

APPENDIX 1

CUTTINGS DESCRIPTIONS

EM 15 SAMPLE DESCRIPTIONS - Ditch Sampling
began from 880 ft. on 5/9/84.

- 880' - 910' --- 100% SANDSTONE: Orange translucent, 95% loose grains, fine to medium grained, subrounded to rounded, well sorted, poor to moderate sphericity, most grains lightly frosted, rare aggregates with silty argillaceous matrix.
- Good porosity.
- 910' - 940' --- 100% SANDSTONE: Orange to red brown, 30% loose grains, fine to medium with occasional coarse and very fine grains, subrounded to rounded, poor to moderate sphericity, poor to moderately sorted, siliceous cement, red brown generally has silty argillaceous matrix, friable.
- Good porosity.
- 940' - 970' --- 100% SANDSTONE: Orange, minor red brown, 60% loose grains, fine to medium grained, subrounded to rounded, well sorted, moderate sphericity, siliceous cement, friable, minor dark lithics, trace white/yellow sandstone.
- Good porosity.
- 970' - 1000' --- 100% SANDSTONE: Orange, 10% red brown, 70% loose grains, fine to medium, occasional coarse grains, subrounded to rounded, moderate to good sphericity, moderately sorted, siliceous cement, red brown has silty argillaceous matrix, friable.
- Good porosity.
- 1000' - 1030' --- 100% SANDSTONE: Orange, minor red orange and red brown, fine to medium grained with fine predominant, A/A, trace white sandstone.
- Good porosity.
- 1030' - 1060' --- 100% SANDSTONE: Orange, minor pink brown, trace yellow and white, fine grained, occasionally medium, subrounded to rounded, moderate to good sphericity, well sorted, most grains are lightly frosted, siliceous and ferruginous cement, pink brown has silty argillaceous matrix, friable.
- Good porosity.

- 1060' - 1090' --- 100% SANDSTONE: Orange, red brown, rarely mottled with white, 20% loose grains, A/A, red brown has silty matrix.
TR SILTSTONE: green black, blocky, hard, siliceous, speckley appearance, arenaceous.
Good porosity.
- 1090' - 1130' --- 100% SANDSTONE: Orange translucent, 98% loose grains, fine grained, occasionally medium and very fine, rounded, moderate to good sphericity, well sorted, ferruginous.
TR SILTSTONE: A/A.
Good porosity.
- 1130' - 1160' --- 90% SANDSTONE: Orange, 10% pale mauve aggregates, trace red brown aggregates, 90% loose grains, very fine to coarse, coarse in fine grained matrix, most grains are frosted, round to well rounded, good sphericity, poorly sorted, ferruginous and siliceous.
10% SILTSTONE: A/A, and trace red brown, argillaceous, subfissile.
Good porosity.
- 1160' - 1190' --- 100% SANDSTONE: Orange, translucent/clear, occasionally milky, 95% loose grains, 5% aggregates of pale mauve to orange red, fine to medium, occasionally coarse grained, frosted, subrounded to well rounded, moderate to good sphericity, poorly sorted, ferruginous and siliceous cement with silty matrix in aggregates.
TR SILTSTONE: green black and red brown, A/A.
Good porosity.
- 1190' - 1220' --- 100% SANDSTONE: 80% orange loose grains, 15% clear/translucent loose grains, 5% red/brown/mauve aggregates, very fine to coarse, coarse in fine grained matrix, round to well rounded, frosted, moderate to good sphericity, poorly sorted, quartzose, aggregates have silty matrix, ferruginous, friable.
TR SILTSTONE: dark green, blocky, very hard, speckled appearance.
TR SILTSTONE: red brown, grades from silty sandstone, brittle, sandy.
Good porosity.

1220' - 1250' --- 100% SANDSTONE: 95% loose grains, orange to clear translucent, generally frosted, very fine to coarse grained, subrounded to well rounded, moderate to good sphericity, poorly sorted, siliceous, aggregates have silty matrix, friable.

TR SILTSTONE: green and red brown, A/A.

Good porosity.

EST. TOP MEREENIE QUARTZITE AT 1240'.

1250' - 1280' --- 100% SANDSTONE: dominantly clear to white, minor orange, yellow, 80% loose grains, fine to coarse, round to well rounded, poorly sorted, siliceous cement, friable, no matrix.

Good porosity.

1280' - 1290' --- 100% SANDSTONE: clear/translucent to white, generally frosted grains, trace yellow mottling, minor orange, fair to medium, occasionally coarse grained, subrounded to rounded, moderate to good sphericity, poorly sorted, quartzose, siliceous cement, quartzose, abrasive.

Fair porosity.

1290' - 1320' --- 100% SANDSTONE: clear to white, A/A.
Bit torquing up at 1303 feet.

Fair porosity.

1320' - 1350' --- 100% SANDSTONE: clear/translucent to white, frosted, minor orange, very fine to coarse grained, coarse in fine grained matrix, rounded, many angular fractured grains, poorly sorted, quartzose, siliceous cement, hard to moderately friable.

Fair porosity.

1350' - 1380' --- 100% SANDSTONE: 70% clear/translucent to white, 30% orange, fine to coarse grained, coarse in fine grained matrix, subrounded to rounded, many fractured grains, poorly sorted, quartzose, siliceous cement, friable to moderately hard, abrasive.

Poor to fair porosity.

- 1380' - 1410' --- 100% SANDSTONE: 80% clear/translucent to white, 20% orange, A/A, 20% rock flour.
Poor to fair porosity.
- 1410' - 1440' --- 100% SANDSTONE: 70% clear/translucent to white, 30% orange, fine to medium grained, rare coarse, subrounded to rounded, poor to moderate sorting, siliceous, friable, 20% rock flour.
Fair porosity.
- 1440' - 1470' --- 100% SANDSTONE: 90% clear to white, 10% orange, fine to medium grained, medium predominant, occasionally coarse, many fractured grains, A/A, 30% rock flour.
Fair to good porosity.
- 1470' - 1500' --- 100% SANDSTONE: clear to translucent, trace orange, A/A, 90% loose grains.
Fair to good porosity.
- 1500' - 1530' --- 100% SANDSTONE: 70% clear to translucent, 30% orange to pink, fine and medium grained, medium in fine grained matrix, subrounded to rounded, moderate sorting, quartzose, siliceous cement, many fractured grains, 80% loose, aggregates friable.
Fair to good porosity.
- 1530' - 1560' --- 100% SANDSTONE: 80% pink orange, 20% clear to white, most grains frosted, 95% loose grains, 5% very fine aggregates, fine to medium occasional coarse grains, predominantly medium, subrounded to well rounded, moderate sorting, quartzose, ferruginous staining.
Good porosity.
- 1560' - 1590' --- 100% SANDSTONE: 50% pink orange, 50% clear to white, fine and medium grained, A/A.
TR SILTSTONE: Orange brown, mauve brown, argillaceous.
Good porosity.

1590' - 1600' --- 100% SANDSTONE: dominantly clear to translucent, minor pink orange, fine to medium grained, fine predominant, medium in fine grained matrix, subrounded to rounded, moderately sorted, siliceous.

TR SANDSTONE: mauve brown to brick red, fine grained, silty matrix.

TR SILTSTONE: Orange brown to brown, sub-blocky firm.

Poor to fair porosity.
EST. TOP LOWER MERENIE AT 1590'

1600' - 1610' --- 60% SANDSTONE: light orange pink to clear/translucent fine to coarse grained, subrounded to well rounded, poor sorting, siliceous cement, orange pink slightly ferruginous and trace silty.

30% SANDSTONE: mauve brown to brick red, fine to very fine grained, silty clay matrix, friable to brittle, ferruginous, siliceous, grades to siltstone.

