

APPENDICES 1

CUTTINGS DESCRIPTIONS

NORTHERN TERRITORY
GEOLOGICAL SURVEY

PR83/57

- 710' - 740' --- 100% SANDSTONE: buff, clear, quartzose, very fine grained, subrounded, subspherical, very well sorted, loose, no visible cement, trace white mineral, probably kaolin, showing white fluorescence.
No show.
- 740' - 770' --- 100% SANDSTONE: A/A becoming orange, slightly coarser than above.
No show.
- 770' - 800' --- 100% SANDSTONE: clear, orange-brown, buff, very fine to medium grained, subangular to subrounded, moderate sorting, no visible cement, slightly calcareous, trace red-brown ironstone fragments.
No show.
- 800' - 830' --- 70% SANDSTONE: clear, milky, quartzose, very fine to fine medium grained, predominantly very fine grained, subrounded, subspherical, moderate to well sorted, trace kaolin, no visible matrix.
30% SILTSTONE: red-brown, pink, micaceous, siliceous, blocky, finely fragmented, slightly calcareous in part.
No show.
- 830' - 860' --- 100% SANDSTONE: clear, orange, milky, quartzose, fine to very fine grained, subrounded, subspherical, moderate to well sorted, trace of white kaolin matrix visible. Trace red-brown siltstone as above.
No show.
Low porosity.
- 860' - 890' --- 100% SANDSTONE: clear, comprising pink, occasionally milky, quartzose, very fine grained, occasionally medium grained, subrounded, subspherical, moderate to well sorted, loose, no visible matrix. Trace white kaolin fragments. Trace red-brown, siltstone as above (up to 5%).
No show.
- 890' - 920' --- 80% SANDSTONE: clear, milky, predominantly quartzose, fine to medium grained, subangular to subrounded, subspherical, moderate sorting, suctosic texture, friable, white, calcareous matrix, abundant white kaolin.
20% SILTSTONE: red-brown, blocky, occasionally platy, finely sandy, firm, friable.
Low porosity.
No show.
- 920' - 950' --- 80% SANDSTONE: A/A with red-pink mottling.
20% SILTSTONE: A/A becoming micaceous and red-purple in part.

- 950' - 980' --- 80% SANDSTONE: clear, milky, very fine to fine grained, subrounded, subspherical, occasionally white matrix visible, moderate to well sorted, trace pyritic sandstone in part heavily iron stained.
20% SILTSTONE: red-brown A/A, very sandy grading to sandstone.
Low to moderate porosity.
No show.
- 995' --- 90% SANDSTONE: clear, red-brown, quartzose, heavily iron stained, predominantly medium grained, subangular to subrounded, medium sorting, occasional coarse grains, red-brown matrix, friable.
10% SILTSTONE: red-brown A/A
- 980' - 1010' --- 70% SANDSTONE: A/A
20% QUARTZITE: clear, medium to coarse grained, subrounded, moderate sorting, loose.
10% SILTSTONE:
Sudden increase in water flow at 997'.
- 1035' --- 100% QUARTZITE/SANDSTONE: clear-milky quartz, medium to coarse grained, subrounded, subspherical, moderate to well sorted, no visible matrix. Trace soft white kaolin.
Good porosity.
No show.
Top Mereenie Quartzite 997'.
- 1010' - 1040' --- 100% QUARTZITE: clear-milky, fine to medium grained, well rounded, subspherical, moderate to well sorted, red-brown iron staining in part. Trace red-brown siltstone cavings.
Moderate porosity.
- 1040' - 1070' --- 100% QUARTZITE/SANDSTONE: clear-milky, subangular to subrounded, moderate sorting, medium to fine grained. Abundant white clay both as matrix and as discrete fragments. Siliceous cement in part.
Moderate to poor porosity.
No show.
- 1070' - 1100' --- 90% QUARTZ SANDSTONE: clear-milky-grey, predominantly fine grained, subrounded, moderate to well sorted, siliceous cement white clay matrix in part.
10% CLAY: white, kaolin, platy-blocky, soft, friable, sandy.
Low porosity.
No show.
- 1100' - 1130' --- 90% QUARTZITE/SANDSTONE: clear-milky-grey, A/A.
10% CLAY, white, kaolin fragments A/A.
Low porosity.
No show.

- 1130' - 1160' --- 90% QUARTZITE/SANDSTONE: A/A, fine grained.
10% KAOLIN: A/A.
- 1160' - 1190' --- 90% SANDSTONE: A/A, fine to very fine grained.
10% KAOLIN:
No show.
- 1190' - 1220' --- 90% SANDSTONE: A/A, medium to fine grained,
poor to moderate sorting, occasionally
grained with red-brown stains - possible
cavings.
10% KAOLIN: A/A
No show.
- 1220' - 1250' --- 100% SANDSTONE: A/A, predominantly fine to medium
grained, well rounded. Trace kaolin, trace
carbonate.
No show.
Low porosity.
- 1250' - 1280' --- 100% SANDSTONE/QUARTZITE: clear-milky-grey, fine
to very fine grained, subangular to sub-
rounded, well sorted, loose, occasional
white clay matrix visible, trace of
fragmented kaolin.
- 1280' - 1310' --- 90% QUARTZITE/SANDSTONE: clear-white-grey, fine
to very fine grained, predominantly loose,
occasional white clay matrix visible,
subrounded to well rounded.
10% KAOLIN: A/A.
- 1310' - 1340' --- 90% SANDSTONE/QUARTZITE: A/A, predominantly
very fine grained, with abundant clay
matrix, soft, friable.
10% KAOLIN: white fragments A/A.
Low porosity.
No show.
- 1340' - 1370' --- 90% SANDSTONE/QUARTZITE: A/A.
10% KAOLIN: A/A.
Low porosity.
No shows.
- 1390' --- 90% SANDSTONE/QUARTZITE: A/A, very fine grained,
spot siliceous/clay matrix, occasionally fine
sample medium grained, well rounded fragments.
10% KAOLIN: A/A.
Very low porosity.
No show.
- 1370' - 1400' --- 90% QUARTZITE/SANDSTONE: A/A
10% KAOLIN: A/A
- 1416' --- 100% QUARTZITE/SANDSTONE: A/A
spot
sample

1423' --- 30% QUARTZ/SANDSTONE: A/A
10% KAOLIN: A/A
60% SANDSTONE: pink, red-brown, quartz,
very fine grained, subangular to
subrounded, well sorted, hard silice-
ous cement.
Very low porosity.
No show.

Top Lower Mereenie Sand estimated at
1419'.

1400' - 1430' --- 100% SANDSTONE/QUARTZ: A/A with occasional
pink and red-brown grains.

1430' - 1460' --- 90% SANDSTONE: clear, pink, red-brown, fine
to very fine grained, subrounded to
rounded, moderately well sorted, loose,
occasional silica cement visible, hard.
10% SILTSTONE: red-brown, subfissile, hard.
Poor porosity.
No show.

1460' - 1490' --- 100% SANDSTONE: predominantly clear-milky,
minor light red-pink fine to very fine
grained, occasionally medium grained,
subangular to subrounded, moderately
well sorted, loose. Trace cemented
grains with siliceous matrix, moderate-
ly hard. Trace subfissile, argillaceous,
red-brown siltstone.
Low porosity.
No show.

1490' - 1520' --- 90% SANDSTONE: red-brown, clear-milky, pink,
trace green, fine grained, A/A.
10% SILTSTONE: red-brown, subfissile,
minor blocky, firm, brittle.
Low porosity.
No show.

1520' - 1550' --- 80% SANDSTONE: clear-milky-grey, pink, light
green, fine to very fine, occasionally
well rounded, medium grained, moderate
sorting, loose. Light green variety
effervescent with HCl, slowly dolomitic.
20% SILTSTONE: red-brown, A/A.
Low porosity.
No show.

1550' - 1580' --- 90% SANDSTONE: red-brown, pink, clear-milky-
grey, A/A, moderate sorting.
10% SILTSTONE: A/A.
Low porosity.
No show.

Spot
Samples:

1578' --- 90% SANDSTONE, clear-milky, pink A/A.
10% SILTSTONE: A/A.

1582' --- 90% SANDSTONE, clear-milky, pink, green
(dolomitic) A/A.
10% SILTSTONE, A/A.

1587' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.

1593' ---100% SANDSTONE: light grey-pink, purplish, minor
pink, fine to very fine grained, subangular
to subrounded, well sorted, predominantly
loose, occasionally weakly cemented. Trace
siltstone.

1598' ---100% SANDSTONE: clear-pink-grey, light purplish
grey, A/A.

1603' ---100% SANDSTONE: orange-red, fine to very fine
grained, loose, well sorted.

Drill break at 1593'.

Samples at 1593' and 1598' are transitional
Lower Mereenie - Carmichael Sandstones.

1580' - 1610' ---100% SANDSTONE: 50% clear-milky grey, 50% orange-
red, A/A. Minor red-brown siltstone.
Low porosity.
No shows.

1610' - 1640' ---100% SANDSTONE: orange-red, minor clear-milky,
quartz, fine to very fine grained, moderate-
ly well sorted, loose. No visible cement,
trace siltstone.
Now show.

1640' - 1670' ---100% SANDSTONE: A/A, trace white, slightly
calcareous fragments.

1670' - 1700' ---100% SANDSTONE: A/A.

1700' - 1730' ---100% SANDSTONE: A/A, slightly purplish in part.

1730' - 1760' ---100% SANDSTONE: red-brown, clear, purplish quartz,
fine to very fine grained, occasionally
medium grained, well rounded, predominantly
subangular to subrounded, red-clear silice-
ous matrix. Minor silty matrix with dark
inclusions occasionally with associated
pyrite.
Low porosity.
No show.

1760' - 1790' --- 100% SANDSTONE: red-brown, clear to yellow,
fine grained, quartz, loose, subangular
to subrounded, moderately well sorted.

Spot
Samples:

1800' --- 100% SANDSTONE, A/A

1805' --- 100% SILTSTONE: red-brown, blocky, firm friable,
with "floating" grains of clear fine
grained, angular quartz/sand.

1812' --- 100% SILTSTONE: two types -

- (1) Red-brown, finely sandy, firm to hard,
brittle with occasional dark inclusions.
- (2) 30% light grey-purple, finely sandy,
siliceous, firm, friable.

1790' - 1820' --- 70% SILTSTONE: A/A)
30% SANDSTONE: A/A) Composite sample

1850' --- 100% SANDSTONE: red-brown, quartz, fine grained,
subangular to subrounded, moderately well
sorted, loose. Trace pink-grey siltstone.

1880' --- 100% SANDSTONE: A/A

1910' --- 80% SANDSTONE: clear-milky-grey, fine grained,
occasionally fine to medium grained, loose,
occasionally pink.
20% SILTSTONE: purple, grey-brown, blocky,
sandy, with black inclusions, hard.

1940' --- 60% SANDSTONE: clear, light grey, quartz,
medium to very fine grained, subangular
to subrounded, loose, occasional white
siliceous cement visible.
40% SILTSTONE: brown, minor green, subfissile
to blocky, firm, brittle.

