Appendix A

Mt Slaughter drill holes - locality details, 1:200 geological logs and 1:20 graphic log of coal seam

Drill Hole MS-01

GPS
0575 906mE
5376 708mN
785mRL-scaled
Stacpoole Drilling
B90 truck mounted rig
T.Lodge-driller
Down hole hammer chips to 111.0m
HQ3 core from 111.0-354.85

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 2 OF 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt Slaughter
PROSPECT:	EL 17/2010
DATE:	9/7/2013
LOGGED BY:	RM/DD

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
42									
44									
46									
48									
50									
52								Steel grey dolerite	
54									
56									
58									
60								Trace white opaque vein material	
62									
64								63-69m Discoloured slightly weathered dolerite - possible fracture	
66								Terry "hole producing 1500 litres/hour	
68									
70								69m fresher looking grey dolerite	
72								72-75m Harder dolerite - slow drilling	
74									
76									
78									
80									

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 3 OF 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt. Slaughter
PROSPECT:	RL 17/2010
DATE:	9/7/2013
LOGGED BY:	RM/DD

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
82								Terry: hole producing 1000 litres/hour.	
84									
86									
88									
90									
92									
94								93-99m Stained weathered dolerite; brown-grey in colour. chips.	
96									
98									
100								99m Steel grey dolerite chips	
102									
104									
106									
108									
110								6" Hammer chips to 111.0m. Asahi Diamond Red drill bit	
112	99				Ja 55 & Jo 55			HQ3 Diamond drill cored from 111.0m	
	100				Ja 23			111.0-334.35 DOLERITE, fine to medium grained, fresh, mid-grey	
114	94				Ja 35 x3				
	106				Ja 12				
					Ja 45			- Dark grey irregular inclusions <3mm long in lighter feldspathic matrix 111.2-112.5m.	
116	100				Ja 12				
	100				Ja 60				
					Ja 48				
118	100							- Grades to medium-grained dolerite at 117.0m and medium-coarse from 122.0m	
	100								
120	101				Ja 48				

REMARKS

∠ at angle to previous joint

// parallel to previous joint

⊥ perpendicular to previous joint

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 4 **OF** 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	MT SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	16/7/2013
LOGGED BY:	RM/DD.

HOLE DEPTH (m)	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	99				Jα12				
122	100				Jα30 Jα45	x 2		Negligible water loss from hole.	
	99				Jα32 Jα97				
124	100				Jα12 Jα65	x2			
	100				Jα90				
126	100				Jα5 Jα12	x 7		DOLERITE, medium-coarse grained, fresh.	
	101				Jα25				
128	100				Jα26 Jα37			Occasional zones of iron-stained + Mn-Stained joints.	
	100				Jα65 Jα50				
130	100				Jα12			Zeolite veinlets common in joints, occasional sparse carbonate coating on joints	
	100				Jα50 Jα65	x4			
132	102				Jα50				
	98				Jα12 Jα5				
134	100				Jα50	x 6			
	98				⊥				
136	102				Jα12 Jα36				
	100				Jα70 Jα32				
138	95				Jα60				
	105				Jα30	x 2			
140	100				Jα45 Jα60	x6			
	100				⊥ Jα40				
142	100				Jα60	x3		Increased iron staining 142m-	
	100	35			αJ5°			141.85 - 152.70m; stained medium to coarse crystal grain size dolerite.	
144	107	100			αV 20°			Zeolite infill	
	100	10			αJ 30° αJ 70°				
146	107	42			αJ 55° αJ 20°				
	100	35			αJ25°			zeolite infill	
148	99	35							
	100	20							
150	94	0			αJ 10° αV 14°			epidote along joint 2mm zeolite infill sealed.	
	86	52							
152	100	10						152.70 - 163.20m Medium crystal grained dolerite with minor veinlets - closed	
	100	74							
154	100	100							
	95	95							
156	98	87							
	80	30			αV 21°			sealed.	
158	100	55							
	100	100							
160	100	75							

REMARKS V = vein v = veinlet J = joint
α = core structural plane angle.

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 5 **OF** 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	MT SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	22/07/2013
LOGGED BY:	RM/DD

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	90							
162	100	93							
	100	100							
164	100	40			αV 2°-12°			163.10 - 165.85m Large vein infilled with up to 4cm zeolite and coloured clay alteration; open	
	100	0						165.85 - 172.00m Medium crystal grained dolerite	
166	100	15							
	102	41							
168	100	43			αR 26° αJ 11°				
	100	75							
170	100	70			αR 13°				
	100	63						172.00 - 184.00 m Stained dolerite	
172	100	60							
	100	60			αV 15°			172.50 - 172.80m vein infilled with up to 8mm zeolite; open.	
174	100	35							
	100	62			αJ 22°				
176	100	92							
	100	75							
178	100	100							
	105	100							
180	100	10			αV 5°			179.10 - 180.50m vein infilled with up to 3mm zeolite; open	
	100	50							
182	100	94							
	100	65			αJ 3°-10°			182.80 - 183.85 infilled joint with up to 2mm fill. Sealed	
184	100	55							
	100	100			αJ 45°			184.00 - 199.80m Medium to coarse crystal dolerite	
186	100	100							
	100	100			αJ 45°				
188	104	100							
	100	100			αJ 36°				
190	100	100							
	100	100							
192	100	100							
	100	86			αV 75°			veinlet 4mm zeolite infill - sealed	
194	100	100			αR 8°			veinlet 7mm zeolite infill - sealed	
	100	100							
196	100	100							
	102	100			αR 12°			veinlets - sealed.	
198	100	100							
	100	80							
200	100	100							

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 6 **OF** 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt. Slaughter
PROSPECT:	EL17/2010
DATE:	23/07/2013
LOGGED BY:	RM/DD.