10% SILTSTONE: light pink brown, argillaceous, subblocky to subfissile, firm to brittle, siliceous, trace orange brown.

Poor porosity.

1610' - 1640' --- 60% SANDSTONE: light orange pink, mottled with clear to white, A/A.

20% SANDSTONE: mauve brown to brick red, A/A.

20% SILTSTONE: light pink brown, orange brown and green mottled, sandy in part, A/A.

Poor porosity.

1640' - 1670' --- 80% SANDSTONE: white to clear, mottled with orange pink, minor green, fine grained, occasionally medium and coarse, subrounded to rounded, moderate to well sorted, calcareous/siliceous cement, trace silty matrix, brittle to hard.

20% SILTSTONE: Orange brown to mauve brown, mottled with green, firm, moderately indurated, blocky to subfissile, sandy and arenaceous in parts.

Poor porosity.

1670' - 1700' --- 80% SANDSTONE: clear/white to very pale pink, occasionally pale green, trace orange, fine to medium grained, occasionally coarse, A/A, siliceous cement, calcareous in part.

20% SILTSTONE: mauve to orange brown and green, A/A, more argillaceous.

Poor porosity.

- 1700' - 1710' --- 70% SANDSTONE: clear/white to pale pink, green, fine to medium grained, fine predominant, A/A.
30% SILTSTONE: Orange to mauve brown, green, A/A.
Poor porosity.
- 1710' - 1720' --- 80% SANDSTONE: clear/white, pale pink, pink orange, fine to medium grained, fine predominant, subangular to rounded, moderate sorting, siliceous cement, trace calcareous, pink orange has minor silty matrix, friable to firm.
20% SILTSTONE: orange to mauve brown and minor green, A/A.
Poor porosity.
- 1720' - 1730' --- 70% SANDSTONE: clear/white to pale pink and pink orange, trace orange, A/A.
30% SILTSTONE: dominantly light olive brown, also light brown, mauve brown, brick red and green, blocky to fissile, sandy and arenaceous in parts, grades to SHALE in others, micromicaceous in places.
Poor porosity.
- 1730' - 1740' --- 100% SANDSTONE: clear to very pale pink and mauve, minor orange and pink orange, fine to medium grained, occasionally coarse, subrounded to rounded, medium and coarse are loose, moderately sorted, siliceous cement, slightly ferruginous, orange and pink/orange have slightly silty matrix.
TR SILTSTONE: mauve brown, brick red, light olive brown, trace green, A/A.
Poor to fair porosity.
EST. TOP CARMICHAEL SANDSTONE @ 1738'
- 1740' - 1750' --- 100% SANDSTONE: pale pink, pale orange and clear, fine grained, rare medium, subangular to subrounded, well sorted, siliceous cement, slightly ferruginous, friable, pink and orange with silty matrix.
TR SILTSTONE: mauve brown, A/A.
Poor to fair porosity.

1750' - 1780' --- 100% SANDSTONE: orange to pink orange, mottled with minor pale mauve and clear, fine grained, rare medium, subrounded, well sorted, siliceous/ferruginous cement, slightly silty matrix in orange pink, very weakly dolomitic in parts, moderately friable to hard.

Fair to good porosity.

1780' - 1810' --- 100% SANDSTONE: bright orange to mauve brown, minor clear, fine grained, subrounded to rounded, well sorted, siliceous/ferruginous cement, silty matrix especially in mauve brown, grades to siltstone in parts, moderately friable to hard.

TR SILTSTONE: mauve brown/brick red, firm to hard, sandy, arenaceous, grades from sandstone, weakly dolomitic in parts.

Poor to fair porosity.

1810' - 1840' --- 100% SANDSTONE: orange and brick red, fine grained, rare medium, subrounded, well sorted, siliceous/ferruginous cement, slightly silty matrix in orange, very silty matrix in brick red (grades from mauve brown). Moderately friable to brittle and hard.

TR SILTSTONE: red brown, subblocky, firm, sandy grades from sandstone.

Poor to fair porosity.

1840' - 1870' --- 90% SANDSTONE: orange, pink orange, brick red, minor clear, as above. Brick red grades to siltstone in places.
10% SILTSTONE: brick red, grades from silty matrix sandstone, sandy, blocky, brittle.
Good porosity.

1870' - 1900' --- 100% SANDSTONE: A/A.
TR SILTSTONE: A/A.
Good porosity.

1900' - 1920' --- 100% SANDSTONE: A/A, increasing in white grains.
TR SILTSTONE: A/A.
Good porosity.

1920' - 1930' --- 30% SANDSTONE: clayey to white, orange to brick red, minor off white plus green, fine to medium grained, moderately well sorted, sub-rounded, quartz, siliceous, firm, friable.
70% SILTSTONE: brown to red/brown, blocky to subfissile, indurated, sandy to very sandy in places. Clear quartz grains, moderately soft.
Good porosity.
EST. TOP UPPER STOKES @ 1926 FEET

1930' - 1940' --- 40% SANDSTONE: clear to off white, dirty grey, brick red-brown, fine to medium grained, moderately well sorted, quartz siliceous, ferruginous, friable, minor dolomitic.
60% SILTSTONE: brown to red-brown, blocky, subfissile, indurated, sandy, minor green and red mottling.
Good porosity.

1940' - 1970' --- 60% SANDSTONE: off white to orange brown and brick red, fine to medium grained, moderately well sorted, subangular to sub-rounded, quartzose, siliceous cement, occasional large round quartz grains, minor minor silty matrix and cement, ferruginous and dolomitic.
40% SILTSTONE: brown, dark red brown, occasionally green, blocky, indurated, moderately soft, sandy, dolomitic.
Good porosity.

1970' - 2000' --- 100% SILTSTONE: brown to dark red brown, blocky to subfissile, indurated, moderately hard, finely sandy, clayey in parts, minor green mottling and inclusions. Dolomite/calcareous.
TR SANDSTONE: white to orange, A/A.
Poor porosity.

2000' - 2030' --- 100% SILTSTONE: A/A, 10% grey green, finely micaceous in parts, dolomitic.
Poor porosity.

2030' - 2060' --- 90% SILTSTONE: A/A.
10% SANDSTONE: white to off grey, fine grained, well sorted, subangular, siliceous, very well cemented, hard, quartzose, trace, medium well rounded quartz grains.
Poor porosity.

2085' SPOT SAMPLE 80% SILTSTONE: A/A.
20% SANDSTONE: clear to white and off white fine grained, well sorted, subangular to subrounded, siliceous, hard, quartzose, 30 to 40% rock flour.

2060' - 2090' --- 90% SILTSTONE: brown, red/brown 80%, grey green 20%, blocky to subfissile, indurated, moderately hard. Clayey in parts, green mottling, ferruginous, rare micaceous, dolomitic.
10% SANDSTONE: clear to off white, fine grained, moderately well sorted, subangular to subrounded, hard, brittle, quartz, siliceous cement.
TR DOLOMITE: dirty brown grey, microcrystalline.
Poor porosity.

2090' - 2118' --- 80% SILTSTONE: brown, red/brown 70%, grey green 30%, blocky to subfissile, occasional fissile in clayey chips. Moderately hard, grey green tending to very fine sandstone. Otherwise sandy, micaceous, ferruginous, dolomitic.
20% SANDSTONE: clear to white, off white, minor light pink and red brown, fine grained, moderately well sorted, subangular to subrounded. Some chips tending to very fine grained, quartz, siliceous, dolomitic.
Poor porosity.

