

# LITHOLOGICAL REPORT

## Fingal-59B

**Well Site Geologist:** Jesse Coates-Marnane

**Location:** Fingal, Tasmania

Interval (m)		
FROM	TO	CUTTINGS DESCRIPTION
0	101.8	Dolerite: massive, dark grey, homogeneous
FROM	TO	CORE DESCRIPTION
101.8	236	Dolerite: massive, medium-dark grey, homogeneous, steeply dipping veins of quartz, calcite (or calcareous mineral) and chlorite becoming more frequent and thicker with depth. There are several gradational changes in certain minerals grain size throughout. Most abundant over the interval 130-180m. Some veins have chlorite phenocrysts.
236	256.05	Extremely metamorphosed sediments, blue-grey speckled, appear to have been quartzose sandstone, siltstone and some minor mudstone. Epidote common, large veins of un-identified, clear, cubic mineral. Some pyrite specks. This transition was difficult to pick because of textural similarities and closeness to the intrusion. Distinguishable metasediments appear at 256.2 after a fault
256.05	257	Claystone: red/brown, epidote. Top of section is fault breccia
257	258.02	Conglomerate: well rounded pebbles <5cm, relatively well sorted polymictic, in f-m sand matrix. Pebbles are volcanic and lithic clasts
258.02	258.44	Claystone: red/brown, some pale green veins slickensides
258.44	258.53	Claystone: white with very thin blood red veins of un-identified mineral
258.53	261.25	Carbonaceous mudstone: red-dark brown, carbonaceous wisps/ lamination. Microfaults
261.25	261.6	Interlaminated light white and dark grey carbonaceous claystone. Some thin red veins
261.6	262.2	Laminated silt & mud, predominantly silt at top, carbonaceous, flame structure, starved ripples, trough cross bedding grades mud
262.2	262.9	Mudstone: med-dark grey, light/dark laminations, grades silt
262.9	263.43	Laminated silt with minor mud, carbonaceous, flame structure, starved ripples, trough cross bedding
263.43	268.25	Sandstone: fine-medium, medium grey, carbonaceous, minor silt laminations and carb wisps, mud/carb shale rip ups at base
268.25	268.75	Carbonaceous siltstone: arenaceous, dark brown/black, minor med sand lamination, undulose bottom contact
268.75	271.18	Sandstone: fine-medium medium grey, abundant carb silt/carb silt rip ups <10cm, minor carbonaceous mud laminations
271.18	271.48	50% fine-medium sandstone 50% carbonaceous shale/heavy coal rip ups
271.48	272.05	Carbonaceous siltstone: medium-dark, heavy carbonaceous mud laminations, soft sediment deformation in places, trough cross bedding, micro faults, minor flaser bedding T.B ripples, minor flame structures
272.05	282.45	Carbonaceous Sandstone: f-m, minor carb lamination which thins and stops about 275, small rip ups <2cm dirty sand. Becomes darker grey/brown with depth, thin coaly wisps and stringers appear T.B 60-90% bright with calcite in cleats, laminations appear T.B some dipping steeply
282.45	284.12	Carbonaceous shale/Heavy earthy coal: dark grey/black, some brighter bands 40-60% bright <7mm
284.12	~286	Carbonaceous siltstone: medium grey/brown carb lam, trough cross beds, bioturbation, climbing ripples, becomes more arenaceous with depth grades fsst
286	293.43	Carbonaceous sandstone: fine-medium, medium grey, grades from fine to medium, feint wispy carbonaceous lamination, minor flaser bedding, Trough cross bedding(TCB), mnr silt bands, mud and coal rip ups, carb rip ups TB
293.43	295.37	Carbonaceous siltstone: medium-dark grey, argillaceous, massive
295.37	297.8	Sandstone: fine-medium, massive, minor carb silt band, minor rip ups
297.8	297.86	Coal: 40-60% bright, 20% shale, very fractured, calcite
297.86	298	Coaly carbonaceous shale: 30% heavy dull coal
298	298.41	Carbonaceous shale: medium grey more carb TB
298.41	298.7	Coaly carbonaceous shale: 30% heavy dull coal, becomes interlaminated with clay TB
298.7	298.8	Claystone: light grey, carbonaceous laminations and coaly wisps
298.8	298.91	Coaly carbonaceous shale
298.91	299.41	Desorb#1: 50/50 carb shale and dull coal, some 14-40% bright bands which are well cleated and in-filled with calcite