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GEOLOGY NOTES	SUMMARY LOG
	100	100				199.80 – 208.00 fine to medium crystal dolerite. Slight glassy appearence; fresh, medium grey very hard, strong.	
202	100	95					
	100	90					
204	100	100					
	100	100					
206	100	100					
	100	100					
208	100	100					
	100	100					
210	100	100					
	100	100					
212	100	100					
	100	100					
214	100	85					
		46					
216	100	68					
	100	100					
218	100	100					
	100	100					
220	100	100					
	100	100					
222	100	100					
	100	85				DOLERITE	
224	100	52		v α15		• 224 – 232m light - medium grey	
	100	100		v α 5			
226	100	100					
	100	100					
228	100	100					
	100	100					
230	100	100					
	100	100					
232	100	100		- Vα12			
	100	100					
234	100	100					
	100	100		- Jα45			
236	100	100		- vα5			
	100	100				DOLERITE	
238	100	100				• 237 – 257m fine-medium grained, medium grey	
	100	100					
240	100	100		vα5			

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 7 OF 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt Slaughter
PROSPECT:	EL 17/2010
DATE:	26/07/13
LOGGED BY:	RM/DD

HOLE DEPTH (m)	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100			∿α5				
242	100	100			∿α5				
	100	100			∿α12				
					V α65	×6		• 243.6 - 243.75 Set of six joints/veins with zeolite/epidote infill, α65° repeated at 247.35 (2), 274.50 and 281.80m	
244	100	82			∿α5				
	100	100							
246	100	100							
	100	100							
248	100	95			V α65	×2			
	100	100							
250	100	100							
	100	100							
252	100	100			∿α5				
	100	100							
254	100	100							
	100	100			∿α12				
256	100	100							
	100	100						• 257 - 265m DOLERITE, medium grey medium grained, fresh	
258	100	100							
	100	100			∿α80	×2			
260	100	96			∿α80	×2			
	100	100							
262	100	100			J α55				
	100	100							
264	100	100							
	100	100						• 265 - 269.3m DOLERITE, light grey medium - coarse grained	
266	100	100							
	100	100							
268	100	100			∿α70				
	100	100			∿α70	×3		• 269.3 - 291.4 DOLERITE, medium grey, medium grained, fresh	
270	94	100							
	100	100							
272	100	100							
	101	100			∿α5				
274	100	100							
	100	100			V α65				
276	102	100							
	100	100							
278	100	100			∿α12 ∿α12				
	102	100			∿α70	×2			
280	100	100							

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 8 **OF** 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt Slaughter
PROSPECT:	EL17/2010
DATE:	26/07/13
LOGGED BY:	RM / DD

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100			Va65 Va12			- Indistinct banding from 281.8m - 290m (possibly drilling-induced in finer grained hard dolerite)	
282	101	100							
	99	100			Va5 Va12				
284	100	100							
	100	100							
286	100	100							
	100	100							
288	99	100							
	101	100			Va5				
290	100	100							
	100	100			Va5				
292	100	100							
	100	100							
294	101	100							
	100	100			Ja45				
296	100	98			Va40 Va5	x2 x2			
	101	100			Ja50 Va12				
298	100	98			Va40	x2		10mm zeolite infill	
	100	80			Va15 Va50 Ja35				
300	100	100						2mm zeolite infill	
	100	100							
302	100	100			αV10			closed veinlet	
	100	92			αV20°				
304	100	67						Finer crystal size steel grey dolerite increasing in magnetic responce with depth. Some near vertical closed veinlets and some open infilled joints.	
	100	80							
306	100	95							
	100	95							
308	100	100							
	100	100							
310	100	100							
	100	100							
312	100	100							
	100	68			αJ10°			Chlorite clay infill	
314	100	100							
	100	100						315.85 - 318.20 2mm zeolite infill	
316	100	85			αJ2°				
	100	0							
318	100	20							
	100	75							
320	100	100							

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 01

SHEET 9 **OF** 9

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	Mt. Slaughter
PROSPECT:	EL 17/2010
DATE:	1/8/13
LOGGED BY:	RM/DD