1760' - 1790' --- 100% SANDSTONE: red-brown, clear to yellow, fine grained, quartz, loose, subangular to subrounded, moderately well sorted.

Spot
Samples:

1800' --- 100% SANDSTONE: A/A.

1805' --- 100% SILTSTONE: red-brown, blocky, firm, friable, with "floating" grains of clear, fine grained, angular quartz/sand.

1812' --- 100% SILTSTONE: two types -

(1) Red-brown, finely sandy, firm to hard, brittle with occasional dark inclusions.

(2) 30% light grey-purple, finely sandy, siliceous, firm, friable.

1790' - 1820' --- 70% SILTSTONE: A/A)
30% SANDSTONE: A/A) Composite sample

1850' --- 100% SANDSTONE: red-brown, quartz, fine grained, subangular to subrounded, moderately well sorted, loose. Trace pink-grey siltstone.

1880' --- 100% SANDSTONE: A/A

1910' --- 80% SANDSTONE: clear-milky-grey, fine grained, occasionally fine to medium grained, loose, occasionally pink.
20% SILTSTONE: purple, grey-brown, blocky, sandy, with black inclusions, hard.

1940' --- 60% SANDSTONE: clear, light grey, quartz, medium to very fine grained, subangular to subrounded, loose, occasional white siliceous cement visible.
40% SILTSTONE: brown, minor green, sub-fissile to blocky, firm, brittle.

1940' - 1970' --- 70% SILTSTONE: red-brown, blocky, subfissile in part, with sandy, fine grained quartz inclusions, firm to hard, brittle.
20% SILTSTONE: green, subfissile, siliceous, slightly sandy, hard.
10% SANDSTONE: clear, milky-grey, fine grained, subangular to subrounded, trace medium grained, well rounded, white calcareous matrix in part, predominantly loose.

- 1970' - 2000' --- 70% SILTSTONE: red-brown, A/A, predominantly subfissile.
30% SILTSTONE: green, A/A, trace sandstone.
- 2000' - 2030' --- 60% SILTSTONE: red-brown, purple, subfissile, minor blocky, firm, brittle.
20% SILTSTONE: green, A/A.
20% SANDSTONE: clear-milky-grey, fine grained, subangular to subrounded, occasionally well rounded, medium grained, moderate sorting, calcareous matrix.
- 2030' - 2060' --- 50% SILTSTONE: red-brown, slightly sandy, very slightly dolomitic, firm, subfissile.
50% SILTSTONE: green, grey, purple, slightly sandy and micaceous, dolomitic, blocky.
TR SANDSTONE: white, fine grained, sub-rounded, white matrix.
- 2060' - 2090' --- 40% SANDSTONE: red, brown, clear, fine to medium grained, subangular to subrounded.
30% SILTSTONE: red-brown, slightly sandy and dolomitic.
30% SILTSTONE: green-grey, purple, slightly sandy and micaceous, dolomitic.
- 2090' - 2120' --- 60% SILTSTONE: red-brown, A/A, occasional green and grey mottling.
40% SILTSTONE: green, grey, purple, A/A.
TR SANDSTONE: white, fine grained, white matrix.
- 2120' - 2150' --- 50% SANDSTONE: white, clear, fine to medium grained, subrounded, kaolinitic matrix.
30% SILTSTONE: red-brown, A/A.
20% SILTSTONE: green, grey, purple, some mottling, slightly sandy, micaceous, dolomitic, sub-blocky.
- 2150' - 2180' --- 40% DOLOMITE: off white, micaceous, crystalline.
30% SILTSTONE: red-brown, A/A.
30% SILTSTONE: grey, green, A/A.
- 2180' - 2200' --- 50% SILTSTONE: red-brown, A/A.
40% SILTSTONE: green, grey, purple, A/A.
10% DOLOMITE: A/A.
- 2200' - 2230' --- NO SAMPLE.
- 2230' - 2260' --- 60% SILTSTONE: red, brown, slightly dolomitic, subfissile, slightly sandy.
30% SILTSTONE: green, grey, slightly dolomitic, occasionally micaceous, subfissile.
10% DOLOMITE: green, finely crystalline, silty.

- 2260' - 2290' --- 60% SILTSTONE: red, brown, A/A.
10% SILTSTONE: green, grey, A/A.
30% DOLOMITE: white to green, finely crystalline, partly silty, micaceous.
- 2290' - 2320' --- 60% SILTSTONE: brown to pale brown, occasionally purplish mauve, very finely arenaceous, weakly dolomitic.
30% DOLOMITIC SILTSTONE: green, grey-green intermixed with brown siltstone.
10% DOLOMITIC SILTSTONE: off white to light grey, very finely arenaceous in part.
- 2320' - 2350' --- 70% SILTSTONE: brown to pale brown, finely arenaceous, moderately friable, poorly cemented.
30% DOLOMITIC SILTSTONE: green, grey-green to pale white-green, ultra fine grained, intermixed with brown siltstone, finely crystalline in part.
- 2350' - 2380' --- 70% SILTSTONE: A/A.
30% DOLOMITIC SILTSTONE: A/A.
- 2380' - 2410' --- 70% SILTSTONE: brown to pale brown, arenaceous, moderately friable, blocky to subfissile, occasionally grading to a fine grained sandstone or grit.
30% DOLOMITIC SILTSTONE: green to pale green, only very weakly dolomitic, occasionally finely crystalline and occasionally grading to fine grained. Less friable and often subfissile (breaks into flat fragments), but also blocky.
- 2410' - 2440' --- 70% SILTSTONE: brown, A/A.
30% DOLOMITIC SILTSTONE: A/A. Note: Lighter coloured variety, i.e., pale green to off white is more strongly dolomitic and grades to a dolomite.
- 2440' - 2470' --- 80% SILTSTONE: brown to pale brown, fairly friable, arenaceous, grading to very fine grained sandstone in parts.
20% SILTSTONE: pale green, very weakly dolomitic, occasional white grain is more dolomitic, less friable than brown silt, and occasionally subfissile.
- 2470' - 2500' --- 80% SILTSTONE: A/A.
20% SILTSTONE: dolomitic, A/A.
- 2500' - 2530' --- 90% SILTSTONE: A/A.
10% SILTSTONE: dolomitic, A/A.

- 2530' - 2560' --- 80% SILTSTONE: brown, A/A.
20% SILTSTONE: green, A/A.
- 2560' - 2590' --- 90% SILTSTONE: brown, occasionally pale,
brown to grey-brown, arenaceous and very
finely micaceous in part. Friable to
weakly cemented.
10% SILTSTONE: green, grey-green to pale
green, very weakly dolomitic.
- 2590' - 2620' --- 60% SILTSTONE: brown, A/A.
30% SILTSTONE: green, A/A.
10% DOLOMITE: off white to grey green,
crystalline.
- 2620' - 2650' --- 80% SILTSTONE: brown to light brown, friable,
argillaceous and arenaceous.
20% SILTSTONE: pale green to occasionally
off white, subfissile, dolomitic.
- 2650' - 2680' --- 100% SILTSTONE: brown to light brown, very
friable, argillaceous. (Sample mainly
clay and passes through fine sieve.)
- 2680' - 2710' --- 100% SILTSTONE: brown to light brown, very
friable, argillaceous as above.
- 2710' - 2740' --- 100% SILTSTONE: brown to light brown, friable
(slightly less argillaceous and more
arenaceous), more blocky.
TR SILTSTONE: grey-green to green, less
than 5%.
- 2740' - 2770' --- 80% SILTSTONE: brown to light brown, friable
to blocky, arenaceous, dolomitic.
20% DOLOMITE: green, to grey-green,
occasionally grey to off white, sub-
fissile. The grey to off white is
strongly dolomitic. The green grades
from moderately dolomitic to dolomite.
- Top of Lower Stokes estimated at 2810'.
(Based on drill break, Log Depth probably
2806'.)
- 2770' - 2800' --- 50% SILTSTONE: brown to light brown,
occasionally purplish-brown, friable to
subfissile, occasionally micaceous.
30% DOLOMITE: green, crystalline, fissile.
20% DOLOMITE-LIMESTONE: grey to off white,
fissile, crystalline.
- 2800' - 2815' --- 70% SILTSTONE: A/A.
20% DOLOMITE: green, A/A.
10% DOLOMITE-LIMESTONE: off white to grey,
A/A.

(Drill break Lower Stokes 2810' -
lithology change.)

- 2815' - 2830' --- 70% DOLOMITE: green, subfissile to fissile.
30% DOLOMITIC LIMESTONE: grey to off white.
TR SILTSTONE: brown (probably cavings).
- 2830' - 2860' --- 70% DOLOMITE: green, A/A.
30% DOLOMITIC LIMESTONE: grey, A/A.
- 2860' - 2890' --- 100% DOLOMITIC LIMESTONE: grey, light grey to grey-green to off white, finely crystalline, subfissile.
- 2890' - 2920' --- 100% DOLOMITIC LIMESTONE: A/A, some 10% white carbonate rock flour, and 5% Upper Stokes Siltstone sidewall contamination.
- 2920' - 2950' --- 70% DOLOMITIC-LIMESTONE: grey to off white, grey-green, finely crystalline.
30% SILTSTONE: green, grey-green, slightly dolomitic and micaceous, subfissile.
- 2950' - 2980' --- 100% DOLOMITE-LIMESTONE: grey, light grey, off white, finely crystalline, subfissile, occasionally silty.
0% SILTSTONE: brown, rare purple, slightly sandy, subfissile. (? Upper Stokes contaminant - sample wet due to ice and frozen condensate in gas line.)
- Siltstone is contamination.
- 2980' - 3010' --- 80% DOLOMITIC SILTSTONE: grey, light grey, grey-green, occasionally micaceous, rarely pyritic.
20% LIMESTONE: off white, fine to coarse, crystalline.
TR SANDSTONE: white, fine grained, subangular.
- 3010' - 3040' --- 100% DOLOMITIC SILTSTONE: A/A.
- 3040' - 3070' --- 90% DOLOMITIC SILTSTONE: grey, grey-green, rarely dark grey, rarely pyritic.
0% SILTSTONE: brown, pale brown, purple, sandy, blocky to subfissile.
- Siltstone is contamination.
- 10% SANDSTONE: white, fine to medium grained, subangular to subrounded, calcareous, dolomitic cement, ? phosphatic.
- Nil porosity.

3070' - 3100' --- 70% SANDSTONE: clear to off white, predominantly fine grained, subangular to subrounded, with 5% medium to coarse, rounded grains with good porosity. Cemented by carbonate and silica, generally poor porosity.

30% DOLOMITE: grey to grey-green, finely crystalline.

5% good porosity.

Note: 30% of cuttings contain brown Upper Stokes Siltstone.

Drill break at 3087' Lithological Upper Stairway Top.

(Estimated Log Top add 25' = 3112' if using W.M. 3)

3100' - 3130' --- 90% SANDSTONE: clear to off white, fine grained, subangular to subrounded, occasionally rounded, 5% poor to fair porosity, weakly cemented.

10% SHALE: grey to dark grey, fissile, silty in part with fine grained pyrite - phosphatic?

(20% contamination from Stokes)

Porosity poor to fair.

