FINGAL41B - LITHOLOGY SUMMARY

HOLE NAME: **FINGAL41B**
R.L. of Hole: **812.00 m**
Northing: **5386618.00 m**
Easting: **588949.00 m**
Date Drilling Commenced: **39246**
Date Drilling Completed: **39262**
Drill Company: **Spaulding Drilling**
Core Size: **HQ3**
PCD Depth: **180.00 m**
Core Depth: **464.50 m**

FROM	TO	THICKNESS	CORE LOSS	GEOLOGICAL DESCRIPTION
179.70	227.90	48.20		Dolerite: Grey, fine-grained, hard 194 – 197 – subvertical healed fracture with calcite (1 mm thick) 202.5 – 204.0 – Healed fracture at 80 degrees to core axis (TCA) (1 mm thick) 211 – 212 – Greenish grey w/ drill induced fractures perpendicular to core axis 217 – 218.5 – subvertical healed fracture (~80 degrees) 226 – 227.9 – very fine grained; brittle; green Irregular (irregular) basal contact (contact) – intrusive? - no apparent bake zone in sandstone
227.90	231.60	3.70		SANDSTONE (SS): Med grained lithic sandstone; light grey to creamy white; muddy bands TO at 0 – 20 degrees; mod to poor sorting - sparse mud pellets w/ silty matrix throughout (TO), irregular bedding TO - 230.3 – 230.5 – Med grained well sorted sand zone - Sharp basal contact
231.60	233.05	1.45		SILTSTONE (SL): fine creamy greenish grey; w/ thinly bedded minor SS interbeds (interbed); - 232.1 – 232.2 – SL/SS (50:50) - Sharp basal contact
233.05	233.11	0.06		SS: Med grained grey; mod to well sorted; - sharp basal contact
233.11	234.10	0.99		MUDSTONE (MS): creamy grey/white; laminae w/ mottled/disturbed bedding(?) - 233.11 -233.6 – badly broken, soft and clayey - 233.6 – 234.0 – fracture at 85 degrees - gradational basal contact
234.10	235.30	1.20		SS/SL (60:40): – Light grey creamy white; thinly bedded and interbedded - very gradational contact; increasing sand
235.30	235.90	0.60		SS: white creamy; F-M grained w/ mod sorting, thin bedded; bedding at 0 – 5 degrees - sharp erosional basal contact
235.90	236.40	0.50		MS/SL: light greyish green to white (?); fining upwards - 236.3 – 236.4 – irregular fracture at 88 degrees and 10 degrees - Grad basal contact
236.40	240.80	4.40		SS: Very fined grained; greenish grey w/ light tan bedding @ 0 degrees; well sorted, minor SL bands TO - 238.15 – 238.3 – Thin interbed of greenish SL - 239.5 – 238.3 – Thin interbed of tan SL w/ rusty brown SS - 240 – 240.8 – F-grained; reddish brown; thinly bedded at 0 degrees TCA - Gradational basal contact as part of fining upwards package
240.80	249.60	8.80		SS: Med grained lithic sandstone, brown to rusty brown w/ thin interbed of VF grey SS or SL (widely spaced and > 0.4 m); - bedding at 0 – 8 degrees; no fractures or breaks in core - 243.1 – 243.2 – minor black specks in sand - 243 – 246 – reddish brown colour fading to grey at 246 - 246.5 – 247.3 – bedding thin at 5 to 10 degrees - 247.5 – 248 – irregular fracture at 60 to 80 degrees TCA - 248.6 – 248.9 – irregular shaped brown mud pellets (< 1 cm diameter.) in grey sand with bedding at 0 – 5 degrees
249.60	250.50	0.90		SS: grey and green bands of med grained SS w/ small subround mud pellets; muddy TO; soft rock (easily scratched with chisel); bedding at 15 degrees; sharp basal contact
250.50	253.00	2.50		SS – F-M grained in fining upwards package; mod sorting; grey w/ beds at 0 – 5 degrees; - 251.6 – 251.7 – large 1-2 cm mud pellet in sand mud pellets – elliptical - 251.7 – 252 – M-grained grey SS beds at 5 degrees - F grained w/ thin bedding at 5 degrees at base