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100							
322	100	90							
	100	0						323.80 – 325.80m Joint with chloritic clay infill up to 10mm in thickness	
324	100	55			αJ 4°				
	100	0							
326	100	30							
	100	80			αJ 4°				
328	97	0						Zeolite fill along joint Fine crystalline dolerite Steel grey Highly magnetic	
	100	12							
330	100	42			αJ 45° αJ 10°				
	100	22			αV 20°				
332	100	54						15mm infill min. Zeolite	
	100	65			αJ 170°				
334	100	85						334.35m END OF DOLERITE	
	100	52			αV 12° αb 88°			* LOWER TRIASSIC SEDIMENTS *	
336	100	60			αJ 12°	Chloritic clays		334.35 – 337.63 Hornfels sandstone Chilled / fused margin ~ transition zone See sand grains under the lens not crystals, and bedding planes evident	
	100	55							
338	100	65						337.63 – 337.96 Medium grained quartz sandstone	
	100	79			αJ 15°			337.96 – 340.16 Pale grey mudstone with occasional, reworked quartz sandstone conglomerate interbeds up to 30cm	
340	100	63			αJ 78° αJ 20°				
	102	90			αb 88°			340.16 – 341.23 Grey quartz sandstone with some cream clay bands up to 6cm in width, and quartz conglomerate bands	
342	100	77			αb 75°			341.23 – 342.31 Hematite rich mudstone grading into red hematite sandstone	
	100	75							
344	101	35						342.31 – 345.22 Variable unit ~ Mostly a quartz sandstone with minor mudstone at the top of the unit, grading into siltstone then sandstone. Pale to mid grey unit with orange-red hematite staining	
	100	20			αb 85°				
346	100	90						345.22 – 350.17m Grey quartz sandstone Pale to mid grey coarse qualtz sandstone no volcanoclastics no coal flasers	
	100	91			αJ 12° αb 87°				
348	100	100							
	100	73			αb 85°				
350	100	0			αJ 0°				
	100	15			αb 88°			350.17 – 351.77 Grey siltstone with some interbedded coarser sandstone up to 8cm in thickness	
352	100	43			αb 85°			351.77 – 354.45 Siltstone with muddy interbeds grading into a coarse sandstone	
	100	55							
354	100	85							
	85	72			αb 82°			354.45 – 354.85 Light grey qualtz sandstone	
								END OF HOLE 354.85m	

REMARKS 099 344.22 – 345.22m Poarsely reworked quartz conglomerate. Fragments up to 3mm in diameter.

Drill Hole MS-02

GPS
0577 888mE
5376 740mN
720m RL-scaled
Stacpoole Drilling
B90 truck mounted rig
T. Lodge-driller
HQ3 core from 0-309.9m

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 1 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GPS - GDA94
			Easting_	577888 m
			Northing_	5376740 m
			Elevation (m)	720 (scaled)
			Azimuth_Mag	0
			Dip	-90

PROJECT:	MOUNT SLAUGHTER
PROSPECT:	EL17/2010
DATE:	12/08/2013
LOGGED BY:	MURCOTT / DELANEY

Truck-mounted Universal Mobile B90 Rig, Stacpoole Drilling. Driller: T. Lodge.

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
	0							HQ3 coring from surface. Bit: Asahi red.	
2	0								
	0								
4	0							0 - 9m: No core. Drillers reported orange-red mud and DOLERITE cobbles. (TALUS)	
	0								
6	0								
	0								
8	0								
	0								
10	90	0			Ja10°				
	100	23			Ja20°			9 - 17m: TALUS	
					Ja35° x 2				
12	52	0			Ja10°			• 9 - 9.5m Orange red clay and fresh grey DOLERITE	
	38	10			Coreloss				
14	25	0						• 9.5 - 10.9m CLAY, light brown + DOLERITE, weathered, light brown, sandy texture	
	50	0			Ja35° x 4				
					Ja35° x 5				
16	94	11			Ja50° x 2				
	52	0							
18	26	0			Coreloss			• 10.9 - 11.35 Hornfels, red	
	100	13			Ja50° x 5			• 11.35 - 14.75m Mostly coreloss: clay, gravel (metasediments) pink and white veiny clays	
					Ja65° x 4				
20	70	10			Ja40° x 4				
	90	12			Ja 5°			• 14.75 - 17.0m SILTSTONE light grey, cherty	
					Ja20°				
					Va35°				
22	95	0			Ja65° x 10			17 - 21.9m: DOLERITE, weathered, light brown, sandy	
	100	0			Ja35° x 7				
					Broken jointed core			21.9 - 25.70m: DOLERITE very broken, grey, heavily jointed, Fe/Mn stain	
24	100	0							
	100	0			no measuring				
26	100	22			Va20°			BASE OF DOLERITE AT 25.70m	
	100	56			Va15°			BEGINNING OF COAL MEASURE SEQUENCE	
28	100	100						25.70 - 26.40m: SILTSTONE, light grey, indurated	
	100	100			Va60°			26.4 - 38.60m SANDSTONE, light grey, lithic volcaniclastic, fine - medium grained, muddy, white cement, occasional MUDSTONE bands 5mm - 30mm thick, light grey	
30	100	100							
	100	93						• 31 - 32m includes MUDSTONE flasers 5%	
32	100	100							
	100	100			Ja60°			• 35 - 35.5m soft sediment deformation zone.	
34	100	100							
	100	100						NOTE: Few structural features.	
36	100	100			αb87°			• 36.25 Fine coal? laminae	
	100	100						• 37.05 - 37.15 Minor coal fragments in a sandstone breccia	
38	100	100							
	80	72						38.60 - 41.87m MUDSTONE grading into siltstone pale grey	
40	100	45							

REMARKS Triassic Coal Measures rocks commence at 26.4m.

