CF 76 0902
STRAT SECTIONS
DIV MEMO 175

ENCL 17a

Amoco Production Company

Composite Stratigraphic Section

Name: WEST COPPER RIVER BASIN

AREA OR QUAD: NELCHINA UPLIFT AND UPPER MATANUSKA VALLEY — STATE: ALASKA

LOCATION: ____ Sec. ____ TWN ____ RNG ____

MEASURED BY ____ DATE ____

INTERVAL: Quaternary to Lower Jurassic

REMARKS: Quaternary and Tertiary from Atlantic No 1 Rainbow-Federal, sec 31, T.8N, R5W, CRM. Surface Sections Compiled from Amoco 1960-1974 Field Work and USGS-1953-1965

LOCATION ____ N ____ W

PLOTTED BY J.D.P. DATE: 5-1-75

SOURCE ROCK SAMPLE
△ F(O) 80.1* 5-6
- F → Generating Capability: N = None, P = Poor, F = Fair, G = Good
- (O) → (Hydrocarbon type) O = Oil, G = Gas and W = Wet gas (Condensate)
- 80.1 → Carbonization in % - Elemental Analysis
- * = Low carbon due to weathering or incomplete sple purification
- 5-6 → Carbonization Scale - Visual

Columns: PERIODS | EPOCHS | GROUP or FM. | MEMBER | AGES (Stages) | FOSSILS | CORES | SHOWS | DEPTH | LITHOLOGY | POROSITY (P F G E) | SAMPLES | DESCRIPTION | LOCALITY

CENOZOIC — TERTIARY — MIOCENE - PLIOCENE (QAL)

1.8 MY

(200') Glacial-Fluvial Deposits

Sandstone and Conglomerates in Fine to Coarse grain matrix

Claystone and Coal with Few Sandstones and Conglomerates

(2420') Sandstones to Conglomeratic Sandstones with Siltstone and Claystones to Shales.

LOCALITY: ATLANTIC NO 1 RAINBOW-FED Sec. 31, T8N, R5W CRM

22.5 MY / 65 MY

MESOZOIC — CRETACEOUS — UPPER CRETACEOUS — MATANUSKA FORMATION

Ages: Campanian - Maestr., Santonian, Cenomanian Turonian Conacian

Fossils: P(G) 90.5 6; P(O) 88.6 6; P(G) 85.4 4; P(G) 83.3 4; F(O) 85.6 4; F(G) 85.7 5-6; F(G) 86.5 5-6; F(G) 86.1 5

4.6-6.8% ø 1.5-3.1 mds — Shale, medium grey, platy to fissile. Some thin siltstone and sandstone beds.

11.4% ø .39 mds — Sandstone, medium-grey, very fine to fine grained, well indurated, with siltstone and shale increasing toward base. Some contorted basal beds. Unit is about 750' thicker 5 miles northeast - also pebbly and with pebble-cobble conglomerate in basal 200'

LOCALITY: SOUTH SYNCLINE MOUNTAIN

Shale, grey-medium grey, platy to blocky, few thin siltstone and sandstone beds 1" to 10' thick. In part calcareous and silty with limestone concretions 4" to 10', some sandstone concretions.

(9550'±)

Rare Coquina bed

3 beds 1'-8' thick conglomerates pebble-cobble (6") interbedded with siltstone sandstone and shale. Sandstones, salt and pepper, very fine-fine grained, fair porosity

Shale, grey, non calcareous, with Limestone Concretions.

LOCALITY: NORTH SHEEP MOUNTAIN

100 MY

7.4-9.8% ø .18-.44 mds. — Siltstone - very fine sandstone. Sandstone, grey fine-grained well-sorted, flaggy, fossiliferous, glauconitic, slightly calcareous poor-fair porosity. Some silty shale

LOCALITY: (GUNSIGHT CREEK)

(1200'±) Siltstone and silty claystone, greys and brown, with numerous irregular thick zones of siliceous claystone and siltstone, locally abundant interbeds of sandstone and coarse siltstone. Thickness varies 300-800'

LOCALITY: UPPER MATANUSKA VALLEY - NORTH CHUGASH MOUNTAINS

LOWER CRETACEOUS — NELCHINA (L.SS, LS, Up. SS) — Albian, Neocomian

108 MY

Shows: OIL, ODOR; N(O,W) 2-3; N ? Rec. to small

16.6-24.3% ø 1.1-669 mds — Marine lithic sandstone (epiclastic volcanic), commonly X-bedded, lower half coarse and conglomeratic with marine fossils, upper half fine-medium grained, unit variable 100'-400' to north in limestone hills represented by sandstones, coal bearing claystone and conglomerates marine and non-marine. Thickness varies 100-400'

(1238') Sandstone, dark olive grey, fine to coarse grained quartz, mica, volcanic frags, feldspars. Oil odor on fresh breaks. Possible light brown oil stain. Fair-good porosity

14.8% ø 7.2 mds — Limestone (calcarenite) of pulverized Inoceramus prisms very light grey, X-bedded. Oil odor on fresh breaks, sdy

9.6% ø 3.8 mds — Sandstone, greys, poorly sorted, coarse to very coarse grained, quartz, feldspars, volcanic frags, good porosity. Calcareous

15% ø .34 mds; 7.92' (708' ø) — Sandstone, greys, very fine to medium grained, X-bedded, calcareous in part, slightly shaly. Fair porosity

LOCALITY: LIMESTONE GULCH AND GAP IN LIMESTONE HILLS AREA EAST SIDE OF BILLY CREEK.

