A Wilson Cycle

Formation Description	Strip Log	Environmental Interpretation and Dominance

Sourceland Tectonics — Stable / Epeirogenic / Orogenic

MAIN BASIN
Very widespread, continuous facies distribution
C/S | Sand | Gravel

FORMATION Y
Algal laminated micrites and dolomites. Mudcracks, ostracods.
Light gray
Carbonate Tidal Flat

FORMATION X
Base has wavy and lenticular bedding. Mid to top interbedded shales and quartz wacke hummocky bedded sands.
Marine fossils common to abundant in the shales.
Greenish
Clastic Shelf

FORMATION W
Quartz arenite. Gently dipping laminations. Oscillation ripples andcross beds common. Skolithus
White
Beach

FORMATION V
Quartz conglomerates interbedded with coarse grained large planar cross bedded quartz arenites (L-Bar/T-Bar sequences).
Sequences tend to thin and fine toward top of section
White
Braided River

Tectonic Stability
Epeirogenic Uplift

FORMATION U
Quartz arenite. Gently dipping laminations. *Skolithus.*
White
Beach

Tectonic Stability

FORMATION T
Green shales with lenticular bedding at base. Thin hummocky sequences in the middle, which thicken and change into megacross bedded medium sands at top.
Marine fossils common in places.
Greenish
Shallowing Clastic Shelf

FORMATION S
Feldspathic lithic wackes. Lithics include radiolarian chert, quartzite, carbonates, feldspars, and metamorphic fragments.
Bouma sequences typical. TDE common at base, becoming TABE and TBCDE in the main. Sequences thin and become indistinct near the top.
Dark gray
Submarine Fan

Orogenic Foreland Basin

FORMATION R
Base of interbedded black micrites and shales. Micrites contain broken, transported fossils. Shales thicken and dominate up section. Graptolites in shales.
Dark gray to black
Basin

FORMATION Q
Micrites, biomicrites, packed fossiliferous micrites. Small patch reefs of fossil boundstone (crinoids, bryozoans, calcareous algae, cephalopods, etc.). Some megarippled biomicsparites. Limestones darken suspection, black at top.
Medium gray to black at top
reef
Carbonate Shelf

FORMATION P
Very thick sequence of algal laminated micrites and dolomites. Srtomatolites, intramicrudites (flat pebble conglomerates), pelmicrites, prism (mud) cracks common.
Rare quartz arenite beds. Occasional herringbone cross bedding.
Light gray
15 X thicker
Carbonate Tidal Flat

Divergent Continental Margin

FORMATION O
Quartz arenite, minor feldspathic arenite. Skolithus abundant, cross bedding common
White
Beach

FORMATION N
Base has minor feldspathic wacke sand beds, some with graded bedding. Most of formation shales, sometimes interbedded with fine sands. Rare marine fossils.
Greenish / Dark gray
Shallowing Basin
Submarine Fan

FORMATION M
Coarse grained feldsdpathic arenite, quartz arenite, pebble conglomerates (pebbles of basement rock), and weakly metamorphosed shales. Large planar cross beds common in places; Bouma sequences in places.
Minor basalt lava flows.
Tan to light gray
Braided River
Submarine Fan

Fan Delta
Rifting

FORMATION L
Tholeiitic basalt flows with columnar jointing, amygdules, and flow breccias, interbedded with sandstone, conglomerate and slate
Flood Basalts

FORMATION K
Feldspathic, lithic, & quartz sandstones, some shale, congl. nd lava flows
Gray to white
Alluvial Fan

Felsic plutonic igneous and high grade metamorphic basement rock.

Sea Level Curve

Tectonic Curve

LATERAL BASIN
(Basin of restricted, discontinuous distribution. Several basins similar to this one exist in the region.)
C/S | Sand | Gravel
Disconformity, or continuous into Main Basin

TOP
Lithic, feldspathic x-bed ded ss, & pebbly congl.; locally Bouma sequences and laminated shales

3X thicker

MIDDLE
Massive rhyolite (alkaline) ash and lava flows

3X thicker

BOTTOM
Interbedded basalt, rhyolite, and poorly sorted feldspathic and lithic sandstone (some crossbedded) and congl.

Base of section in main basin older than base of section in other basin.

Basin | Shelf | Transition Environment | Medial Terrestrial | Proximal Terrestrial
Relative Sea Level
High Stand ← Transgressive curve / Regressive curve → Low Stand

Fichter, L.S. and Poche, D.J. Ancient Environments and the Interpretation of Geologic History, 2/e, c Macmillan, 1992