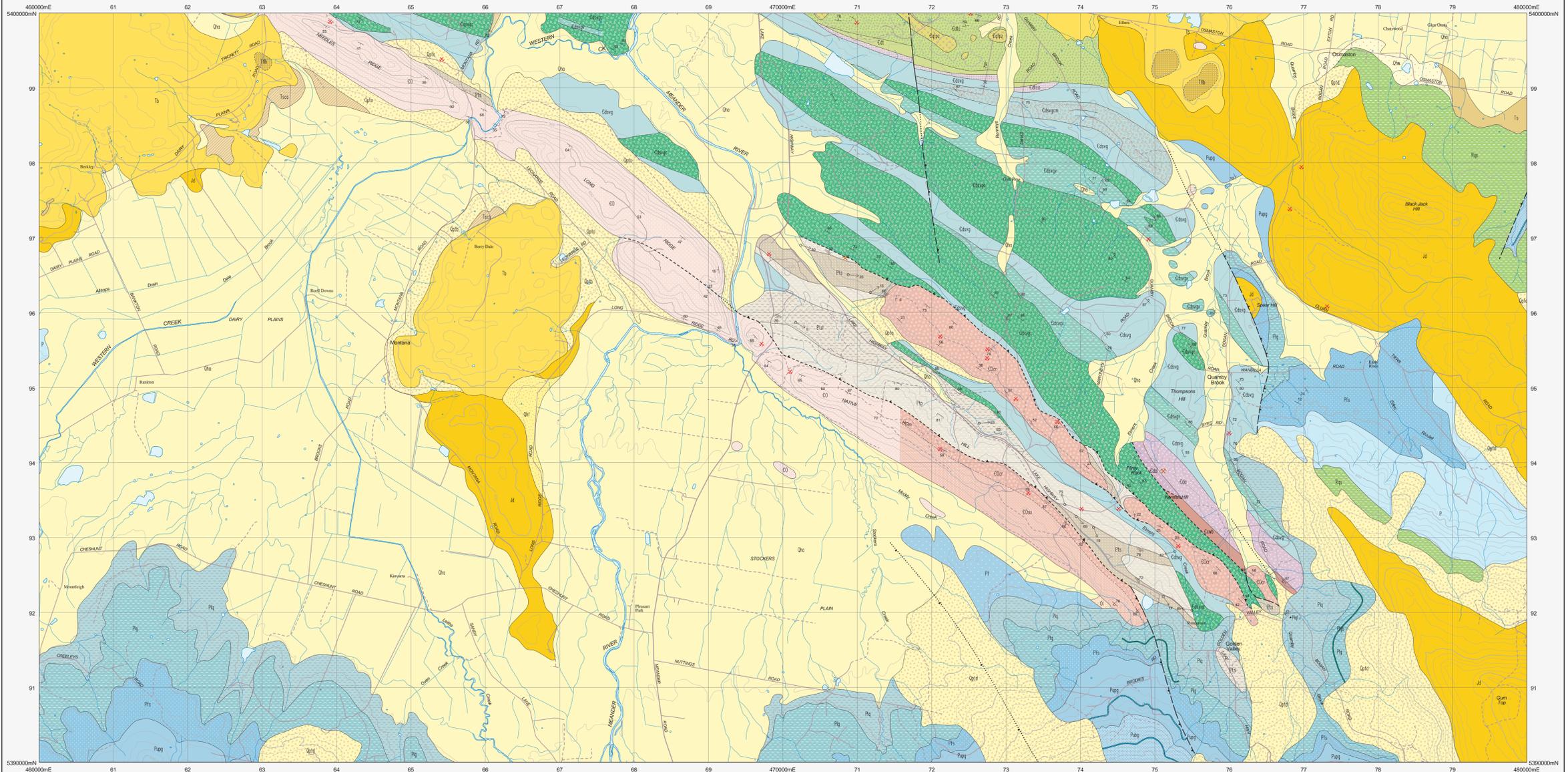


# MONTANA

Scale: 1:25 000



CENOZOIC	QUATERNARY	
	PLEISTOCENE	HOLOCENE
	Qh	Stream alluvium, swamp and marsh deposits (Qh).
	Qhw	Windblown and locally derived sand (Qhw).
	Qht	Ferricrete lag deposit (Qht).
	Qp1b	Basalt tals (Qp1b).
	Qp1d	Talus consisting dominantly of dolerite boulders (Qp1d).
	Qp1c	Quartz sandstone and conglomerate tals derived from Owen Group corallites (Qp1c).
	T1b	Laterite derived from Paleogene - Neogene basalt (T1b).
MESOZOIC	TRIASSIC	
	Ts	Undifferentiated Paleogene - Neogene sediment, dominantly non-marine sequences of quartz sand, silt, clay and regolith (Ts).
	Tsc	Poorly consolidated clay, silt and clayey silt with rare gravel and lignite; some iron oxide-cemented layers and concretions (Tsc).
	Tb	Basalt (Tb).
	Tsc	Inter- and sub-basalt gravels of predominantly quartzite pebbles (Tsc).
	Rsp	Cross bedded quartz sandstone, feldspathic sandstone and shale (Rsp).
	Rug	1 to 2m thick resistant unit of siliceous granule to pebble conglomerate (Bogon Conglomerate) (Rug).
	Rug	Unfossiliferous pebbly siltstone, siltstone and sandstone (Bogon Cap Group) (Rug).
	Rug	3 to 5m thick resistant unit of unfossiliferous pebbly sandstone and conglomerate (Palmer Sandstone) (Rug).
	Rug	Sandstone, mudstone and pebbly mudstone with marine fossils (Palmer Group) (Rug).
	Rug	7 to 10m thick resistant unit of brown-grey medium grained fossiliferous pebbly sandstone (Palmer Sandstone) (Rug).

PALEOZOIC	PERMIAN		
	ORDOVICIAN	PERMIAN	
	Pf1	Dominantly well-sorted quartz sandstone, normally cross-bedded or laminated and commonly with interbedded and laminated carbonaceous shale, lesser conglomerate and rare coal (Lifey Sandstone) (Pf1).	
	Pf2	Predominantly fossiliferous and erratic rich mudstone, shale, limestone and sandstone (Golden Valley Group) (Pf2).	
	Pf3	Thin thick resistant unit of fossiliferous, pebbly micaceous sandstone (Bogon Sandstone) (Pf3).	