253.00	259.50	6.50		SS: Med grained w/ abundant carbonaceous debris/grains and sparse med pellets TO; grey to dark grey - 253.2 – 253.5 – Sub angular pellets 1-3 cm - 254.5 – 255 – Mud pellets and carbonaceous TO - 255.5 – 256 - bedding at 5 degrees - 256.5 – 257 – abundant carbonaceous. debris – darker grey to black in colour - 257.4 – 257.5 – band w/ mud pellets and carbonaceous debris - Gradational contact

259.50	264.00	4.50		SS: w/ abundant carbonaceous debris and black muddy pellets; poor sorting; bedding at 5 degrees; - 259.6 – 259.63 – coal band cleated and bright - 260.4 – 260.5 – CM band and bedding at 10 degrees - 261 – 263 – black and grey; med grained bedding at 0 degrees - 263.6 – 264.0 – abundant CM debris
264.00	264.20	0.20		CARBONACEOUS MUDSTONE (CM): black thinly bedded; less dense than above sand
264.20	269.50	5.30		SS: dark grey to black; med grained - 264.4 – 265.6 – abundant carbonaceous material; bedding at 5 – 10 degrees - 266.6 – 266.9 – irregular shaped mud pellets in sand matrix - 267.7 – 267.8 – 3 thin (<2 mm thick) bright coal bands - 268.3 – 268.4 – CM pellets irregular bedding at 5 degrees - 269 – 269.1 – CM band; dark black; sandy TO - 269.45 – thin bright coal band - grad contact
269.50	278.15	8.65		SS: grey; med grained; thinly bedded; no fractures but SS is soft;; dark grey - 274.1 – 274.2 – bedding at 15 degrees w. white calcareous interbeds; soft rock - 276.8 – 277.0 – SS w/ thin CM laminae at 0 degrees -sharp basal contact
278.15	279.00	0.85		CM: dark black; dense with plant debris on fresh fractures; gradational basal contact
279.00	280.00	1.00		SL: dark grey and silty; very fine laminae - Grad basal contact
280.00	280.05	0.05		COAL (CO): boney dull coal; dense and black
280.05	281.00	0.95		CM: Dark black; dense w/ thin interbeds of SL and boney coal
281.00	281.20	0.20		CO: Very dull coal; rocky w/ subvertical calcite in fractures; bedded but less dense; thin (1mm thick) coaly bands in CM – abundant coaly bands
281.20	281.40	0.20		CM: dark black and dense, scratches grey to brown; dense
281.40	281.55	0.15		CO: Dark black w/ interbed CM; abundant thin CO bands (1 mm thick); calcite abundant in subvertical healed fractures
281.55	281.75	0.20		CM – black laminae; minor very thin coaly bands
281.75	282.25	0.50		CO/CM (60:40): dark black thin coal bands; increasing CO at base; fairly dense -gradational basal contact
282.25	284.45	2.20		MS: Dark grey and carbonaceous at the top; laminae TO
284.45	285.05	0.60		CM: dark black, dense and fissile; friable, badly broken throughout
285.05	285.55	0.50		CO/CM (50:50): abundant thin dull coal bands in carbonaceous mud - 285.3 – 285.5 – subvertical healed fractures w/ red mineralisation and calcite; thin fractures (~1 mm) but abundant
285.55	285.70	0.15		CM: dark grey to black; laminae TO
285.70	285.75	0.05		TUFF (VT): creamy tan volcanic tuff; sharp basal contact
285.75	286.70	0.95		CM: dark black; dense; laminae; red mineralisation on fracture at 285.8 - 286.3 – 286.4 – SL interbeds, thin
286.70	286.96	0.26		CO: thin coaly laminae in carbonaceous mud; non- dense w/ subvertical healed fractures w/ calcite - 286.84 – 286.86 – C4 coal w/ well developed cleat; thin band Contact gradational
286.96	287.40	0.44		CM: dark black, dense - grading to mudstone at base
287.40	287.70	0.30		SL: dark grey; thin laminae; sharp basal contact
287.70	288.25	0.55		CM: dark black; dense; coaly near top 287.85 – 288.0 – subvertical calcite veins
288.25	288.80	0.55		CO/CM (50:50): dark black; dense w/ thin bands of CO in thinly laminated CM; dense
288.80	289.30	0.50		CM/CO (70:30): dark black w/ thin (mm thick) coal bands - gradational contact
