

APPENDIX 1

CUTTINGS DESCRIPTIONS

- 1250' - 1280' --- 100% SANDSTONE: mostly clear to white, minor orange, quartzose, very fine to fine grained, some medium grains, subrounded to rounded, siliceous cement.  
TR SILTSTONE: red brown.
- 1280' - 1310' --- 100% SANDSTONE: quartzose, dominantly clear with an increasing proportion of orange with yellow and light pink, very fine to medium grain size with some coarse, poor sorting, good sphericity in coarser grains, generally subrounded to rounded, siliceous cement, minor trace of red-brown siltstone.
- 1310' - 1340' --- 100% SANDSTONE: quartzose, clear with minor light yellow, orange and pink, fine to medium grained, moderate sorting, generally subrounded.  
TR SILTSTONE: red, brown with some showing poor sorting due to larger quartz grains.
- 1340' - 1370' --- 100% SANDSTONE: quartzose, dominantly clear with minor pale yellow and orange grains, very fine to medium grained size, moderate sorting, subrounded, siliceous cement, minor SILTSTONE, red, brown, some with minor calcareous cement, some with poor sorting, minor blue and green varieties of the SILTSTONE.
- 1370' - 1400' --- 100% SANDSTONE: quartzose, mainly clear but with an increased proportion of orange grains, fine to medium grained, moderate sorting, subrounded, minor SILTSTONE but increased in proportion, mainly red-brown with some blue grey, some SILTSTONE shows poor sorting and is highly calcareous.
- 1400' - 1430' --- 100% SANDSTONE: quartzose, clear, very fine to fine grained, moderately sorted, subrounded, siliceous cement.  
TR SILTSTONE: red, brown and some blue green.
- 1430' - 1460' --- 100% SANDSTONE: quartzose, white to clear, moderate to fair hardness, fine to medium grained with medium grains occurring mainly as single grains, moderate sorting, moderate to fair sphericity, subangular to subrounded, siliceous, blocky.
- 1460' - 1490' --- 100% SANDSTONE: A/A with a greater amount of single grains.
- 1490' - 1520' --- 100% SANDSTONE: A/A.

- 1520' - 1550' --- 100% SANDSTONE: white to clear, red in part, very fine to fine, occasionally medium grained, moderate to poor sorting, moderate sphericity, angular to subrounded, siliceous, blocky.
- 1550' - 1580' --- 100% SANDSTONE: quartzose, white to clear, fine to medium grain size, moderate to fair sorting, moderate sphericity, angular to subrounded in part, siliceous, blocky.
- 1580' - 1610' --- 100% SANDSTONE: white to clear, occasionally off white, fine to coarse grain size, moderate sphericity, subangular to subrounded, poor to moderate sorting siliceous, blocky.
- 1610' - 1640' --- 100% SANDSTONE: quartzose, clear with trace of orange, very fine to medium grained, moderate sphericity, subrounded, moderate sorting, siliceous, blocky, trace of red-brown SILTSTONE.
- 1640' - 1670' --- 100% SANDSTONE: white to clear, occasionally pinkish, very fine to medium, coarse in part, moderate sphericity, angular to subrounded and coarser grains, well rounded, siliceous.  
TR SILTSTONE: red, brown, calcareous.
- 1670' - 1700' --- 100% SANDSTONE: quartzose, clear to white, occasionally light yellow or pink, very fine to fine grained, few medium grains, moderate sorting, subangular to subrounded, siliceous, blocky.  
TR SILTSTONE: red, brown, slightly calcareous.
- 1700' - 1730' --- 100% SANDSTONE: quartzose, mainly clear to white, with some light pinks, yellows and orange, very fine to fine grains with some individual medium grains, moderately sorted, subangular to subrounded, siliceous, blocky.  
TR SILTSTONE: red, brown.
- 1730' - 1760' --- 80% SANDSTONE: white, pink grading to red, yellow, very fine to medium, coarse in part, poor sorting, moderate sphericity, angular to subrounded with occasional well rounded single, siliceous, ferruginous cement.  
20% SILTSTONE: red, brown, occasionally containing sand grains, submassive, siliceous, ferruginous.

1760' - 1790' --- 70% SILTSTONE: dominantly red brown, occasionally green and yellow, some containing quartz sand grains, finely micaceous in part, submassive to subfissile, siliceous, ferruginous.  
30% SANDSTONE: quartzose, white, clear, pink, orange, green and yellow, very fine to fine grained, some individual medium and coarse grains, subangular to subrounded, poor to moderate sorting, siliceous and blocky.

1790' - 1820' --- 60% SANDSTONE: white, pink, yellow, greenish, very fine to fine and medium in part, moderate to fair sphericity, angular to subrounded, weakly micaceous in part, siliceous, blocky.  
40% SILTSTONE: red, brown, mauve, green, micaceous in part, siliceous, submassive.

1820' - 1850' --- 50% SANDSTONE: A/A.  
50% SILTSTONE: A/A.

1850' - 1860' --- 70% SANDSTONE: quartzose, clear, white, pink, mauve, orange, light green, very fine to fine, some individual medium grains, moderate sphericity, subangular to subrounded, mainly siliceous, some light green silty sandstone with a dolomitic cement, blocky.  
30% SILTSTONE: dominantly red-brown, some mauve, green, tan and yellow, finely micaceous, submassive to subfissile, the green siltstone appears partly dolomitic.

1860' - 1870' --- 80% SANDSTONE: quartzose, A/A, some with dolomitic cement.  
20% SILTSTONE: A/A, with dolomitic cement.

1870' - 1880' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

1880' - 1890' --- 80% SANDSTONE: pink to red, white, offwhite, grades to siltstone, very fine to fine, with medium sized single grains, occasionally moderate sphericity, angular to subangular with occasionally well rounded single grains, moderate to fair sorting, dolomitic in part, siliceous.  
20% SILTSTONE: red, brown to mauve, greenish dolomitic in part, massive to submassive.

1890' - 1900' --- 90% SANDSTONE: quartzose, red-orange, pink, offwhite, white to clear, A/A.  
10% SILTSTONE: A/A.

1900' - 1910' --- 100% SANDSTONE: red, rarely white, quartzose, fine to medium grain size, moderate to fair sphericity, subangular to angular, poor to moderate hardness, fair sorting, weakly dolomitic in part, blocky.  
TR SILTSTONE: red, brown, mauve, greenish, weakly dolomitic in part, submassive.

1910' - 1940' --- 100% SANDSTONE: red, A/A, siliceous.  
TR SILTSTONE: red, siliceous.

1940' - 1970' --- 100% SANDSTONE: quartzose, orange-red, occasionally clear to white, very fine to fine grained, occasional coarser grains, moderate to fair sorting, subangular, siliceous, blocky.  
TR SILTSTONE: red, brown, mauve, green, submassive, siliceous.

1970' - 2000' --- 100% SANDSTONE: A/A, mauve, rarely dolomitic and calcareous.  
TR SILTSTONE: A/A.

2000' - 2030' --- 100% SANDSTONE: orange, red, mauve to dark purple, rarely clear to white, A/A, siliceous.  
TR SILTSTONE: red, red-brown, mauve, siliceous, submassive, ferruginous.

2030' - 2060' --- 100% SANDSTONE: A/A with rare green.  
TR SILTSTONE: A/A.

2060' - 2090' --- 100% SANDSTONE: red, orange, white to clear, mauve, green, quartzose, very fine to fine grained with occasional individual medium grains, moderate sorting, subangular to angular with larger grains, subrounded, siliceous, rarely dolomitic, blocky.  
TR SILTSTONE: A/A.

2090' - 2120' --- 100% SANDSTONE: A/A with occasional green, weakly dolomitic.  
TR SILTSTONE: A/A, with some green, the green variety is dolomitic with others weakly dolomitic.

