



Appendix 1: English Log

WELL NAME: ITUDE_3

TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
0.00	3.00	3.00	100% SAND: extremely weathered rock, Light Orangish- Brown, fine (0.125-0.25 mm) grained, carbonaceous laminae, throughout.
3.00	6.00	3.00	100% CLAY: extremely weathered rock, Medium Brown.
6.00	9.00	3.00	100% CLAY: extremely weathered rock, Medium brownish- Orange.
9.00	12.00	3.00	90% CLAY: distinctly weathered rock, Medium brownish- Orange. 10% SANDSTONE: Light Grey, fine (0.125-0.25 mm) grained.
12.00	15.00	3.00	95% SANDSTONE: slightly weathered rock, Light Grey, fine (0.125-0.25 mm) grained, quartz lithic. 5% CLAY: slightly weathered rock, Medium brownish- Orange.
15.00	18.00	3.00	100% SANDSTONE: fresh, Light Grey, fine to medium grained, quartz lithic.
18.00	21.00	3.00	100% SILTSTONE: fresh, Medium Grey.
21.00	24.00	3.00	100% SILTSTONE CARBONACEOUS: fresh, Dark brownish- Black.
24.00	30.00	6.00	90% SILTSTONE: fresh, Medium Grey. 10% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, slightly, carbonaceous laminae.
30.00	36.00	6.00	100% SILTSTONE: fresh, Medium Grey.
36.00	45.00	9.00	100% SILTSTONE: fresh, Medium Grey, occasional, tuffaceous, and, carbonaceous.
45.00	48.00	3.00	100% SANDSTONE: fresh, Light Grey, carbonaceous laminae, matrix.
48.00	51.00	3.00	100% SILTSTONE CARBONACEOUS: fresh, Dark brownish- Black.
51.00	54.00	3.00	100% SILTSTONE: fresh, Medium Grey, occasional, tuffaceous.
54.00	55.34	1.34	80% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, gradational base, thinly bedded (30-100 mm). 20% SILTSTONE: fresh, Medium Grey, high strength.
55.34	63.31	7.97	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, carbonaceous, laminae, silty, calcareous, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
63.31	73.78	10.47	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, low strength, quartz lithic, minor, silty, lenses, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
73.78	74.14	0.36	100% CORE LOSS:.
74.14	76.25	2.11	100% SANDSTONE: fresh, Light Grey, fine to medium grained, medium strength, carbonaceous, laminae, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
76.25	76.57	0.32	100% MUDSTONE CARBONACEOUS: fresh, Dark brownish- Black, low strength, sharp base, DEFECTS: Type-Joint, planar, Slidenslided, 2 per meter, Closed.
76.57	76.91	0.34	100% SILTSTONE CARBONACEOUS: fresh, Dark Brown, medium strength, sharp base.
76.91	81.50	4.59	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, occasional, carbonaceous, laminae, gradational base.
81.50	87.81	6.31	100% SANDSTONE: fresh, Light Grey, fine to medium grained, medium strength, quartz lithic, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
87.81	93.40	5.59	100% SANDSTONE: fresh, Light Grey, fine to medium grained, medium strength, lithic quartz, occasional, carbonaceous, laminae, sharp base.
93.40	93.55	0.15	100% SANDSTONE: fresh, Medium Grey, very coarse (1-2 mm) grained, extremely low strength, quartzose, sharp base, DEFECTS: Type-Crushed Zone.
93.55	95.65	2.10	100% SANDSTONE: fresh, Light greyish- medium (0.25-0.5 mm) grained, lithic quartz, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
95.65	96.06	0.41	100% SANDSTONE: fresh, Light Grey, coarse (0.5-1 mm) grained, low strength, occasional, pebbly, sharp base.
96.06	102.99	6.93	100% SANDSTONE: fresh, Light Grey, fine to medium grained, medium strength, occasional, carbonaceous, laminae, at top, sharp base, DEFECTS: Type-Bedding, planar, Open, 1 per meter, <2mm.
102.99	103.82	0.83	100% SANDSTONE: fresh, Medium Grey, fine (0.125-0.25 mm) grained, high strength, laminae, sharp base.
103.82	110.13	6.31	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, coaly, laminae, carbonaceous laminae, gradational base, DEFECTS: Type-Bedding, planar, Open, 1 per meter, Closed.