299.41	301.44	Carbonaceous shale: thin light dark laminations, carb-very carb, microfaults, bioturbation, small scale TCB, starved ripples
301.44	301.88	Claystone: light dark grey lamination,
301.88	303.14	Carbonaceous mudstone: heavy bioturbation, medium grey/brown
303.14	303.92	Carbonaceous siltstone: light dark grey lamination, TCB, some bioturbation
303.92	306.98	Carbonaceous sandstone: pale yellow grey , TCB, Carbonaceous mudlamination, minor bioturbation, weak flaser bedding in places
306.98	307.75	Carbonaceous siltstone: arenaceous, light/dark grey lamination/bands, minor mud rip ups<1cm, horizontal burrows
307.75	317.6	Sandstone: fine-medium, medium grey, minor carbonaceous silt-mud laminations, minor rip ups, TCB, minor carbonaceous wisps or thin mud drapes, rare coal clast, rip ups TB
317.6	318.02	Interbedded arenaceous carbonaceous siltstone and coaly shale, minor bright coal bands <2cm
318.02	318.17	Coal: earthy dull heavy
318.17	320	Interbedded coaly carbonaceous shale, and brown arenaceous, carbonaceous silt. Carb shale grades to heavy dull coal in several places <7cm coal seam thick ness increases to about 10cm with depth. Minor bright bands of coal.
320	320.98	Coaly carbonaceous shale interbedded with light-dark brown arenaceous carbonaceous siltstone with carbonaceous rip ups, abundant heavy dull coal with seams <7cm with good cleating and calcite infill
320.98	321.24	Tuffaceous siltstone: light brown, rootlets, carb wisps
321.24	321.7	Interbedded carbonaceous shale and brown carbonaceous siltstone, minor dull coal bands,
321.7	322.09	Tuff: light brown some carb specs
322.09	322.61	Interbedded coaly carbonaceous shale and dull cal, 40%dull coal in beds <20cm, minor bright bands
322.61	322.95	Tuff: light-dark grey/brown, reworked in places, minor carb shale <2cm
322.95	323.16	Carbonaceous shale: dark brown with abundant light grey-brown clay/mud rip ups, rip ups rounded to lenticular, some possibly tuffaceous
323.16	323.65	Tuff: light-medium brown, carb stringers & wisps, some carb matrix, becomes paler with depth, reworked?
323.65	323.75	Coal: heavy dull , shaly very minor thin bright bands <3mm
323.75	323.84	Tuff: light grey-brown, carb wisps/stringers
323.84	323.9	Coaly carbonaceous shale, 50/50 shale and dull heavy coal, minor bright bands<5mm
323.9	324.1	Dull heavy coal: 70% coal 30% interbeds of carbonaceous shale and minor silt. Minor bright bands
324.1	324.6	Desorb#2: Dull heavy coal: 80% coal 20% interbeds of carbonaceous shale and minor silt. Minor bright bands
324.6	324.7	Tuff
324.7	324.8	Heavy dull coal, minor silt and carbonaceous shale
324.8	324.93	Tuff: light grey/brown, reworked, minor carbonaceous stringers
324.93	325.4	Heavy dull coal: minor bright bands, minor tuff and shale <10%
325.4	325.5	Tuffaceous clay/silt, light brown
325.5	325.7	Tuff
325.7	326.6	Coal: heavy dull, 70% coal 30% bands <10cm of carb silt and shale, minor bright bands
326.6	327.6	Desorb#3: heavy dull coal 70% some bright bands, 30% carb shale and silt
327.6	328.23	Coal: dull, heavy, minor clay/reworked tuff bands, band of small 2mm-1cm clay/mud rip ups
328.23	330.4	Claystone: laminated, light-dark grey lamination, starved ripples, minor bioturbation and rootlets/ carbonaceous material
330.4	350.2	Sandstone: fine medium, light grey, thin laminations, TCB, massive in places, zone abundant in coal stringers <3cm thick 40-60% bright coal, quartzose
350.2	350.28	Coal: 40-60% bright, good cleating some calcite
350.28	350.48	Sandstone: light grey, medium sst, 30% small light grey, rounded clay rip ups, abundant coal stringers, quartzose
350.48	350.78	Carbonaceous siltstone: brown-grey/black, carb lam, minor heavy dull coals<2cm, bioturbation
350.78	350.86	Carbonaceous claystone: tuffaceous, carb specks
350.86	351.28	Coal: heavy dull, minor shale and silt
351.28	351.35	Carbonaceous siltstone: medium-dark grey/brown, laminated with coaly shale, minor bright coal wisps
351.35	351.43	Tuff: light yellow/brown, some carb specs/laminations
351.43	351.6	Carbonaceous shale: medium-dark grey with minor laminations of brown arenaceous siltstone, pale brown lenticular inclusions
351.6	351.68	Tuff: reworked tuff? Or tuffaceous sediment