2120' - 2150' --- 90% SANDSTONE: quartzose, orange, red, brown, white, mauve, green, very fine to fine grains with occasional individual medium grains, generally becoming more argillaceous, angular to subangular, siliceous, weakly dolomitic, blocky.  
10% SILTSTONE: red-brown, brown, mauve, green, finely micaceous, ferruginous, weakly dolomitic, submassive.

2150' - 2180' --- 70% SANDSTONE: red, orange, lesser amounts of white, green, very fine to fine, moderate to fair sorting, subangular, micaceous in part, becoming argillaceous, weakly dolomitic.  
30% SILTSTONE: brown to red brown, green, occasionally micaceous, dolomitic in part, submassive, brown green, mottled.

2180' - 2190' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

2190' - 2200' --- 90% SILTSTONE: red, brown, minor green and green and red mottled, micaceous in part, majority of the siltstone has very fine and sub sand grade size grains, submassive, weakly dolomitic.  
10% SANDSTONE: red, white, lesser amounts of greeny grey, very fine to fine moderate to fair sorting, angular to subangular, red and green micaceous and weakly dolomitic, white is siliceous.

2200' - 2230' --- 70% SILTSTONE: A/A.  
30% SANDSTONE: white, minor amounts of pale pink and green, moderate sorting, subangular, weakly dolomitic.

2230' - 2260' --- 70% SILTSTONE: A/A, becoming more argillaceous.  
30% SANDSTONE: very fine to medium, A/A.

2260' - 2290' --- 100% SILTSTONE: mainly red brown and green, occasional mauve, finely micaceous in part, some siltstone contain sands size grains, submassive becoming more dolomitic.  
TR SANDSTONE: white, green, red and pink, very fine grained, weakly dolomitic, red sandstone is finely micaceous.

- 2290' - 2320' --- 70% SILTSTONE: red brown, green, mauve, micaceous in part, weakly dolomitic in part, submassive, mottled in part.  
30% SANDSTONE: white, red, very fine to fine, moderate to fair sorting, moderate to fair sphericity, angular to subangular in part, siliceous.
- 2320' - 2350' --- 80% SILTSTONE: red brown, green, mauve, dolomitic, submassive, mottled in part.  
20% SANDSTONE: white, pink, very fine to fine, moderate to fair sorting, micaceous in part, angular, dolomitic.
- 2350' - 2380' --- 100% SILTSTONE: red brown, green, minor amounts of mauve, mottled in part, micaceous in part.  
TR SANDSTONE: A/A, moderate sorting.
- 2380' - 2410' --- 100% SILTSTONE: A/A.  
TR SANDSTONE: A/A.
- 2410' - 2440' --- 100% SILTSTONE: red brown, green, minor amounts of mauve, mottled in part, finely micaceous in part, weakly calcareous, submassive to subfissile.  
TR SANDSTONE: orange, red, pink, white, green, very fine to fine grained, quartzose, red is finely micaceous in matrix, weakly dolomitic in part, siliceous, blocky, subangular.
- 2440' - 2470' --- 100% SILTSTONE: A/A.  
TR SANDSTONE: A/A.
- 2470' - 2500' --- 100% SILTSTONE: A/A.  
TR SANDSTONE: silty, very fine grained, green, offwhite, calcareous.
- 2500' - 2530' --- 70% SANDSTONE: cement contamination.  
30% SILTSTONE: red brown, submassive to fissile, shaley, weakly dolomitic, finely micaceous, traces of green, mauve and mottled, as described in earlier samples.
- 2530' - 2550' --- 40% Cement contamination.  
60% SILTSTONE: red brown, green, mauve, submassive to fissile, red brown, appears shaly, weakly calcareous, finely micaceous.  
TR SANDSTONE: individual medium sized grains, (may be contaminations), yellow, orange, offwhite, clear, subangular to subrounded, quartzose.

2550' - 2580' --- 100% SILTSTONE: 90% red brown, 10% green grey, traces of mauve and mottled, subfissile to fissile, shaly, red brown, finely micaceous, dolomitic.

2580' - 2610' --- 100% SILTSTONE: A/A.

2627' - 2637' --- Core No. 1 and Core No. 2. (See Appendix No. 2)

2640' - 2670' --- 100% SILTSTONE: 80% red brown, 20% grey green, occasionally mauve and red brown, grey green, mottled, submassive to fissile, siliceous, especially grey green, finely micaceous, weakly dolomitic in part.

2670' - 2700' --- 100% SILTSTONE: A/A, with some offwhite.

2700' - 2730' --- 100% SILTSTONE: A/A, with sample generally becoming more dolomitic, especially the light green, offwhite cuttings.

2730' - 2760' --- 100% SILTSTONE: A/A.

2760' - 2790' --- 100% SILTSTONE: A/A.

2790' - 2820' --- 100% SILTSTONE: A/A.

2820' - 2840' --- 100% SILTSTONE: A/A.

2840' - 2870' --- 100% SILTSSTONE: A/A.  
TR DOLOMITE: offwhite.

2870' - 2900' --- 100% SILTSTONE: 90% red brown, A/A, 10% green, grey, A/A, minor mauve.  
TR DOLOMITE: offwhite, finely crystalline, silty.

2900' - 2930' --- 100% SILTSTONE: A/A.

2930' - 2960' --- 100% SILTSTONE: 80% red brown, 20% grey green, grey mauve, weakly micaceous, dolomitic.  
TR DOLOMITE.  
TR GYPSUM:

2960' - 2990' --- 100% SILTSTONE: 70% red brown, A/A, 30% equal parts grey green and mauve A/A.  
TR DOLOMITE:  
TR GYPSUM:



2990' - 3000' --- 100% SILTSTONE: 70% red to red brown, (the red being a coarser fraction), 30% grey green, grey mauve, mauve, subblocky to submassive, weakly dolomitic and micaceous.  
TR DOLOMITE:

3000' - 3010' --- 60% SILTSTONE: brown, light brown, grey green, mauve, submassive to subfissile, weakly micaceous, dolomitic.  
30% SHALE: dark red, brown, fissile, weakly dolomitic.  
10% DOLOMITE: grey to white, crystalline, red silt and sandy in part.

3010' - 3020' --- 70% SILTSTONE: 70% grey green and grey with some browns, A/A.  
20% SHALE: A/A, with light brown.  
10% DOLOMITE: A/A.

Note: light brown shale grades to grey siltstone to green to dolomite.

3020' - 3030' --- 80% SILTSTONE: grey, grey green, A/A.  
20% SHALE: A/A.  
TR DOLOMITE: A/A.

3030' - 3060' --- 90% SILTSTONE: grey, grey green, A/A.  
10% SHALE: A/A.  
TR DOLOMITE: A/A.

3060' - 3090' --- 90% SILTSTONE: A/A with trace red brown (probable contaminate).  
10% SHALE: A/A.  
TR DOLOMITE: A/A.

3090' - 3120' --- 70% SILTSTONE: grey to grey green, submassive to subfissile, dolomitic.  
30% DOLOMITE: offwhite, grades to light grey to grey green siltstones.

3120' - 3150' --- 50% SILTSTONE: A/A.  
50% DOLOMITE: A/A.

3150' - 3180' --- 60% DOLOMITE: A/A.  
40% SILTSTONE: A/A.

3180' - 3210' --- 60% SILTSTONE: A/A.  
40% DOLOMITE: A/A.

3210' - 3240' --- 80% SILTSTONE: A/A, trace dark grey and red brown.  
 20% DOLOMITE: A/A.  
 TR SANDSTONE: very fine grained, some medium individual grains, white, clear, subangular to subrounded, siliceous, weakly dolomitic in part.

3240' - 3250' --- 70% SILTSTONE: A/A.  
 20% SANDSTONE: A/A, plus light green.  
 10% DOLOMITE: A/A.  
 TR Black (carbonaceous looking) shaly material.

3250' - 3260' --- 70% SILTSTONE: A/A.  
 20% SANDSTONE: A/A.  
 10% DOLOMITE: A/A.