2118' - 2140' --- 90% SILTSTONE: as above
 10% SANDSTONE: as above increasing in
 ferruginous staining
 Fair porosity

2140' - 2170' --- 80% SILTSTONE: red/brown 60%. Green/
 grey 40%, blocky to subfissile,
 moderately hard, grades to very fine
 sandstone in parts. Micaceous, dolo-
 mitic, green and red mottling and
 interlamination.
 10% SANDSTONE: Off white to orange/brown,
 very fine to fine grained, moderately
 sorted. Dolomitic
 10% DOLOMITE: Off white to grey, minor
 ferruginous staining, micro-
 crystalline
 Poor porosity

2170' - 2200' --- 90% SILTSTONE: red/brown 70%, grey,
 green 30%, minor orange/brown
 mottling and irregular interlami-
 nation. Blocky to subfissile,
 moderately hard, minor sandy and
 micaceous. Dolomite
 10% DOLOMITE: Off white to grey, micro-
 crystalline Minor black inclusions
 Poor porosity

2200' - 2240' --- 90% SILTSTONE: Red/brown 60%, grey
 green 30%, mauve/brown 10%. blocky
 to sub fissile, moderately hard,
 grading to very fine sandstone in
 parts, especially where grey and
 mauve. Dolomitic.
 10% DOLOMITE: as above
 Poor porosity
 SET 10-3/4" CASING AT 2251 FEET.

2310' - 2330' --- 100% SILTSTONE: 90% brown, 10% grey/
 green, blocky to subfissile, moderately
 hard, indurated, minor green/red
 mottling
 TR DOLOMITE: Off white to grey. Trace
 dark inclusions, microcrystalline

2330' - 2360' --- 100% SILTSTONE: as above

2360' - 2390' --- 100% SILTSTONE: as above. 30% grey/
green tending to very fine sandstone
and micaceous

TR DOLOMITE: off white to grey and green grey.
A/A.

2390' - 2420' --- 100% SILTSTONE: Brown, red/brown 80%,
grey/green 20%, blocky to subfissile
indurated, moderately hard, minor
finely micaceous, grey/green very
weakly dolomitic.

2420' - 2450' --- 100% SILTSTONE: as above, moderately
soft, all very small rock chips.

2450' - 2480' --- 100% SILTSTONE: as above. red/brown
90%, grey 10%, some very finely
micaceous

2480' - 2510' --- 100% SILTSTONE: as above

2510' - 2540' --- 100% SILTSTONE: as above, only trace
grey green.

2540' - 2570' --- 100% SILTSTONE: as above

2570' - 2600' --- 100% SILTSTONE: as above

2600' - 2630' --- 100% SILTSTONE: as above

2630' - 2650' --- 100% SILTSTONE: as above. green weakly
dolomitic, also in some red/brown

TR DOLOMITE: white - light grey,
microcrystalline

2650' - 2660' --- 100% SILTSTONE: as above

2660' - 2670' --- 100% SILTSTONE: as above

2670' - 2680' --- 100% SILTSTONE: 100% brown, trace grey
green, blocky to subfissile, indurated,
moderately hard, minor mottling,
dolomitic in parts.

TR DOLOMITE: off grey, microcrystalline,
blocky

2680' - 2690' --- 100% SILTSTONE: as above

TR DOLOMITE: as above

2690' - 2700' --- 50% DOLOMITE: Clear to off white and
grey green, blocky, microcrystalline

50% SILTSTONE: Brown, blocky to sub
fissile, indurated moderately
hard, very weakly dolomitic in parts.

2700' - 2710' --- 50% DOLOMITE: grey green, sub fissile
microcrystalline, rare pyrite
50% SILTSTONE: as above

2710' - 2720' --- 90% DOLOMITE: as above
10% SILTSTONE: as above

2720' - 2730' --- 10% SILTSTONE: brown, blocky to subfissile,
indurated, moderately hard, weakly
micaceous in parts
20% SILTSTONE: grey green, sub fissile
weakly dolomitic
70% DOLOMITE: grey green, minor white -
off white, sub fissile to fissile,
finely laminated, microcrystalline

EST. TOP LOWER STOKES AT 2698 FEET

2730' - 2760' --- 20% SILTSTONE: brown, blocky, moderately
hard, indurated, rare pyrite
30% SILTSTONE: grey green, sub fissile
to fissile, moderately hard,
dolomitic
50% DOLOMITE: grey green minor white to
grey, microcrystalline, finely
laminated, subfissile to fissile.

Poor porosity

2760' - 2790' --- 50% DOLOMITE: grey green, minor white to
grey, microcrystalline, finely
laminated, subfissile to fissile.

Poor porosity

50% SILTSTONE: 80% medium grey, finely
laminated, sub fissile to fissile,
moderately hard, 20% brown, red/
brown, blocky

2790' - 2820' --- 60% DOLOMITE: grey green, minor white to
grey, some medium grey, blocky to
sub fissile, some fissile, micro-
crystalline, finely laminated.
Generally larger rock chips

40% SILTSTONE: 90% medium grey, finely
laminated, sub fissile to fissile,
moderately hard, 10% brown, blocky

Poor porosity

2820' - 2850' --- 80% DOLOMITE: Off grey, grey green,
generally blocky, microcrystalline.

20% SILTSTONE: as above

TR LIMESTONE: Off white, grey, sucrosic
texture, some light green grey

Poor porosity

2850' - 2880' --- 60% DOLOMITE: as above

20% SILTSTONE: as above

20% LIMESTONE: as above

2880' - 2910' --- 20% SILTSTONE: Brown 50%, grey 50%,
moderately hard, sub fissile to
fissile

50% DOLOMITE: grey, grey green, micro-
crystalline, finely laminated, rare
pyrite

Poor porosity

30% LIMESTONE: Off white to grey, fine
sucrosic texture, blocky

Poor porosity

2910' - 2940' --- 20% SILTSTONE: as above

40% DOLOMITE: as above

Poor porosity

40% LIMESTONE: as above

Poor-fair porosity

2940' - 2950' --- 20% SILTSTONE: as above

40% DOLOMITE: as above

Poor Porosity

40% LIMESTONE: as above

Poor-fair porosity

TR SANDSTONE: Clear to white,
medium grained, subangular, quartzose.

Poor porosity

2950' - 2960' --- 20% SILTSTONE: as above

30% DOLOMITE: as above.

40% LIMESTONE: as above

10% SANDSTONE: as above

EST. TOP UPPER STAIRWAY AT 2952 FEET

2960' - 2970' --- 40% SANDSTONE: clear to off white, all as fine single grains, subrounded, well sorted, quartzose.
30% LIMESTONE: A/A.
20% SILTSTONE: A/A.
10% DOLOMITE: A/A.

2970' - 3000' --- 40% SANDSTONE: clear to white, off white, fine grained, well sorted, subrounded, 99% as single grains, otherwise hard, well sorted, quartzose.
20% LIMESTONE: off white, sucrosic, blocky.
20% DOLOMITE: grey, green subfissile to fissile.
20% SILTSTONE: brown, blocky, minor pyrite, grey/green, subfissile, dolomitic.

Poor to fair porosity.

3000' - 3030' --- 50% SANDSTONE: A/A.
30% LIMESTONE: A/A.
10% DOLOMITE: A/A.
10% SILTSTONE: A/A.

Poor to fair porosity, dirty yellow fluorescence from 2% of cuttings (sandstone and limestone). No cut.

3030' - 3060' --- 50% SANDSTONE: clear to white, grey, fine grained, occasionally medium, subangular to subrounded, moderately well sorted, 70% single grains, hard, well sorted, quartz, silica, weakly dolomitic in parts, minor pyrite.