3130' - 3170' --- 70% SANDSTONE: off white, fine grained, subangular sandstone, containing grey to black shale and siltstone fragments.

30% SHALE/SILTSTONE: dark grey, pyritic, subfissile.

Poor porosity.

3170' - 3190' --- 100% SANDSTONE: clear to off white, ultra fine grained, subangular to subrounded, siliceous, quartzose (almost an arenaceous silt).

Poor porosity.

3190' - 3220' --- 100% SANDSTONE: A/A, ultra fine, almost a silt.

Poor porosity.

3220' - 3250' --- 90% SANDSTONE: A/A.

10% SILTSTONE/SHALE: grey, shaley in part.

Poor porosity.

3250' - 3280' --- 60% SILTSTONE: grey, micaceous, minor pyrite, subfissile to fissile, moderately hard, non calcareous.
20% SHALE: grey, fissile, non calcareous, hard.
20% SANDSTONE: clear to white, ultra fine grained, subangular, quartzose, grading to an arenaceous silt.

Top of Mid Stairway estimated at 3256'.

3280' - 3310' --- 50% SANDSTONE: white to off white, fine grained to very fine, subangular, occasionally micaceous and pyritic, weakly dolomitic.
30% SILTSTONE: grey, micaceous, pyritic, subfissile, dolomitic.
20% SHALE: grey, weakly dolomitic.

Poor porosity.

3310' - 3340' --- 50% SHALE: dark grey, weakly pyritic and dolomitic.
40% SILTSTONE: grey, micaceous, pyritic, subfissile, dolomitic.
10% SANDSTONE: off white, fine grained, weakly pyritic, dolomitic and siliceous matrix.

Poor porosity.

3340' - 3370' --- 40% SHALE: A/A.
40% SILTSTONE: A/A.
20% SANDSTONE: A/A.

Poor porosity.

3370' - 3400' --- 80% SHALE: A/A.
10% SILTSTONE: A/A, with rare rounded black pellets (? phosphate).
10% SANDSTONE: A/A.

Poor porosity.

3400' - 3430' --- 70% SANDSTONE: white to buff, fine grained, subangular, weakly micaceous and pyritic, dolomitic and siliceous matrix, blocky.
20% SILTSTONE: A/A.
10% SHALE: A/A.

Poor porosity.

3430' - 3460' --- No Sample.

3460' - 3490' --- 10% SANDSTONE: white to off white, fine grained, subangular, contains shale and silt fragments (dirty sand), quartzose, siliceous cement.
80% SILTSTONE: grey, arenaceous, pyritic with shale particles, subfissile, indurated to blocky.
10% SHALE: grey, fissile, pyritic.

Very poor porosity.

3490' - 3520' --- 90% SILTSTONE: grey, A/A, pyritic increase.
10% SANDSTONE: A/A.

Very poor porosity.

3520' - 3550' --- 70% SILTSTONE: grey to light grey, siliceous, arenaceous and strongly pyritic. Light grey siltstone is calcareous.
20% SANDSTONE: off white, fine grained, well cemented with silica and carbonate, very poor porosity.
10% SHALE: grey, pyritic grades to siltstone.

Very poor porosity.

3550' - 3580' --- 80% SILTSTONE: grey to light grey, A/A.
20% SANDSTONE: A/A. Note: Large fragments show the sandstone contains pyrite, shale and silt fragments, and is fine to very fine grained, well cemented, siliceous.

Very poor porosity.

3580' - 3610' --- 50% SANDSTONE: white to clear, fine grained, quartzose, siliceous.
50% SILTSTONE: A/A.

3610' - 3620' --- 80% SILTSTONE: grey, calcareous, pyritic, blocky to subfissile, occasionally micaceous, shaley in part.
20% SANDSTONE: white to off white, fine grained, subangular, siliceous, well cemented.

Very poor porosity.

3620' - 3630' --- 90% SILTSTONE: A/A.
10% SANDSTONE: A/A.

Very poor porosity.

3630' - 3640' --- 100% SILTSTONE: A/A.

Very poor porosity.

3640' - 3650' --- 100% SILTSTONE: A/A, occasional large, rounded quartz grains (medium to coarse), also pyrite nodules, irregular and rounded. High pyrite content.

Very poor porosity.

3650' - 3660' --- 70% SILTSTONE: A/A, but coarser, more arenaceous, almost a fine grit, pyrite common.
30% SANDSTONE: off white, subangular, fine grained, gritty, with occasional large, coarse, rounded quartz grains (reworked Top of Lower Stairway?), pyrite nodules common.

Very poor porosity.

3660' - 3670' --- 60% SILTSTONE: A/A.
40% SANDSTONE: A/A, increase in large, coarse, rounded grains 1%.

Very poor porosity.

3670' - 3680' --- 80% SANDSTONE: off white to light grey, subangular, fine grained, gritty sandstone, quartzose, siliceous, pyritic, very poor porosity. Up to 1% large, coarse, rounded grains of quartz reworked.
20% SILTSTONE: grey to black, pyritic, arenaceous.

Very poor porosity.

3680' - 3690' --- 80% SANDSTONE: A/A.
20% SILTSTONE: A/A.

Very poor porosity.

3690' - 3700' --- 80% SANDSTONE: A/A, large quartz grains 1%.
20% SILTSTONE: A/A.

3700' - 3709' --- 90% SANDSTONE: white to clear, fine grained, subrounded with 20% large, coarse, rounded grains. Fair to good porosity. Weak silica cement.
10% SILTSTONE: grey, fissile (possibly sidewall contamination).

Fair to good porosity.

Poor drill break at 3704'. Lower Stairway Sandstone Top.

3710' - 3730' --- 80% SANDSTONE: white to clear, medium to very coarse grained, rounded, occasional weak, siliceous cement.
20% SILTSTONE: grey to dark grey, pyritic in part and micaceous, occasionally sandy, dolomitic.

3730' - 3760' --- 50% SILTSTONE: grey, micaceous, occasionally sandy, very weakly dolomitic, shaley.
50% SANDSTONE: fine to very coarse grained, white to off white, subangular (fine) to rounded (very coarse), siliceous and weakly dolomitic cement.

Fair porosity.

No gas on connections.

3760' - 3790' --- 100% SANDSTONE: white, clear, fine to very coarse grained, subrounded to rounded, loose grains only (sample mostly rock flour), pyrite infilling most cracks and indents on quartz grains.
TR SILTSTONE: A/A.

Fair porosity.

No gas on connections.

3790' - 3820' --- 90% SANDSTONE: white, clear, fine to coarse grained, subrounded to rounded, mostly loose grains, some blocky fragments have siliceous, very weakly dolomitic cement.
10% SILTSTONE: A/A.

No gas on connections.

3820' - 3850' --- 80% SANDSTONE: white to clear, fine grained, subangular to subrounded, siliceous cement, quartzose. Mostly loose grains but poor porosity considered based on rock fragments.
20% SILTSTONE: grey, arenaceous, subfissile.

Very poor porosity to poor porosity. No gas on connections.

3850' - 3880' --- 40% SANDSTONE: clear to white, medium to coarse grained, subrounded to rounded 50%, with 50% fine grained, subangular, mostly fragmented silica crystal cement.
60% SILTSTONE: dark grey to grey, subfissile, indurated, with very fine grained pyrite, arenaceous.

Porosity fair to good in coarse grained fraction.

3880' - 3910' --- 60% SANDSTONE: clear to white, medium to coarse rounded grains, with weak cement, good porosity make-up 80% of sandstone. Remaining 20% make-up subangular matrix.
40% SILTSTONE: A/A.

Good porosity.

3910' - 3925' --- 50% SANDSTONE: white, fine grained to very fine grained, siliceous, quartzose with strong cement bonding. (Rare rounded grains).
50% SILTSTONE: A/A.

Poor to very poor porosity.

3935' --- 50% SANDSTONE: A/A, some grains have a pale brown to brown discolouration which gives very poor dull yellow fluorescence.
50% SILTSTONE: A/A.

Very poor porosity. 'Possible' dead oil staining. Poor yellow fluorescence on discoloured grains.

3925' - 3940' --- 50% SANDSTONE: A/A.
50% SILTSTONE: A/A.

3943' --- 100% SILTSTONE: grey, fissile to subfissile, pyritic in part.

Top of Horn Valley Siltstone taken at 3940'.

3940' - 3959' --- 100% SILTSTONE: A/A, pyritic (disseminated) grains and as aggregates. Finely micaceous in part. Fissile to blocky.

3959' - 3970' --- 100% SILTSTONE: grey, pyritic (possibly phosphatic - ocular crystals), occasionally micaceous, generally arenaceous, indurated, subfissile (Upper Stokes contamination $\pm 20\%$).

3970' - 4000' --- 100% SILTSTONE: medium to dark grey, blocky, subfissile, finely sandy, pyritic, hard, brittle, calcareous to very calcareous in part. Minor sandstone (< 5%), white, dirty in part, fine grained, calcareous/dolomitic matrix, very hard, grades to limestone.

Low porosity.

4000' - 4030' --- 80% SILTSTONE: A/A, becoming more arenaceous.
20% LIMESTONE: white, dirty grey-white, arenaceous, fine grained, calcareous fraction is cryptocrystalline - sparite, hard to fine sucrosic texture.

- 4030' - 4060' --- 90% SILTSTONE: medium grey, blocky to sub-fissile, finely sandy, very pyritic, occasional organic remains preserved in pyrite, trace of fossils - shells (bivalve/brachiopod), very calcareous.
10% LIMESTONE: A/A.
- 4060' - 4090' --- 90% SILTSTONE: A/A.
10% LIMESTONE: A/A.
- 4090' - 4120' --- 80% SILTSTONE: A/A.
20% LIMESTONE: A/A.
- 4120' - 4150' --- 90% SILTSTONE: grey, pyritic, with pyritic nodules and aggregates, arenaceous, indurated.
10% LIMESTONE: off white to light honey-brown, cryptocrystalline.
- 4160' --- 95% SILTSTONE: A/A.
5% LIMESTONE: A/A.
- 4177' --- 95% SILTSTONE: A/A.
5% LIMESTONE: A/A.
- 4150' - 4180' --- 100% SILTSTONE: grey, pyritic, fissile to subfissile, shaley in part (increased compression adjacent to Pacoota Sandstone contact?). Trace of limestone.
- 4190' --- 100% SILTSTONE: A/A.
- 4200' --- 90% SILTSTONE: A/A.
10% LIMESTONE: A/A.
- 4180' - 4210' --- 80% SILTSTONE: grey, pyritic, micaceous, fissile to subfissile.
20% LIMESTONE: off white, honey-brown, cryptocrystalline to arenaceous in part.
- 4214' --- 70% SILTSTONE: grey, pyritic, micaceous.
30% LIMESTONE: A/A, with one glauconite crystal.
- 4217' --- 80% LIMESTONE: off white to light honey-brown, more massive, occasionally coarsely crystalline, and with rare glauconite inclusions, pyrite common as aggregates.
20% SILTSTONE: light grey, pyrite, sub-fissile.

Pacoota (P1) Sandstone Top at 4217'.