	Pf4	Infossiliferous dark grey pyritic mudstone (Quarry Mudstone) (Pf4), with local occurrence of Tasmanian Oil Shale of 476,70mE 5,39(740m) (Pf4).	
	Pf5	Talbe and erratic rich mudstone (Stockers Talbe) (Pf5).	
	O1	Limestone (correlate of Gordon Limestone) (O1).	
	CO	Pink quartzite-derived, coarse- to open-framework, massive pebble-cobble conglomerate with minor pink quartzite beds (Correlate of Rosal Conglomerate) (CO).	
	CO	Pink quartzite-derived, coarse- to open-framework, massive pebble-cobble conglomerate with minor pink quartzite beds (Correlate of Rosal Conglomerate) (CO).	
	CO	Felsic to intermediate volcanoclastic, volcanic and sedimentary rocks, Late Middle Cambrian fossils in places, Tynall Group and corallites (CO).	
	CO	Mostly volcanoclastic conglomerate and sandstone with minor mudstone. Sparse quartzite clasts and clasts of granite in places (CO).	
	CO	Quartz-feldspar +/- pyroxene +/- hornblende phytic porphyry. Intrusive to locally extrusive (CO).	
	CO	Andesitic volcanoclastic conglomerate and sandstone, typically crystal-rich with plagioclase-quartz-pyroxene +/- biotite crystals. Abundant andesite lava and minor quartzite clasts (CO).	
	CO	Andesitic lava and associated volcanoclastic rocks, typically plagioclase-pyroxene phytic (CO).	
	CO	Marine volcano-sedimentary and sedimentary sequences of sandstone, siltstone, mudstone conglomerate and breccia with some felsic to andesitic volcanic rocks (Top Range Breccias) (CO).	
	CO	Plagioclase conglomerate with volcanic and metamorphic clasts (CO).	
	CO	Dominantly siliceous conglomerate and sandstone, typically rich in quartzite clasts (CO).	
	CO	Quartz-feldspar phytic purplish volcanoclastic sandstone and siltstone (CO).	
MESO-PROTEROZOIC		Pts	Massive, platy and banded quartzite (Pts).
		Ptp	Quartz-muscovite schist and phyllite (Ptp).
		Pts	Schistose quartzite, quartzite and schist (Pts).