Poor to fair porosity. Dirty yellow fluorescence from 2% of cuttings (limestone and sandstone). No cut.
50% SILTSTONE: brown, red/brown, blocky, moderately hard, grey green and grey, subfissile, weak to moderately dolomitic in parts, some pyrite.
TR LIMESTONE: A/A.
Poor porosity.

3060' - 3080' --- 30% SANDSTONE: A/A.
70% SILTSTONE: 70% brown, red/brown, blocky, 15% green/grey, subfissile, 15% medium grey, subfissile to fissile, pyritic, dolomitic in parts.
TR SHALE: medium to dark grey, fissile, some pyritic, moderately hard.
TR LIMESTONE: off white, blocky.

Poor porosity, faint yellow fluorescence to 1% of sample. Immediate yellow white moderate cut.

- 3080' - 3110' --- 20% SANDSTONE: clear to white, fine grained, well sorted, subrounded, quartz, siliceous, hard, occasional pyritic aggregates.
80% SILTSTONE: 70% red brown, blocky indurated, moderately hard, 20% grey, subfissile, occasionally fissile, moderately soft, 10% green grey, blocky to subfissile, weakly dolomitic.
- EST. TOP MIDDLE STAIRWAY @ 3130 FEET.
Poor porosity.
- 3110' - 3140' --- 30% SANDSTONE: A/A.
80% SILTSTONE: 70% red/brown, blocky, moderately hard, minor pyrite, 30% grey-green, subfissile to fissile, moderately soft, some clayey, minor dolomitic, trace grey, subfissile.
- Yellow fluorescence <1% of cuttings.
EST. TOP MIDDLE STAIRWAY @ 3130 FEET.
- 3140' - 3170' --- 40% SANDSTONE: clear to white, fine grained, well sorted, subrounded, 60% as small rounded rock chips, quartzose, very weakly dolomitic in parts, hard, well cemented.
- Poor to fair porosity. Yellow fluorescence to 1% of sample. Slow yellow/white cut.
- 60% SILTSTONE: 60% grey to dark grey, blocky, some disseminated pyrite, 40% red brown, blocky, moderately hard, some sandy. Trace grey/green fissile, soft, clayey.
- 3170' - 3200' --- 30% SANDSTONE: clear to light grey, very fine to fine grained, moderately sorted, subrounded, small rounded rock chips, hard, minor fine pyrite, quartzose.
70% SILTSTONE: 90% grey, dark grey, blocky to fissile, minor, finely disseminated pyrite and micromicaceous, soft, 10% red/brown, blocky, trace grey/green fissile, soft.
- Yellow fluorescence 1% of sample. Slow moderately weak streaming cut.
- 3200' - 3230' --- 10% SANDSTONE: clear to light grey, very fine grained, moderately well sorted, subangular to subrounded, quartzose, silica, hard, frosted.
- Poor porosity. Rare yellow fluorescence - mineral fluorescence.
- 90% SILTSTONE: 90% medium grey, minor dark grey, blocky to subfissile, moderately soft, finely disseminated pyrite, 10% red/brown blocky, moderately soft.

3230' - 3260' --- 10% SANDSTONE: as above
 90% SILTSTONE: as above
 Poor porosity. No fluorescence.

3260' - 3290' --- 10% SANDSTONE: as above
 90% SILTSTONE: as above. Chips generally smaller, some fissile
 Poor porosity. No fluorescence.

3290' - 3320' --- 20% SANDSTONE: as above. More clear.
 Poor porosity. No fluorescence.
 80% SILTSTONE: 70% Grey, as above,
 30% red/brown as above

3320' - 3350' --- 70% SANDSTONE: Clear to light grey,
 very fine to fine grained, sub
 angular, minor angular, moderately
 well sorted, quartz, silica hard,
 frosted, minor fine pyrite
 Poor porosity. No fluorescence
 80% SILTSTONE: 80% grey, as above.
 30% red/brown as above

3350' - 3380' --- 10% SANDSTONE: as above, minor mica
 Poor porosity. no fluorescence
 90% SILTSTONE: 70% red brown, blocky
 finely sandy in parts. 20% grey,
 blocky, sub fissile, finely pyritic,
 10% hard green/grey, sub fissile to
 fissile

3380' - 3410' --- 10% SANDSTONE: Clear to frosted and grey,
 very fine to fine grained, subangular,
 moderately sorted, quartz, silica,
 minor fine pyrite, hard
 Poor porosity. No fluorescence.
 90% SILTSTONE: 90% grey, blocky to sub
 fissile, finely pyritic, moderately
 soft. 10% red/brown, blocky, moderately
 soft. Trace green/grey
 High percent of Stokes cavings

3410' - 3440' --- 30% SANDSTONE: as above
 Poor porosity. No fluorescence.
 70% SILTSTONE: as above
 High percentage of Stokes cavings.

3440' - 3470' --- 20% SANDSTONE: Frosted to light grey, very fine to fine grained, subangular to sub round, moderately sorted, quartzose, silica, finely pyritic and pyrite aggregates, well sorted, hard.
Poor porosity. No fluorescence.
80% SILTSTONE: Grey, dark grey, blocky sub fissile, finely pyrite

3470' - 3500' --- 10% SANDSTONE: as above
Poor porosity. No fluorescence.
90% SILTSTONE: as above

3500' - 3530 --- 50% SANDSTONE: Clear to lightly frosted and light grey, fine to medium grained, occasionally large round clear grains, sub round, minor round, moderately poorly sorted, quartzose, many single grains, silica, some finely pyritic.
Poor-fair porosity. No fluorescence.
50% SILTSTONE: as above

3530' - 3540' --- 50% SANDSTONE: as above. Generally finer grained with better sorting.
Poor-fair porosity Note high percentage contamination from Stokes.
50% SILTSTONE: as above

3540' - 3550' --- 60% SANDSTONE: Clear, minor frosted, fine grained, sub angular to subrounded, moderately well sorted, quartzose, silica, 90% single grains
Poor- fair porosity. No fluorescence.
40% SILTSTONE: Grey, blocky to subfissile finely pyritic.

3550' - 3560' --- 70% SANDSTONE: as above
Poor-fair Porosity. No fluorescence.
30% SILTSTONE: as above

3560' - 3570' --- 80% SANDSTONE: as above
Poor-fair porosity. No fluorescence.
20% SILTSTONE: as above

3570' - 3580' --- 90% SANDSTONE: Clear, minor frosted, generally fine grained, sub-round, well sorted quartz, all as single grains
Poor-fair porosity. No fluorescence.
10% SILTSTONE: as above

3580' - 3610' --- 100% SANDSTONE: A/A, some light grey, minor pyrite.
 Poor-fair porosity. No fluorescence
 TR SILTSTONE: as above

3610' - 3640' --- 90% SANDSTONE: as above
 Poor-fair porosity. No fluorescence
 10% SILTSTONE: as above

3640' - 3670' --- 90% SANDSTONE: as above
 Poor-fair porosity. No fluorescence
 SILTSTONE: as above

3670' - 3700' --- 100% SANDSTONE: Clear to minor frosted, very fine to fine grained (generally fine), sub angular to sub round, moderately well sorted, quartzose, silica, hard.
 Poor-fair porosity
 TR SILTSTONE: Grey, blocky to sub fissile

3700' - 3730' --- 100% SANDSTONE: as above
 TR SILTSTONE: as above

3730' - 3750' --- 90% SANDSTONE: as above, minor brownish stain.
 Poor porosity - oily smell from sample - no fluorescence
 10% SILTSTONE: Dark grey, blocky to sub fissile, finely pyritic, moderately soft

3750' - 3760' --- 100% SANDSTONE: as above
 Fair porosity
 TR SILTSTONE: as above