4220' - 4230' --- 90% LIMESTONE: cream, very light brown, light grey, coarsely crystalline (sparite), occasionally pyritic with (50%) very arenaceous limestone variety - white, clear, grey, fine grained, quartz/lithic, pyritic, some grains very glauconitic, well sorted with very calcareous (sparite) matrix, dolomitic in part.
10% SILTSTONE: A/A, very pyritic.

Low porosity, no show.

4230' - 4240' --- 80% SANDSTONE: white, clear, light to medium grey, predominantly quartz although very lithic, with coarse, angular, green glauconite, very abundant in some fragments. Fine grained, moderately to well sorted, subangular to subrounded with calcareous/dolomitic matrix, occasional siltstone matrix.
10% LIMESTONE: sparite, A/A.
10% SILTSTONE: A/A.

Low porosity, no show.

4240' - 4250' --- 60% SANDSTONE: A/A, matrix becoming only slightly calcareous, abundant light grey siltstone matrix, also silica matrix, very lithic.
30% SILTSTONE: light to medium grey, lustrous, fissile, occasionally very sandy, pyritic, glauconitic, hard, brittle.
10% LIMESTONE: light grey, buff, micritic, soft to firm.

4250' - 4280' --- 70% SANDSTONE: A/A, with abundant (50%) loose clear/milky, fine to medium, subangular to subrounded, moderately to well sorted, quartz grains.
30% SILTSTONE: A/A, trace limestone, A/A.

4280' - 4290' --- 70% SILTSTONE: medium to dark grey, with abundant vitreous lustrous pyrite inclusions, finely disseminated throughout, predominantly subfissile, minor blocky, hard, brittle.
30% SANDSTONE: clear, milky, mainly quartz, minor lithic glauconite, fine grained, subangular to subrounded, well sorted, with white silica matrix.

Very low porosity, no show.

4300' --- 60% SILTSTONE: A/A, very pyritic.
40% SANDSTONE: A/A, becoming very fine grained.

4310' --- 90% SILTSTONE: A/A.
10% SANDSTONE: A/A.

- 4310' - 4340' --- 50% SANDSTONE: clear, white, quartz, very fine grained, well sorted, abundant white matrix.
50% SILTSTONE: medium to dark grey, sub-fissile, grades to shale, very pyritic, hard, brittle.

Very low porosity, no show.

- 4340' - 4370' --- 80% SILTSTONE: A/A, grades in part to shale.
10% SANDSTONE: A/A.
10% SHALE: medium to dark grey, fissile, silty, hard, brittle, grades to siltstone.

- 4370' - 4390' --- 50% SANDSTONE: clear, white to light grey, fine grained, subangular to subrounded, quartzose, strong silica cement - poor porosity.
50% SILTSTONE: grey, finely pyritic in part and micaceous.

Very poor to poor porosity.

- 4390' - 4400' --- 90% SANDSTONE: white, clear, light grey, fine to very fine grained, subangular to subrounded, well sorted, abundant hard clear white silica cement.
10% SILTSTONE: medium to dark grey, fissile, finely pyritic, hard, brittle.

Very poor porosity, no show.

- 4400' - 4410' --- 60% SANDSTONE: A/A.
40% SILTSTONE: A/A.

Very low porosity.

- 4410' - 4420' --- 80% SANDSTONE: A/A.
20% SILTSTONE: A/A.

- 4420' - 4430' --- 90% SANDSTONE: milky, clear, light grey, quartz, subangular to subrounded, well sorted, occasional lithic inclusions, hard silica cement.
10% SILTSTONE: A/A.

Very low porosity.

- 4430' - 4440' --- 90% SANDSTONE: clear to off white to light grey, fine grained, subrounded, quartzose, siliceous. Some brown discolouration possibly oil staining.
10% SILTSTONE: dark grey to black, arenaceous, fine disseminated pyrite. Sub-fissile to fissile, thinly bedded.

Poor to very poor porosity, strong white cut.

4440' - 4450' --- 40% SANDSTONE: A/A, but with some medium grained, subrounded grains.
60% SILTSTONE: A/A.

Poor porosity.

Note: Sample could contain reamed material from higher up the hole.

4450' - 4460' --- 50% SANDSTONE: milky, clear, light grey, quartz, fine to very fine grained, subangular to subrounded, well sorted, abundant hard white, clear, silica cement, trace lithics, trace light brown intergranular staining. Where this is concentrated, the sandstone chips tend to be softer. The brown staining appears to be the source of cut.
50% SILTSTONE: A/A, grades in part to dark shale.

Poor porosity. Trace blue-white fluorescence giving a very slow, strong, diffuse, milky cut. Possible dead oil?

4460' - 4470' --- 60% SANDSTONE: A/A.
30% SILTSTONE: A/A.
10% SHALE: medium to dark grey, fissile, pyritic, firm, brittle.

Low porosity. Trace fluorescence and cut, A/A.

4470' - 4480' --- 80% SANDSTONE: white, light grey-brown, clear, dirty, quartz, trace lithic, fine grained, subangular to subrounded, abundant silica cement, hard.
10% SILTSTONE: A/A.
10% SHALE: A/A.

Low porosity. Trace fluorescence and cut, A/A. Slightly more abundant.

4480' - 4490' --- 40% SANDSTONE
40% SILTSTONE
20% SHALE: dark grey-black, fissile, silty, firm.

4490' - 4500' --- 90% SANDSTONE: predominantly clear, medium to coarse, subrounded to rounded grains, quartzose, siliceous with pyrite aggregates, often coarse. Fair to good porosity.
10% SILTSTONE: grey to black, pyritic, subfissile to fissile - grades to a black shale.

Fair to good porosity. Pl-280 Sand.

Note: No residual hydrocarbon staining observed.

4500' - 4510' --- 90% SANDSTONE: clear, medium grained, sub-rounded, quartzose, siliceous; with rare glauconite, no pyrite aggregates. Fair to fair-poor porosity.
10% SILTSTONE: A/A.

Fair to fair-poor porosity.

4510' - 4520' --- 60% SANDSTONE: clear, off white to light grey, fine to very fine grained, sub-rounded, quartzose, strong siliceous cement (few loose grains). High percentage of shaley sandstone - dirty sand.
40% SILTSTONE: grey to black with high percentage of disseminated fine pyrite, subfissile.

4520' - 4530' --- 90% SANDSTONE: clear, milky, light grey, fine to very fine grained, subangular to subrounded, well sorted, shows an interlocking granular texture, relatively easily crushed down into separate grains. Up to 30% has soft white (kaolin) matrix.
10% SHALE: dark grey-black, fissile, silty, grades in part to siltstone, pyritic, firm.

Low porosity. Trace pin prick fluorescence with possible very slow streaming; diffuse light blue cut

4530' - 4540' --- 100% SANDSTONE: A/A, with <5% shale, A/A. White, soft matrix in about 25% of sample gives bright white fluorescence - no cut.

Low porosity, trace pin prick fluorescence and cut, A/A.

4550' - 4560' --- 90% SANDSTONE: A/A, with occasional fragments of pyrite adhered to sandstone chips. Trace coarse grained loose quartz.
10% SILTSTONE: grey to black, pyritic.

4560' - 4566' --- 95% SANDSTONE: clear to white, fine to medium grained, subrounded, quartzose, siliceous.
5% SILTSTONE: A/A.

Poor porosity.

4566' - 4570' --- 90% SANDSTONE: clear to off white, fine to medium grained, quartzose, siliceous.
10% SILTSTONE: grey to black, pyritic.

Poor porosity.

- 4570' - 4580' --- 70% SANDSTONE: clear, white, light grey, fine to very fine grained, occasionally medium grained, well sorted, firm, friable, in part soft white matrix, in part siliceous matrix. Becoming very lithic, silty in part (5-10%).
30% SILTSTONE: medium to light grey, finely sandy, grading to fine grained, lithic sandstone, predominantly blocky, minor subfissile, soft.

Very low porosity.

- 4580' - 4590' --- 60% SANDSTONE: A/A.
40% SILTSTONE: A/A, becoming predominantly subfissile.

Low porosity.

- 4590' - 4600' --- 80% SANDSTONE: clear, milky, quartz, very fine grained, well sorted, white siliceous matrix, in part soft white matrix (kaolin?).
20% SILTSTONE: medium grey, blocky, very sandy, grades to sandstone.

Very low porosity.

- 4600' - 4610' --- 60% SANDSTONE: A/A.
40% SILTSTONE: dark to medium grey, fissile, soft.

Low porosity.

- 4610' - 4620' --- 90% SANDSTONE: clear to light grey, fine to medium grained, occasionally coarse grained, subrounded, quartzose, strong silica cement, some intergranular silt and pyrite.
10% SILTSTONE/SHALE: grey to black, pyritic, subfissile.

Poor porosity.

- 4620' - 4630' --- 90% SANDSTONE: off white to grey, predominantly fine grained, subangular to subrounded, quartzose, strongly siliceous, with shale/silt inclusions.
10% SILTSTONE: grey to black, pyritic in part.

Poor porosity.

Note: High percentage rock flour.
Increased W.O.B.

4630' - 4640' --- 80% SANDSTONE: A/A, with increase in shale inclusions - dirtier sand.
20% SILTSTONE: A/A.

Poor porosity.

4640' - 4650' --- 70% SANDSTONE: clear to light grey, fine grained, but with occasional medium to coarse, rounded grains intermixed - poorly sorted. Quartzose with strong silica cement, silt/shale inclusions.
30% SILTSTONE: grey to black, pyritic in part, subfissile.

Poor porosity.

4650' - 4660' --- 80% SANDSTONE: off white to light grey (occasionally clear), fine to medium grained (occasionally coarse), subrounded, quartzose, siliceous, pyritic in part; with shale/silt inclusions. (Some quartz grains milky).
20% SILTSTONE: A/A.

Poor porosity.

4660' - 4670' --- 80% SANDSTONE: A/A.
20% SILTSTONE: medium to dark grey, blocky, pyritic, soft to firm.

Poor to fair (in part) porosity.

4670' - 4680' --- 80% SANDSTONE: predominantly white, milky, minor clear quartz with occasional pyrite and rare lithic inclusions, fine to very fine grained, minor medium subrounded loose grains, subangular to subrounded, well sorted. Mainly siliceous matrix, occasional soft white matrix, weak.
20% SILTSTONE: A/A.

Very low porosity.

4680' - 4690' --- 90% SANDSTONE: clear, minor milky-grey, predominantly medium grained, subrounded, moderately to poorly sorted, white siliceous matrix (minor soft white matrix). Abundant pyrite, becoming more lithic. Minor fine to very fine sandstone, A/A (20%).
10% SILTSTONE: A/A, dark grey, pyritic, frequently adhered to sandstone chips.

Low to fair porosity.

4690' - 4700' --- 80% SANDSTONE: off white to grey, medium grained, subangular to subrounded, moderately to poorly sorted. Quartzose, siliceous with pyrite and siltstone inclusions.

20% SILTSTONE: grey to black, fissile to subfissile, pyritic.

Poor porosity.

4700' - 4710' --- 90% SANDSTONE: A/A. Note: Rare large rounded grains, and rare glauconite. Poorly sorted.

10% SILTSTONE: A/A.

Poor porosity.