PALEOZOIC	MESOZOIC	
	CAMBRIAN	JURASSIC
	Jd	Dolerite and related rocks (Jd).
	CO	Quartz-feldspar +/- pyroxene +/- hornblende phytic porphyry. Intrusive to locally extrusive (CO).
	CO	Clinozoisite-olivine phytic cumulate rock (CO).
	CO	Placed to massive fine- to medium-grained pebble bearing tholeiitic basalt (gravel correlate of Maitland Melbasalt) (CO).

INTRUSIVE ROCKS	
—	Geological boundary - position accurate or approximate.
- - -	Geological boundary - inferred.
- - - - -	Fault (unspecified) - position accurate or approximate.
- - - - -	Fault (unspecified) - inferred.
.....	Fault (unspecified) - concealed.
.....	Normal fault (downthrown side indicated) - position accurate or approximate.
.....	Normal fault (downthrown side indicated) - concealed.
.....	Thrust fault (teeth on upper plate) - inferred.
(white line)	Limit of mapping of sub-unit within undifferentiated rock unit.

Compiled by M.J. Vicary B.Sc. (Hons), 2004 as part of the Western Tasmanian Regional Minerals Program from the following sources (see Responsibility Diagram):

A BARTON, C.M., BRIND, A.P., O'LEARY, A.B., LONGMAN, M.J., MARSHALL, B., MATHEWS, W.L., MOORE, W.R., NAUGHTON, I.H. and PIKE, G.P., 1969. Geological Atlas 1:100 000 Series, Sheet 46 (BETHAN Quarry, Tasmania, Department of Mines).

B HERRMANN, W.R., 1991. Annual report to 30/02 EL 16300 - Deloraine, Litchfield West Coalfields, Exploration Australia Progress Report.

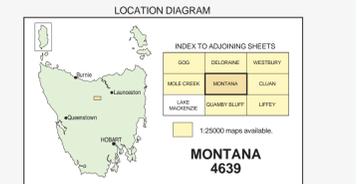
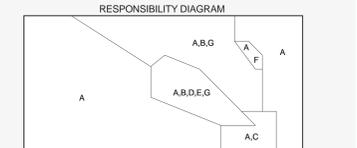
C CLARKE, M.J., 1968. A reappraisal of a Lower Permian type section, Golden Valley, Tasmania. Rec. Geol. Surv. Tasmania 7.

D WOODWARD, N.B., GRAY, D.R. and ELLIOTT, C.C., 1995. Repeated Palaeozoic Breaching and Abandonment of Tasmanian basins, northern Tasmania. Aust. J. Earth Sciences, 40, 297-312.

E WELLS, A.T., 1957. Geology of the Deloraine-Quarry Valley area, Tasmania. Rec. Geol. Surv. Tasmania, 14, 70-75.

F MOORE, W.R., 1971. Geological investigation of the Quarry Book No. 11 (BETHAN, Tully River, Department of Mines Tasmania, 14, 70-75).

G Vicary, M.J., 2007. Updated as part of the TasExplor Project.



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GDA84 - MGA Zone 55. Contour Interval: 20 metres.

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