3760' - 3770' --- 80% SANDSTONE: as above
 Fair porosity
 20% SILTSTONE: as above
 Note 10 - 20% contamination from Stokes

3770' - 3780' --- 10% SANDSTONE: Clear to light grey, frosted, sub angular, minor fine grained, moderately sorted, siliceous cement, quartz, pyrite
 Poor porosity
 90% SILTSTONE: Dark grey, mainly small rounded chips, sub fissile in parts, finely pyritic, moderately soft, dolomitic in parts

EST TOP HORN VALLEY AT 3780'

3780' - 3790' ---	10% SANDSTONE: Clear to frosted and light grey, sub angular, fine grained, moderately sorted, silica, quartzose, pyrite Poor porosity. No fluorescence 90% SILTSTONE: Dark grey, sub fissile to blocky, small rounded chips, finely pyritic, dolomitic in parts, moderately soft
3790' - 3820' ---	100% SILTSTONE: as above TR SANDSTONE: as above TR LIMESTONE Poor porosity
3820' - 3850' ---	90% SILTSTONE: as above TR SANDSTONE: as above 10% LIMESTONE: Off white, sucrosic, blocky, pale grey, minor pyrite Poor porosity
3850' - 3880' ---	90% SILTSTONE: as above 10% LIMESTONE: as above
3880' - 3910' ---	90% SILTSTONE: as above 10% LIMESTONE: as above
3910' - 3940' ---	70% SILTSTONE: as above 30% LIMESTONE: Off white, dirty brown, minor grey, sucrosic, blocky, pyrite
3940' - 3970' ---	80% SILTSTONE: as above 20% LIMESTONE: as above
3970' - 4000' ---	80% SILTSTONE: Grey to dark grey, sub fissile, blocky, finely pyritic plus aggregates, dolomitic in parts Gassy odour from sample 20% LIMESTONE: Off white, dirty brown, light grey, sucrosic, blocky, pyritic Poor porosity
4000' - 4010' ---	60% SANDSTONE: Clear to translucent, medium grained, high percentage sub rounded, moderately well sorted, quartz, silica. GLAUCONITE. 10%. Poor to fair porosity 30% SILTSTONE: as above 10% LIMESTONE: as above

EST. TOP PACOOTTA P1 AT 4003'.

4010' - 4030' --- 50% SANDSTONE: as above
Poor to fair porosity
40% SILTSTONE: as above
10% LIMESTONE: as above

MUD UP WITH KCL POLYMER MUD AT 4030'.

4030' - 4040' --- 50% SANDSTONE: Clear to light grey, fine
grained, sub angular to sub round, well
sorted, quartz, silica, strongly
glauconitic, pyritic in parts
Poor porosity. No fluorescence
50% SILTSTONE: Light to dark grey, fissile
to sub fissile, pyritic, arenaceous in
parts

4040' - 4050' --- 60% SANDSTONE: as above
40% SILTSTONE: as above

4050' - 4060' --- 70% SANDSTONE: Clear to white, light grey,
fine grained, sub angular to sub round,
well sorted, quartz, silica, hard,
moderately glauconitic, minor pyrite
Poor porosity. High percentage Stokes
contamination
30% SILTSTONE: Light to dark grey, fissile to
sub fissile, arenaceous and micaceous in
parts
No fluorescence

4060' - 4070' --- 80% SANDSTONE: as above
Poor porosity. No fluorescence
20% SILTSTONE: as above

4070' - 4080' --- 80% SANDSTONE: Clear to white, minor light
grey, fine grained, sub angular,
well sorted, quartz, silica, hard,
finely disseminated pyrite cement
in parts, weakly glauconitic
Poor to fair porosity. No fluorescence
20% SILTSTONE: as above

4080' - 4090' --- 90% SANDSTONE: Clear to white, medium
grained, some coarse, sub round,
moderately well sorted, quartz, siliceous
cement, moderately weak cement, minor fine
grained
Fair to good porosity. 1% strong blue/white
fluorescence. Instant weak streaming cut
10% SILTSTONE: as above

4090' - 4100' --- 90% SANDSTONE: Clear to white and off white, fine to medium grained, generally medium, occasionally coarse, sub round, moderately poorly sorted, quartz, siliceous, moderately weak cement, minor oil staining, trace pyrite. No glauconite.
Fair porosity
10% SILTSTONE: as above

4100' - 4110' --- 90% SANDSTONE: Clear to white, light grey, minor off white, fine grained, occasional medium sub round, well sorted, quartzose, silica, some chips with fine pyrite cement, moderately hard
Poor to fair porosity. Faint yellow/white fluorescence in 1% of cuttings. No cut
10% SILTSTONE: Medium grey, blocky to fissile, finely pyritic.

4110' - 4120' --- 80% SANDSTONE: Clear to white, light grey, fine grained, occasionally medium, sub angular to sub rounded, fair/poorly sorted, quartzose, silica, minor pyrite grains, strongly cemented, hard
Poor to fair porosity. Faint yellow fluorescence. No cut.
20% SILTSTONE: Medium to dark grey, blocky, pyritic, occasional sub fissile shaley silt fragments

4120' - 4130' --- 70% SANDSTONE: as above
Poor porosity. Faint yellow fluorescence. No cut
30% SILTSTONE: as above

4130' - 4140' --- 60% SANDSTONE: Clear to white, light grey, fine grained with minor medium grains, sub angular to sub rounded, poorly sorted, quartzose, silica, occasional pyrite, strong cement, lithic
Poor Porosity. Black residual hydrocarbons. Faint yellow fluorescence. No cut.
40% SILTSTONE: Light to medium grey, blocky to sub fissile, strongly pyritic

4140' - 4150' --- 50% SANDSTONE: Clear to white, light grey, fine grained, occasional round medium grain, sub angular to sub rounded, moderately poorly sorted, quartzose, silica, minor fine pyrite cement, occasional grey siltstone lithic
Poor porosity
50% SILTSTONE: as above

4150' - 4160' --- 50% SANDSTONE: as above. Generally fine grained
 Poor porosity. No fluorescence
 50% SILTSTONE: as above

4160' - 4170' --- 50% SANDSTONE: Clear to white, light grey, fine to medium grained, generally fine, medium grains tending to round, otherwise sub angular to sub round, poorly sorted, quartzose, silica, strongly pyritic in parts as fine disseminations and aggregates, hard, minor dark lithics.
 Poor porosity. No fluorescence
 50% SILTSTONE: Medium grey, minor dark grey, blocky to fissile, pyritic, arenaceous

4170' - 4180' --- 40% SANDSTONE: Clear to off white and light grey, fine grained, sub angular, well sorted. Quartz, silica, minor silty matrix, hard, strong, finely pyritic in parts
 Poor porosity. Rare crushed mineral fluorescence
 60% SILTSTONE: as above

4180' - 4190' --- 70% SANDSTONE: Clear to off white, dirty light brown, light grey, fine to medium grained, sub round, poorly sorted, quartz, silica, hard, minor strongly finely pyrite
 Poor porosity. No fluorescence
 30% SILTSTONE: as above. More blocky

4190' - 4200' --- 80% SANDSTONE: Clear to white, minor light grey, fine to medium grained, sub angular to sub round, poorly sorted, quartz, silica, hard, rare pyrite aggregates and dark siltstone lithics, minor silty cement
 Poor porosity. No fluorescence
 20% SILTSTONE: as above

4200' - 4210' --- 90% SANDSTONE: Clear to white, fine grained, sub angular to sub round, well sorted, quartz, silica, hard, rare medium grains and dark lithics
 Poor porosity. 1 rock chip pale yellow white fluorescence. Slow weak streaming cut.
 10% SILTSTONE: as above