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 2 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	Mt SLAUGHTER
PROSPECT:	RL 17/2010
DATE:	16/08/2013
LOGGED BY:	MURCOTT / DELANEY

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	96							
42	100	100			∝84°b			41.87 – 51.05m SANDSTONE ; light grey fine-medium grained muddy/dirty flaser banding	
	100	100						• 43.40m cross-bedding	
44	100	100			∝83°b				
	100	100						• Coaly bedding up to 3mm in thickness	
46	100	100							
	100	100						• Grading into a coarser Sandstone around 46m	
48	96	82							
	100	100						• 47.45 Large pebble sandstone 6cm in diameter	
50	100	100						• 47.97 – 48.14m mudstone band	
	100	100						• 48.90 – 49.02m Reworked breccia mudstone fragments in cs matrix	
52	100	100			∝65°b			51.05 – 51.75m SANDSTONE with coal bands + fragments	
	103	100						51.75 – 54.65m SANDSTONE medium grained dirty - featureless	
54	100	100							
	100	100						54.65 – 67.92m SANDSTONE - pale grey, medium grained grading coarser with depth	
56	102	100							
	100	96			∝47°j			Some coal flasers and slumped mudstone bands.	
58	100	97							
	100	95						• 59.27 – 59.80 Siltstone with reworked mudstone fragments	
60	100	90			×87°b				
	100	52						• 59.80 – 67.92m Medium to coarse Sandstone with rare coal beds and flasers	
62	100	100							
	100	95							
64	96	100							
	100	100							
66	102	80							
	100	94							
68	98	83							
	100	95			∝65°j			67.92 – 80.86m SANDSTONE medium grained Grey sandstone units interbedded with contrasting brown coloured sandstone units	
70	100	82							
	101	90			∝80°b			68.77 – 68.85m band pale brown Siltstone	
72	100	100							
	100	60			∝15°j			69.00 – 69.30m Dark grey mudstone	
74	100	70			∝20°j				
	100	100						• Rare to some reworked mudstone fragments in a Sandstone matrix	
76	100	100							
	100	100						• Some flaser banding	
78	100	85			∝87°b				
	100	100			∝15°j			• fining up ; some coal staining on bedding planes	
80	100	100							

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 3 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	MT SLAUGHTER
PROSPECT:	EL17 / 2010
DATE:	16 / 08 / 2013
LOGGED BY:	MURCOTT / DELANEY

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
	100	85			α15°j			80.86 - 81.43m CARBONACEOUS MUDSTONE with coal bands and some coal fragments	
82	100	75						81.43 - 87.20m SANDSTONE - light grey	
	105	65						• 82.45 - 82.70m Coal laser bedding with reworked coal/mudstone fragments at top of unit	
84	100	100							
	100	80			α45°j			• 86.41m Unusual subangular grit fragment • Coal flasers at base of unit	
86	100	100							
	100	100						87.20 - 87.41m COAL mostly medium-dull coal some bright	
88	99	80						87.41 - 89.82m MUDSTONE - dark grey - coal flasers CARBONACEOUS	
	100	76						89.82 - 90.09m COAL very low quality	
90	100	35			α16°j			• 89.90 - 89.96 Reworked mud breccia/silt (volcanic?)	
	100	95			α87°b			90.09 - 90.46m MUDSTONE light grey	
92	100	100						90.46 - 91.73m SILTSTONE light grey, coarsening to a fine sandstone at base of unit	
	100	80			α25°j			91.73 - 93.45m SILTSTONE mid grey fine muddy siltstone	
94	100	62						93.45 - 97.48 MUDSTONE silty with increasing carbonaceous mudstone beds at base of unit	
	100	100							
96	100	65			α60°j				
	100	100							
98	100	60						97.48 - 97.92m COAL - stony dull coal	
	100	15						97.92 - 98.53m MUDSTONE - grey with traces of coal	
100	100	50			α89°b			98.53 - 99.00m COAL - dull heavy coal	
	100	80						99.00 - 101.37m CARBONACEOUS MUDSTONE; dark grey to light grading into a siltstone at base of unit	
102	100	60			α87°b			101.37 - 102.29m SILTSTONE - Coal flasers and laminae	
	100	95						102.29 - 103.12m SANDSTONE at base fine to medium grained; light grey	
104	100	55						103.12 - 103.48m COAL dull coal with 2cm dirt band	
	100	94						103.48 - 104.51m SILTSTONE (volcanic?) - fine; light grey	
106	100	100						104.51 - 117.90m SANDSTONE - medium grained coarsening to 110m	
	100	100						109.83 - 110.40m Some reworked mudstone & carb'mudstone clasts in sandstone matrix	
108	100	100							
	100	100							
110	100	100						• 110.00 - 110.40 Reworked Sandstone Breccia with mudstone clasts	
	100	100						• 110.40 - 112.10 Chloritic? alteration frequent coal laminae/beds	
112	100	100						• 112.10 Massive Sandstone	
	100	100							
114	100	100						• 114.10 - 114.30 Rare coal flasers	
	100	100			α20°v	Ca			
116	100	100							
	100	100			α88°b	Coaly		117.90 - 127.40m SANDSTONE abrupt angle contact Dirty medium to fine grained pale green sandstone. Weaker sandstone than unit above - disrupted	
118	100	100							
	100	100			α40°j				
120	100	80			α20°j α82°b				