351.68	352.94	Interbedded-laminated carbonaceous shale and heavy dull coal, coals<2cm and <20% total. Some bright bands
352.94	353.2	Tuff: yellow/brown, minor calcite veining
353.2	353.44	Coal: Dull, heavy, minor fracture/cleating
353.44	353.95	Interbedded carbonaceous shale and heavy dull coal, 50/50, coals<3cm, minor bright bands
353.95	354.45	Desorb#4: dull coal, good fracture, very minor bright bands
354.45	355.02	Interbedded dull coal, carbonaceous shale and minor silt, minor bright bands
355.02	355.41	Interbedded-laminated dark grey/black carbonaceous shale, brown/grey carbonaceous claystone, minor bright coal stringers/bands
355.41	355.46	Tuff: yellow/brown, reworked, coaly/carb wisps
355.46	355.75	Carbonaceous claystone: medium grey, rootlets, coaly wisps
355.75	356.12	Laminated carbonaceous shale and bright-dull coal (<15%), minor clay and silt.
356.12	357.12	Siltstone: arenaceous, light medium grey, rootlets, TCB, some herringbone lamination, minor flaser bedding
357.12	357.45	Sandstone: fine-medium, TCB, minor carb matrix
357.45	360	Siltstone: light-medium grey, arenaceous, TCB, herringbone, ripples, climbing ripples, minor flaser bedding/mud drapes, grades f-msst at approx 360m
360	375.4	Sandstone: fine-medium light grey, TCB, minor silt bands, carbonaceous laminations, wisps, very minor coal stringers,
375.4	375.6	Coal: dull, <10% bright, moderately heavy, minor thin bright bands and shale bands
375.6	376.07	Coaly carbonaceous siltstone: medium grey/brown, thin intermittent coals, <10% bright
376.07	380	Carbonaceous siltstone: medium grey, abundant carbonaceous wisps/rootlets, light-dark lamination, some bioturbation
380	381.77	Interbedded carbonaceous shale with minor carbonaceous siltstone and tuff. Very minor heavy dull coal
381.77	383	Interbedded arenaceous carbonaceous siltstone and mudstone. Minor 10-40% bright coals <3cm
383	383.33	Sandstone: fine-medium, medium grey, minor mud bands and small rip ups
383.33	384.65	Carbonaceous mudstone: medium grey/brown, rootlets, minor tuff minor coals. Coal 384-384.1m <10% bright. The mudstone in faulted out TB
384.65	385.8	Sandstone: fine grained, medium grey, laminated, TCB, minor bioturbation and mud rip ups, grades arenaceous siltstone
385.8	387.4	Carbonaceous siltstone: arenaceous, medium grey/brown, laminated, climbing ripples,
387.4	387.55	Coal: heavy dull, <10% bright, band of herringbone calcite(remnant tuff?) minor shaly/silty bands/laminations TB
387.55	388.55	Desorb#5: heavy dull coal <10% bright, well fractured(drilling induced?) no visible calcite, <10% lithic material
388.55	388.75	Coal: heavy dull, <10% bright, minor shaly/silty bands/laminations TB
388.75	389.06	Mudstone: light grey, very faulted
389.06	404.08	Sandstone: fine-medium, medium-light grey, minor /brown, silt bands/laminations, bands of carbonaceous wisps/stringers mixed with light grey mud rip ups, some mica
404.08	405.08	Desorb#6: heavy dull coal, minor 7cm clay band and minor silt/shale TB
405.08	405.12	Coal: heavy dull, minor bands/laminations of siltstone/shale
405.12	405.71	Carbonaceous siltstone: light grey, arenaceous laminated, strongly faulted
405.71	425.37	Sandstone: fine-medium, light-medium grey/brown, occasional mud rip ups and mud bands, carbonaceous wisps, large mud clasts<15cm and carbonaceous stringers in intervals 417.8-418.2, 420.4-421, after 423m wispy inclined, evenly spaced carbonaceous laminations flaser in areas
425.37	425.62	Mudstone: light grey, thick irregular, undulose, carbonaceous shale lamination
425.62	426.1	Coal: heavy dull, interbedded with carbonaceous shale, tuff and lesser silt. 70% coal
426.1	431.73	Carbonaceous mudstone: carb-very carb, light-dark grey, extremely bioturbated in places in other laminated with only minor bioturbation, faulted, micro-faulting, starved ripples, minor arenaceous silt bands/laminations. Carbonaceous clay band 430.25-430.53
431.73	432.45	Coal: dull, <10% bright, shale bands, minor silt bands, 10cm lost core in this interval
425.45	433.46	Carbonaceous mudstone: medium brown, rootlets bioturbation, becomes siltier with depth, thin bands of fine sandstone TB until grades fine sandstone
433.46	441.07	Sandstone: fine medium light medium grey, TCB, occasional feint lamination, bands abundant in coal/carb stringers rip ups and coal clasts, small band of brown carb shale with abundant calcite veins 440.9-441.07