4210' - 4220' --- 90% SANDSTONE: Clear to white, minor light grey, fine to medium grained, sub angular to sub round, occasionally medium to coarse round grains, well sorted, quartz, silica, 20% with silty finely pyritic cement, rare aggregate of pyrite and dark lithics, moderately hard
Poor porosity. No fluorescence
10% SILTSTONE: Medium grey, generally blocky, some sub fissile to fissile, finely pyritic and arenaceous in parts

4220' - 4230' --- 80% SANDSTONE: as above. Dirtier.
Poor porosity. No fluorescence
20% SILTSTONE: as above

4230' - 4240' --- 80% SANDSTONE: Clear to white and light grey, minor off white, fine to medium grained, sub angular to sub round, poorly sorted, quartz, silica, finely disseminated pyritic cement - large pyrite aggregates in parts
Poor to fair porosity. No fluorescence
20% SILTSTONE: as above

4240' - 4250' --- 90% SANDSTONE: Clear to white and light grey, high percentage fine black lithics, fine to medium grained, generally fine, sub angular, sub round, quartzose, silica, finely disseminated pyrite, occasional pyrite aggregates, minor oily appearance
Fair porosity. Good pale yellow fluorescence to 5% of sample. Black residual H/C's. No cut.
10% SILTSTONE: as above

4250' - 4260' --- 80% SANDSTONE: as above
Poor to fair porosity. Good pale yellow fluorescence to 5% of sample. Black residual H/C's. No cut.
20% SILTSTONE: as above

- 4260' - 4270' --- 80% SANDSTONE: clear to white and light grey, fine to medium grained, generally fine, subangular to subrounded, quartzose, siliceous, minor finely disseminated pyritic cement, occasional pyrite aggregates, minor dark lithics, some black residual oil.
20% SILTSTONE: medium grey, blocky, subfissile, occasionally fissile, finely pyritic and arenaceous in parts.

Poor to fair porosity, pale yellow/white fluorescence to 3% of sample. No cut.
- 4270' - 4280' --- 60% SANDSTONE: A/A, more pyritic and finer grained.
40% SILTSTONE: A/A.

Poor porosity, no fluorescence.
- 4280' - 4290' --- 40% SANDSTONE: clear to white, dirty off white and light grey, brown, fine to medium grained, generally subangular, some subrounded, quartzose siliceous, some silty pyritic cement giving brass colour, pyritic aggregates and minor black residual hydrocarbons.
60% SILTSTONE: medium to dark grey, blocky to subfissile, pyritic and arenaceous.

Poor to fair porosity, faint yellow fluorescence to 1% of sample, very slow white cloudy cut.
- 4290' - 4300' --- 80% SANDSTONE: clear to off white, minor light grey, medium grained, larger grains tend to round, quartzose, siliceous cement, some pyritic (disseminated and aggregates) minor black residual hydrocarbons.
20% SILTSTONE: A/A, some chips elongate and fissile.

Poor to fair porosity, patchy faint yellow fluorescence to about 1% of sample. No cut.
- 4300' - 4310' --- 90% SANDSTONE: clear to white, minor off white and light grey, fine to medium grained, moderately well sorted, subangular to subrounded, quartzose, siliceous, minor pyrite and dark lithics, moderately hard.
10% SILTSTONE: A/A.

Poor to fair porosity, patchy, faint yellow fluorescence to approx 5% of sample, very faint moderate streaming cut.

- 4310' - 4320' --- 100% SANDSTONE: clear to white, light grey and off white, fine grained, subangular to subrounded, well sorted, quartzose, siliceous, moderately well cemented, rare pyritic aggregates, dark lithics and black residual hydrocarbons, oily appearance.
TR SILTSTONE: moderately grey to brassy grey, blocky, arenaceous, some subfissile.

Poor to fair porosity, faint yellow fluorescence to 10% of sample. Slow weak streaming to cloudy white cut.
- 4320' - 4328' --- 100% SANDSTONE: A/A, well cemented.
TR SILTSTONE: A/A.

Poor porosity, A/A but only to 5% of sample.
- 4328' - 4340' --- 40% SANDSTONE: clear, white, off white, fine to medium grained, subangular to subrounded, poor to moderate sorting, quartzose, siliceous, well cemented, pyritic granules and crystals common, occasional shale lithics, well cemented.
60% SILTSTONE: light grey to grey, subfissile, arenaceous.

Poor porosity, nil fluorescence or cut,
EST. TOP PACOOTTA P2 @ 4336'
- 4340' - 4350' --- 70% SANDSTONE: clear, white, light grey, speckled, fine to medium grained, subangular to subrounded, poor to moderate sorting, quartzose, siliceous, well cemented, pyritic in part. Black hydrocarbon staining.
30% SILTSTONE: light grey, grey to brown grey, very pyritic in part.

Poor porosity, nil fluorescence and cut.
- 4350' - 4360' --- 70% SANDSTONE: A/A.
30% SILTSTONE: A/A.

Poor porosity, nil fluorescence and cut.
- 4360' - 4370' --- 50% SANDSTONE: grey, speckled, occasionally clear white, fine grained to very fine grained, subangular, quartzose, siliceous, minor pyritic, grades to arenaceous siltstone, strongly lithic, black shale and possible hydrocarbons, occasionally medium to coarse rounded clear white grains.
50% SILTSTONE: pale grey to grey, arenaceous, pyritic, grades to sandstone.

Very poor porosity, nil fluorescence and cut.

4370' - 4380' ---	60% SANDSTONE: A/A. 40% SILTSTONE: A/A.
	Very poor porosity, no fluorescence and cut.
4380' - 4390' ---	70% SANDSTONE: off white, grey, speckled, mainly fine grained, occasionally medium grained, subangular to subrounded, quartzose, siliceous, minor pyritic, strongly lithic, black residual hydrocarbons. 30% SILTSTONE: pale grey, grey, grey brown, arenaceous, minor pyrite, subfissile.
	Very poor porosity, no fluorescence or cut.
4390' - 4400' ---	80% SANDSTONE: A/A. 20% SILTSTONE: A/A.
	Very poor porosity, no fluorescence or cut.
4400' - 4410' ---	80% SANDSTONE: clear, off white, grey, speckled, fine to medium grained, occasionally coarse, subangular to subrounded, quartzose, siliceous, pyritic aggregates, lithic, black residual hydrocarbons. 20% SILTSTONE: light grey to grey, arenaceous, pyritic, subfissile to blocky.
	Poor to fair porosity, occasional pale yellow fluorescence, no cut.
4410' - 4420' ---	80% SANDSTONE: clear, white, grey, rare speckled, medium grained, occasionally fine and coarse, poor sorting, subangular to subrounded, quartz, siliceous, occasionally pyritic, occasional lithics. 20% SILTSTONE: A/A.
	Poor to fair porosity, A/A.
4420' - 4430' ---	90% SANDSTONE: clear to white, rare grey, medium to coarse, subrounded to round, poor sorting, quartzose, siliceous, strong cement. 10% SILTSTONE: grey, pale grey, subfissile, blocky, pyritic.
	Poor porosity, occasionally pale yellow fluorescence. No cut.
4430' - 4440' ---	90% SANDSTONE: A/A. 10% SILTSTONE: A/A.
	Poor porosity, A/A.