135 MY

JURASSIC — UPPER JURASSIC — NAKNEK FORMATION (Chisik Cgl.), CHINITNA — Kimmer.-? Port., Oxfordian, Callovian

20.7% ø 30 mds — Interbedded conglomerates, sandstone and shale good porosity

Shale, dark grey to black, blocky and siltstone with limestone concretions.

LOCALITY: UPPER LITTLE NELCHINA RIVER

(2612'±)

890' — Conglomerate, grey - dark grey to brown grey cobble to boulder (3'±) of granitic, dioritic volcanic material. Matrix of siltstone - silty ss. massive appearance

LOCALITY: LITTLE OSHETNA RIVER NORTH OF CONGLOMERATE CREEK

149 MY

F(O) 72.9 2

(645') Shale to claystone, grey, soft, weathers yellow, blocky. Some calcareous shaly concretion

156 MY

MIDDLE JURASSIC — TUXEDNI GROUP — Bathonian, Bajocian

N(G) 2; VB(W) 71.8* 4

Cobble conglomerates (up to 8"), sandy matrix, some sandstone and siltstone, carbonaceous, marine fossils

Mudstone, black, sandy, few pebbles, marine fossils and fossil wood in thin coquina bed.

Pebbly sandstone, yellow-brown, shaly tight

(2000'±?) Claystone, soft with coaly material and leaf imprints, with pebbly sandstone, siltstone and coaly claystone

3.2% ø ∠.05-.131 mds; 8.8-14.9% ø ∠0.1 mds — Sandstone, grey-black, pebbly, marine fossils, siltstone and claystone.

LOCALITY: CARDIOCERAS CREEK

9.2% ø ∠0.1 mds; 3.5% ø 11.9 mds — Sandstone, very fine to medium grained, poorly sorted, occasional siltstone bed (thin), X lamination. Friable to very hard, black dirty matrix in part. Tight to poor porosity, scattered fair to good throughout.

174 MY

Angular unconformity

LOWER JURASSIC — TALKEETNA FORMATION — Toarcian, Pliensbachian, Sinemurian, Hettangian

Volcaniclastics: siltstone to sandstone, coarse grained to pebble-cobble conglomerate. No discreet bedding. Traces fossil wood and marine fossils. Lithology plotted below very generalized.

Talkeetna formation - estimated 6000-8000'. Base is not exposed. Divided into three units. See USGS PP 801 p. 10-11, 1973.

UPPER PART
Sandstone and argillite

(8000'±)

MIDDLE PART
Volcanic flows and pyroclastics

Lithology plot is very generalized

LOWER PART
Argillite and Sandstone

LOCALITY: LITTLE OSHETNA RIVER, MOUSE CREEK (ALONG CARIBOU FAULT), SHEEP MOUNTAIN, AND NORTH FRONT CHUGASH MTNS

192 MY

PALEOZOIC — PENNSYLVANIAN - PERMIAN — SKOLAI GROUP(?) EQUIVALENT

Csejtey, 1976, (Geology, Vol. 4, No 1.) described, a dominantly marine sequence of tightly folded and complexly faulted metavolcanogenic rocks over 5000m. thick (base not exposed)" consists mostly of metamorphosed flows and tuffs of basaltic to andesitic composition and of coarse- to fine-grained metavolcaniclastic rocks, with clasts composed chiefly of mafic volcanic rocks. Mudstones, thick-bedded to massive bioclastic marble, and dark gray to black phyllite are subordinate."

(16,405'±) Metavolcanic - Metavolcaniclastics units (roughly 4/5 of sequence) reach thicknesses in excess of 1000m (3281'), phyllite units a few meters to several hundred meters and marbles a few tens of meters thick.

Lower Permian fossils found in one of marble units intercalated with metavolcanic rocks near the top. Similar but unidentifiable fossils found lower in sequence. Lowermost parts may be as old as Pennsylvanian age.

LOCALITY: NORTHWEST TALKEETNA MTNS. Csejtey, 1976 Geology, Vol 4 No. 1.

Lithology plot is very generalized

Base Not Exposed
44,300'± Total Composited Geologic Column.