289.30	294.60	5.30		SS: Very fine grained; thinly bedded; carbonaceous beds TO - 290 – 290.3 – small scale cross bedding; dark grey w/ dark black CM and SL beds TO - 292.0 – 292.12 – thin SL bands
294.60	296.20	1.60		SS/SL (60:40): thinly interbedded grey sands with darker greyish brown carbonaceous SL beds TO
296.20	297.06	0.86		SS: F-M grained well sorted sand; grey 296.35 – 296.4 – thin carbonaceous wisps - Sharp basal contact
297.06	297.18	0.12		CO: C4/C5 – dark black w/ bright bands; low density
297.18	297.20	0.02		VT: dark brown tuff band
297.20	297.28	0.08		CO: C5 dark black coal; cleated w/ calcite on cleat planes; badly broken
297.28	297.30	0.02		VT – dark brown and dense
297.30	297.85	0.55		CO – black; moderately bright coal at top (2 cm); dull coal w/ CM interbeds - 297.3 – 297.7 – C5 cleated and fractured
297.85	298.04	0.19		CM/CO: black and denser than above CO; thinly bedded w/ minor sand grains TO
298.04	299.50	1.46		SS: Very fine sand; thinly bedded w/ carbonaceous beds - 299 – 299.3 – convoluted bedding at 10 degrees TCA
299.50	300.80	1.30		SS: Fine grained; light brownish grey w/ abundant carbonaceous beds (dark black) - thinly bedded w/ bedding at 5 degrees - sharp basal contact
300.80	300.84	0.04		CO: Dull dark black; cleated w/ kaolinite on cleat planes

300.84	301.25	0.41		CM – Dark black thinly laminated; bedding at 0 degrees - breaks along bedding planes -gradational contact
301.25	301.65	0.40		CM: dark black w/ thin interbeds (laminae) of MS or volcanic tuff (brownish grey in colour) beds (<2 mm); dense - coaly laminae - 2 one mm bands
301.65	306.50	4.85		CO: dull coal C6(?); fracture with slickenside at 301.48 m 301.65 – 302.04 – Dull coal – hard w/ abundant subvertical fractures filled with calcite; muddy but less dense 302.04 – 302.07 – Dull coal and tuffaceous wisps and pellets(?) 302.07 – 302.35 – Dull coal w/ 3 bands (1cm thick) of brighter cleated coal 302.35 – 302.4 – CM band 302.4 – 302.54 – Dull coal – black with metallic sheen; cleated in part but rocky 302.54 – 302.60 – VT – tuff brown thinly laminated 302.60 – 302.81 – CM band; dense w/ minor very thin coaly bands 302.81 – 302.86 – VT – light grey; dense 302.86 – 303.0 – CM – dense and black 303.0 – 303.12 – VT – tan to grey w/ CM interbeds 303.12 – 303.25 – CO – dull black metallic(?); white mineralization on fractures; hard and no clear cleating 303.25 – 303.27 – VT – tan w/ CM wisps 303.27 – 303.5 – CM – dark black and dense 303.5 – 303.75 – VT – tan, thinly laminated 303.75 – 304.10 – CM – dark black dense 304.10 – 304.3 – CM/VT – dark black and brown thinly interbedded 304.3 – 304.4 – CO – dull black with minor cleating 304.4 – 304.42 – CO – dull and black 304.42 – 304.45 – VT – brown 304.45 – 304.71 – CO – C(?) w/ mod. Cleating and mod density 304.71 – 304.73 – VT – dark brown 304.73 – 304.90 – CO – dull and dense, no cleating or fracturing 304.90 – 305.22 – C5 coal – irregular fracturing and cleating 305.22 – 305.26 – C3 band; black w/ good cleating 305.26 – 305.40 – CO black but denser 305.40 – 305.5 – C4 – bright and cleated; light and badly broken 305.5 – 305.55 – CO dull and dense 305.55 – 305.58 – VT – thin tuff ; dark brown 305.58 – 305.71 – C5 coal w/ kaolinite on cleated surfaces 305.71 -305.73 – VT – creamy brown 305.73 – 305.94 – C6 w/ CM interbeds; thick band (3 cm) of C4; kaolinite on cleated surfaces 305.94 – 305.96 – VT – creamy brown 305.96 – 306.15 – CO – dull black and badly broken; irregular fractures; minor thin cleating 306.15 – 306.20 – CM/VT – interbeds of dark black and creamy brown 306.20 – 306.40 – C6 coal, minor cleating 306.40 – 306.5 – CM; sharp basal contact