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TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
110.13	114.85	4.72	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, lithic quartz, pebbly, at base, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
114.85	123.27	8.42	100% SANDSTONE: fresh, Light Grey, fine to medium grained, very high strength, calcareous, matrix, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
123.27	123.32	0.05	100% COAL STONY: fresh, Dark brownish- Black, medium strength, irregular.
123.32	123.43	0.11	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, coaly, laminae, sharp base.
123.43	123.56	0.13	100% MUDSTONE CARBONACEOUS: fresh, Dark Brown, medium strength, sharp base, DEFECTS: Type-Bedding, planar, Open, 1 per meter, Closed.
123.56	123.64	0.08	100% COAL DULL: fresh, Brown, medium strength, sharp base, DEFECTS: Type-Crushed Zone.
123.64	123.90	0.26	100% SILTSTONE CARBONACEOUS: fresh, Medium brownish- Grey, medium strength, sharp base, DEFECTS: Type-Joint, planar, Open, 1 per meter, Closed.
123.90	125.07	1.17	100% SANDSTONE: fresh, Light Grey, very fine (0.0625-0.125 mm) grained, high strength, silty, gradational base.
125.07	130.16	5.09	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, sharp base.
130.16	130.79	0.63	100% COAL UNDIFFERENTIATED: fresh, Black, carbonaceous, bands, sharp base. COMMENTS: Desorption Sample 019.
130.79	131.36	0.57	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, gradational base.
131.36	132.55	1.19	100% SILTSTONE: fresh, Medium Grey, high strength, occasional, sandstone, laminae, gradational base.
132.55	132.83	0.28	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, sharp base.
132.83	133.75	0.92	100% MUDSTONE: fresh, Light Grey, medium strength, carbonaceous, at top, and, at base, sharp base, DEFECTS: Type-Bedding, planar, Open, 1 per meter, Closed.
133.75	139.76	6.01	80% SILTSTONE: fresh, Medium greyish- high strength. 20% SANDSTONE: fresh, Light Grey, very fine to fine grained, high strength, sharp base.
139.76	141.91	2.15	100% SANDSTONE: fresh, Medium Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, at base, sharp base.
141.91	142.39	0.48	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, high strength, calcareous, matrix, sharp base.
142.39	144.05	1.66	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, occasional, carbonaceous, laminae, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
144.05	146.40	2.35	100% SILTSTONE: fresh, Medium Grey, high strength, sandstone, at base, sharp base.
146.40	146.48	0.08	100% COAL STONY: fresh, Black, medium strength, sharp base.
146.48	146.59	0.11	100% MUDSTONE: fresh, Medium brownish- Grey, medium strength, sharp base.
146.59	146.89	0.30	100% COAL UNDIFFERENTIATED: fresh, Black, medium strength, sharp base. COMMENTS: Coal Lab Sample 022.
146.89	147.59	0.70	100% MUDSTONE: fresh, Medium Grey, medium strength, sharp base.
147.59	148.57	0.98	100% COAL UNDIFFERENTIATED: fresh, Medium Black, medium strength, carbonaceous, bands, at middle. COMMENTS: Coal Desorption Sample 020.
148.57	149.57	1.00	100% COAL UNDIFFERENTIATED: fresh, Black, medium strength, mudstone, at base. COMMENTS: Coal Desorption Sample 021.
149.57	149.84	0.27	100% MUDSTONE: fresh, Medium Grey, medium strength, carbonaceous, laminae, gradational base, DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
149.84	151.36	1.52	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, gradational base.
151.36	156.09	4.73	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, occasional, silty, lenses, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
156.09	156.30	0.21	100% SANDSTONE: fresh, Light whitish- Grey, fine (0.125-0.25 mm) grained, high strength, calcareous, matrix, sharp base.
156.30	158.96	2.66	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
158.96	164.35	5.39	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, sideritic, at middle, sharp base.



