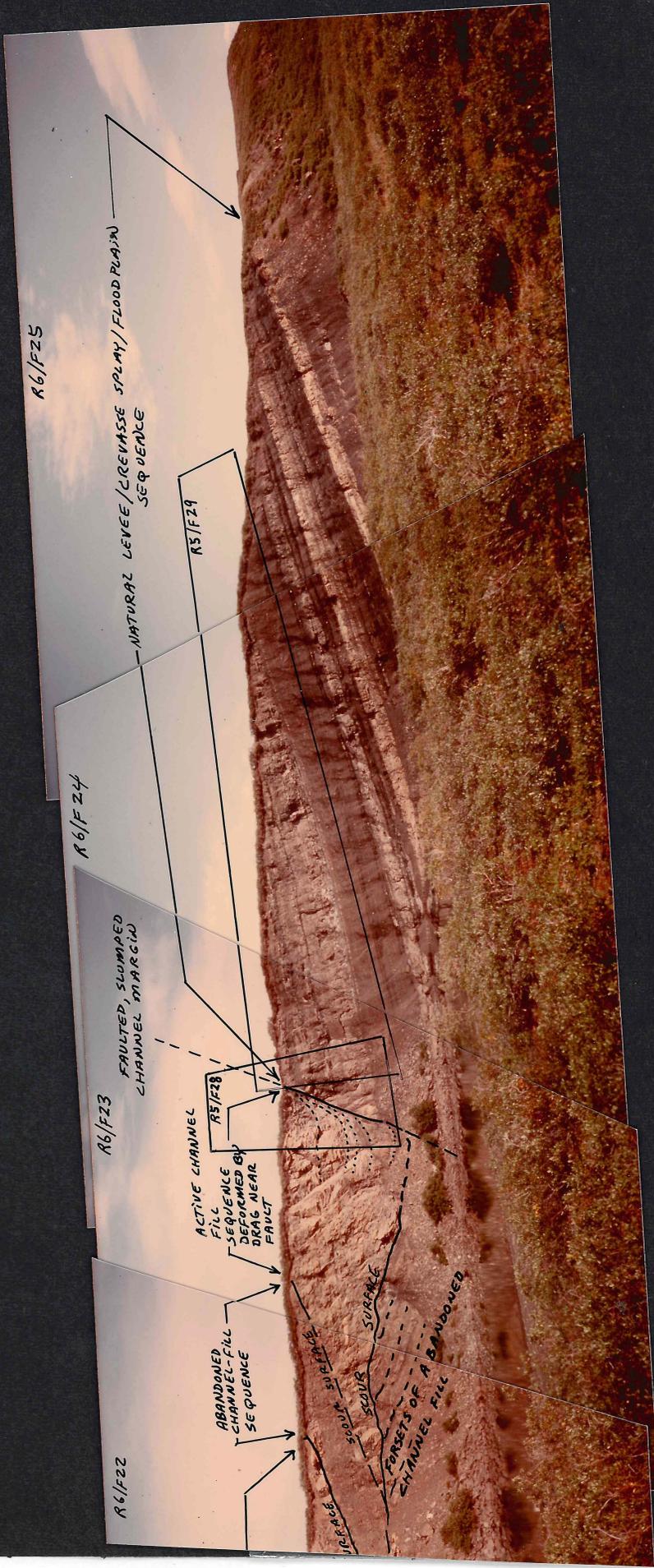


R5/F34: Kukpowruk Formation. View east along north flank of Blizzard Anticline, showing lateral extent and traceability of sands.



R6/F19, 20, 21, 22, 23, 24, 25:

Corwin Formation. Panoramic view of channel fill complex illustrating slump deformation of channel margin, laterally equivalent natural levee/splay deposits (on right) and active and abandoned (inclined forset sequence) channel fill sequences (see sketch). Southwest flank of Coke Basin along Kukpowruk River SE/4 section 7-T7S-R47W, Delong Mountains. D-2 quadrangle.





R5/F28: Corwin Formation. Thick channel sequence terminating to right at fault (indicated by individual) along margin of channel. Deformation in channel sequence on left increases downward and near fault (toward right). Sequence to right of fault consists of siltstone-shale natural levee or splay deposits. Southwest flank of Coke Basin along Kukpowruk River. SE/4, section 7-T7S-R47W, Delong Mountains. D-2 quadrangle.



R5/F29: Corwin Formation. Very fine-grained sandstones, siltstones and shales of natural levee/splay sequence at eastern margin of slumped channel. Note rapid thinning of sandstone beds to right away from channel. Southwest flank of Coke Basin along Kukpowruk River. SE/4, section 7-T7S-R47W, Delong Mountains D-2 quadrangle.



R6/F26: Kukpowruk Formation. View north of exposure of marine sandstones containing upper shoreface sands (see R6/F27). South flank of Tupichak Basin east of Kokolik River, in SE/4 section 16-T7S-R42W, Misheguk Mountain quadrangle. Corresponds approximately to interval 2947'-2960' in measured section W-17 (TSE).