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 4 OF 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	19/08/2013
LOGGED BY:	MURCOTT / DELANEY / THOMAS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	55			α 35° j α 75° j				
122	100	78			α 20° j α 55° b				
	100	40			α 18° j α 60° j				
124	100	88							
	88	33			α 20° j α 85° b				
126	99	21			α 40° j α 80° b				
	99	84			α 86° b			127.40m- SANDSTONE grey medium grained, with rare to some coal fragments.	
128	100	100						139.82 m	
129	101	100			α 32° r	ca			
130	100	100							
	100	100							
132	100	71						• 131.80 j 5cm band of rounded carbonaceous mudstone fragments	
	100	35			α 8° j	open			
134	100	60			α 38° j			• 133.0 - 134.75 m, muddy sandstone.	
	103	85							
136	100	100							
	106	70							
138	100	100							
	93	64				pyrite		• 138.40 m pyrite + calcite	
140	100	100			α 24° j			139.82 - 142.33 SANDSTONE, lithic, medium to coarse-grained, white cement.	
	100	97							
142	95	70			α 84° b				
	95	52						142.33 - 142.92 COAL Poor quality dull heavy coal. Dirt band 12cm thick at middle	
144	100	100			α 86° b				
	100	100							
146	100	100						142.92 - 144.08 m MUDSTONE, mid grey, carbonaceous in top 10cm. Carbonate vein 5mm thick at 143.15m	
	102	96			α 8° j				
148	99	100						144.08 - 146.39m SANDSTONE, lithic, light grey fine-medium grained, dark mudstone laminae top 0.5m. two light grey mudstone bands at base	
	100	100							
150	100	100							
	99	100							
152	100	100						146.39 - 162.92m SANDSTONE, lithic, light grey, medium-grained, coarse grained in part, moderately hard and strong. Occasional coaly flasers and bands of rounded mudstone clasts (<5cm diameter)	
	101	100							
154	100	100			α 83° b	pyrite			
	100	100							
156	100	100							
	100	100							
158	99	100							
	100	100							
160	100	100			α 72° j				

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 5 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	04/09/2013
LOGGED BY:	MURCOTT / DELANEY / THOMAS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
	100	100			α 82° b				
162	100	100			α 82° b				
	100	100							
164	100	100						162.92 - 165.25m SANDSTONE, Fine grained	
	100	100						165.25 - 165.50m COAL with Carbonaceous MS	
166	85	27			α 70° J	×4		165.50 - 165.62 CORELOSS (probably mudstone)	
	100	55			α 85° b			165.62 - 167.88m MUDSTONE, medium grey, Three coaly bands < 5cm thick, thin coaly wisps towards base	
					α 70° J				
168	100	47			α 45° J				
					α 70° J				
	100	83			α 62° J			167.88 - 168.25 ~~COAL, dull minor bright bands~~	
					α 87° b			168.41 - 168.53m COAL, dull banded, tends to carbonaceous MUDSTONE in part	
170	100	100			α 85° b			168.53 - 175.20m SILTSTONE, light grey, indistinctly interlaminated with fine-grained SANDSTONE.	
	100	100						Two dull COAL bands 4 and 5cm thick	
172	100	83			α 86° b				
	100	90			α 35 v			Sharp 45° contact with coal unit below.	
174	100	100			α 87° b				
	100	100			α 65° J			175.20 - 175.64m COAL, dull banded.	
176	100	51							
	100	100			α 85° b			175.64 - 180.95m SILTSTONE, light grey indistinctly laminated with fine-grained SANDSTONE	
178	101	100							
	100	91			α 40° J				
180	100	100							
	98	100			α 87° b			180.95 - 181.90m COAL, dull minor bright	
182	101	93							
	100	61			α 45° J				
					α 70° J			181.90 - 185.07m SILTSTONE, light to medium grey; grades down to medium grey MUDSTONE in basal 2m	
184	102	86							
	100	10			α 62° J				
					α 70° J				
186	100	72			α 87° b			185.07 - 185.14m COAL, dull stony	
	98	100						185.14 - 185.27m MUDSTONE, dark grey, slightly carbonaceous	
188	100	100							
	100	100							
190	100	100			α 88° b			185.27 - 203.76m SANDSTONE, lithic light grey, fine-grained tending to medium grained in part, indistinctly graded, occasional coaly laminae and wisps	
	100	100							
192	100	100							
	100	100							
					α 86° b				
194	100	100						• 6cm coal band at 197.63m	
	100	100							
196	100	100							
	100	100							
198	100	100			α 85° b				
	100	100							
200	100	100						• Rounded mudstone granules and pebbles in 3cm band at 199.39m	

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 6 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	MT SLAUGHTER
PROSPECT:	EL17/2010
DATE:	06/09/13
LOGGED BY:	MURCOTT / DELANEY