3260' - 3270' --- 60% SILTSTONE: A/A.  
 30% SANDSTONE: A/A.  
 10% DOLOMITE: silty.  
 TR Black shaly material.

3271' - 3286' --- CORE NO. 3 (See Appendix No. 2)

3286' - 3290' --- 80% SANDSTONE: quartzose, white, clear, offwhite, grey, very fine with few medium grains, good sorting, subangular, siliceous cement, weakly dolomitic in part, a few lithic fragments.  
 10% SILTSTONE: red, brown, grey green, dark grey, submassive to subfissile, weakly dolomitic.  
 10% DOLOMITE: grading to silty, dolomite, offwhite.  
 TR Black (carbonaceous) shale, fissile.  
 TR GYPSUM

Poor porosity.

3290' - 3300' --- 90% SANDSTONE: A/A.  
 10% SILTSTONE: A/A.  
 TR DOLOMITE  
 TR Black shale, A/A.

Poor porosity.

3300' - 3310' --- 70% SANDSTONE: A/A.  
 30% SILTSTONE/SHALE: grey black, black, appears pyritic and carbonaceous, submassive to fissile, weakly micaceous, trace red, brown and green SILTSTONE (contaminant).  
 TR DOLOMITE:

3310' - 3340' --- 70% SANDSTONE: A/A, minor calcite cement.  
30% SILTSTONE/SHALE: A/A.  
TR LIMESTONE: crystalline.

3340' - 3370' --- 90% SANDSTONE: quartzose, white, clear, offwhite,  
light grey, very fine grained, good sorting,  
subangular, siliceous, weakly dolomitic.  
10% SILTSTONE: grey black to black, red brown,  
green grey, A/A.

3370' - 3400' --- NO SAMPLE

3400' - 3410' --- 90% SANDSTONE: dominantly offwhite to light  
grey, A/A, blocky.  
10% SILTSTONE: red brown, trace grey black  
and black A/A. (contamination).

3410' - 3420' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: grey black, red brown, green,  
A/A, red brown and green, probable contam-  
ination.  
TR% SHALE: black, fissile, pyritic.

3420' - 3430' --- 90% SANDSTONE: A/A, with dark, platy, lithic  
fragments.  
10% SILTSTONE/SHALE: dark grey, grey, submassive  
to subfissile, pyritic in part.

3430' - 3440' --- 60% SILTSTONE: grey to dark grey, submassive  
to fissile, weakly dolomitic in part.  
40% SANDSTONE: A/A, becoming argillaceous.

3440' - 3450' --- 80% SILTSTONE: A/A, trace red brown, (contam-  
inations).  
20% SANDSTONE: A/A.

3450' - 3460' --- 80% SILTSTONE: A/A.  
20% SANDSTONE: A/A.

3460' - 3490' --- 100% SILTSTONE: A/A.  
TR SANDSTONE: A/A.

3490' - 3520' --- 100% SILTSTONE: A/A.  
TR SANDSTONE: A/A.

3520' - 3550' --- 90% SILTSTONE: grey to dark grey, submassive to  
fissile, siliceous, weakly dolomitic in  
part.  
10% SANDSTONE: quartzose, off white to light grey,  
very fine grained, subangular, some dark  
lithic fragments, calcareous to dolomitic  
cement, becoming argillaceous, good sorting.

3550' - 3580' ---	80% SILTSTONE: A/A, hard, arenaceous. 20% SANDSTONE: A/A.
3580' - 3610' ---	60% SILTSTONE: A/A. 40% SANDSTONE: light grey becoming dark grey, some platy dark white constituents, A/A, weakly dolomitic, argillaceous.
3610' - 3640' ---	80% SILTSTONE: A/A. 20% SANDSTONE: A/A.
3640' - 3670' ---	80% SILTSTONE: A/A. 20% SANDSTONE: A/A, with calcareous cement.
3670' - 3700' ---	MUD ONLY
3700' - 3730' ---	MUD ONLY
3730' - 3760' ---	HEAVILY CONTAMINATED SAMPLE.
3760' - 3790' ---	80% SILTSTONE: dark grey, blocky to subfissile, micromicaceous, soft. 20% SANDSTONE: quartzose, white to light grey to light grey green, very fine to fine grained, some medium to coarse grains, contains some coarse dark lithic fragments and platy dark fragments, angular to sub- rounded, moderate to poor sorting, dolomitic cement. TR DOLOMITE:
3790' - 3820' ---	90% SILTSTONE: grey to dark grey, blocky to subfissile, pyritic in part, micromicaceous in part, becoming arenaceous, soft. 10% SANDSTONE: A/A, becoming a more dirty grey, brown in part.
3820' - 3850' ---	80% SILTSTONE: A/A. 20% SANDSTONE: white, light grey to light grey green, dirty grey, brown, generally fine grained, some medium and coarse grains, moderate to poor sorting, subangular, larger grains rounded, dolomitic and calcareous cement, dark lithic fragments present.
3850' - 3860' ---	70% SILTSTONE: A/A, becoming arenaceous. 30% SANDSTONE: A/A.
3860' - 3870' ---	60% SILTSTONE: A/A. 40% SANDSTONE: A/A, becoming darker.

3870' - 3880' --- 70% SANDSTONE: quartzose, light grey, offwhite, dirty grey brown, very fine to coarse grained, many individual medium and coarse grains, angular to rounded with the larger grains being rounded, poorly sorted, some lithic fragments, pyritic in part, dolomitic with some siliceous cement.  
30% SILTSTONE: A/A.

Poor porosity.

3880' - 3890' --- 80% SANDSTONE: A/A.  
20% SILTSTONE: A/A.

Poor porosity.

3890' - 3900' --- 60% SANDSTONE: quartzose, white, mottled white and dirty grey brown, dark grey, very fine to fine grained with numerous individual medium and coarse grains, rounded with finer grains angular to subangular, poorly sorted, moderate sphericity, some dark lithic fragments up to coarse, pyritic in part, dolomitic and siliceous cement, (white sandstone usually siliceous).  
40% SILTSTONE: grey to dark grey, blocky to subfissile, soft, pyritic in part, becoming arenaceous, very weakly dolomitic in part, micromicaceous in part.

3900' - 3910' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

Poor porosity, nil cut.

3910' - 3920' --- 70% SANDSTONE: A/A, very weakly dolomitic in part.  
30% SILTSTONE: A/A.

3920' - 3950' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

Poor porosity, nil cut.

3950' - 3980' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

3980' - 4010' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

Poor porosity, nil cut.

4010' - 4040' --- 80% SANDSTONE: mostly clear, (some white) containing minor dark lithic fragments and showing dark brown/black residue in places between sand grains, generally fine grained with medium and coarse grains present, angular to subrounded, moderate to poor sorting, siliceous cement, very weakly dolomitic, pyritic, fossiliferous with pyrite cast of small indents in straight lines - thought to be a fish plate (very small).

20% SILTSTONE: A/A.

Moderate porosity, residual hydrocarbon, yellow cut and fluorescence.

4040' - 4070' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

4070' - 4080' --- 90% SANDSTONE: A/A, heavily stained by residual hydrocarbon.  
10% SILTSTONE: A/A.

4080' - 4090' --- 40% SANDSTONE: clear, offwhite to light grey, predominantly fine grained, subangular to subrounded, calcareous, some medium to coarse rounded loose grains < 5%.  
30% SILTSTONE: black to brownish, blocky to subfissile, arenaceous (grades to a silty sandstone) pyritic, (finely disseminated and as aggregates) hard.  
10% SHALE: grey to dark grey, fissile, pyritic, (some sidewall cavings of Upper and Lower Stokes).  
20% LIMESTONE: offwhite, finely crystalline.

4090' - 4100' --- 20% LIMESTONE: clear to light grey, fine grained, blocky, arenaceous in part.  
60% SILTSTONE: A/A.  
20% SHALE: A/A.