441.07	452.8	Sandstone: medium grained, light-medium grey, zone of rip ups carb stringers and coal calsts, minor rip ups and stringers throughout, carbonaceous specks TB
452.8	453.03	Carbonaceous mudstone: medium-dark grey, darker thick undulating carbonaceous lamination
453.03	453.13	Coaly carbonaceous shale: dark brown shale with bright thin coal lamination
453.13	453.15	Tuff
453.15	453.19	Coaly carbonaceous shale: dark brown shale with bright thin coal lamination, silty in places
453.19	453.26	Coal: dull <10% bright
453.26	453.6	Coaly carbonaceous shale: dark brown shale with bright thin coal lamination
453.6	454.36	Carbonaceous mudstone: medium-dark grey, wavy coal/carbonaceous shale lamination
454.36	454.38	Tuff
454.38	456.3	Sandstone: fine, medium-light grey, pale lamination, some flaser bedding and ripples, grades medium sandstone
456.3	456.6	Sandstone: medium grained, pale lamination, some flaser bedding and ripples, grades medium sandstone, interlaminated with argillaceous silt TB
456.6	462.8	Interbedded arenaceous silt with wispy carbonaceous lamination, argillaceous silt and minor carbonaceous mudstone, extremely bioturbated in places
462.8	463.6	Claystone: medium grey, light dark lamination
463.6	465	Arenaceous siltstone: minor carbonaceous mud bands, minor fine sandstone, TCB
465	473.9	Sandstone: fine-medium, medium grey, wispy carbonaceous flaser bedding near top of section, bands of fine and medium sand with erosive contacts TCB, becomes massive TB
473.9	474	Carbonaceous silt: medium brown, grades carb shale
474	474.78	Coal: heavy dull, <10% 30cm loss in this section
474.78	475.27	Interbedded: carbo5.65naceous shale, dull coal and minor silt. Coals <3cm with some bright bands<5mm, calcite infill in vertical fracture present in shale and coal, 20-30% total coal
475.27	475.65	Coal: dull, some heavy very fractured in some bands
475.65	476.15	Desorb#7: dull coal, some heavy, some very fractured, bright bands <2cm some with pyrite infill, lesser calcite
476.15	476.18	Coal: dull bright bands <1cm
476.18	476.35	Coaly carb shale: medium-dark grey brown, bright coal bands and stringers, grades coaly carb silt
476.35	483.73	Sandstone: fine-medium, medium-light grey, massive, minor TCB in places, pebbles and rip ups at base
483.73	484.8	Carbonaceous siltstone: arenaceous medium grey, feathery carb lam, some minor stringers
484.8	484.95	Coal: dull, minor shale
484.95	485.45	Desorb#8: dull coal, some heavy with minor carb shale and silt 95%coal