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100						(continued)	
202	102	100						185.27 – 203.76 SANDSTONE, lithic, fine-grained tending to medium grained in parts	
	100	100							
204	100	100						203.76 – 209.865 SILTSTONE, medium grey, muddy; interlaminated with dark grey MUDSTONE in lower half	
	100	91							
					bα87			209.865 – 205.21m COAL, dull minor bright, SILTSTONE band 4cm thick at 205.13m	
206	102	100							
	98	68			bα85				
208	100	100						205.21 – 206.07m SILTSTONE, muddy at base. 5cm COAL band at 205.91m	
	100	90			Jα60				
210	100	98						206.07 – 206.79 Carbonaceous MUDSTONE	
	104	100						206.79 – 208.31m SILTSTONE, sandy in part, irregular wavy bedding	
212	96	76			Jα65	×2		208.31 – 209.52m COAL, dull minor bright. Bright bands increasing in lower 0.5m	
	100	100			bα87				
					Jα30				
214	98	97			Jα25				
	100	100						209.52 – 210.51m, SILTSTONE with sandy laminae, coaly wisps and rootlets.	
					bα86				
216	100	100							
	100	100						210.51 – 211.63m COAL, good quality dull in top 0.8m, 35% bright in basal 0.33m.	
218	98	100							
	100	100						211.63 – 220.9m, graded SANDSTONE unit (mudstone top 0.5m, then Siltstone 0.8m, fine-grained sandstone 1.0m, and fine-medium grained sandstone 7m).	
220	100	100							
	100	100							
					bα87				
222	102	100						220.90 – 221.89m SILTSTONE, fine muddy laminae	
	99	75							
224	100	100						221.89 – 222.50m SILTSTONE, sandy in part interlaminated with black MUDSTONE	
	100	100						222.50 – 222.605m. COAL, dull, poor quality	
								222.605 – 222.66m CARBONACEOUS MUDSTONE	
226	100	90			Jα25	×4		222.66 – 224.92m SILTSTONE irregularly interlaminated with dark grey black MUDSTONE. Sandy in basal metre.	
	100	93							
228	100	96						224.92 – 227.21m SILTSTONE, light grey, sandy laminae.	
	100	36							
					Jα02			227.21 – 229.43m MUDSTONE, medium grey, interlaminated with CARBONACEOUS MUDSTONE	
230	100	78			Jα30				
	107	90			αJ45°			0.98m COAL band at 228.77m, poor quality	
					αb88°			229.43 – 230.63m SANDSTONE, light grey, lithic, fine-grained, silty in part. Grades upward to mudstone, carb. mudstone and 9cm dull COAL at top	
232	100	73							
	105	31			αJ55°	coal flaser		230.63 – 235.62m MUDSTONE	
								Medium grey mudstone grading down into a carbonaceous mudstone, then silty below 235m. Coal band 230.69 – 230.76. Coal flasers evident 232.38 – 232.90m	
234	100	25			αJ10°αb80°				
	100	27			αJ35°αb20°	coal flaser		235.62 – 239.02m SILTSTONE	
								Grey fine grained siltstone mudstone unit 236.25 – 236.85m	
236	100	55						Stony Coal band 237.47 – 237.51m with dirty bands	
	100	54			αb88°				
					αJ30°				
238	100	65			αb84°				
	104	90			αJ12°				
					αJ12°				
240	100	70			αJ45°			239.02 – 241.10 CARBONACEOUS MUDSTONE	

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 7 OF 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	Mt SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	12/09/13
LOGGED BY:	MURCOTT / DELANEY

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	34				flaser coal bed		Dark grey carbonaceous mudstone grading to a lighter grey mudstone	
242	100	93			αJ 35° αJ 25°			241.10 – 242.52 SILTSTONE Light grey bedded siltstone	
	100	88			αb 89°			242.52 – 248.48 SANDSTONE	
244	100	62			αJ 20°			Light grey lithic sandstone Medium grain size Uniform	
	105	95							
246	100	100							
	100	63			αb 80°				
248	100	85			αJ 45°				
	100	73			αJ 55° αb 88°			248.48 – 254.68 INTERBEDDED SILTSTONE AND SANDSTONE Light grey; lithic	
250	100	97						Occasional mudstone reworked fragments in a sandstone matrix	
	100	90			αJ 30° αb 88°				
252	100	100							
	100	95			αJ 60°				
254	100	85			αb 88° αJ 30°				
	100	95			αJ 65°			254.68 – 259.19 SANDSTONE Light grey lithic sandstone Medium grained	
256	100	55			αJ 55°				
	100	100							
258	100	100							
	100	100						259.19 – 264.59 SANDSTONE WITH COAL FLASERS Coarsening down light grey lithic sandstone Some coal flasers and coal flaser beds At base of unit fining to siltstone	
260	100	95							
	100	100							
262	100	100							
	100	100			αb 87°				
264	100	100						264.59 – 269.91 SILTSTONE	
	100	25			αJ 12°			Grey fine grained siltstone Coal band 264.59 – 264.62m	
266	98	70						Dull heavy coal 265.22 – 265.62m Minor sandstone bands.	
	100	55			αb 82°				
268	100	90							
	100	100							
270	100	90						269.91 – 270.72 INTERBEDDED SILTSTONE AND SANDSTONE Light grey interbedded siltstone and sandstone units. Occassional reworked siltstone flagments in a coarser grained sandstone matrix • Calcite stockwork vein 17cm @ 269.90	
	92	80			αJ 10°				
272	100	70			αJ 50°				
	100	95			αJ 45° αJ 30°				
274	105	40							
	100	90			αb 85°				
276	100	100							
	100	95						270.72 – 284.12 SANSTONE, medium grained, lithic Subrounded siltstone rip up clasts (clasts up to 20cm diameter). Sparse coal fragments + laminae.	
278	100	90							
	100	100							
280	100	100							