Poor porosity, No fluorescence or cut.

4100' - 4110' --- 20% LIMESTONE: arenaceous, mostly light grey to offwhite, fine grained, moderately well sorted, subrounded, moderate sphericity.  
50% SILTSTONE: dark grey brown, mostly blocky, subfissile in parts.  
30% SHALE: grey to dark grey, fissile.

No fluorescence or cut.

4110' - 4120' --- 10% LIMESTONE: mostly light grey, some offwhite pieces, fine grained, A/A.  
60% SILTSTONE: dark grey to brown, moderately blocky, subfissile, calcareous.  
30% SHALE: dark grey, fissile to subfissile.

Note: 10% sidewall contamination.

4120' - 4130' --- 40% LIMESTONE: clear to light grey, finely crystalline, occasionally pyritic, arenaceous.  
50% SILTSTONE: mostly dark grey, blocky, some subfissile, arenaceous, calcareous.  
10% SHALE: dark grey, fissile.

NB. Continuing contamination from sidewall +10% probably due to the inclination of the hole.

Poor porosity, no fluorescence or cut.

4130' - 4140' --- 50% SILTSTONE: dark grey, arenaceous, blocky, subfissile, mildly calcareous, pyritic.  
10% SHALE: dark grey, brown, fissile, grades to siltstone.  
40% LIMESTONE: clear to white to pale green, grey, occasionally fossiliferous.

NB. Continuing contamination 5-10% lithic in part.

Poor porosity, no fluorescence or cut.

4140' - 4150' --- 50% SILTSTONE: dark grey, pyritic, arenaceous, blocky, mildly calcareous.  
10% SHALE: dark grey, fissile, grades to siltstone.  
40% LIMESTONE: offwhite, clear, light grey, sometimes in rhombic form, pyritic.

No fluorescence or cut.

4150' - 4160' --- 60% SILTSTONE: A/A, with subfissile parts.  
10% SHALE: A/A, pyritic.  
30% LIMESTONE: A/A, with lithic fragments of dark grey shale.

No fluorescence or cut.

4160' - 4170' --- 70% SILTSTONE: A/A.  
10% SHALE: A/A.  
20% LIMESTONE: offwhite to light grey, lithic fragments of dark minerals probably from shale also bands of pyrite.

Poor porosity, no fluorescence or cut.

4170' - 4180' --- 70% SILTSTONE: dark grey, blocky, pyritic bands, also in small specks, subfissile, arenaceous.  
10% SHALE: dark grey, fissile to subfissile, grades to fine siltstone.

NB. sidewall contamination below 5%.

20% LIMESTONE: offwhite, light grey, lithic fragments of shale and siltstone also pyrite bands and nodules, arenaceous in part.

4180' - 4190' --- 80% SILTSTONE: A/A.  
10% SHALE: A/A, less fissile  
10% LIMESTONE: A/A.

Poor porosity, no fluorescence or cut.

4190' - 4200' --- 80% SILTSTONE: A/A.  
10% SHALE: A/A.  
10% LIMESTONE: A/A.

Poor porosity, no fluorescence or cut.

4200' - 4210' --- 5% SANDSTONE: light grey, fine grained, fairly well sorted, subangular.  
80% SILTSTONE: A/A.  
10% SHALE: A/A.  
5% LIMESTONE: A/A.

Note: contamination 5%.

Poor porosity, no fluorescence or cut.

4210' - 4220' --- 80% SILTSTONE: A/A, with some fine laminae of limestone, arenaceous.  
10% SHALE: A/A, grading to siltstone, subfissile.  
10% LIMESTONE: A/A, some lithic fragments of shale, pyrite.

4220' - 4230' --- 80% SILTSTONE: A/A.  
10% SHALE: A/A.  
10% LIMESTONE: A/A with some good crystal developments.

4230' - 4240' --- 70% SILTSTONE: A/A.  
15% SHALE: mostly grading to Siltstone, subfissile, pyritic, A/A.  
15% LIMESTONE: mostly grey, white, very fine lithic fragments, some fine laminae of shale.



4240' - 4250' --- 70% SILTSTONE: A/A.  
10% SHALE: A/A.  
15% LIMESTONE: A/A.  
5% MICA: clear, platy flakes.

Note: contamination 5%.

4250' - 4260' --- 50% SILTSTONE: A/A.  
15% SHALE: A/A, weakly dolomitic, cement  
fissile.  
35% LIMESTONE: generally offwhite, light grey,  
pyritic in parts, some remnant fossils, some  
fine laminae observed with shale interbeds,  
no crystal growth observed as seen before.

NB. Contaminants less than 5%.

4260' - 4270' --- 50% SILTSTONE: dark grey, brown, blocky, pyritic,  
subfissile.  
15% SHALE: fissile, weakly dolomitic, some minor  
fossils, pyritic.  
35% LIMESTONE: A/A, crystal growth in nodules,  
fossiliferous, MICA - clear thin sheets <1%.

4270' - 4280' --- 50% SILTSTONE: A/A, blocky.  
15% SHALE: A/A.  
35% LIMESTONE: A/A, some minor crystal development,  
dark lithic fragments MICA - A/A.

4280' - 4290' --- 60% SILTSTONE: dark grey, brown, blocky, pyritic,  
subfissile.  
20% SHALE: dark grey, fissile, pyritic.  
20% LIMESTONE: light brown, grey, pyritic  
in parts, fossiliferous, some dark lithic  
fragments present.

4290' - 4300' --- 70% SILTSTONE: A/A.  
10% SHALE: A/A, grades into siltstone.  
20% LIMESTONE: A/A.

Note: some metal shavings contaminant.

4300' - 4310' --- 60% SILTSTONE: grey, arenaceous, pyritic in  
parts (fine specks).  
20% SHALE: grey, fissile, pyritic, grades to  
siltstone.  
20% LIMESTONE: light brown to light grey, pyritic,  
some dark lithic fragments, some MICA present  
<1%.

4310' - 4320' --- 50% SILTSTONE: grey, subfissile, arenaceous, pyritic in part, weakly calcareous cement.  
30% LIMESTONE: light brown to light grey, some crystal growth in evidence, traces of dark lithic fragments.  
20% SHALE: medium to dark grey, pyritic, fissile, some fossil fragments, trace of quartz sand grain,

4320' - 4330' --- 40% LIMESTONE: light brown to light grey, some crystal development almost clear, flecks of glauconite to 5%, fossiliferous and arenaceous in parts.  
50% SILTSTONE: grey, blocky, arenaceous, pyritic, weakly calcareous cement.  
10% SANDSTONE: fine grained, subrounded, light brown to grey, with calcareous cement, trace of glauconite. Pl Top estimated at 4329'.

Poor porosity, no fluorescence or cut.

4330' - 4340' --- 70% SANDSTONE: mostly offwhite, light grey, fine grained, strongly glauconitic, calcareous cement.  
10% LIMESTONE: light brown, grey, some crystal development.  
20% SILTSTONE/SHALE: grey, blocky, pyritic, some fossil fragments.

4340' - 4350' --- 80% SANDSTONE: offwhite, light grey, fine grained, subangular, strongly galuconitic to about 20% of sandstone.  
10% LIMESTONE: light brown, A/A.  
10% SILTSTONE/SHALE: A/A, almost to level of uphole contaminants.

Poor porosity, no fluorescence or cut.

4350' - 4360' --- 80% SANDSTONE: A/A, glauconite grains tending to be smaller and less dense, strong silica cement, minor carbonaceous.  
10% LIMESTONE: A/A.  
10% SILTSTONE/SHALE: A/A.

Poor porosity, no fluorescence.

4360' - 4370' --- 90% SANDSTONE: A/A, mostly siliceous cement, glauconite grains to about 5% of sandstone.  
10% SILTSTONE/SHALE: A/A, note minor LIMESTONE fragments, these and the siltstone may be due to contamination.

Poor porosity, no fluorescence or cut.