306.50	306.55	0.05		VT: creamy brown, dense
306.55	307.05	0.50		CM: dense, black, gradational basal contact
307.05	307.65	0.60		SL: dark grey, laminae; bedding at 0 degrees
307.65	308.40	0.75		SS: Fine grained, light grey, well sorted
308.40	309.90	1.50		SANDSTONE: Grey, fine grained, well sorted, carbonaceous laminations throughout, silty in parts
309.90	310.30	0.40		SL: Grey, slightly sandy in parts, laminated appearance
310.30	311.00	0.70		SS: Grey, fine to medium grained, well sorted, laminated, very thin carbonaceous bands
311.00	313.90	2.90		SS: Grey, medium to coarse grained, well sorted, carbonaceous parts at 311.6m with minor tuff, lithic fragments
313.90	314.50	0.60		SS: Grey, fine grained with silty partings, laminated, minor carbonaceous bands throughout, well sorted
314.50	315.60	1.10		SS: Grey, medium to coarse grained, minor lithic and carbonaceous fragments, massive, well sorted
315.60	315.90	0.30		SS: Grey, fine to coarse grained in parts, carbonaceous laminations at 315.8m
315.90	316.65	0.75		SS: Light grey, medium grained, laminated in parts, lithic fragments, carbonaceous stringers at 316.4m and 316.65m
316.65	316.80	0.15		SL: Grey, well sorted, carbonaceous stringers on joint surfaces
316.80	317.70	0.90		SS: Lightly grey, medium to coarse grained with sub-rounded clasts up to 10mm, thin carbonaceous bands, poorly to moderately sorted
317.70	319.70	2.00		SS: Grey, medium grained, laminated in parts, well sorted, carbonaceous mudstone bands at 318.7m and 318.8m
319.70	320.30	0.60		SS: Grey, fine to medium grained, well laminated, moderately to well sorted, lithic fragments
320.30	323.50	3.20		SS: Grey, fine to medium grained, well sorted, carbonaceous laminations from 320.8-320.9m, 321.2m, 322.5-322.8m
323.50	323.90	0.40		SS: Grey, medium grained, abundant sub-rounded clasts to 10mm, poorly sorted, carbonaceous stringers throughout
323.90	324.50	0.60		SS: Grey, fine to medium grained, minor carbonaceous coaly stringers, well sorted, rare sub-rounded clasts, minor laminations
324.50	324.65	0.15		SS: Grey, fine to medium grained with abundant rounded clasts to 10mm, poorly sorted
324.65	326.40	1.75		SS: Light to medium grey, laminated in parts, occasional rounded clasts, coaly stringers from 325.3-325.8m, becoming slightly silty in parts
326.40	326.80	0.40		VT: Light brown grey to cream, soft, strongly foliated

327.10	327.50	0.40		VT: Light brown grey to cream, soft, strongly foliated
327.50	327.65	0.15		CM: Dark brown grey to back in parts, slightly tuffaceous, highly carbonaceous
327.65	327.75	0.10		VT: Light brown grey to cream, soft, strongly foliated
327.75	328.00	0.25		CM: Dark brown grey to back in parts, slightly tuffaceous, highly carbonaceous
328.00	328.10	0.10		VT: Light brown grey to cream, soft, strongly foliated
328.10	328.70	0.60		COAL – C SEAM: Black, slightly tuffaceous in parts, slight to moderate cleating, vertical fracture, mostly dull, Sample 5
328.70	329.00	0.30		VT: Light brown grey to cream, soft, strongly foliated
329.00	329.30	0.30		CM: Dark brown grey to back in parts, slightly tuffaceous, moderately carbonaceous
329.30	329.45	0.15		VT: Light brown grey to cream, soft, strongly foliated
329.45	329.65	0.20		CM: Dark brown grey to back in parts, slightly tuffaceous, highly carbonaceous, 0.1m moisture sample taken
329.65	329.80	0.15		VT: Light brown grey to cream, soft, strongly foliated
329.80	330.80	1.00		COAL – C SEAM: Black, slightly tuffaceous in parts, minor cleating with some jointing, dull, Sample 6