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TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
164.35	166.28	1.93	100% SANDSTONE: fresh, Light whitish- Grey, fine (0.125-0.25 mm) grained, high strength, carbonaceous, laminae, at base, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
166.28	170.71	4.43	100% SILTSTONE: fresh, Medium Grey, high strength, occasional, sandstone, laminae, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
170.71	171.60	0.89	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, sharp base.
171.60	175.00	3.40	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, high strength, occasional, carbonaceous, laminae, gradational base, DEFECTS: Type-Bedding, planar, Open, 1 per meter, Closed.
175.00	175.68	0.68	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, gradational base.
175.68	176.12	0.44	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, high strength, sharp base.
176.12	180.30	4.18	100% SANDSTONE: fresh, Medium Grey, very fine to fine grained, high strength, occasional, clayey, lenses, sideritic, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
180.30	184.17	3.87	100% SANDSTONE: fresh, Light Grey, high strength, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
184.17	186.55	2.38	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, sharp base.
186.55	186.74	0.19	100% SILTSTONE: fresh, Medium Grey, high strength, sharp base.
186.74	187.09	0.35	100% SANDSTONE: fresh, Medium Grey, fine to medium grained, high strength, carbonaceous, laminae, gradational base.
187.09	200.11	13.02	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, occasional, carbonaceous, laminae, gradational base, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
200.11	200.47	0.36	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, throughout, cross bedded, sharp base, very thin bedded (10-30 mm).
200.47	200.59	0.12	100% SIDERITE: fresh, Light Orangish- Brown, sharp base.
200.59	201.54	0.95	100% SILTSTONE: fresh, Medium Grey, high strength, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
201.54	201.59	0.05	100% MUDSTONE CARBONACEOUS: fresh, Dark Brown, medium strength, sharp base.
201.59	201.68	0.09	100% COAL <1% BRIGHT: fresh, Black, sharp base.
201.68	202.29	0.61	100% SANDSTONE: fresh, Light Grey, very fine (0.0625-0.125 mm) grained, high strength, silty, laminae, toward base, graded bedding, sharp base, DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
202.29	202.38	0.09	100% COAL <1% BRIGHT: fresh, Black.
202.38	205.04	2.66	100% SILTSTONE: fresh, Medium Grey, high strength, sandstone, toward base, disturbed bedding, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter.
205.04	209.53	4.49	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, graded bedding, gradational base, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
209.53	214.94	5.41	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, high strength, abundant, silty, fragments, throughout, blebby, gradational base, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
214.94	215.45	0.51	100% SILTSTONE: fresh, Medium Grey, high strength, DEFECTS: Type-Joint, planar, Slikenslided, 2 per meter, Closed.
215.45	215.97	0.52	100% MUDSTONE: fresh, Medium Brown, high strength, DEFECTS: Type-Joint, planar, Slikenslided, 2 per meter, Closed.
215.97	221.15	5.18	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, graded bedding, sharp base, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
221.15	223.26	2.11	100% SILTSTONE: fresh, Medium Grey, high strength, sandstone, laminae.
223.26	227.88	4.62	100% SANDSTONE: fresh, Light slightly greenish- Grey, fine to medium grained, high strength, carbonaceous, laminae, cross bedded, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
227.88	235.10	7.22	100% SILTSTONE: fresh, Medium Grey, high strength, occasional, sandstone, laminae, sideritic, cross bedded, gradational base, DEFECTS: Type-drilling induced, planar, Open, 3 per meter, Closed.
235.10	235.83	0.73	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, carbonaceous, silty, laminae, toward top, cross bedded, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.