4370' - 4380' --- 90% SANDSTONE: mostly light grey, fine grained, glauconitic 5% pyritic in parts, totally siliceous cement.  
10% SILTSTONE: A/A.

Poor porosity, no cut or fluorescence.

4380' - 4390' --- 80% SANDSTONE: A/A, some pyrite in parts.  
20% SILTSTONE: grey, blocky, subfissile, pyritic, arenaceous, also traces of mica clear flat excellent cleavage.

Poor porosity, no cut or fluorescence.

4390' - 4400' --- 80% SANDSTONE: A/A, some fragments contain dark lithic fragments glauconitic 1%.  
20% SILTSTONE: A/A.

Poor porosity, no fluorescence or cut.

4400' - 4410' --- 90% SANDSTONE: A/A, minor traces of glauconite, possibly contaminant?, pyritic aggregate.  
10% SILTSTONE: A/A.

Poor porosity, no fluorescence or cut.

4410' - 4420' --- 90% SANDSTONE: light grey, honey brown, some clear fragments, quartzose, fine grained, moderately well sorted, subangular grains, some dark lithic fragments present, also a few pyrite aggregates.  
10% SILTSTONE: dark grey, blocky, subfissile, pyritic.

NB. Glauconite 1% also continuing uphole contamination 10%.

Poor porosity, no fluorescence or cut.

4420' - 4430' --- 90% SANDSTONE: A/A, some pieces seem to contain a redish brown stain on the matrix, about 1%.  
10% SILTSTONE: A/A.

Poor porosity, no fluorescence or cut.

4430' - 4440' --- 80% SANDSTONE: clear to offwhite to light brown, fine to medium grain size, subangular to subrounded, siliceous cement, quartzose, increased % of glauconite to 1%.  
20% SILTSTONE: dark grey, blocky, subfissile, arenaceous, pyritic, some pieces tending towards shale.

Poor to medium-poor porosity, no fluorescence or cut.

4440' - 4450' --- 80% SANDSTONE: A/A, increasingly glauconitic  
1% to 5%.  
20% SILTSTONE: A/A.

Poor porosity, no fluorescence or cut.

4450' - 4460' --- 70% SANDSTONE: offwhite to light grey, fine  
grained, grains less obvious, tighter  
matrix, subangular, quartzose, siliceous  
cement, glauconite reduced to 1%.  
20% SILTSTONE: dark grey, blocky, arenaceous,  
subfissile, pyritic.  
10% SHALE: dark grey, fissile, pyritic.

Poor porosity, no cut or fluorescence.

4460' - 4470' --- 40% SANDSTONE: A/A, some clear, quartzose  
grains present.  
40% SILTSTONE: A/A.  
20% SHALE: A/A, some with medium lithic quartz  
grains.

Note: continuing uphole contamination.

Poor porosity, no fluorescence or cut.

4480' - 4490' --- 80% SANDSTONE: A/A, also aggregates of pyrite,  
some large single grains of quartz present,  
many smaller pieces of sandstone, weaker  
matrix and cement.  
20% SILTSTONE: A/A, grades to shale in parts.

Poor to medium-poor porosity, no fluorescence  
or cut.

4490' - 4500' --- 70% SANDSTONE: light grey, offwhite, some clear  
or white, fine grained, subangular, quartzose,  
siliceous cement.  
20% SILTSTONE: dark grey, subfissile, arenaceous  
in parts.  
10% SHALE: dark grey, fissile.

Poor porosity, no fluorescence or cut.

4500' - 4510' --- 60% SANDSTONE: A/A with pyritic aggregates, white  
pieces much softer and crumble on touch with  
probe (rock flour).  
30% SILTSTONE: grey, dark grey, arenaceous,  
subfissile, pyritic, sometimes seen as the  
matrix of quartz crystal grains.  
10% SHALE: dark grey, fissile, pyritic.

NB. A few shreds of metal present also  
few mica flakes.

Poor porosity, no fluorescence or cut.

4510' - 4520' --- 80% SANDSTONE: mostly light grey, offwhite, fine grained, subangular, appears to be an overall reduction in chip size, weaker cement, pyrite aggregates.  
20% SILTSTONE: grey to dark grey, blocky, pyritic, arenaceous.

Poor porosity, no fluorescence or cut.

4520' - 4530' --- 70% SANDSTONE: light grey to grey, offwhite, generally fine grained with some medium grains present, subangular, some chips with milky white cement, calcareous, pyrite aggregates, occasional dark lithic fragments.  
30% SILTSTONE: grey to dark grey, blocky, arenaceous, pyritic, grades towards shale in parts.

Poor porosity, no fluorescence or cut.

4530' - 4540' --- 80% SANDSTONE: A/A.  
20% SILTSTONE: A/A.

Note: uphole contamination

Poor porosity, no fluorescence or cut.

4540' - 4550' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A, some flakes of mica present.

Poor porosity, no fluorescence or cut.

4550' - 4560' --- 90% SANDSTONE: offwhite to light grey, generally fine grained, some large subrounded grains present, quartzose, siliceous cement, pyrite aggregates.  
10% SILTSTONE: grey to dark grey, blocky, arenaceous, pyritic contaminants - 10%.

Poor porosity, no fluorescence or cut.

4560' - 4570' --- 70% SANDSTONE: A/A, some chips show siltstone coating sandstone.  
30% SILTSTONE: A/A.

Poor porosity, no cut or fluorescence.

4570' - 4580' --- 80% SANDSTONE: clear to offwhite, some white, fine grained, few medium grains, subangular, quartzose, siliceous, well sorted, some pyritic nodules (rounded aggregates).  
20% SILTSTONE: dark grey, blocky, arenaceous, grades to shale in parts.

Poor porosity, no fluorescence or cut.

4580' - 4590' --- 80% SANDSTONE: A/A.  
20% SILTSTONE: A/A.

4590' - 4600' --- 60% SANDSTONE: A/A, fragments smaller, few medium single grains present, milky clear.  
40% SILTSTONE: A/A, increasingly pyritic, fissile.

Poor porosity, no fluorescence or cut.

4600' - 4610' --- 70% SANDSTONE: A/A.  
30% SILTSTONE: A/A.

Poor porosity, no hydrocarbon show.

4610' - 4620' --- 80% SANDSTONE: offwhite, pale brown, fine grained, well sorted, quartzose, siliceous, occasional dark lithic fragments, some dark matrix cement.  
20% SILTSTONE: dark grey, arenaceous and pyritic, fissile.

Poor porosity, no fluorescence or cut.

4620' - 4630' --- 70% SANDSTONE: clear, offwhite, milky clear, pale brown, 60% fine grained, (A/A), 40% medium coarse grained, mostly single grained, quartzose, subangular to subrounded, weak cement.  
30% SILTSTONE: dark grey, blocky, arenaceous, pyritic, pyrite aggregates, fissile, subfissile, grades to shale in parts.

Fair porosity, no fluorescence or cut.

4630' - 4640' --- 90% SANDSTONE: clear to milky clear, offwhite, light grey, medium coarse grained, 70%, fine grained chips 30%, moderate sorting at larger grains, fine grains, well sorted.  
10% SILTSTONE: A/A.

Fair porosity, no fluorescence or cut.

4640' - 4650' --- 80% SANDSTONE: clear to milky clear, offwhite to light grey, 50% medium to coarse, quartzose single grains, 50% fine well sorted grains, siliceous cemented.  
20% SILTSTONE: dark grey, blocky, arenaceous, some pieces extremely pyritic, subfissile in parts.

Poor to fair porosity, no fluorescence or cut.

4650' - 4660' --- 90% SANDSTONE: clear to offwhite, some larger grains, milky clear, generally fine grained, 90%, quartzose, siliceous, occasional dark lithic fragments, pyritic aggregates, subangular, well sorted.  
10% SILTSTONE: dark grey, blocky, pyritic, subfissile.