REMARKS

HARD ROCK COAL MINING

DRILL HOLE No MS 02

SHEET 8 **OF** 8

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	~ MT SLAUGHTER
PROSPECT:	EL 17/2010
DATE:	16/09/13
LOGGED BY:	MURCOTT / DELANEY

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100			∝b 87°			284.12 - 284.55m SILTSTONE interlaminated with MUDSTONE.	
282	100	100			∝b 80°			284.55 - 284.85m SANDSTONE, lithic, fine grained, abundant coaly laminae.	
	100	90			∝J 15°			284.85 - 285.03m MUDSTONE, slightly carbonaceous	
284	100	55			∝b 87°			285.03 - 287.32m SANDSTONE, fine-grained lithic, fining upward through siltstone to MUDSTONE at top; sharp base	
	100	27							
286	90	10			∝J 15°			287.32 - 287.86m MUDSTONE, light grey and grey, irregularly interlaminated	
	100	38			∝ b 88°				
288	103	74			∝J 42°			287.86 - 289.80m SANDSTONE, white, quartzose, fine-medium grained. Wavy coaly laminae in 35cm zone at 288.35m	
	100	60							
290	100	0						289.80 - 290.50m SANDSTONE, fine-grained interlaminated with MUDSTONE, fines upward, carb at top.	
	100	56			∝b 88° ⊛				
					∝J 45°			290.50 - 291.91m SILTSTONE / MUDSTONE irregularly interlaminated, MUDSTONE carb in basal 0.6m, weak	
292	103	40			∝J 20°				
	103	68						291.91 - 292.60m MUDSTONE, dark grey, carb at top	
BASE COAL MEASURES 294	100	63			∝J 72°			Contains SANDSTONE, medium-coarse grained, quartz-lithic, arkosic colourin	
	90	45			∝J 45°				
296	100	70						292.6 - 294.25m SILTSTONE, pale grey green	
	100	54			∝J 30°			BASE OF COAL MEASURES	
298	100	70						294.25 - 297.85m SANDSTONE, grey-green, quartzose, medium-grained grading to silty top	
	100	65			∝J 40°			297.85 - 299.45m MUDSTONE, grey green stained red brown	
300	100	90						299.45 - 306.80m SANDSTONE	
	100	100						Medium grained pale green-grey quartz sandstone No coal flasers	
302	100	100						Unit coarsening to base	
	97	100						White mica mixed in ss matrix	
304	100	100						Trace of hematite stained mudstone at top of unit	
	105	100			∝b 86°				
306	100	100						306.80 — 309.25m MUDSTONE	
	100	70			∝b 80°			Hematite-stained fine green-grey to red mudstone, medium grey in bottom 0.7m.	
308	100	68						12cm Band of SANDSTONE, light grey fine grained, quartz-lithic at 309.0m	
	100	77			J∝20			CORE LOSS 309.25 - 309.90m	
310	35	100						END OF HOLE 309.90m	