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TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
235.83	237.68	1.85	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, graded bedding, irregular, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
237.68	237.93	0.25	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, high strength, calcareous, and, carbonaceous, laminae, disturbed bedding, irregular.
237.93	238.45	0.52	100% SILTSTONE: fresh, Medium Grey, high strength, sandstone, laminae, disturbed bedding, gradational base, DEFECTS: Type-Joint, undulating, Slikenslided, 3 per meter, Closed.
238.45	241.25	2.80	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, carbonaceous, laminae, graded bedding, sharp base, DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
241.25	241.53	0.28	100% SILTSTONE CARBONACEOUS: fresh, Dark blackish- Grey, high strength, coaly, at top.
241.53	243.43	1.90	100% SILTSTONE: fresh, Medium Grey, sharp base, DEFECTS: Type-Joint, planar, Open, 1 per meter, Closed.
243.43	243.62	0.19	100% MUDSTONE CARBONACEOUS: fresh, Dark blackish- Brown, high strength, coaly, laminae, gradational base, DEFECTS: Type-Joint, planar, Slikenslided, 3 per meter, Closed.
243.62	245.61	1.99	100% MUDSTONE: fresh, Dark Grey, high strength, sandstone, toward base, gradational base, DEFECTS: Type-Joint, planar, Slikenslided, 3 per meter, Closed.
245.61	248.02	2.41	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, carbonaceous, laminae.
248.02	248.06	0.04	100% COAL UNDIFFERENTIATED: fresh, Black.
248.06	250.00	1.94	70% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, carbonaceous, laminae, disturbed bedding, sharp base, irregularly interbedded, DEFECTS: Type-Joint, planar, Slikenslided, 1 per meter, Closed. 30% SILTSTONE: fresh, Medium Grey.
250.00	250.02	0.02	100% COAL DULL: fresh, Black.
250.02	250.18	0.16	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, coaly, laminae.
250.18	250.19	0.01	100% COAL 60-90% BRIGHT: fresh, Black.
250.19	250.28	0.09	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, coaly, laminae.
250.28	250.29	0.01	100% COAL DULL: fresh, Black.
250.29	251.33	1.04	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, coaly, laminae, graded bedding, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
251.33	252.89	1.56	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, abundant, coaly, laminae, throughout, graded bedding, sharp base, DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
252.89	253.47	0.58	100% COAL UNDIFFERENTIATED: fresh, Black, low strength.
253.47	253.58	0.11	100% SILTSTONE: fresh, Medium Grey, high strength, sandstone, laminae, throughout, DEFECTS: Type-Joint, planar, Slikenslided, 2 per meter, Closed.
253.58	254.20	0.62	100% COAL UNDIFFERENTIATED: fresh, Black, medium strength, silty, throughout.
254.20	254.89	0.69	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, toward top, cross bedded, sharp base, DEFECTS: Type-Joint, planar, Slikenslided, 1 per meter, Closed.
254.89	256.28	1.39	100% MUDSTONE: fresh, Medium brownish- Grey, high strength, DEFECTS: Type-drilling induced, planar, Open, 3 per meter, Closed.
256.28	258.28	2.00	100% SILTSTONE: fresh, Medium Grey, high strength, sandy, toward base.
258.28	264.73	6.45	75% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, occasional, sideritic, bands, cross bedded, gradational base, laminated (2-10 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed. 25% SILTSTONE: fresh, Dark Grey, high strength.
264.73	266.54	1.81	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, occasional, coaly, bands, toward base, graded bedding, sharp base, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
266.54	266.84	0.30	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, extremely high strength, calcareous, graded bedding, sharp base.
266.84	270.06	3.22	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, low strength, quartz lithic, occasional, carbonaceous, laminae, graded bedding, DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.