4710' - 4720' --- 90% SANDSTONE: (very glauconitic and pyritic), grey, fine to medium grained, subangular to subrounded, quartzose, siliceous, lithic (shale, silt fragments). Poor porosity with some brown oil staining?

10% SILTSTONE: grey to dark grey, pyritic, subfissile, often attached to one quartzose surface.

Poor porosity. Strong white cut, some yellow pin prick fluorescence.

4720' - 4730' --- 100% SANDSTONE: (very glauconitic and pyritic), grey, speckled green, A/A.

Poor porosity.

4730' - 4740' --- 90% SANDSTONE: white, grey, clear, quartz, abundant glauconite, trace lithics, fine grained, subangular, well sorted, white silica matrix, minor soft white matrix.

10% SHALE: medium or dark grey, fissile, pyritic, silty, hard, brittle.

Poor porosity. Trace slow streaming, diffuse white cut.

4740' - 4750' --- 80% SANDSTONE: A/A, very fine grained, slightly calcareous.

20% SILTSTONE: medium grey, blocky, grading to fissile shale, pyritic, glauconitic.

Poor porosity, white cut, A/A.

4750' - 4760' --- 90% SANDSTONE: white to grey, strongly glauconitic, fine to medium grained, subangular to subrounded, quartzose, siliceous, with some pyrite and lithic intergranules.

10% SILTSTONE: grey, pyritic, coats sand fragments, very thinly bedded.

Poor porosity.

4760' - 4770' --- 90% SANDSTONE: predominantly white, glauconitic, medium to fine grained, subrounded, quartzose, siliceous, with approximately 10% grey sandstone containing glauconitic, lithic and pyrite fragments.

10% SILTSTONE: grey, thinly bedded, pyritic in part.

Poor porosity.

4770' - 4780' --- 90% SANDSTONE: clear, white to grey, glauconitic, fine to medium grained, subangular to subrounded, quartzose, siliceous.

10% SILTSTONE: A/A.

Poor porosity.

4780' - 4790' --- 90% SANDSTONE: clear to light grey, glauconitic, A/A.

10% SILTSTONE: A/A.

Poor porosity.

4795' --- 90% SANDSTONE: A/A.

10% SILTSTONE: A/A.

Poor porosity.

4790' - 4800' --- 80% SANDSTONE: clear, white to light grey, glauconitic, medium grained, subangular to subrounded, quartzose, siliceous, lithic and pyritic in part. (Note: 1st appearance of white to cream-white, non glauconitic sand making ~5% of sample).
20% SILTSTONE: grey, fissile, arenaceous and pyritic.

Poor porosity.

4805' 100% SANDSTONE: clear to white, medium grained, subrounded, quartzose, siliceous (with occasional coarse grains).
Increase in individual grains - slight improvement in porosity.

TR SILTSTONE & GLAUCONITIC SANDSTONE.

Poor to poor-fair porosity.

Top of P3 taken at 4802'.

4800' - 4810' --- 100% SANDSTONE: clear to white, medium to coarse grained, subrounded to rounded, quartzose, siliceous with noticeable increase in loose, coarse grains but silica cement bonding strong, zero permeability, poor to fair porosity.

TR SILTSTONE & GLAUCONITIC SANDSTONE.

Poor to poor-fair porosity.

4810' - 4820' --- 100% SANDSTONE: white, clear, quartz, minor siltstone lithics, very fine to medium grained, poorly sorted, white matrix, siliceous in part, easily crushed.
TR SILTSTONE.

Low porosity, pin prick fluorescence in 70% sandstone chips - blue-white with slow strong blue-white cut.

4820' - 4830' --- 100% SANDSTONE: clear, white, quartz, predominantly medium grained, minor fine grained, poor to moderate sorting, sub-angular to subrounded.

Poor porosity, fluorescence A/A. Cut is very slow, strong, diffuse.

4830' - 4840' --- 100% SANDSTONE: A/A, fine grained, moderate to well sorted.

Low porosity, fluorescence and cut A/A.

4840' - 4850' --- 100% SANDSTONE: A/A, fine to very fine grained becoming slightly lithic with traces of glauconite inclusions. Trace (\ 5%) siltstone.

Low porosity, fluorescence and cut A/A.

4850' - 4860' --- 90% SANDSTONE: white, clear, light grey, quartz, predominantly fine to very fine grained, minor medium grained, trace medium well rounded, loose grains, moderately to well sorted, trace glauconite, trace lithics, white siliceous cement, occasional red-pink stained sandstone chips.

10% SILTSTONE: red, green, subfissile, finely sandy, soft, friable.

Low porosity, fluorescence and cut A/A.

4860' - 4870' --- 80% SANDSTONE: clear, off white, greenish to pink, iron stained, fine, subangular to coarse, rounded, quartzose, siliceous, poorly sorted, trace glauconite. General increase in red oxide iron staining.

20% SILTSTONE: red, grey-green, subfissile, argillaceous, arenaceous, friable.

Low porosity.

4870' - 4880' --- 70% SANDSTONE: A/A, with increase in iron oxide staining.

30% SILTSTONE: A/A.

Low porosity.

4880' - 4890' --- 80% SANDSTONE: predominantly pink to red, iron coated, with some clear, off white to grey, fine to medium grained, sub-angular to rounded, quartzose, siliceous, with trace glauconite, some lithic (siltstone) fragments.

20% SILTSTONE: predominantly reddish, iron oxides, argillaceous and arenaceous.

Poor porosity.

4890' - 4900' --- 90% SANDSTONE: approximately 60% pinkish to pale red-brown, iron discoloured, and 30% clear to off white, fine to medium grained, subrounded, quartzose, siliceous (with some fair porosity in clear to off white grains). Trace coarse rounded grains.

10% SILTSTONE: A/A.

Poor to poor-fair porosity.

4900' - 4910' --- 90% SANDSTONE: A/A, hematitic, quartzose, siliceous cement.

10% SILTSTONE: A/A, arenaceous.

Poor porosity. Minor contamination from P2 glauconite zone.

4910' - 4920' --- 100% SANDSTONE: white, buff minor, red-brown, quartzose, slightly hematitic, fine to medium grained, some coarse, rounded grains.

Poor to fair porosity.

4920' - 4930' --- 70% SANDSTONE: A/A, quartzose, hematitic.

30% SILTSTONE: A/A, arenaceous, hematitic.

Very poor porosity.

4930' - 4940' --- 100% SANDSTONE: white to buff, fine to medium grained, moderately to well sorted, quartzose, siliceous cement, anhydrite cement.

Poor to moderate porosity, white minor fluorescence and white fluorescence, weak cut.

4940' - 4950' --- 100% SANDSTONE: A/A.

Poor to moderate porosity, white minor fluorescence and white fluorescence, weak cut.

4950' - 4960' --- 70% SANDSTONE: clear, white to buff, fine to medium grained (predominantly fine grained), subangular, quartzose, siliceous, poor to moderate porosity.
30% SILTSTONE: pink to reddish, arenaceous, hematitic, subfissile.

Poor to moderate porosity, strong white cut and fluorescence.

4960' - 4965' --- 100% SANDSTONE: 50% clear, white to buff, fine to medium grained (larger grains rounded). Poor to moderate porosity, A/A. 50% pink to reddish, hematitic, quartzose, siliceous, poorly sorted, occasionally lithic, poor porosity.

Poor to moderate porosity in part.
Generally poor.

T.D. West Mereenie No. 4.

West Mereenie No. 4B to be deviated from 2200'.

- 2420' - 2450' --- 100% SILTSTONE: red-brown, blocky to sub-fissile, soft, argillaceous in part, predominantly firm to hard, brittle. Trace green siltstone - dolomitic. Trace sand.
- 2450' - 2480' --- 100% SILTSTONE: light red-brown (90%), pale green to green (10%), blocky, minor sub-fissile, finely sandy, argillaceous, soft, occasionally firm. Trace of slightly calcareous green siltstone. The siltstone becomes softer the longer it is soaked in water. Pale green siltstone dolomitic.
- 2480' - 2510' --- 90% SILTSTONE: red-brown (60%), green (30%), blocky, subfissile in part, sandy, green is weakly dolomitic and micaceous.
10% DOLOMITE: off white to light grey, finely crystalline, 10% lithics, weakly micaceous.
- 2510' - 2540' --- 90% SILTSTONE: red-brown to brown (60%), light to dark green (30%), blocky, slightly sandy with rare large rounded quartz grains, dolomitic, micaceous (green siltstone).
10% DOLOMITE: A/A.
- 2540' - 2570' --- 90% SILTSTONE: A/A.
10% SANDSTONE: milky-grey to green, very fine grained, occasionally fine grained, well sorted, firm, friable.
- 2570' - 2600' --- 90% SILTSTONE: red-brown, minor green (10%), blocky, soft.
10% DOLOMITE: grey-white, blocky, soft.
TR SANDSTONE: A/A.
- 2600' - 2630' --- 50% SILTSTONE: red-brown, A/A.
50% DOLOMITE: grey-white, mottled green, very silty, grades to dolomitic siltstone, blocky, soft.
- 2630' - 2660' --- 60% SILTSTONE: red-brown, blocky, subfissile in part, plastic, soft.
20% SILTSTONE: green, blocky to subfissile, firm, brittle, dolomitic.
20% DOLOMITE: grey-white to green, mottled, soft.
- 2660' - 2690' --- 100% SILTSTONE: red-brown, in part fissile, firm (40%), brittle, slightly dolomitic, in part blocky, soft, occasionally mottled white, moderately dolomitic (60%).
TR SILTSTONE: green.
TR DOLOMITE

2690' - 2720' --- 90% SILTSTONE: 70% red-brown, fissile, hard, slightly dolomitic; 20% red-brown, blocky, soft, moderately dolomitic.
10% SILTSTONE: green and white mottled, slightly sandy, blocky to subfissile, soft to firm, brittle, very dolomitic.

2720' - 2750' --- 90% SILTSTONE: 50% red-brown, soft, moderately to very dolomitic, 40% red-brown (occasionally green mottled), fissile, slightly dolomitic.
10% SILTSTONE: green, subfissile, moderately dolomitic.

2750' - 2780' --- 10% SILTSTONE: red-brown, blocky, dolomitic, A/A, soft.
10% SILTSTONE: red-brown, subfissile, firm to hard, brittle, slightly to moderately dolomitic, minor medium grey.
70% DOLOMITIC LIMESTONE: grey-white, green-white, red stained, fine to medium crystalline, sucrosic texture, arenaceous in part.
10% SILTSTONE: green, A/A.

SPOT SAMPLE

2783'

10% SILTSTONE: red-brown, soft, blocky, dolomitic.
10% DOLOMITE: white, soft, blocky.
80% DOLOMITIC LIMESTONE: off white, green-white, very arenaceous, fine to medium grained, lithic in part, trace glauconite, grey, dolomitic, lithic sandstone in part.

SPOT SAMPLE

2788' ---

50% SHALE: light to medium grey, fissile, hard, brittle.
30% SILTSTONE: green, subfissile to blocky, dolomitic, hard, brittle.
20% DOLOMITIC LIMESTONE: off white, A/A.