330.80	330.90	0.10		VT: Light brown grey to cream, soft, moderately foliated
330.90	331.20	0.30		CM: Dark brown grey to back in parts, moderately tuffaceous throughout, highly carbonaceous
331.20	331.90	0.70		MS: Light grey, massive, well sorted, minor carbonaceous partings, some tuff throughout
331.90	334.20	2.30		SL: Light grey, massive, minor carbonaceous debris on fresh fractures, minor very fine sand throughout
334.20	334.60	0.40		CM: Dark black w/ thin interbeds/laminae of Siltstone - Gradational basal contact – increasing siltstone
334.60	335.40	0.80		SL: grey, badly broken - Note: lost core run out of inter tube and had to re-core section, therefore, badly broken throughout
335.40	336.10	0.70		SS: Grey and fine grained; badly broken
336.10	337.30	1.20		MS: Grey, massive; sharp basal contact
337.30	340.30	3.00		SS: Greenish grey, fine to medium grained with fining upwards packages 0.5 – 0.75 m thick, - bedding at 0 degrees - 337.6 – 337.8 – Medium grained - 337.8 – 338.2 – Very fine grained sand 340.2 – 340.3 – Fine grained w/ coaly wisps and debris - gradational basal contact
340.30	342.00	1.70		SS: Fine to medium grained, grey, poor to moderate sorting, - 341.3 – 342.0 – coaly debris and laminae interbeds; bedding at 0 to 5 degrees and finer sand - Gradational basal contact
342.00	346.35	4.35		SS: Grey, Medium grained, well sorted - bedding at 0 – 10 degrees, cross bedded - 343.4 – 343.5 – minor carbonaceous laminae - Sharp irregular basal contact at 20 degrees
346.35	346.53	0.18		MS: black to brownish grey; badly broken w/ slickensides(?) on some surfaces - carbonaceous at top - sharp basal contact
346.53	349.90	3.37		SS: Med to coarse grained; moderate to poor sorting with abundant carbonaceous grains and flecks and debris throughout. - 346.8 – 347.7 – abundant carbonaceous wisps, coaly fragments and bands, and irregular shaped siltstone pellets. - 348.3 – 349.1 – carbonaceous pellets on bedding at 0 degrees to core axis - 349.1 – 349.9 – Coarse grained at base w/ fine to medium grained bands; larger mud pellets in coarse sand matrix at base - Transitional base
349.90	350.50	0.60		SS: Fine to medium grained; moderate sorting - Gradational contact
350.50	351.30	0.80		SS: Medium to coarse grained; poor sorting - abundant coaly debris, wisps and mud pellets - mud pellets at base (1-2 cm) and elliptical in shape - transition to less debris at base
351.30	353.96	2.66		SS: Fine to medium grained; abundant mudstone pellets in matrix (1 – 3 cm diameter and elliptical); high density of mud clasts at base - 353.15 m thin coaly laminae with calcite bedded at 0 degrees - 353.0 – fracture at 70 degrees to core axis (TCA) - 353.8 – fracture at 50 degrees with slicken sides in mud pellet - sharp basal contact
353.96	354.05	0.09		COAL: Dull and black, moderately dense
354.05	354.08	0.03		VT: brown and muddy
354.08	354.11	0.03		CM: Dense and black
354.11	354.35	0.24		COAL: Dull with moderately bright band at 354.16 – 354.19 m, bedded with some cleat development - kaolinite on subvertical fractures and cleated planes
354.35	355.70	1.35		SL: Medium grey with very fine sand interbeds and minor carbonaceous laminae - 355.67 – fracture at 50 degrees w. undulose slickensides - sharp basal contact
355.70	355.81	0.11		COAL: Dull; black and moderately dense, carbonaceous
355.81	355.88	0.07		VT: brown, fissile; irregular basal contact
355.88	356.10	0.22		COAL: Dull black, minor cleat development
356.10	356.30	0.20		CM: Black to brown; fissile and moderately dense
356.30	356.60	0.30	0.30	CORE LOSS: Driller change over and potential loss in coal?