NB. other uphole contaminants continue to be present.

Poor porosity, no fluorescence or cut.

4660' - 4670' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

Note: siltstone is reduced almost to level of contaminant.

Poor porosity, no fluorescence or cut.

4670' - 4680' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

4680' - 4690' --- 80% SANDSTONE: A/A.  
20% SILTSTONE: A/A.

4690' - 4700' --- 70% SANDSTONE: light grey to clear grey, fine grained, occasionally medium to coarse, angular to subangular, quartzose, pyrite aggregates, sometimes in matrix.  
30% SILTSTONE: dark grey, blocky, pyrite, subfissile.

Poor porosity, minor yellow fluorescence and cut.

4700' - 4710' --- 80% SANDSTONE: offwhite, light grey to clear fine grained, occasional medium grains, some grey brown, occasionally dark lithic fragments, generally quartzose, siliceous, occasionally pyritic, well sorted, subangular.

- 4700' - 4710' --- 20% SILTSTONE: dark grey, blocky, pyritic, arenaceous, subfissile, grades to shale in parts.  
(contd.)  
  
Pale yellow fluorescence, very faint light brown cut, poor porosity.
- 4710' - 4720' --- 90% SANDSTONE: offwhite to light blue grey, fine to very fine grains, subangular, few minor medium grains, quartzose, siliceous.  
10% SILTSTONE: dark brown, grey, blocky, some extremely pyritic especially when grades to sandstone.  
  
Faint pale yellow fluorescence, very faint, light brown cut, poor porosity.
- 4720' - 4730' --- 80% SANDSTONE: offwhite, light grey, light blue to grey, less obvious, fine grained, subangular, well sorted, quartzose, siliceous, pyrite, aggregates present.  
20% SILTSTONE: dark grey brown, blocky, subfissile, pyritic, arenaceous, occasional grades to shale.  
  
Poor porosity, minor pale yellow, fluorescence.
- 4730' - 4740' --- 80% SANDSTONE: offwhite, light grey, some light blue grey, generally fine grained, subangular, poorly sorted, some medium to coarse grains, quartzose, siliceous.  
20% SILTSTONE: dark grey, brown, blocky, pyritic, arenaceous in parts, subfissile.  
  
Poor porosity, minor pinpoint pale yellow fluorescence and cut.
- 4740' - 4750' --- 80% SANDSTONE: A/A, with some minor grey, blue, very fine grained chips.  
20% SILTSTONE: A/A.
- 4750' - 4760' --- 80% SANDSTONE: A/A, pyrite aggregates present, also associated as matrix for quartzose sand grains.  
20% SILTSTONE: A/A, some chips extremely pyritic.  
  
Poor porosity, no fluorescence or cut.
- 4760' - 4770' --- 80% SANDSTONE: A/A, increased amount of medium to coarse grains.  
20% SILTSTONE: A/A.  
  
Poor porosity, no fluorescence or cut.



4770' - 4780' --- 80% SANDSTONE: A/A.  
20% SILTSTONE: A/A.

Poor porosity, no fluorescence or cut.

4780' - 4790' --- 80% SANDSTONE: offwhite to clear, fine grained,  
medium grained 10%, subangular to subrounded,  
well sorted, quartzose, siliceous, pyritic in  
parts.  
20% SILTSTONE: dark brown to grey, blocky, arenaceous,  
some chips extremely pyritic, subfissile, grades  
to shale in parts.

4790' - 4800' --- 80% SANDSTONE: mostly clear, when in aggregates  
offwhite, fine grained, 25% medium grained,  
some dark speckled silt size, lithic fragments,  
grains subangular to subrounded, quartzose,  
siliceous, pyritic matrix in parts.  
20% SILTSTONE: dark grey to brown, blocky, pyritic,  
subfissile, arenaceous.

NB. because of change over to oil based mud the  
sample contained at least 20% uphole contaminants.

Poor to moderate porosity, fluorescence due to  
oil based mud.

4800' - 4810' --- 80% SANDSTONE: A/A, whole of sample looks oily.  
20% SILTSTONE: A/A.

Poor to moderately poor porosity.

4810' - 4820' --- 90% SANDSTONE: clear to offwhite, medium grained,  
50% fine grained, subangular to subrounded,  
poorly sorted, quartzose, siliceous.  
10% SILTSTONE: dark grey, brown, blocky, pyrite,  
subfissile, arenaceous.

Note: contaminants now less than 10%.

Poor to fair porosity.

4820' - 4830' --- 90% SANDSTONE: mostly clear to milky clear, medium  
grained, 75% fine, 25% subrounded, subspherical,  
well sorted, some pyrite aggregates, quartzose,  
mostly as single grains.  
10% SILTSTONE: dark grey, blocky, grades to sand-  
stone, pyritic, subfissile.

Fair porosity.

4830' - 4840' --- 90% SANDSTONE: fine to medium grained, clear to offwhite, subangular to subrounded, moderately well sorted, dark lithic fragments of pyritic siltstone, pyrite aggregates and a matrix of quartz grains in some chips.  
10% SILTSTONE: sandy, dark grey, blocky, very pyritic.

Poor porosity.

4840' - 4850' --- 90% SANDSTONE: light to medium grey, fine to medium grained, poorly sorted, subangular, abundant dark lithic fragments of siltstone and pyrite, very pyritic in parts. GLAUCONITE to 5%.  
10% SILTSTONE: dark grey, grades to sandstone, very pyritic, blocky, subfissile in parts.

Poor porosity.

4850' - 4860' --- 90% SANDSTONE: some clear, most grey to dark grey, fine grained, poorly sorted, subangular, dark silty pyritic matrix, very pyritic in parts, glauconite to 5%.  
10% SILTSTONE: A/A.

Poor porosity.

4860' - 4870' --- 90% SANDSTONE: A/A, glauconite to about 20% of sandstone content.  
10% SILTSTONE: A/A.

Poor porosity.

4870' - 4880' --- 90% SANDSTONE: clear to grey, fine grained, occasionally large grains, poorly sorted, glauconitic to 40%, dark lithic fragments, pyritic and pyrite aggregates.  
10% SILTSTONE: grey to dark grey, very sandy and very pyritic, blocky.

Poor porosity.

4880' - 4890' --- 90% SANDSTONE: light grey to grey, fine grained, few large grains, poorly sorted, very glauconitic (to 50%) abundant dark lithic fragments of siltstone or pyrite, pyrite aggregates.  
10% SILTSTONE: grey to dark grey, blocky, arenaceous, very pyritic grades to sandstone in parts.

Poor porosity.

4890' - 4900' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

Poor porosity.

4900' - 4910' --- 90% SANDSTONE: light grey to grey, occasionally milky to clear, fine grained, few medium and coarse grains, poorly sorted, subangular, dark lithics, siltstone, pyrite, very glauconitic 40%, some pyrite aggregates.  
10% SILTSTONE: dark grey to brown, grades to sandstone, light lithic grains of quartz, pyritic.

4910' - 4920' --- 90% SANDSTONE: A/A.  
10% SILTSTONE: A/A.

Poor porosity.

4920' - 4930' --- 90% SANDSTONE: clear to light grey, some grey, A/A.  
10% SILTSTONE: A/A.

Poor porosity.

4930' - 4940' --- 90% SANDSTONE: clear to light grey, occasionally translucent, generally fine grained, a few medium and coarse grains, subangular, poor sorting, dark lithics present, siltstone and pyrite, glauconitic - about 20%.  
10% SILTSTONE: grey, blocky, arenaceous, pyritic.

Poor porosity.

4940' - 4950' --- 90% SANDSTONE: clear to light grey, fine to medium grained, subangular, lithic, glauconitic 10%, increased amount of clear to pale brown or translucent medium to coarse grains, some rock chips with few minor lithics compared with abundant amounts previously.  
10% SILTSTONE: A/A.

Poor porosity.