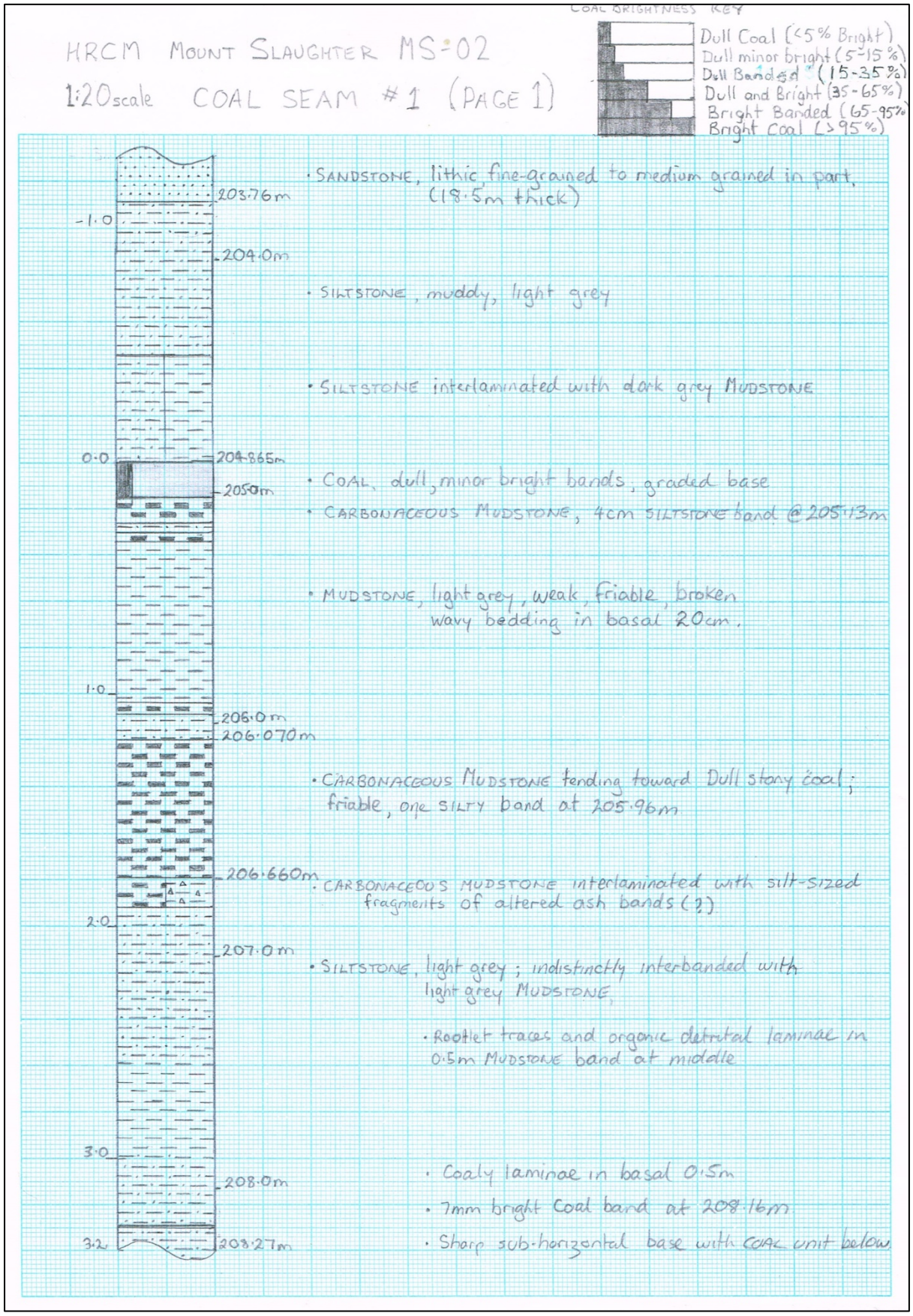
NOTE: BOUNDARY BETWEEN THE COAL MEASURES AND LOWER TRIASSIC FRESHWATER FORMATION IS GRADATIONAL, AS TYPE LITHOLOGIES APPEAR TO INTERFINGER THROUGHOUT THE SEQUENCE FROM 287m.

REMARKS

⊛ Cross bedding

DEPTH OF 294.25M CHOSEN AS BASE OF COAL MEASURES.

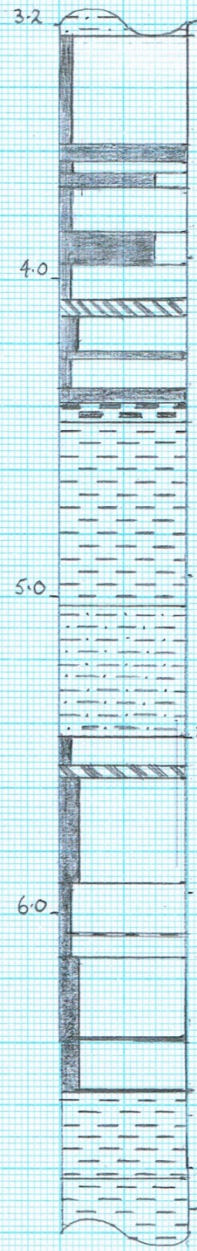
MS-02 1:20 Coal Seam graphic log



ARCM MT SLAUGHTER MS-02

COAL SEAM #1 (PAGE 2)

1mm Squares



208.31 - 209.52m COAL, dull; with bright bands (30%)

- COAL, dull with ashy inclusions in top 20cm ash as carbonate and clay alteration minerals fragments < 1mm in agglomerated blebs up to 1cm diameter
- COAL, bright banded
- COAL, dull stony
- COAL bright banded
- COAL, dull, calcite on cleat up to 2mm thick
- CLAYSTONE band, light brown-fawn, tuffaceous(?)
- COAL, dull minor bright
- COAL, bright
- CARBONACEOUS MUDSTONE, coaly, parts on bedding

209.52 - 210.10m MUDSTONE, light grey, frets badly in top 0.15m, wavy bedding, common rootlet traces and carbonaceous laminae.

210.10 - 210.51m SILTSTONE, silty bands about 1cm thick separated by mudstone and carbonaceous laminae. Undulating bedding (diagenic)

210.51 - 211.630m COAL dull, minor bright bands (10%)

- COAL, dull
- CLAYSTONE band, "tonstein", blebs of claystone in carbonaceous matter.
- COAL, dull minor bright
- COAL, dull contains ashy laths; 15mm MUDSTONE at 211.13m
- COAL, dull minor bright 15 mm bright coal bands at 211.45m and at base

211.630 - 211.90m MUDSTONE, medium to dark grey slightly carbonaceous in part, badly fretted, weak.

211.90 - 212.90m MUDSTONE, light grey, detrital carbonaceous laminae in top 0.5m