356.30	357.35	1.05		COAL: Black, badly broken on irregular fractures and cleat planes; moderately bright (C4/C5?); minor carbonaceous fissile layers near base; kaolinite on fracture and cleat planes
357.35	358.63	1.28		SS: Grey, very fine sand, sharp basal contact
358.63	359.10	0.47		MS: Grey, massive with minor clayey bands - 357.95 - 358 – Thin band of carbonaceous mudstone - 358.18 – 358.20 – Badly broken (Drill induced?) - Muddy and carbonaceous at base and badly broken
359.10	360.00	0.90		SL: Grey and massive with bedding at 0 degrees - 359.1 – 359.5 – Fractures at 80 – 90 degrees TCA - Gradational basal contact
360.00	361.10	1.10		SS: Grey, very fine sand, well sorted, massive; - silty interbeds and gradational basal contact
361.10	362.38	1.28		SL: Grey, massive, sharp basal contact and carbonaceous at base
362.38	362.47	0.09		VT: brown with calcite dendritic veins throughout. - fracture at upper contact with undulose slickensides at 40 degrees
362.47	362.75	0.28		MS: Grey with carbonaceous wisps; basal contact at 10 degrees
362.75	362.94	0.19		COAL: Dull and dense/hard; with tuffaceous interbeds
362.94	362.96	0.02		TUFF: Dark brown
362.96	364.45	1.49		COAL: Dull and black, with very thin tuff interbeds (three 2 – 4 mm bands); kaolinite on fracture and cleat planes - 362.96 – 363.4 subvertical fractures,; minor cleat development - 363.40 – 363.71 – Coal: black C6, bedded, no mineralisation - 363.71 – 363.73 – Tuff: brown - 363.73 – 364.11 – Coal: dull black - 364.11 – 364.13 – Tuff; brown - 364.13 – 364.45 – Coal: broken on subvertical fractures and minor cleated surfaces - sharp basal contact
364.45	366.05	1.60		MS: Grey and massive - 364.60 – 365.00 – Broken; subvertical fracture with slickensides and calcite
366.05	366.80	0.75		SS: Very fine grained, bedding at 0 degrees, gradational basal contact with muddy interbeds
366.80	367.80	1.00		MS: Grey massive, laminae, bedding at 0 degrees, -gradational basal contact
367.80	369.20	1.40		SL: Grey with minor sand (very fine), muddy throughout - sharp basal contact
369.20	373.50	4.30		SS: Fine to medium grained, grey, moderately to well sorted, bedding at 0 degrees, - 369.9 – 370.10 – Carbonaceous laminae - Gradational basal contact to medium grained sand
373.50	377.50	4.00		SS: Medium grained, moderate to well sorted, grey with carbonaceous grains and carbonaceous debris on fresh fractures throughout, massive - 376.3 – 377.4 abundant carbonaceous laminae, mud pellets and carbonaceous. mud pellets - Gradational basal contact
377.50	378.30	0.80		CONGLOMERATE: Grey, mud pellets 1 – 10 cm in diameter (elliptical) in a medium grained sand matrix, - bedding at 0 degrees
378.30	380.74	2.44		SS: Grey with black carbonaceous grains throughout (salt and pepper) 379.30 – 380.10 – Carbonaceous grains/pellets on bedding at 0°; thinly bedded 380.20 – 380.25 – Thin siltstone 379.90 – 379.95 – Irregular bedding with calcification 380.50 – 380.60 – Siltstone horizon
380.74	381.40	0.66	0.66	Core loss – Tripped rods out; change of drillers
381.40	383.40	2.00		SS: Grey to dark grey, thinly bedded with interbeds of carbonaceous siltstone, bedding at 0 degrees 381.70 -381.80 – Muddy siltstone horizon with irregular fracturing 382.10 – 382.2 – Bedding at 10 – 20 degrees irregular 382.6 – 383.1 – increasing carbonaceous material; bright flecks of coaly material on fresh fractures
383.40	383.85	0.45		CM: black laminae; gradational basal contact with sandy interbeds