4950' - 4960' --- 100% SANDSTONE: clear to offwhite, some tinged faint brown, medium grained, subangular to subrounded, fairly well sorted, quartzose, 50% single grains, 30% chips oil staining?, also glauconitic 20% grey to dark lithics.

Note: contaminants to about 5%.

Poor to fair porosity.

4960' - 4970' --- 100% SANDSTONE: clear to offwhite, faint yellow brown, medium grained, subangular to subrounded, fairly well sorted, quartz, siliceous, brown oil stain?, glauconitic 10%, clear to grey, dark lithics, fine grained.

4970' - 4980' --- 100% SANDSTONE: A/A.

Fair porosity.

4980' - 4990' --- 100% SANDSTONE: offwhite, faint yellow brown, medium grained, subangular, subrounded, fairly well sorted, quartz, siliceous, some brown staining, glauconite to 5%.

Fair porosity.

4990' - 5000' --- 100% SANDSTONE: A/A, increasing fine grained and some large rounded grains, minor glauconitic.

Poor to fair porosity.

5000' - 5010' --- 100% SANDSTONE: clear, offwhite, faint yellow brown, some light brown, fine to medium grained, subangular, quartzose, siliceous, some glauconitic fragments.

NB. about 10-20% uphole contaminations.

Poor porosity.

5010' - 5020' --- 100% SANDSTONE: clear to light red brown, fine to medium grained, some large grains, poorly sorted, subrounded, quartz, siliceous, ferruginous, high % of single grains.

5020' - 5030' --- 100% SANDSTONE: clear, faint yellow brown to medium brown, medium to coarse grains, moderately poorly sorted, subrounded, ferruginous to 40% of chips, 30 to 40% coarse rounded single grains.

5030' - 5040' --- 100% SANDSTONE: yellow brown to red brown, fine medium, coarse grain size, very poorly sorted, subangular, ferruginous to 75% of chips, silty ferruginous matrix for fine quartz grains with occasional large grains included.

Poor porosity.

- 5040' - 5050' --- 100% SANDSTONE: yellow brown to red brown, generally fine to medium grained, some large, very poorly sorted, increased amount of ferruginous materials, 80-90% of matrix.
- 5050' - 5060' --- 100% SANDSTONE: red brown, medium grained, 75% poorly sorted, ferruginous - 100%, subrounded some coarse grains present, quartzose, hematitic, 60% single grains.
- Poor to fair porosity.
- 5060' - 5070' --- 100% SANDSTONE: A/A.
- Poor to fair porosity.
- 5070' - 5080' --- 100% SANDSTONE: clear to red brown, some pink brown, fine to medium grained, 70% single grains, 20% small chips with about 5 grains, 10% larger chips, poorly sorted, subangular, quartzose, ferruginous, weakly cemented, occasional chip with silty matrix, oil stains, good fluorescence.
- Poor to fair porosity, when sample was dry it remained oily even though it was treated the same as (50-60-70) (P3-120/130)
- 5080' - 5090' --- 100% SANDSTONE: A/A, more large rock chips, harder cement, few medium to large well rounded quartz grains and fluorescence.
- Poor to fair porosity, A/A.
- 5090' - 5100' --- 100% SANDSTONE: A/A, increased amount of clear quartz grains, increased medium to coarse grains.
- Poor to fair porosity.
- 5100' - 5110' --- 100% SANDSTONE: clear to light orange brown, pink brown, generally fine grained, some large grains present, predominantly rock chips, 70% hard, poorly sorted, subangular, some chips have silt size, ferruginous matrix, some light brown, oil stains, weakly cemented.
- Poor to fair porosity, white fluoresence and cut, oily looking when sample was dry.

5110' - 5120' --- 100% SANDSTONE: A/A, some off white to yellowish oil staining - positive show, high percent of ferruginous chips, mostly fine to medium grained rock chips with occasional large subrounded to rounded quartz grains, rock chips break easily, ferruginous chips still have silty size matrix, moderately poorly sorted, subangular, weak cement.

NB. Contamination less than 5%.

Porosity seems to be fractures rather than intergranular.

5120' - 5130' --- 100% SANDSTONE: clear single medium grains, light orange, brown, pale yellow brown, pink brown, rock chips, fine grained, pale yellow brown and orange brown. Sandstone shows positive oil stains, more single grains present, weaker cement, some very coarse grains, subrounded, quartzose.

Poor to fair porosity, white fluorescence and cut.

5130' - 5140' --- 100% SANDSTONE: off yellow to pinky brown, some clear, predominantly fine to medium grained, subangular to subrounded, poorly sorted, quartzose, siliceous, oil stains. Fluorescence especially in off yellow rock chips. Pink brown chips show tendency for silt size ferruginous matrix.

Poor to fair porosity, white fluorescence and cut.

5140' - 5150' --- 100% SANDSTONE: pinky brown, fine grained, high percent rock chips, occasional single grains, rock chips fine to medium grained, poorly sorted, silty, ferruginous matrix, angular to subangular, many grains poorly defined, oil stains on lighter coloured coarser grained chips.

Poor porosity, good white fluorescence and cut.

5150' - 5160' --- 100% SANDSTONE: off yellow to pink-brown, predominantly fine grained, some medium and occasional coarse grains, poorly sorted, subangular to subrounded, quartzose, ferruginous, siliceous, silty matrix.

Poor porosity, white fluorescence and cut.

5160' - 5170' --- 100% SANDSTONE: clear, off yellow to pink-brown, fine grained, some medium and coarse grains, poorly sorted, higher percent of small chips and single grains, subangular, quartzose, ferruginous, siliceous, cementing, some oil stains.

Poor porosity, white fluorescence and cut.

5170' - 5180' --- 100% SANDSTONE: pink-brown, few off yellow, fine grained, subangular, mostly smaller rock chips and single grains, quartzose, ferruginous, siliceous, occasional dark lithic fragments, oil stains.

Poor porosity, white fluorescence and cut.

5180' - 5190' --- 100% SANDSTONE: pink-brown, fine grained, some medium and large grains, high percent of larger rock fragments, quartzose, ferruginous, siliceous cement, some minor lithics, some murky yellow rock fragments, positive oil stains.

Poor porosity, good white fluorescence and cut.

5190' - 5200' --- 100% SANDSTONE: clear to off yellow and pink brown, fine to medium grained, smaller rock fragments with 5 to 10% grain predominate, subangular, quartzose, siliceous cement, weaker?, some oil staining.

Poor to fair porosity, white and pale yellow fluorescence and cut.

5200' - 5210' --- 90% SANDSTONE: clear light brown to pink-brown, fine to medium grained, 70% small rock fragments and single grains, subangular to subrounded, quartzose, ferruginous, siliceous, off yellow oil stains.  
10% SILTSTONE: red brown and dark grey, red brown grades to sandstone, medium size quartz lithics, blocky, dark grey, blocky, occasionally, pyritic, subfissile in places, arenaceous.

Poor porosity to fair, good white cut and fluorescence.

5210' - 5220' --- 90% SANDSTONE: clear to off yellow to pink-brown, fine to medium grained, poorly sorted, subangular, to subrounded, few large rounded grains, mostly small rock chips, 10 - 20 grains, some with minor dark lithics, quartzose, ferruginous, siliceous, positive oil staining.  
10% SILTSTONE: dark grey, blocky, minor pyrite, subfissile, arenaceous, red brown, ferruginous, grades to sandstone.

Poor to fair porosity, good white fluorescence and cut.

5220' - 5230' --- 100% SANDSTONE: clear, light brown to pink brown, fine to medium grained with predominance of fine grained and very small rock chips to 5 grains, poorly sorted with some medium and coarse grains, rounded, quartzose, ferruginous, positive oil stains, off yellow, some very fine grained sandstone, almost grades to siltstone, scattered dark lithics.

Poor to fair porosity, good white cut and fluorescence.