2780' - 2810' --- 80% DOLOMITE-LIMESTONE: off white to light grey to light grey-green, fine grained, off white is more calcareous and clean, grades to light grey-green, more dolomitic and silty.
20% SILTSTONE: brown to green, subfissile, A/A.

Lower Stokes 2805', drill break and lithology.

SPOT SAMPLE

2800' ---

100% SILTSTONE: brown, subfissile.
TR SILTSTONE: green, blocky, dolomitic.

SPOT SAMPLE

- 2805' --- 90% SILTSTONE: chocolate brown to brown, fissile, very weakly dolomitic.
10% SILTSTONE: green to off white, blocky, dolomitic.
- 2810' - 2840' --- 90% SILTSTONE: grey, green, subfissile, dolomitic, soft to firm.
10% DOLOMITE-LIMESTONE: off white to light grey-green, whiter is more calcareous and cleaner.
- 2840' - 2870' --- 90% SHALE: grey, grey-green, grey-brown, subfissile, soft to firm, dolomitic.
10% LIMESTONE: white, fine to medium, crystalline, hard, argillaceous in part.
- 2870' - 2900' --- 80% SILTSTONE: medium grey, greenish hue in part, blocky to subfissile, fissile in part, argillaceous, occasionally small red-brown siltstone clasts included, firm to hard, very dolomitic.
20% DOLOMITIC LIMESTONE: off white, grey, grey-green to white, finely crystalline giving a fine sucrosic texture, finely arenaceous in part.
- 2900' - 2930' --- 30% CALCAREOUS/DOLOMITIC SHALE: light grey, blocky, soft, friable, smooth, grades to claystone (marl).
20% DOLOMITIC LIMESTONE: off white, light grey in part, finely crystalline, fine sucrosic texture, arenaceous, hard.
50% SILTSTONE: light to medium grey, green hue, predominantly subfissile, finely sandy, moderately dolomitic.
- 2930' - 2960' --- 50% DOLOMITIC LIMESTONE: A/A, very arenaceous in part.
40% SILTSTONE: medium to dark grey, finely sandy, subfissile, hard, brittle, moderately to very dolomitic.
10% CALCAREOUS/DOLOMITIC SHALE (DOLOMITIC MARL): light grey, blocky, soft.
- 2960' - 2990' --- 60% SILTSTONE: light grey, sandy, subfissile, hard, dolomitic and calcareous.
40% DOLOMITE/LIMESTONE: off white to light grey, finely crystalline, arenaceous, grading to the siltstone, rarely glauconitic, micaceous.
TR SANDSTONE: white, fine grained, sub-rounded, well cemented with silica, slightly micaceous, rarely glauconitic. Very poor porosity.

2990' - 3020' --- 70% DOLOMITIC LIMESTONE: off white to grey, fine to medium crystalline, arenaceous, pyritic in part, micaceous, rare residual hydrocarbons.
30% SILTSTONE: A/A.
TR SANDSTONE: A/A.

Weak cut and yellow fluorescence. Very poor porosity.

3020' - 3050' --- 80% SILTSTONE: light to dark grey, green, subfissile, dolomitic, minor pyrite is dark grey, firm and brittle.
20% DOLOMITIC LIMESTONE: off white to light grey, finely crystalline, sucrose, arenaceous in part.
TR SANDSTONE: A/A.

3050' - 3080' --- 50% SILTSTONE: light to dark grey, green, A/A.
30% SILTSTONE: mottled brown, purple, grey-green, sandy, fissile, soft, weakly dolomitic.
10% DOLOMITIC LIMESTONE: A/A.
10% SANDSTONE: white, fine grained, sub-angular to subrounded, hard, blocky, 5% lithics. Weakly dolomitic/silica cement.

Very poor porosity.

3080' - 3110' --- 90% SANDSTONE: white, fine grained, with few large rounded quartz grains, subrounded to subangular, 5% lithics, silica and dolomitic cement.
10% SILTSTONE: grey-green, mottled brown, purple, green, A/A.

Very poor porosity.

3110' - 3140' --- 60% SANDSTONE: 40% white, 20% clear -
(a) 40% white - A/A.
(b) 20% clear, fine to coarse grained, subrounded, clear cement, slightly dolomitic, 5% phosphate pellets, medium grained, slightly micaceous and pyritic, rarely glauconitic.
30% DOLOMITE: buff to light grey, finely to coarse crystalline, occasionally sandy and rare phosphate pellets, grades to sandstone.
10% SILTSTONE: dark grey, green, subfissile, dolomitic, grey, occasionally pyritic.

Poor porosity.

- 3140' - 3170' --- 70% SANDSTONE: white, occasionally clear, fine to medium grained, subangular to sub-rounded, siliceous and dolomitic cement, subfissile, occasional mica flakes, phosphate pellets.
20% SILTSTONE: light to dark grey, green, sandy, occasionally pyritic, micaceous, subfissile, dolomitic.
10% DOLOMITE: buff, coarsely crystalline, sandy (medium to coarse grains).

Poor porosity.

- 3170' - 3200' --- 80% SANDSTONE: A/A with rare pyrite nodules, rarely glauconitic and residual hydrocarbon staining.
20% SILTSTONE: A/A.
TR DOLOMITE: A/A.

Poor porosity. Very weak cut, white fluorescence.

- 3200' - 3230' --- 70% SANDSTONE: A/A.
20% DOLOMITE: buff to white, crystalline, sandy.
10% SILTSTONE: grey to grey-green, fissile, finely bedded, dolomitic.

Poor porosity. Very weak cut and fluorescence.

- 3230' - 3260' --- 90% SANDSTONE: white to clear, medium to coarse grained, 10% fine grained, sub-rounded, sub-blocky to subfissile, hard siliceous cement, weakly dolomitic, 5% lithics, phosphate pellets, trace residual hydrocarbons.
10% SILTSTONE: dark grey to grey-green, fissile, pyritic in part, weakly dolomitic.
TR DOLOMITE: A/A.

Poor porosity. Very weak cut and fluorescence.

- 3260' - 3290' --- 70% SANDSTONE: white to buff to light grey, fine grained, well sorted, subrounded, dolomitic cement, weakly micaceous. Light grey grades to siltstone.
30% SILTSTONE: light to dark grey, fissile, pyritic clots, dolomitic.
TR SANDSTONE: A/A.

Poor porosity.

3290' - 3320' --- 80% SILTSTONE: light to dark grey, finely bedded, fissile, pyritic.
20% SANDSTONE/DOLOMITIC: off white to light grey, fine grained, subrounded, weakly micaceous, blocky, grades to siltstone A/A, cement-dolomitic and siliceous.

Very poor porosity.

3320' - 3350' --- 80% SILTSTONE: A/A grades to
20% SANDSTONE: A/A.

Very poor porosity.

3350' - 3380' --- 90% SILTSTONE: A/A grades to
10% SANDSTONE: A/A, medium grained, black pellets (? phosphate) scattered as small groups throughout sample.

Very poor porosity.

3380' - 3410' --- 70% SILTSTONE: A/A.
30% SANDSTONE/DOLOMITIC: white, buff to light grey, fine grained, subangular to subrounded, micaceous. 5% lithics, pyritic in part, blocky, greying in colour due to increase in mica and lithics, grades to siltstone A/A, cement dolomitic and siliceous.
TR CALCITE: ?vein material.

Very poor porosity.

3410' - 3440' --- 70% SANDSTONE: white to light brown, fine grained, subangular to subrounded, sub-blocky to subfissile, silty in part, pyritic in part, micaceous, brown colour due to mica, siliceous and dolomitic cement, minor black pellets (? phosphate).
30% SILTSTONE: grey to dark grey, fissile to subfissile, micaceous, pyritic (dark grey).

Very poor porosity.

3440' - 3470' --- 60% SANDSTONE: A/A but weakly dolomitic.
40% SILTSTONE: A/A.

Poor porosity.

3470' - 3500' --- 60% SANDSTONE: A/A but non-dolomitic.
40% SILTSTONE: A/A.
TR LIMESTONE: buff, coarsely crystalline.

Poor porosity.

3500' - 3530' --- 70% SANDSTONE: A/A but with siliceous/dolomitic/calcareous cement.
30% SILTSTONE: A/A.
TR LIMESTONE: A/A.

3530' - 3560' --- 70% SILTSTONE: A/A and weakly dolomitic.
30% SANDSTONE: A/A with siliceous/dolomitic/
calcareous cement.
TR LIMESTONE: A/A.

3560' - 3590' --- 50% SANDSTONE: white to light brown, fine
grained, subangular to subrounded, blocky,
pyritic and micaceous in part, siliceous,
dolomitic and calcareous cement.
50% SILTSTONE: light to dark grey, sub-
fissile, micaceous, pyritic.

Poor porosity.

3590' - 3620' --- 70% SILTSTONE: A/A.
30% SANDSTONE: A/A.

3620' - 3650' --- No sample.

3650' - 3680' --- 70% SILTSTONE: A/A.
30% SANDSTONE: A/A with <1% quartz grains,
coarse, rounded and spherical.

Poor porosity.

3680' - 3690' --- 80% SANDSTONE: A/A with <10% coarse, rounded,
spherical quartz grains.
20% SILTSTONE: A/A.

Poor porosity.

3690' - 3710' --- 80% SANDSTONE: A/A with 20% coarse quartz
grains and rare glauconite.
20% SILTSTONE: A/A.

Poor porosity.

3700' - 3710' --- 80% SANDSTONE: white to light brown, fine
grained, subrounded, siliceous/dolomitic/
carbonate matrix with 10% clear quartz
grains (rarely pyritic) coarse, rounded,
spherical, in part micaceous and pyritic.
20% SILTSTONE: light to dark grey, sandy,
micaceous, pyritic clots.

Poor porosity.

3710' - 3740' --- 100% SANDSTONE: A/A but mainly white, with
50% COARSE QUARTZ GRAINS.
TR SILTSTONE: A/A.

Poor porosity.

3740' - 3770' --- 100% SANDSTONE: white, fine (30%) and coarse
(70%) grained, subrounded (fine) and
rounded (coarse) siliceous matrix in part,
carbonate and weakly dolomitic, weakly
micaceous and pyritic.
TR SILTSTONE: A/A.

Poor porosity.

3770' - 3800' --- 90% SANDSTONE: A/A.
10% SILTSTONE: light grey, weakly dolomitic and micaceous, subfissile, dark grey, fissile, weakly micaceous and pyritic.

3800' - 3830' --- 90% SANDSTONE: white to clear, coarse (70%) and fine (20%) grained, rounded to sub-rounded, hard, well cemented with silica and minor dolomite, trace of pyrite nodules, lithic. 1 to 2% fragments show residual hydrocarbons.
10% SILTSTONE: light to dark grey, fissile, light grey is weakly dolomitic, dark grey is calcareous.

Poor porosity. Weak cut streaming and yellow fluorescence.

3830' - 3860' --- 90% SANDSTONE: white to light brown, fine to medium grained and interlocking, sub-angular to subrounded, white has siliceous cement, light brown has siliceous and dolomitic cement, weakly micaceous, a few coarse, quartz grains, weakly pyritic, rare glauconite, light brown grades to siltstone.
10% SILTSTONE: light to dark grey, sub-fissile, weakly dolomitic and micaceous, pyritic.