383.85	384.80	0.95		SL: Grey with minor sand throughout; sharp erosional contact
384.80	385.30	0.50		SS: Grey, fine to medium grained, well sorted; sharp and irregular basal contact
385.30	385.75	0.45		SS: Grey, fine to very fine grained with minor carbonaceous wisps/beds at 0 degrees TCA with small scale cross bedding in thin beds, sharp basal contact at 10 degrees
385.75	390.40	4.65		SS: Grey, fine to medium grained with fine grained horizons - 386.6 – 386.95 – Finer grained with erosional contacts at top and bottom - 387.5 – 387.85 – Carbonaceous wisps; bedding at 15 degrees TCA - 389.6 – 390.40 – Thin light brown beds at 15 degrees - Gradational bottom contact to medium sand
390.40	398.10	7.70		SS: Medium grained; grey, massive - 397.7 – 398.1 – sparse coaly debris and mud pellets - 398.1 – gradational/transitional base to finer sand
398.10	399.52	1.42		SS: Grey, fine to medium grained, bedding at 10 degrees
399.52	400.90	1.38		SS: Medium grained and medium grey; abundant carbonaceous debris/wisps/fragments throughout.
400.90	403.50	2.60		SS: Fine to medium grained, bedding at 10 degrees; sparse carbonaceous debris at 401.6 m - 402.1 – 402.3 – coaly wisps in SS matrix - bedding at 5 degrees at base - sharp basal contact
403.50	404.25	0.75		CONGLOMERATE (CGL): Greenish grey, medium grained sand; lenticular coaly fragments abundant at top; mud and tuff(?) pebbles (1-5 cm diameter) throughout

404.25	405.00	0.75		SS: Medium grained; grey, massive; sharp basal contact
405.00	405.43	0.43		COAL: (C4 – C5) black and moderately dense with very thin (1 mm thick) bright bands; minor cleating and irregular fracturing throughout
405.43	405.45	0.02		TUFF: creamy brown
405.45	405.84	0.39		COAL: C5, black and moderately dense, irregular subvertical fractures
405.84	405.86	0.02		TUFF: brown
405.86	406.00	0.14		COAL: Dull; black and moderately dense SAMPLE 10 – 405.00 – 406.00
406.00	406.60	0.60		COAL: dull coal with minor thin C3(?) bands; kaolinite on subvertical fractures
406.60	406.80	0.20		COAL: C4 cleated and badly broken; minor kaolinite
406.80	407.31	0.51		COAL: C5; moderately dense, ashy throughout
407.31	407.33	0.02		TUFF: thin band of brown
407.33	407.85	0.52		COAL: Dull black C5/C6 with several bright bands – 1-2 mm thick
407.85	407.90	0.05		CM: dark black, dense, sharp basal contact
407.90	408.63	0.73		MS: Grey, massive; laminae at 0 degrees; sharp basal contact
408.63	409.00	0.37		SS: brownish grey; fine grained; sharp base
409.00	409.30	0.30		MS: Grey; massive; gradational contact
409.30	416.20	6.90		SS: Fine to medium grained; grey; moderately to well sorted, grey with minor carbonaceous flecks/grains throughout - 411.2 – 411.25 – sparse carbonaceous flecks - 414.3 – 414.4 – thin carbonaceous flecks and debris, bedding at 5 degrees - 415.3 – 415.55 – horizon with carbonaceous grains - transition to conglomerate
416.20	416.70	0.50		SS and CONGLOMERATE: large siltstone pellets and carbonaceous pellets and debris (lenticular and round) - 416.5 – 416.55 – coal bed thin bright with kaolinite - erosional basal contact
416.70	434.09	17.39		SS: White to grey, fine to medium grained, massive, minimal fracturing - 422.80 – 423.10 – mud pellets on bedding dipping at 15 degrees - 427.00 – 427.20 – sparse carbonaceous laminae - 428.95 – 429.20 –Carbonaceous laminae and lenticular debris - 429.20 – 434.09 – no fractures, massive - sharp basal contact
