

COLUMNAR SECTION OF THE ECHOOKA FORMATION,  
AMAWK CREEK, WISEMAN (D-1) QUADRANGLE,  
NORTHCENTRAL BROOKS RANGE, ALASKA

LAT 67°56'15" N., LONG 150°26'48" W.

ROCK TYPES

Silty sandstone — Silty metasandstone

Sandy siltstone — Sandy metasiltstone

Siltstone — Metasiltstone

Silty shale — Silty slate

Limestone

Silty limestone

Silty dolostone

Chert

MINERALS

Calcite

Dolomite

P

Phosphate

Pyrite

STRUCTURES

Wispy lamination

Concretion, nodule, or pebble — May be combined with other symbols. Filled where indeterminate

FOSSILS

Brachiopod

Bryozoan

Conodont

Echinoderm

Foraminifera

Ichthyolith

Helminthopsis

Zoophycos

Burrow

STRIKE N.60°E., DIP 15°NW.  
VERTICAL SCALE 1 INCH = 4 METERS

SERIES	STAGE	GROUP	FORMATION	INFORMAL LITHO-STRATIGRAPHIC UNIT	THICKNESS, IN METERS	LITHOLOGY	SAMPLE NUMBER	FOSSILS	DESCRIPTION
Lower Pennsylvanian	Morrowan	Lisburne	Wahoo Limestone	A	0	84AKA19-1		Adetognathus sp.	SLIGHTLY METAMORPHOSED SANDY SILTSTONE, SILTY VERY FINE GRAINED SANDSTONE, AND SILTY CALCAREOUS DOLOSTONE, medium- to dark-gray, tan- and orange-brown-weathering. Siltstone and sandstone are calcareous, dolomitic, and cherty. Entire unit is pyritic, containing frambooids and nodules to 10 cm diam. Few medium to coarse grains of detrital chert, phosphate, and carbonate are concentrated toward base of unit, along with 7-mm-diam pebbles, which are probably phosphatic. Bottom of unit is floored by 5-cm-thick horizon of red clay. Beds are 2 to 8 cm thick and form base of 30- to 50-cm-thick fining-upward packages. Unit is obliquely and horizontally burrowed, exhibiting forms to 2 cm thick, and wispy laminated. Contains trace fossil Zoophycos, disarticulated brachiopods, and rare conodonts. Cleavage is well developed. Coarser beds are partly pitted on weathered surface and form hackly, slabby talus. Contact with overlying unit B1 is gradational
						84AKA19-2			
						84AKA19-3a			
						84AKA19-3b			
						84AKA19-4			
						84AKA19-5		Martinioid? (float)	
						84AKA19-6			
					5	84AKA19-7			
						84AKA19-8			
						84AKA19-9			
						84AKA19-10a			
						84AKA19-10b			
						84AKA19-11		Anidanthus sp., Martinia? sp. (large), and Orulganis? sp.	
						84AKA19-12			
					15	84AKA19-13			
Lower Permian and Lower Permian(?)	Wolfcampian	Sadlerochit	Echooka	B1		84AKA19-14			SLIGHTLY METAMORPHOSED SILTY SHALE PUNCTUATED BY SILTY CARBONATE AND DOLOMITIC SILTSTONE. Silty shale is light to dark gray and weathers blue gray to dark brown gray at base, mostly tan brown and red brown in lower half of unit, and green gray to black and red brown in upper half. Shale is dolomitic and (or) ankeritic and cherty throughout, phosphatic at base, and sideritic and slightly calcareous toward top; contains pyrite nodules to 10 cm diam and rare radiolarian chert pebble or concretion to 3 cm diam. Bedding obscured by slaty cleavage, but oblique and horizontal burrows, ranging from 0.25 to 0.75 cm diam, wispy lamination, and the trace fossil Helminthopsis(?) are preserved. Rare foraminifera were observed in thin section. Shale is partly pitted and cut by carbonate veins and weathers to hackly flags and plates. Vitrinite reflectance (Ro) values for shale average 4.2 at base and 1.92 toward top, and thermal alteration index (TAI) ranges from 4 at base to 3.7 toward top (Chevron U.S.A. Inc., written commun., 1985), suggesting rocks reached lower limit of metamorphism. Contacts with coarser beds are sharp and, in some cases, exhibit flame structures(?).
						84AKA19-15			

Mapping by C.G. Mull and K.E. Adams, 1983.

Section measured with Jacob's staff, by K.E. Adams and E.E. Harris, August 1984. Due to thrust faulting, section is probably incomplete.