- 4480' - 4490' --- 90% SANDSTONE: clear to off white and pale grey, fine to medium grained, occasionally coarse, subangular to rounded, moderately poorly sorted, siliceous and trace calcareous cement, hard to brittle, dark lithics, minor nodules pyrite, black residual hydrocarbons.
10% SILTSTONE: A/A.
- Poor porosity, occasional dull yellow fluorescence, rare bright yellow. Faint white streaming cut from dull yellow, good white streaming cut from bright yellow sample.
- 4490' - 4500' --- 80% SANDSTONE: clear, off white to brown grey, fine grained, occasionally medium and coarse, subangular to rounded, moderate sorting, siliceous/trace calcareous cement, high proportion with silty matrix, trace glauconite, A/A.
20% SILTSTONE: brown grey to dark grey, blocky to subfissile, soft to brittle, finely pyritic, grades from sandstone in places.
- Poor porosity, occasional dull yellow fluorescence. No cut. Glauconite at 4500 ft.
- 4500' - 4510' --- 80% SANDSTONE: clear, off white to brown grey and mottled, fine grained, minor medium and coarse, moderate sorting, slight increase in glauconite (still < 1%), dark lithics, nodules and disseminated pyrite, patchy zones with brown grey silty matrix, siliceous/minor calcareous cement.
20% SILTSTONE: A/A.
- Poor porosity, trace dull yellow fluorescence. No cut.
- 4510' - 4520' --- 80% SANDSTONE: A/A, glauconite up to 5%, abundant pyrite.
20% SILTSTONE: A/A.
- Poor porosity, A/A.
- 4520' - 4530' --- 80% SANDSTONE: off white to brown grey and mottled, fine to very fine grained, rare medium and coarse, moderately well sorted, siliceous/calcareous cement, hard to brittle, abundant glauconite (up to 15%), abundant pyrite, dark lithic, black residual hydrocarbons, 50% of sample with silty matrix.
20% SILTSTONE: brown grey to light grey, sub-blocky to subfissile, brittle, finely pyritic, grades from sandstone in places.
- Poor porosity, A/A.

- 4530' - 4540' --- 80% SANDSTONE: A/A.
20% SILTSTONE: A/A.
- Poor porosity, A/A.
- 4540' - 4550' --- 90% SANDSTONE: mottled brown grey/black and off white, fine grained, occasionally medium and coarse, moderately well sorted, siliceous/calcareous cement, abundant glauconite, black residual hydrocarbons, mottled patches of silty matrix, minor disseminated and nodular pyritic.
- 10% SILTSTONE: brown grey, light grey, grades from sandstone, finely pyritic, subblocky.
- Poor porosity, occasionally dull yellow fluorescence, trace slow streaming cut.
- 4550' - 4560' --- 90% SANDSTONE: clear, off white, mottled brown grey, fine, occasionally medium grained, subrounded, moderately sorted, calcareous/siliceous cement, hard, 20% with patchy silty matrix, abundant glauconite, black residual hydrocarbons, minor disseminated and nodular pyrite.
- 10% SILTSTONE: A/A.
- Poor porosity, abundant speckly dull yellow fluorescence. No cut.
- 4560' - 4570' --- 90% SANDSTONE: clear, off white, pale grey, mottled brown grey and black, A/A, 10% with patchy silty matrix.
- 10% SILTSTONE: brown grey, glauconitic, blocky to subfissile, grades from sandstone in places.
- Poor porosity, occasional dull yellow fluorescence, trace speckly bright yellow, slow streaming cut from bright yellow.
- 4570' - 4580' --- 90% SANDSTONE: clear to off white and pale grey, 10% mottled brown grey and black, fine to medium, fine predominant subrounded to rounded, moderate sorting, siliceous/calcareous cement, very hard, abundant glauconite, nodular pyrite, grey lithics, black residual hydrocarbons.
- 10% SILTSTONE: light grey, brown grey to dark grey, blocky, hard, well indurated, finely pyritic in parts.
- Poor porosity, pale blue yellow fluorescence with pinpricks of bright blue yellow. No cut.

EST. TOP PACOOTA P3 AT 4585 FT.

4586 SPOT SAMPLE 100% SANDSTONE: clear to pale grey, mottled brown grey, 5% clear/white, fine to medium, subrounded to rounded, moderate to poorly sorted, siliceous/calcareous cement, hard, well cemented, glauconite decreasing, nodular and disseminated pyrite, dark lithics, black residual hydrocarbons, silty matrix in parts.

TR SILTSTONE: brown grey, blocky to subfissile, finely pyritic in parts, grades from sandstone in places.

Poor porosity, abundant pale blue white and blue yellow fluorescence with pinpricks of brighter blue white. Very faint slow streaming cut. Large increase in amount of white rock flour.

4580' - 4590' --- 100% SANDSTONE: A/A with 30% clear/white.

TR SILTSTONE: A/A interbedded thinly with sandstone.

Poor porosity, A/A no cut, 10-20% white rock flour.

4590' - 4600' --- 100% SANDSTONE: 80% clean clear to white, 10% mottled with black residual hydrocarbons, 10% mottled with brown grey silty matrix, fine to medium, medium predominant, occasionally coarse, subrounded to round, moderate to poorly sorted, siliceous cement, calcareous in parts, generally hard, occasionally friable, minor glauconitic, few lithics, trace nodules pyrite, 10-20% white rock flour.

Poor porosity, abundant pale blue white fluorescence in clean white sands with pinpricks of brighter fluorescence. Occasional blue yellow fluorescence. No cut.

4600' - 4610' --- 100% SANDSTONE: dominantly clean clear to white, some appear slightly off white; maybe live oil stained, fine to medium and coarse grained, subangular to rounded, poorly sorted, siliceous cement, weakly calcareous in parts, minor black residual hydrocarbons, trace glauconitic (not in clean white sand), hard to occasionally friable and brittle, well cemented, 20% white rock flour.

TR SILTSTONE: brown grey to grey, blocky, arenaceous, finely pyritic in parts.

Poor to Fair porosity, abundant blue yellow and occasional blue white fluorescence. Faint flood crush cut.

4610' - 4620' --- 100% SANDSTONE: 100% clean, clear to white, fine to medium and coarse, subrounded to rounded, poorly sorted, siliceous cement, weakly calcareous in parts, minor pyritic nodules, hard, brittle and friable.

TR SILTSTONE: dark grey to brown grey, blocky, finely pyritic in parts.

Poor to fair porosity, abundant blue white/blue yellow fluorescence with pinpricks of brighter fluorescence. No cut.

4620' - 4630' --- 100% SANDSTONE: clean clear to white, fine to medium to coarse, A/A, non calcareous, well cemented, much secondary silicification affecting porosity.

TR SILTSTONE: light grey to grey and brown grey, arenaceous, argillaceous, blocky to fissile, non calcareous, finely pyritic in parts, firm.

Poor to fair porosity, A/A.

4630' - 4640' --- 100% SANDSTONE: A/A.

TR SILTSTONE: A/A, generally arenaceous, grades from sandstone in places, pyritic.

Poor to fair porosity, abundant blue yellow fluorescence, minor blue white, faint slow streaming crush cut.

4640' - 4650' --- 90% SANDSTONE: clear to white, some slightly off white, fine to medium coarse, becoming finer, subrounded, poorly sorted, siliceous cement, very weakly dolomitic in parts, well cemented, hard to brittle, occasional nodular and disseminated pyritic, trace black residual hydrocarbons.

10% SILTSTONE: light grey to grey and green grey, blocky to subfissile, firm to soft, pyritic, finely micaceous in parts, arenaceous, grades from sandstone in places.

Poor porosity, scattered fluorescence, A/A. No cut.