Poor porosity. 1 to 2% residual hydrocarbons, weak cut and fluorescence.

3860' - 3890' --- 70% SANDSTONE: A/A with higher (40%) percentage of light brown, with light grey medium grained pellets (? phosphate).
30% SILTSTONE: light to dark grey and grey-brown, sub-blocky to fissile, micaceous, pyritic.

Poor porosity. Brown due in part to residual or 'dead' oil - weak cut and fluorescence.

3890' - 3920' --- 80% SANDSTONE: A/A.
20% SILTSTONE: A/A.
TR SHALE: black, fissile, weakly, pyritic.

Poor porosity, dead oil.

3920' - 3930' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.
TR SHALE: A/A.

Poor porosity, dead oil.

- 3930' - 3940' --- 70% SANDSTONE: light brown to white, fine grained, subangular to subrounded, well sorted, interlocking grains, siliceous cement, micaceous, rarely pyritic, brown colour due to mica and residual hydrocarbons.
30% SILTSTONE: light grey to grey-brown, subfissile, pyritic, micaceous.

Poor porosity, dead oil, weak cut and fluorescence.
- 3940' - 3950' --- 60% SANDSTONE: A/A.
40% SILTSTONE: A/A with dark grey, fissile, pyritic.

Poor porosity.
- 3950' - 3960' --- 90% SANDSTONE: A/A with 70% white.
10% SILTSTONE: grey to grey-brown to dark grey, fissile to subfissile, pyritic, micaceous.

Poor porosity.
- 3960' - 3970' --- 80% SILTSTONE: dark grey, minor grey-brown, fissile, pyritic, very weakly dolomitic.
20% SANDSTONE: A/A.
- 3970' - 3980' --- 90% SILTSTONE: A/A.
10% SANDSTONE: A/A.
- 3980' - 4010' --- 80% SILTSTONE: light to dark grey, fissile to subfissile, pyritic, calcareous, in part very calcareous, occasionally fine sandy, hard, grades to limestone.
20% LIMESTONE: buff, finely crystalline to amorphous, silty in part.
- 4010' - 4040' --- 60% SILTSTONE: light to dark grey, fissile, weakly pyritic, micaceous, calcareous, grades to limestone.
40% LIMESTONE: buff to light grey, finely crystalline, silty, micaceous, shell fragments.
- 4040' - 4070' --- 60% SILTSTONE: A/A, mostly grey.
40% LIMESTONE: A/A.
TR Pyritic nodules.
- 4070' - 4100' --- 80% SILTSTONE: A/A.
20% LIMESTONE: A/A.
- 4100' - 4130' --- 100% SILTSTONE: light to dark grey, fissile to subfissile, pyritic, micaceous, calcareous.
- 4130' - 4160' --- 80% SILTSTONE: A/A.
20% LIMESTONE: A/A.

- 4160' - 4190' --- 80% SILTSTONE: A/A.
20% LIMESTONE: A/A.
- 4190' - 4200' --- 100% SILTSTONE: A/A, becoming dolomitic.
TR (5%) LIMESTONE: A/A.
- 4200' - 4210' --- 100% SILTSTONE: grey, fissile, weakly pyritic,
micaceous, weakly dolomitic.
TR LIMESTONE: A/A.
TR Pyrite nodules.
- 4210' - 4220' --- 90% SILTSTONE: grey to light grey, weakly
pyritic, micaceous, in part calcareous
(light grey), dolomitic, grades to lime-
stone.
10% LIMESTONE: light grey to light brown,
finely to coarsely crystalline, micaceous,
silty.
TR SANDSTONE: white, fine to medium grained,
subangular to subrounded, calcareous
matrix, silty in part.
TR PYRITE
- 4220' - 4230' --- 90% SILTSTONE: A/A.
10% LIMESTONE: A/A.
TR SANDSTONE: A/A.
TR PYRITE
- 4230' - 4240' --- 90% SILTSTONE: A/A.
10% LIMESTONE: A/A.
- 4240' - 4250' --- 70% SILTSTONE: A/A.
30% LIMESTONE: A/A.

Top Pacoota Pl 4254 feet.

- 4250' - 4260' --- 60% SANDSTONE: off white to light brown-grey,
fine grained, subangular to subrounded,
calcareous and weak siliceous matrix,
glauconitic in part, fine to medium
grained, finely pyritic, in part giving
brown colour, high lithics.
30% LIMESTONE: buff, coarsely crystalline,
rare glauconite.
10% SILTSTONE: A/A.

Poor porosity.

- 4200' - 4270' --- 100% SANDSTONE: off white to light brown-grey,
fine grained, subangular to subrounded,
calcareous/dolomitic and siliceous matrix,
very glauconitic, very finely pyritic.
TR LIMESTONE: A/A.
TR SILTSTONE: A/A.

Poor porosity, residual hydrocarbons -
weak cut.

4270' - 4280' --- 100% SANDSTONE: off white to light brown-grey, fine to medium grained, subrounded, siliceous and weak dolomitic matrix, glauconitic, very finely pyritic, patchy oil stains, medium to dark brown.

TR SILTSTONE: A/A.

Poor porosity, residual hydrocarbons (5% of grains), weak cut and medium yellow fluorescence.

4280' - 4290' --- 40% SANDSTONE: grey to off white, fine grained, subrounded, siliceous, glauconitic, quartzose with occasional fine pyritic lithic (siltstone) fragments.

60% SILTSTONE: grey to dark grey, subfissile to fissile, arenaceous, occasionally glauconitic and pyritic.

(Very contaminated by Stokes formation and some Stairway - pipe stuck in hole 36 hours - sidewall jarred in clearing up hole).

Poor porosity.

4290' - 4300' --- 30% SANDSTONE: clear to off white, fine to medium grained, subrounded, quartzose, siliceous, weakly glauconitic.

40% SANDSTONE: light grey to speckled, high percent of black lithic (siltstone) fragments, and glauconite.

30% SILTSTONE: grey to dark grey, A/A. (Sidewall contamination).

Poor to very poor porosity.

4300' - 4310' --- 40% SANDSTONE: off white to grey, fine to very fine grained, grading to siltstone. Rare speckled sandstone, minor glauconite, friable.

60% SILTSTONE: Grey, arenaceous grading to very fine sandstone.

(Difficult to clean due to fine grained, friable matrix, could have some porosity, but suspected very low permeability). Pyritic in part. (Some sidewall contamination).

Poor porosity.

4310' - 4320' --- 20% SANDSTONE: A/A.
80% SILTSTONE: A/A.
(Sidewall contamination)

Poor porosity.

4320' - 4330' --- 40% SANDSTONE: off white to light grey,
fine to very fine grained, subangular
to subrounded, quartzose, very strongly
siliceous.
60% SILTSTONE: grey, subfissile to fissile,
finely pyritic.
(Sidewall contamination)

Very poor porosity.

4330' - 4340' --- 50% SANDSTONE: A/A.
50% SILTSTONE: A/A.
(Sidewall contamination)

Very poor porosity.

4340' - 4350' --- 70% SANDSTONE: white to off white, occasion-
ally clear, fine to occasionally medium
grained, subrounded, quartzose, siliceous
(with occasional large, coarse rounded
grains).
30% SILTSTONE: A/A.
(Sidewall contamination).

Poor porosity.

4350' - 4360' --- 90% SANDSTONE: off white, fine grained, sub-
angular to subrounded, quartzose, strongly
siliceous.
10% SILTSTONE: grey, fissile, occasionally
finely pyritic.

Poor to very poor porosity.

4360' - 4370' --- 50% SANDSTONE: A/A.
50% SILTSTONE: A/A.

Poor to very poor porosity.

4370' - 4380' --- 80% SANDSTONE: off white to light grey,
fine grained, subangular to subrounded,
quartzose, lithic, siliceous.
20% SILTSTONE: grey to dark grey, finely
pyritic in part, arenaceous, subfissile,
also occurs as inclusions in the sandstone.

Poor to very poor porosity.

4380' - 4390' --- 10% SANDSTONE: A/A.
90% SILTSTONE: grey, arenaceous (could be termed ultra fine grained sandstone), pyritic in part.

No porosity.

4390' - 4400' --- 10% SANDSTONE: A/A.
90% SILTSTONE: A/A.

No porosity.

4400' - 4410' --- 70% SANDSTONE: clear, white to light grey, fine grained (with some rounded coarse grains 1%), subrounded to subangular, quartzose, siliceous.

Note: Generally the large grains are intermixed with fine grains i.e., poorly sorted, large grains are cloudy to milky.

30% SILTSTONE: grey to black, very pyritic, both fine grained and as aggregates, sub-fissile to fissile.

Poor porosity.

4410' - 4420' --- 60% SANDSTONE: A/A, but greyer and fine to very fine grained.
40% SILTSTONE: A/A.

Very poor porosity.

4420' - 4430' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.
(Bit change 4437')

Very poor porosity.

4430' - 4440' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.
(25% contamination by Stokes Siltstone)

Very poor porosity.

4440' - 4450' --- 80% SANDSTONE: A/A.
20% SILTSTONE: A/A.

Very poor porosity

4450' - 4460' --- 90% SANDSTONE: off white to light grey, fine grained, well sorted, subangular to subrounded, quartzose, siliceous, thinly bedded, and breaks with a subfissile cleavage forming elongate, flat shards of sandstone.
10% SILTSTONE: grey, pyritic.

Poor porosity.

4460' - 4470' --- 90% SANDSTONE: A/A, with very fine to fine grains.
10% SILTSTONE: A/A.

Very poor porosity.

4470' - 4480' --- 80% SANDSTONE: A/A, very fine grained with lithics.
20% SILTSTONE: A/A,

Very poor porosity.

4480' - 4490' --- 60% SANDSTONE: clear, off white to light grey, fine grained, occasionally medium grained, subrounded to subangular, quartzose, siliceous, occasional grain has light brown stain hydrocarbon? and gives pinprick yellow fluorescence.
40% SILTSTONE: grey, finely pyritic, thinly bedded, subfissile to fissile.
(Note: Sample cleaned only in CONDET without DIESEL wash, and is cleaner).

Poor porosity. All samples give white cut. Stained samples give yellow pinprick fluorescence.

4490' - 4500' --- 80% SANDSTONE: A/A, but fine to very fine grained.
20% SILTSTONE: A/A, with occasional pyrite aggregate.

Very poor porosity.

4500' - 4510' --- 90% SANDSTONE: off white to light grey, fine to medium grained, subrounded to subangular, quartzose, siliceous, with siltstone and glauconitic lithics.
10% SILTSTONE: A/A.

Poor porosity.

4510' - 4520' --- 80% SANDSTONE: off white to light grey, fine grained, quartzose, subangular to subrounded, siliceous, occasionally pyritic
20% SILTSTONE: grey to black, subfissile, pyritic.

Very poor porosity.

4520' - 4530' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.

Very poor porosity.

4530' - 4540' --- 40% SANDSTONE: clear to milky, medium to coarse grained, subrounded, quartzose, siliceous with occasional loose grains and fair porosity.
30% SANDSTONE: off white to grey, fine grained, occasionally medium, subangular to subrounded, quartzose, siliceous.
Poor porosity.
30% SILTSTONE: grey to black, pyritic in part, arenaceous, subfissile.