5230' - 5240' --- 100% SANDSTONE: pink brown, some off yellow, generally fine grained, some medium and coarse grains, mostly as larger rock chips, small percent as single grains, harder cement, poorly sorted, subangular to subrounded, quartzose, ferruginous, siliceous, some minor dark lithics, grades to arenaceous siltstone in parts, positive oil stains.

Poor porosity, good white cut and fluorescence.



5240' - 5250' --- 100% SANDSTONE: off yellow, pink brown with some purple brown, fine to medium grained, only about 20% single grains, very poorly sorted, subangular to subrounded, quartzose, ferruginous oil stains, silty in parts.

Poor porosity, good white cut and fluorescence.

5250' - 5260' --- 100% SANDSTONE: clear, off white, off yellow, pinky brown, fine to medium grained, some coarse and very coarse rounded quartz grains, ferruginous, subrounded, poorly sorted, quartzose, siliceous, 60% single grains, some oily looking fragments, grades to siltstone, off white and white sandstone has some pale green tinges indicating chlorite (adjacent to the P4 contact).

TR SILTSTONE: red brown, blocky, arenaceous.

Poor to fair porosity, white cut and fluorescence.

5260' - 5270' --- 100% SANDSTONE: clear to translucent, also off white and pink-brown, fine to medium grained, high percent of single grains and few grain clusters of clear grains, quartzose, siliceous, ferruginous in darker chips, some off white, and pale rock chips showing chlorite, some sandstone pieces have silty matrix or grade to silt, murky yellow oil stains, top of P4 sandstone.

Poor to fair porosity, good white fluorescence and cut.

5270' - 5280' --- 100% SANDSTONE: quartzose, dominantly clear to translucent, some pale yellow and light pink, pinky brown, fine to coarse, many loose individual coarse grains, angular to subrounded, poor sorting, chlorite present in the matrix of some chips, siliceous and dolomitic cements with dolomitic cements having a pink to pink orange colour and a mottled distribution, some of the generally fine grained sandstones have a pink-brown to purple brown, silty matrix, slightly micaceous, cuttings are fair to medium hardness.

TR SILTSTONE: red brown and black.

Poor to fair porosity, white fluorescence, and cut, little or no streaming cut.

5280' - 5290' --- 100% SANDSTONE: A/A, more fine to medium grained, fewer loose coarse grains, slightly higher proportion of sandstone with pinkish dolomitic matrix as well as sandstone with a mauve pink silty matrix.

TR SILTSTONE: red brown and black shale.

Poor porosity, white fluorescence, little or no streaming cut.

5290' - 5300' --- 100% SANDSTONE: clear, pale pink, orange pink, translucent, quartzose, fine to coarse, more fine to medium, angular to sub-rounded, coarser fraction rounded, poorly sorted, rare pyrite, some interstitial chlorite, siliceous and some pink dolomitic matrix (mottled distribution) some cuttings have a

TR SILTSTONE: dark brown.

5300' - 5310' --- 100% SANDSTONE: quartzose, off white, pink, clear, pink-brown, fine to medium with loose rounded, coarse grains, angular to subrounded, poorly sorted, rare interstitial chlorite, some with pink dolomitic matrix, others with mauve staining and silty matrix, some dark staining may be residual hydrocarbons, moderate hardness.

TR SHALE: dark grey to black, hard, high proportion of rock flour.

Poor to fair porosity, white fluorescence and cut, some sharp bursts of streaming cut occur for up to 20 seconds.

5310' - 5320' --- 100% SANDSTONE: A/A.

TR SHALE: A/A, high proportion of rock flour.

Poor to fair porosity, white fluorescence and cut, sharp bursts of streaming cut occur for up to 30 seconds.

5320' - 5330' --- 100% SANDSTONE: A/A, higher proportion of loose grains, subangular to rounded.

TR SHALE: A/A.

Fair porosity, white fluorescence and cut. Burst of streaming cut continued for up to 50 seconds.

5330' - 5340' --- 100% SANDSTONE: quartzose, off white, dirty light pinky brown, clear, fine to medium with rounded coarse, angular to subrounded, poorly sorted, rare chips with interstitial chlorite - present only in clear to translucent sandstones. Some fine sand grades to reddish brown silt, siliceous, minor ferruginous, few dark lithics to medium hard.

TR SHALE: black and SILTSTONE: red brown

Fair to good porosity, white fluorescence and cut.

5340' - 5350' --- 100% SANDSTONE: quartzose, off white, dirty light pink brown, white, clear, fine to medium, mainly fine, few coarse, subangular to subrounded, poor to moderate sorting, siliceous, ferruginous and minor pink dolomitic cement, few dark lithics, traces of interstitial chlorite, minor red brown, silty matrix,

TR SHALE: black and red brown SILTSTONE.

Poor porosity, white fluorescence and cut.

5350' - 5360' --- 100% SANDSTONE: A/A, higher proportion of loose grains, trace pyrite, some fine sand grading to red brown siltstone.

TR SHALE: black, hard subfissile to fissile.

Fair porosity, white fluorescence and cut.

5360' - 5370' --- 100% SANDSTONE: quartzose, light pink brown, pink orange, off white, clear, white, fine to medium, few loose round coarse, subangular to subrounded, poor to moderate sorting, siliceous, ferruginous, minor dolomitic, some sandstone grades to poorly sorted, red brown siltstone, mainly grain aggregates, few dark lithics.

TR SHALE: black, red brown SILTSTONE.

Poor porosity, white fluorescence and cut.

5370' - 5380' --- 100% SANDSTONE: A/A.

TR SHALE & SILTSTONE: A/A.

Poor porosity, poor white fluorescence and cut.

5380' - 5390' --- 100% SANDSTONE: quartzose, cleaner, clear, off white, white, light pink brown, fine to medium with loose round coarse grains, (higher proportion of loose grains), sub-rounded, poorly sorted, siliceous, dolomitic, (pink matrix), minor ferruginous, minor red brown to mauve silt matrix, few dark lithics.  
TR SHALE: dark grey to black.  
TR SILTSTONE: red brown  
Poor to fair porosity, white fluorescence and cut.

5390' - 5400' --- 100% SANDSTONE: off white, pink brown, pink, clear, mauve, fine to coarse, mostly fine to medium, poorly sorted, subangular to rounded, siliceous, ferruginous and dolomitic, minor grading to siltstone, few dark lithics.  
TR SILTSTONE: red brown and black  
TR SHALE: blocky to subfissile

Poor to white fluorescence and cut.

5400' - 5410' --- 100% SANDSTONE: quartzose, becoming cleaner, clear, white, light pink, off white, pinky brown, fine to coarse, many loose rounded grains and small aggregates of fine grains, (15 to 20 grains), subangular to subrounded, poorly sorted, mainly siliceous, minor dolomitic and ferruginous, minor mauve to red brown, silty matrix, grading to siltstone.  
TR SILTSTONE: red brown, subfissile to fissile  
TR SHALE: black, A/A.

Poor porosity, white fluorescence and cut.

5410' - 5420' --- 100% SANDSTONE: A/A, more off white.

Poor porosity, white fluorescence and cut.

5420' - 5430' --- 100% SANDSTONE: quartzose, dominantly clear, white, and off white, some pinks and pink browns, brittle to hard, fine to coarse, mainly fine and medium, subangular to rounded, siliceous and minor dolomitic (pink) cement, minor sandstones with mauve brown silty matrix, grading to poorly sorted siltstone.

Poor porosity, white fluorescence and cut.

5430' - 5440' --- 100% SANDSTONE: quartzose, mainly off white to dirty pale yellow, also clear and pink brown, hard, some brittle, fine to coarse, coarse fraction loose, poor sorting, subangular to rounded, siliceous, minor pink dolomitic cement, some white to off white, silty, argillaceous matrix, also mauve brown silty matrix.

Poor porosity, white fluorescence and cut.

5440' - 5445' --- 100% SANDSTONE: A/A.

Poor porosity, white fluorescence and cut.

5445' TD.