Appendix 1: English Log

WELL NAME: ITUDE_3

TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
270.06	270.08	0.02	100% COAL <1% BRIGHT: fresh, Black.
270.08	270.56	0.48	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, medium strength, coaly, laminae, quartz lithic, graded bedding, sharp base.
270.56	270.83	0.27	100% MUDSTONE: fresh, Dark brownish- Grey, low strength, slightly, carbonaceous, DEFECTS: Type-drilling induced, planar, Open, 3 per meter, Closed.
270.83	271.25	0.42	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, laminae, throughout, graded bedding, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
271.25	271.49	0.24	100% COAL <1% BRIGHT: fresh, Black, low strength.
271.49	273.75	2.26	100% MUDSTONE: fresh, Dark brownish- Grey, low strength, gradational base, DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed.
273.75	275.27	1.52	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, quartzose.
275.27	279.23	3.96	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, high strength, quartz lithic, with, occasional, carbonaceous, graded bedding, irregular, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
279.23	280.03	0.80	100% SANDSTONE: fresh, Light whitish- Grey, fine (0.125-0.25 mm) grained, extremely high strength, calcareous, occasional, carbonaceous, laminae, irregular.
280.03	280.79	0.76	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, quartz lithic, with, occasional, carbonaceous, graded bedding, sharp base, massive, DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
280.79	281.19	0.40	100% SANDSTONE: fresh, Light whitish- Grey, fine to medium grained, extremely high strength, calcareous, carbonaceous, laminae, toward top, irregularly interbedded.
281.19	283.00	1.81	100% SANDSTONE: fresh, Light Grey, fine to medium grained, high strength, quartz lithic, occasional, sideritic, bands.
283.00	283.95	0.95	100% SANDSTONE: fresh, Light brownish- Grey, fine (0.125-0.25 mm) grained, high strength, calcareous, at base, sharp base, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
283.95	284.50	0.55	100% SANDSTONE: fresh, Light Grey, very fine to fine grained, high strength, quartz lithic, sharp base, very thinly bedded (10-30 mm), DEFECTS: Type-Fault, planar, Open, 1 per meter, Closed.
284.50	285.60	1.10	100% SILTSTONE: fresh, Dark Grey, medium strength, sharp base, very thinly bedded (10-30 mm), DEFECTS: Type-Joint, planar, Open, 2 per meter.
285.60	286.17	0.57	100% SANDSTONE: fresh, Light whitish- Grey, fine (0.125-0.25 mm) grained, extremely high strength, calcareous, sharp base, medium bedded (100-300 mm).
286.17	286.37	0.20	100% MUDSTONE: fresh, Dark blackish- Brown, low strength, mud cracks, sharp base, DEFECTS: Type-Bedding, planar, Open, 3 per meter, Closed.
286.37	286.81	0.44	60% SANDSTONE: fresh, Light Grey, very fine to fine grained, medium strength, sharp base, laminated (2-10 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed. 40% SILTSTONE: fresh, Dark Grey.
286.81	287.50	0.69	100% COAL UNDIFFERENTIATED: fresh, Black.
287.50	288.01	0.51	100% COAL UNDIFFERENTIATED: fresh, Black.
288.01	289.59	1.58	100% SILTSTONE: fresh, Medium Grey, medium strength, coaly, bands, toward base.
289.59	289.69	0.10	100% COAL <1% BRIGHT: fresh, Black.
289.69	289.75	0.06	100% SANDSTONE: fresh, Light Grey, very fine (0.0625-0.125 mm) grained, high strength.
289.75	289.98	0.23	100% COAL <1% BRIGHT: fresh, Black.
289.98	290.00	0.02	100% COAL SHALY: fresh, Dark brownish- Grey, low strength.
290.00	290.03	0.03	100% COAL UNDIFFERENTIATED: fresh, Black, low strength.
290.03	290.09	0.06	100% MUDSTONE CARBONACEOUS: fresh, Dark brownish- Grey, low strength.
290.09	292.72	2.63	100% SILTSTONE: fresh, Medium Grey, medium strength, sandstone, laminae, graded bedding, sharp base, DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
292.72	292.89	0.17	100% CLAY: fresh, Medium Brown, extremely low strength.