Fair porosity.

4540' - 4550' --- 60% SANDSTONE: A/A, medium to coarse etc.
30% SANDSTONE: A/A, fine grained etc.
10% SILTSTONE: A/A.

Fair porosity.

4550' - 4560' --- 10% SANDSTONE: A/A, medium grained.
70% SANDSTONE: off white to light grey, fine to medium grained, subangular to subrounded, quartzose, siliceous with pyrite.
20% SILTSTONE: grey to black, pyritic.

Poor porosity.

4560' - 4570' --- 90% SANDSTONE: white to clear, fine to medium grained, poorly sorted, quartzose, subangular to subrounded, siliceous, (very few separate grains - poor porosity and permeability). Subfissile and broken into flakes or plates.
10% SILTSTONE: grey to black, pyritic, very thinly bedded, wispy shale partings.

Poor porosity

4570' - 4580' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.

Poor porosity.

4580' - 4590' --- 90% SANDSTONE: Clear to white, medium grained,
(occasionally coarse grained) subangular
predominantly, some subrounded, quartzose,
siliceous, some loose grains.
10% SILTSTONE: A/A.

Poor porosity to poor-fair porosity.

4590' - 4600' --- 80% SANDSTONE: A/A, but fine grained, to occas-
ionally medium grained.
20% SILTSTONE: grey to black pyritic.

Poor to very poor porosity.

4600' - 4610' --- 90% SANDSTONE: A/A but fine grained to
medium coarse, poorly sorted, subangular
to subrounded, quartzose, siliceous.
10% SILTSTONE: A/A.

Poor porosity.

4610' - 4620' --- 90% SANDSTONE: A/A
10% SILTSTONE: A/A
(P2 estimated 4620 to 4621 on drill break).

Poor porosity.

4620' - 4630' --- 80% SANDSTONE: white to light grey, predom-
inantly fine grained with some medium
grains, subangular to subrounded, quart-
zose, siliceous, with approximately 10%
containing silt and shale lithics.
20% SILTSTONE: grey, finely arenaceous,
pyritic.

Poor porosity.

4630' - 4640' --- 80% SANDSTONE: clear to off white, A/A.
20% SILTSTONE: A/A, with fine and massive
pyrite.

Poor porosity.

4640' - 4650' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.

Poor porosity.

4650' - 4660' --- 60% SANDSTONE: A/A.
40% SILTSTONE: grey to dark grey, pyritic,
arenaceous, subfissile.

Poor porosity.

4660' - 4670' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.

Poor porosity.

4660' - 4670' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.

Poor porosity.

4670' - 4680' --- 90% SANDSTONE: clear to light grey, fine to
medium to occasionally coarse, poorly
sorted, quartzose, siliceous.
Note: larger grains are more rounded.
10% SILTSTONE: grey, subfissile, pyritic.

Poor to poor-fair porosity.

4680' - 4690' --- 80% SANDSTONE: clear to light grey, mainly
fine grained but also medium to medium-
coarse, poorly sorted, quartzose,
siliceous, generally subangular.
20% SILTSTONE: brown-grey (pyritic) to grey-
black, fissile, thinly bedded.

Poor porosity.

4690' - 4700' --- 90% SANDSTONE: clear to off white A/A.
10% SILTSTONE: A/A.

Poor porosity.

4700' - 4710' --- 90% SANDSTONE: clear to off white, poorly
sorted, medium to medium-coarse, with
fine grains. (Larger grains subrounded).
< 2% light brown, possible hydrocarbon
staining?
10% SILTSTONE: A/A.

Poor to poor-fair porosity.

4710' - 4720' --- 90% SANDSTONE: A/A, with increase in pyrite
grains and about 2% loose, coarse rounded
grains.
10% SILTSTONE: predominantly arenaceous,
light grey to grey-brown, pyritic variety,
with minor black shaly silt.

Poor to poor-fair porosity.

4720' - 4730' --- 90% SANDSTONE: A/A, with \pm 10% medium coarse separate rounded grains in poorly sorted fine to medium grained quartzose matrix. Larger grains are subrounded to rounded.
10% SILTSTONE: light grey, pyritic, arenaceous.

Poor to fair-poor porosity.

4730' - 4740' --- 90% SANDSTONE: A/A, but fine to medium grained, quartzose, siliceous.
10% SILTSTONE: A/A

Poor porosity.

4740' - 4750' --- 90% SANDSTONE: clear to light grey, fine to medium grained, rarely coarse grained, poorly sorted with contained lithics of siltstone, while giving it a "dirty sand" appearance. Quartzose, siliceous with pyrite.
10% SILTSTONE: grey to black, subfissile, pyritic.

Poor to very poor porosity.

4750' - 4760' --- 80% SANDSTONE: off white to grey, pyritic lithics of silt and shale gives sand a "speckled" appearance - 1st trace of glauconite. Fine to medium grained, subangular to subrounded.
20% SILTSTONE: predominantly light grey, pyrite with some dark grey to black shale.

Poor porosity.

4760' - 4770' --- 100% SANDSTONE: speckled grey with high glauconite content, A/A.
TR SILTSTONE: A/A.

Poor porosity.

4770' - 4780' --- 90% SANDSTONE: A/A, grey, high glauconite content, fine to medium grained.
10% SILTSTONE: grey, pyritic.

Poor porosity.

4780' - 4790' --- 90% SANDSTONE: clear to light grey, fine to medium grained, subrounded, glauconitic, quartzose, siliceous lithic in part and pyritic.
10% SILTSTONE: grey, pyritic, fine and aggregate.

Poor to poor-fair porosity.

4790' - 4800' --- 100% SANDSTONE: A/A
TR SILTSTONE: A/A

Poor porosity.

4800' - 4810' --- 100% SANDSTONE: A/A, clear to white.
TR SILTSTONE: A/A.

Poor porosity.

4810' - 4820' --- 100% SANDSTONE: A/A, clear to white
TR SILTSTONE: A/A

Poor porosity.

4820' - 4830' --- 90% SANDSTONE: A/A
10% SILTSTONE: A/A

Poor porosity

4830' - 4840' --- 100% SANDSTONE: A/A

Poor porosity.

4840' - 4849' --- 20% SANDSTONE: clear to light grey, glauconitic, fine to medium grained, subangular to subrounded, quartzose.
80% SANDSTONE: clear to cream white (non-glauconitic) medium to medium coarse grained, subrounded, quartzose, siliceous.

Poor porosity, poor to poor-fair porosity.

4849' - 4860' --- 100% SANDSTONE: clear to white, to milky white, medium to coarse grained, subrounded, quartzose, siliceous [note a few (c. 1%) light brown discoloured grains show yellow fluorescence. Large coarse grains are more rounded and usually separate indicating improved porosity (check on logs). Trace to 2% glauconitic P2 sandstone.]

Poor to fair porosity.

4860' - 4870' --- 100% SANDSTONE: clear to off white, fine to medium grained, more subangular than subrounded, quartzose, siliceous, more cemented.
TR SILTSTONE: grey with pyrite.

Poor porosity

4870' - 4880' --- 100% SANDSTONE: A/A.

Poor porosity.

4880' - 4890' --- 100% SANDSTONE: A/A.

Poor porosity.

4890' - 4900' --- 100% SANDSTONE: A/A.

Poor porosity.

4900' - 4910' --- 100% SANDSTONE: A/A.

Poor porosity.

4910' - 4920' --- 30% SANDSTONE: A/A, with 10 to 20% coarse rounded grains.

60% SANDSTONE: pink to red-brown, "FERRUGINOUS SANDSTONE", discoloured by iron (Haematite/Goethite) oxides, fine grained, subangular, quartzose, siliceous.

10% SILTSTONE: red-brown, grey, grey-green, arenaceous.

Poor to poor-fair porosity.

4920' - 4930' --- 80% SANDSTONE: clear to white to red-brown, (50% stained, discoloured by iron oxides - goethite and haematite), fine to coarse grained (latter is subrounded and has fair porosity, fine grained, cemented and poor porosity, subangular), quartzose, siliceous.

20% SILTSTONE: red-brown to grey-green, arenaceous, ferruginous.

Poor to poor-fair porosity, both clear and iron stained, variety gives white cut and yellow fluorescence. (Check log porosity).

4930' - 4940' --- 90% SANDSTONE: A/A, but 90% iron stained and predominantly fine grained, strongly silicified.

10% SILTSTONE: A/A.

Very poor porosity.

4940' - 4950' --- 80% SANDSTONE: A/A, with 80% iron stained and 20% clear to cloudy white, fine to coarse grained (the latter approximately 2% and has fair porosity) occasionally glauconite, quartzose, siliceous.

20% SILTSTONE: A/A.

Poor to fair-poor porosity

4950' - 4960' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.

Poor porosity.

4960' - 4970' --- 90% SANDSTONE: A/A, predominantly fine grained.
10% SILTSTONE: A/A.

Poor porosity.

4970' - 4980' --- 90% SANDSTONE: clear, white, pink to red-brown, purplish in part. Ferruginous discolouration make up 80% of sand. Predominantly fine grained, with some medium to coarse variety, quartzose, siliceous.
10% SILTSTONE: red-brown to grey-green, subfissile, arenaceous.

Poor porosity.

4980' - 4990' --- 100% SANDSTONE: 90% clear to creamy white, medium grained, subrounded, quartzose, siliceous, 10% pink, fine grained, ferruginous variety.
TR SILTSTONE: up to 5% dark grey, shaly, with some red brown fragments.

Fair porosity, white and yellow fluorescence, fair white cut.

4990' - 5000' --- 90% SANDSTONE: clear to creamy white, fine, medium to coarse grained, subrounded, quartzose, siliceous. Finer grains are cemented, medium and coarse are separate.
10% SILTSTONE: A/A.

Fair porosity, fluorescence A/A.

5000' - 5010' --- 70% SANDSTONE: predominantly iron stained $\pm 70\%$ with $\pm 30\%$ coarse to medium, subrounded, clear to cream-white sand with fair porosity. Red-brown sand varies fine to medium-coarse, subangular to subrounded.
30% SILTSTONE: red-brown to dark grey-green to black shale.

Fair porosity in white sand, poor porosity in iron sand.

5010' - 5020' --- 90% SANDSTONE: 60% fine grained, white to off white, quartzose, siliceous, poor porosity on bulk of sample approximately < 10% medium coarse, loose rounded grains, 30% pink, fine grained, iron stained, subangular to subrounded, poor porosity.
10% SILTSTONE: red-brown, grey-green to black.

Poor porosity with fair porosity on 10%.

5020' - 5030' --- 90% SANDSTONE: A/A, but with 70-80% iron stained, fine grained, quartzose, siliceous and remaining 10-20% clear to white, fine grained, poor porosity sand.
10% SILTSTONE: A/A.

Poor porosity.

5030' - 5035' --- 90% SANDSTONE: A/A, predominantly pink, iron stained, fine grained, subangular to subrounded, quartzose, siliceous with 10-20% off white, fine grained, poor porosity.
10% SILTSTONE: grey to dark grey.

Poor porosity.