485.45	491.2	Carbonaceous siltstone: medium-dark grey, arenaceous, soft sediment deformation, bioturbation, wispy carb lamination, very fractured in places, fsst TB, minor coal and 2cm tuff 465.8m
491.2	492.85	Sandstone: fine-medium, light-medium grey, some wispy carb lam
492.85	494.13	Carbonaceous siltstone: dark grey, arenaceous, grades mud TB, minor fsst, becomes laminatedTB
494.13	494.24	Coal: dull, dark grey carbonaceous clay band, grades dull very carb siltstone
494.24	495.35	Carbonaceous siltstone: dark grey/black very carb, arenaceous, minor carb shale, becomes interlaminated with fsst TB
495.35	499.53	Sandstone: light grey, carb stringers and lamination in areas, band of small carb mud/clay rip ups<5mm, some large carb shale clasts
499.53	499.63	Coal: heavy, dull, good vertical fracture with calcite infill
499.63	499.65	Tuff
499.65	500.21	Carbonaceous siltstone: arenaceous, medium brown, bioturbation
500.21	500.47	Carbonaceous shale: dark black, very carb
500.47	500.5	Tuff
500.5	500.73	Coal: heavy dull, 30% carbonaceous shale and silt
500.73	503.31	Siltstone: light yellow/grey, wispy/feathery carbonaceous lamination, some grey mudstone beds and laminations, becomes interbedded with fine sandstone TB
503.31	503.85	Carbonaceous mudstone: light-dark grey, soft sediment deformation, carb lam, more carbonaceous with depth, faulted, grades coal
503.85	504.7	Coal: heavy dull, interbedded 40% carb shale, coals<15cm
504.7	505.2	Desorb#9: dull coal, 10% carb shale
505.2	505.27	Carbonaceous shale: dark brown
505.27	508.45	Carbonaceous siltstone: medium grey, argillaceous-arenaceous, some mud bands, contorted bedding, wispy-strong carb lam, bioturbation, TCB
508.45	509.2	Sandstone: fine, light grey, dashed carb lam, carb specks, grades carbonaceous mudstone

509.2	509.6	Carbonaceous mudstone: dark grey, minor tuff at base
509.6	510.5	Carbonaceous siltstone: arenaceous, very carb at top of section, carb and coal stringers and specks, TCB, bioturbation
510.5	513.68	Sandstone: fine-medium, pale grey, some feint carb lam, minor silt bands/lamination, weakly carbonaceous matrix, abundant <5mm light grey mud rip ups TB
513.68	514.83	Minor mudstone grading to carb-very carb shale some minor heavy dull coal, becomes silty TB
514.83	516.82	Dirty sandstone: abundant carbonaceous mud/silt banding, coal stringers, carbonaceous mudstone rip ups TB
516.82	530	Sandstone: light grey, fine-medium, carbonaceous mud rip ups near top of section becoming non carb with depth, TCB, after 528.6 carb silt bands and large rip ups<15cm with smaller medium grey mud rip ups