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TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
292.89	295.19	2.30	100% SILTSTONE: fresh, Medium Grey, carbonaceous, bands, at base, DEFECTS: Type-Joint, planar, Slikenslided, 1 per meter, Closed.
295.19	297.34	2.15	90% SANDSTONE: fresh, Light Grey, fine to medium grained, medium strength, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 3 per meter, Closed. 10% SILTSTONE: fresh, Medium Grey, carbonaceous, laminae.
297.34	298.41	1.07	100% SANDSTONE: fresh, Light Grey, medium (0.25-0.5 mm) grained, medium strength, sharp base, thickly bedded (300-1000 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
298.41	299.05	0.64	100% SILTSTONE: fresh, Dark Grey, medium strength, very thinly bedded (10-30 mm), DEFECTS: Type-Joint, planar, Open, 1 per 100mm, Closed.
299.05	300.17	1.12	75% SANDSTONE: fresh, Medium Grey, very fine to fine grained, medium strength, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed. 25% SILTSTONE: fresh, Medium Grey, medium strength, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed.
300.17	302.82	2.65	100% SILTSTONE: fresh, Medium brownish- Grey, medium strength, sandstone, at top, sharp wavy base, very thickly bedded (1000 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
302.82	304.17	1.35	65% SANDSTONE: fresh, Medium greenish- Grey, fine to medium grained, medium strength, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-Joint, irregular, Infilled, 1 per meter, 2-10mm, Infill-clay. 35% MUDSTONE: fresh, Medium Brown, medium strength, thinly bedded (30-100 mm).
304.17	305.23	1.06	85% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, medium strength, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, undulating, Open, 1 per meter, Closed. 15% MUDSTONE: fresh, Medium Brown, medium strength, thinly bedded (30-100 mm).
305.23	305.71	0.48	50% MUDSTONE: fresh, Medium Brown, medium strength, gradational base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed. 50% SANDSTONE: fresh, Light greenish- Grey, fine (0.125-0.25 mm) grained, high strength, carbonaceous, fragments, thinly bedded (30-100 mm).
305.71	307.98	2.27	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, carbonaceous, laminae, gradational base, medium bedded (100-300 mm), DEFECTS: Type-Bedding, undulating, Open, 1 per meter, Closed.
307.98	309.27	1.29	100% SANDSTONE: fresh, Medium greenish- Grey, very fine to fine grained, high strength, silty, carbonaceous, laminae, gradational base, laminated (2-10 mm), DEFECTS: Type-drilling induced, undulating, Open, 2 per meter, Closed.
309.27	309.75	0.48	100% SANDSTONE: fresh, Medium greenish- Grey, fine (0.125-0.25 mm) grained, high strength, ripple marks, sharp wavy base, very thinly bedded (10-30 mm).
309.75	312.34	2.59	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, carbonaceous, laminae, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
312.34	314.33	1.99	100% SILTSTONE: fresh, Medium brownish- Grey, medium strength, sandstone, laminae, at middle, gradational base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed.
314.33	315.43	1.10	100% SANDSTONE: fresh, Medium greenish- Grey, very fine to fine grained, medium strength, silty, at top, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
315.43	320.00	4.57	90% SILTSTONE: fresh, Medium brownish- Grey, medium strength, sandstone, lenses, at base, gradational base, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed. 10% CLAY: fresh, Dark Brown, medium strength, carbonaceous, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed.
320.00	320.47	0.47	75% MUDSTONE: fresh, Medium Brown, medium strength, sharp wavy base, very thinly bedded (10-30 mm), DEFECTS: Type-Joint, undulating, Slikenslided, 1 per 10mm, Closed. 25% COAL 10-40% BRIGHT: fresh, Dark brownish- Black, very low strength, very thinly bedded (10-30 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 10mm, Closed.
320.47	322.64	2.17	100% SILTSTONE: fresh, Medium brownish- Grey, low strength, sandstone, laminae, at base, gradational base, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 100mm, Closed. 50% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, silty, laminae, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.