R6/F27: Kukpowruk Formation. Horizontally laminated swash zone or upper shoreface sands. South flank of Tupichak Basin east of Kokolik River, in SE/4 section 16-T7S-R42W, Misheguk Mountain quadrangle. Corresponds approximately to interval 2947'-2960' in measured section W-17 (TSE).

R5/F28: See preceding page for description.

R5/F29: See preceding page for description.



R6/F31: Kukpowruk Formation. Vertical root structures in inter-distributary bay splay sands containing climbing ripples. Upper surfaces of sands are burrowed. North flank of Snowbank Anticline along Kukpowruk River.



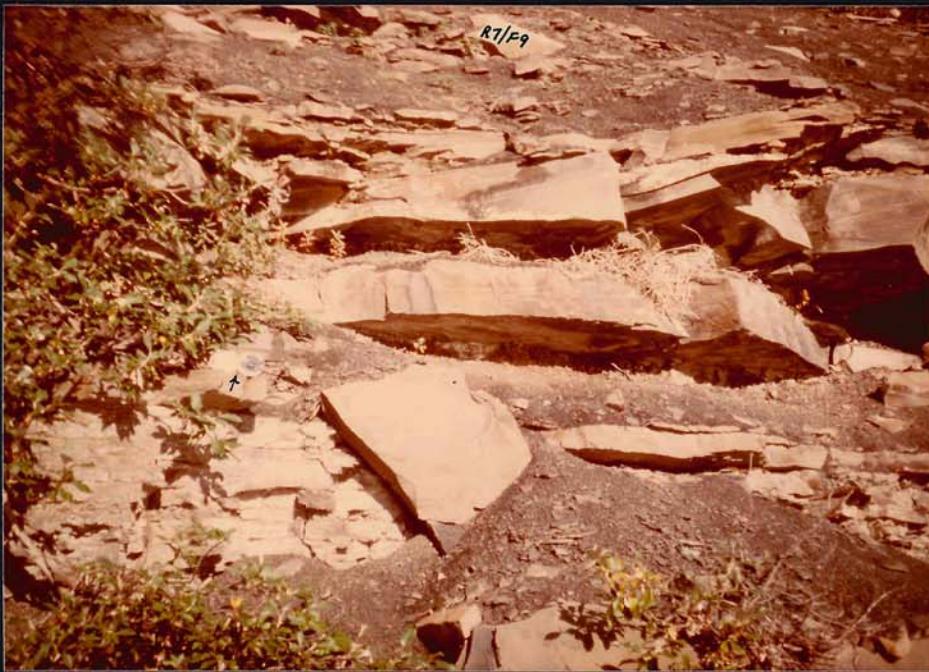
R6/F34: Kukpowruk Formation. Bi-polar cross-bedded tidal channel sands (see R6/F33) interbedded with highly burrowed tidal flat shales and siltstones. North flank of Snowbank Anticline along Kukpowruk River.



R6/F33: Kukpowruk Formation. Bi-directional tabular cross-lamination in tidal channel sands (see R6/F34) interbedded with tidal flat sequence. Mud drape on upper surface is heavily burrowed; burrow casts are preserved on basal scour surface of sand. North flank of Snowbank Anticline along Kukpowruk River.



R6/F35: Kukpowruk Formation. Flat-topped or truncated ripples on upper surface of tidal flat or channel sand. North flank of Snowbank Anticline along Kukpowruk River.



R7/F9: Kukpowruk Formation. Progradational channel-mouth bar (delta front) sand scoured and overlain by cross-bedded distributary channel sequence. North flank of Kukpowruk Syncline along Kukpowruk River. Measured section W-13, interval 125'-140'. Brunton compass for scale.



R7/F10: Kukpowruk Formation. Tidal channel and distributary channel sands interbedded with flaser-bedded tidal flat sequence. North flank of Kukpowruk Syncline along Kukpowruk River. Measured section W-13 (KKS), interval 20'-100'.



R7/F12: Corwin Formation. View southeast of Corwin Formation exposed in core of Tupichak Basin east of Kokolik River.



R7/F13: Kukpowruk Formation. Sand liquefaction structure near basal scour of distributary channel sand. South flank of Tupichak Basin east of the Kokolik River.



R7/F14: Kukpowruk Formation. Cross-sectional view down axis of large-scale trough in distributary channel sand. South flank of Tupichak Basin along Kokolik River. Measured section W-17c (TSE), interval 1160'-1170'.



R7/F15: Kukpowruk Formation. Plan view of large-scale trough in distributary channel sand. South flank of Tupichak Basin along Kokolik River. Measured section W-17c (TSE), interval 1160'-1170'.



R7/F16: Corwin Formation. Trough-cross lamination in lower part of basal Corwin point-bar sand sequence. Axis of Tupichak Basin along Kokolik River. Measured section W-17c (TSE), interval 2970'-2980'.



R7/F26: Kukpowruk Formation. Climbing tabular cross-stratification in distributary channel sand. Northeastern terminus (and south flank) of Dugout Syncline.