434.09	434.56	0.47		MS: grey and black; convoluted bedding with tuffaceous (brown) interbeds(?); sharp basal contact
434.56	434.67	0.11		COAL: dull and dense with carbonaceous interbeds, black streak
434.67	434.90	0.23		TUFF: Carbonaceous interbeds; black and brown, sharp basal contact
434.09	434.56	0.47		MS: grey and black; convoluted bedding with tuffaceous (brown) interbeds(?); sharp basal contact
434.56	434.67	0.11		COAL: dull and dense with carbonaceous interbeds, black streak
434.67	434.90	0.23		TUFF: Carbonaceous interbeds; black and brown, sharp basal contact
434.90	438.00	3.10		SS: Medium grained, grey; well sorted; gradational basal contact (colour change)
438.00	438.60	0.60		SS: green-grey, medium grained with sharp basal contact
438.60	439.80	1.20		MS: Grey with minor carbonaceous laminae throughout; gradational basal contact
439.80	440.60	0.80		SS and MS: (40:60) grey to dark grey; interbedded throughout with small scale cross bedding visible in fine sand; gradational basal contact
440.60	440.98	0.38		MS: grey, massive; sharp basal contact
440.98	441.06	0.08		CM: Black and coaly with very thin tuff band (2 mm) at top
441.06	442.30	1.24		SS: Very fine sand, grey with carbonaceous interbeds and muddy throughout
442.30	445.12	2.82		CM AND MS: (60:40) thinly bedded, black and grey; gradational contact
445.12	447.10	1.98		SS: Dark grey and black; fine grained; carbonaceous laminae throughout; coarse grained at base - gradational basal contact
447.10	449.60	2.50		SS: Medium grained; grey; carbonaceous laminae at 0 degrees - 448.3 – 448.6 less carbonaceous
449.60	451.45	1.85		MS: grey, massive - fracture at 449.70 at 50 degrees with slickensides - 450.99 – 451.10 fracture at 50 degrees with slickensides - sharp basal contact
451.45	452.70	1.25		SL AND SS: (60:40) – dark grey silt and light grey fine sand - thinly bedded with bedding at 0 degrees - 451.90 – 452.0 – sandy brown
452.70	453.30	0.60		CARBONACEOUS MS: dark black with sparse light grey sand interbeds; - gradational basal contact; increasing sand
453.30	453.65	0.35		SS: dark grey fine sand with abundant carbonaceous laminae; fining upward - sharp basal contact
453.65	455.10	1.45		COAL: Dull and moderately dense; bedded(?), poor cleat development if any; muddy/rocky throughout - gradational basal contact - fracture with slickensides at 50 degrees at 354.70
455.10	455.75	0.65		CM: dark black and dense; grey streak when scratched
455.75	455.98	0.23		SS: Black with carbonaceous interbeds; sharp basal contact

455.98	462.58	6.60		SS: medium grained; massive; well sorted - 456.0 – 461.10 – no fractures - Sharp basal contact
462.58	462.63	0.05		COAL: dark black, dull coal, moderately dense, bedded
462.63	462.65	0.02		TUFF: brown, clayey
462.65	462.70	0.05		COAL: Dull, badly broken; black
462.70	462.73	0.03		TUFF: brown, clayey
462.73	462.84	0.11		COAL: C5, black, minor thin bright bands
462.84	462.86	0.02		TUFF: brown, clayey
462.86	463.10	0.24		COAL: Black, badly broken; C5 with minor cleating
463.10	463.26	0.16		COAL and CM: (50:50) black and moderately dense with very thin tuff bands
463.26	463.58	0.32		COAL: Black, badly broken, cleated and fractured; C3(?) to C4 bands; calcite on cleat and fracture surfaces
463.58	463.60	0.02		TUFF: brown, clayey
463.60	463.64	0.04		COAL: Badly broken, C4
463.64	464.50	0.86		SS: Very fine grained sand with silty interbeds 463.60 – fracture at 60 degrees with slickensides and calcite 464.30 – fracture at 50 degrees with slickensides
464.50				EOH