Appendix 1: English Log

WELL NAME: ITUDE_3

TOTAL COAL THICKNESS(m): 6.42

From	To	Thick	Description
			50% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, silty, laminae, gradational base, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
331.22	336.02	4.80	100% SANDSTONE: fresh, Light greenish- Grey, medium (0.25-0.5 mm) grained, high strength, carbonaceous, laminae, silty, gradational base, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, undulating, Open, 1 per meter, Closed.
336.02	337.02	1.00	100% SANDSTONE: fresh, Light greenish- Grey, fine (0.125-0.25 mm) grained, medium strength, gradational base, massive, DEFECTS: Type-drilling induced, undulating, Open, 2 per meter, Closed.
337.02	338.70	1.68	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, calcareous, bands, at middle, gradational base, massive, DEFECTS: Type-drilling induced, undulating, Open, 1 per meter, Closed.
338.70	342.09	3.39	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, gradational base, massive, DEFECTS: Type-drilling induced, undulating, Open, 1 per meter, Closed.
342.09	343.24	1.15	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, carbonaceous, fragments, at base, gradational base, medium bedded (100-300 mm), DEFECTS: Type-drilling induced, undulating, Open, 1 per meter, Closed.
343.24	345.46	2.22	100% SILTSTONE: fresh, Medium brownish- Grey, high strength, sandstone, sharp wavy base, medium bedded (100-300 mm), DEFECTS: Type-Joint, undulating, Slikenlided, 3 per meter, Closed.
345.46	353.04	7.58	100% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, carbonaceous, laminae, at top, sharp base, thickly bedded (300-1000 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
353.04	354.63	1.59	100% SILTSTONE: fresh, Medium greyish- Brown, high strength, sandstone, carbonaceous, laminae, sharp base, thinly bedded (30-100 mm), DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
354.63	358.92	4.29	75% SILTSTONE: fresh, Medium brownish- Grey, high strength, occasional, carbonaceous, fragments, sharp base, laminated (2-10 mm), DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
358.92	358.92	0.00	25% SANDSTONE: fresh, Light greenish- Grey, fine (0.125-0.25 mm) grained, high strength, sharp base, laminated (2-10 mm), DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
360.77	360.77	0.00	35% SILTSTONE: fresh, Light brownish- Grey, high strength, thinly bedded (30-100 mm), DEFECTS: Type-drilling induced, undulating, Open, 1 per 10mm, Closed.
			65% SANDSTONE: fresh, Light greenish- Grey, medium to coarse grained, high strength, coaly, fragments, calcareous, gradational base, thinly bedded (30-100 mm).
360.77	366.98	6.21	80% SANDSTONE: fresh, Light greenish- Grey, fine to medium grained, high strength, carbonaceous, fragments, at base, cross bedded, sharp planar base, thinly bedded (30-100 mm).
			20% SILTSTONE: fresh, Medium greyish- Brown, high strength, laminated (2-10 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
366.98	367.56	0.58	55% SILTSTONE: fresh, Medium greyish- Brown, high strength, ripple marks, sharp base, laminated (2-10 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
			45% SANDSTONE: fresh, Light greenish- Grey, very fine to fine grained, high strength, laminated (2-10 mm).
367.56	368.79	1.23	100% SILTSTONE: fresh, Light greyish- Brown, high strength, gradational base, very thinly bedded (10-30 mm), DEFECTS: Type-drilling induced, planar, Open, 2 per meter, Closed.
368.79	374.92	6.13	60% SANDSTONE: fresh, Light greenish- Grey, fine (0.125-0.25 mm) grained, high strength, occasional, carbonaceous, fragments, sharp planar base, thinly bedded (30-100 mm), DEFECTS: Type-Joint, planar, Slikenlided, 1 per meter, Closed.
			40% SILTSTONE: fresh, Medium Brown, high strength, carbonaceous, fragments, ripple marks, laminated (2-10 mm), DEFECTS: Type-drilling induced, undulating, Open, 2 per meter, Closed.
374.92	375.63	0.71	100% MUDSTONE: fresh, Medium Brown, medium strength, coaly, at top, gradational base, very thinly bedded (10-30 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per 10mm, Closed.
375.63	379.70	4.07	85% SILTSTONE: fresh, Medium greyish- Brown, medium strength, ripple marks, gradational base, laminated (2-10 mm), DEFECTS: Type-drilling induced, planar, Open, 1 per meter, Closed.
			15% SANDSTONE: fresh, Light greenish- Grey, very fine to fine grained, medium strength, carbonaceous, fragments, thinly bedded (30-100 mm).
379.70	380.56	0.86	100% SANDSTONE: fresh, Light Grey, fine (0.125-0.25 mm) grained, high strength, silty, bands, gradational base, thinly bedded (30-100 mm).
380.56	383.52	2.96	100% SANDSTONE: fresh, Light greenish- Grey, fine (0.125-0.25 mm) grained, high strength, carbonaceous, fragments, thickly bedded (300-1000 mm).