- 4650' - 4660' --- 90% SANDSTONE: clear to white, increasing slightly off white, (live oil?), fine to medium to coarse, subrounded to rounded, poorly sorted, A/A.
10% SILTSTONE: dominantly light grey, A/A, thinly interbedded with sandstone.
- Poor to fair porosity, scattered strong yellow fluorescence, occasional blue yellow and blue white, faint slow streaming cut from yellow.
- 4660' - 4670' --- 90% SANDSTONE: clear to white, minor off white, fine to coarse, fine predominant, subrounded to rounded, poorly sorted, siliceous cement, trace dolomitic, trace nodular pyrite, hard
10% SILTSTONE: light grey to black, blocky to subfissile, firm, non calcareous.
- Poor porosity, trace yellow and blue yellow fluorescence. No cut.
- 4670' - 4680' --- 90% SANDSTONE: clear to white, off white to pale grey, dominantly fine grained, also medium and coarse, A/A.
10% SILTSTONE: A/A.
- Poor porosity, minor blue white and yellow fluorescence. No cut.
- 4680' - 4690' --- 90% SANDSTONE: clear to white and off white, some appear live oil stained, dominantly fine grained, occasionally medium and coarse, poorly sorted, siliceous cement, calcareous in parts, hard to brittle, minor black residual hydrocarbons, thinly interbedded by siltstone, nodular pyrite.
10% SILTSTONE: light grey to brown grey, blocky to subfissile, micaceous, (both fine and coarse), pyritic, grades from sandstone in places.
- Poor porosity, scattered yellow and blue white fluorescence. Faint slow streaming cut.
- EST. TOP P3-120/130 @ 4699'.

- 4690' - 4700' --- 90% SANDSTONE: clear to white and off white, dominantly fine grained, minor medium and coarse, subrounded to rounded, moderately poorly sorted, siliceous and calcareous cement, traces of ferruginous staining becoming apparent, interbedded thinly by micaceous siltstone, trace black residual hydrocarbons, pyritic, grades to siltstone in places.
- 10% SILTSTONE: light grey with some green and brown tinges, blocky to fissile, micaceous arenaceous, grades from sandstone in places, firm to hard, non calcareous.
- Poor porosity, abundant blue white fluorescence, occasional blue yellow and yellow. Faint streaming cut.
- 4700' - 4710' --- 90% SANDSTONE: clear to off white and white, fine to medium, occasionally loose coarse with good sphericity, subangular to subrounded, moderately sorted, siliceous and calcareous cement, friable, traces of orange pink ferruginous staining and matrix (siderite?), cuttings have a more rounded appearance suggesting friability and better porosity. (Uphole cuttings appear flinty with sharp boundaries).
- 10% SILTSTONE: grey with green tinge, coarsely micaceous in places, arenaceous, minor argillaceous, subblocky to fissile, some with redish tinge, firm to hard.
- Fair to good porosity, abundant blue yellow and blue white fluorescence. Faint flood cut and minor slow streaming.
- 4710' - 4720' --- 100% SANDSTONE: clear to white to off white, off white appears live oil stained, fine to medium occasionally coarse grained, subrounded to rounded, moderately sorted, siliceous cement, weakly dolomitic and calcareous in places, traces of patchy ferruginous staining, occasional silty micaceous sandstone, hard to friable, trace nodule pyrite.
- TR SILTSTONE: greyish with red to green tinges, arenaceous, grades from sandstone, micaceous and pyritic, subblocky, firm.
- Fair porosity, abundant blue yellow fluorescence. No cut.

4720' - 4730' --- 100% SANDSTONE: clear to white, off white, some with greenish tinge, A/A, slight increase in patchy orange pink ferruginous staining.
TR SILTSTONE: A/A.

Fair porosity, A/A.

4730' - 4735' --- 100% SANDSTONE: clear to white to off white, many appear live oil stained, occasional pale green, fine to medium, rare coarse, subrounded to rounded, moderate sorting, siliceous cement, calcareous and dolomitic in parts, patchy ferruginous staining (sideritic?) hard to friable, minor nodules and disseminated pyrite, occasionally micaceous/silty matrix and micaceous parting planes.
BOTTOMS UP SAMPLE TR SILTSTONE: A/A.

Poor to fair porosity. A/A, minor faint slow streaming cut.

RUN DST NO. 1 OVER 4689' to 4735'

4735' - 4750' --- 90% SANDSTONE: clear, white, off white, fine grained, occasionally medium, subrounded, moderately well sorted, siliceous/minor calcareous cement, hard, occasionally friable, trace ferruginous staining.
10% SILTSTONE: light to dark grey, arenaceous, blocky to subfissile, micaceous, grades from sandstone in places.

Poor porosity, scattered dull yellow to blue yellow fluorescence. Trace streaming cut.

4750' - 4760' --- 90% SANDSTONE: clear to off white, minor pale grey, fine grained, occasionally medium and coarse, subrounded, moderately sorted, siliceous/calcareous cement, hard to friable, trace ferruginous staining, coarsely micaceous in places, occasional dark lithic, grades to micaceous siltstone in places.
10% SILTSTONE: A/A.

Poor porosity, trace pale blue yellow fluorescence. No cut.

4760' - 4770' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.

Poor porosity, minor pale blue yellow blue white fluorescence. No cut.

- 4770' - 4780' --- 90% SANDSTONE: clear, off white, pale grey, A/A.
10% SILTSTONE: grey to dark grey, mottled appearance in places, A/A.

A/A. No cut.
- 4780' - 4790' --- 100% SANDSTONE: clear to white, off white, pale grey, fine grained, occasionally medium and coarse, subrounded to rounded, moderately sorted, siliceous/calcareous cement, hard, trace ferruginous staining, minor dark lithics, coarsely micaceous in parts, grades to micaceous siltstone in places.
TR SILTSTONE: grey to dark grey, grey is arenaceous and coarsely micaceous, dark grey is more argillaceous.

Poor porosity, trace pale blue yellow fluorescence, No cut.
- 4790' - 4800' --- 90% SANDSTONE: clear to white, off white, A/A, ferruginous staining becoming more prevalent - spotted appearance (sideritic - reacts with acid).
10% SILTSTONE: grey to grey with green tinge, blocky to subfissile, coarsely micaceous, soft to firm, arenaceous, grades from sandstone in places.

Poor porosity, trace A/A.
- 4800' - 4810' --- 90% SANDSTONE: clear to off white, occasionally pale green grey, fine grained, occasionally medium, subrounded, moderately well sorted, siliceous/calcareous, hard, very faint ferruginous staining throughout, common sideritic spotting, occasional lithics, coarsely micaceous (biotite) in parts, grades to micaceous siltstone in places.
10% SILTSTONE: grey to grey with green tinge, mottled appearance with coarse flakes of biotite, arenaceous, firm to soft, blocky to fissile.

Poor to fair porosity, scattered pale blue yellow fluorescence. No cut.
- 4810' - 4820' --- 80% SANDSTONE: A/A, fine to medium grained, hard to friable.
20% SILTSTONE: A/A.

Poor to fair porosity, scattered blue white/yellow to dull yellow fluorescence. No cut.

- 4820' - 4830' --- 70% SANDSTONE: A/A. fine to medium grained,
hard to friable.
30% SILTSTONE: A/A.

Fair porosity. No cut.
- 4830' - 4840' --- 80% SANDSTONE: clear to off white, fine to
medium grained, occasionally coarse, sub-
rounded, moderately sorted, calcareous,
siliceous cement, hard to friable, silty
ferruginous matrix in places, occasionally
micaceous and lithic, blotchy ferruginous
staining in parts, minor sideritic spotting
throughout.
20% SILTSTONE: grey to green grey, red brown,
micaceous, arenaceous, grades from sand-
stone in places, blocky to subfissile,
generally firm to hard.

Poor to fair porosity, minor scattered fluor-
escence A/A, traces of good white streaming
cut from green grey micaceous siltstone.
- 4840' - 4850' --- 90% SANDSTONE: A/A.
10% SILTSTONE: A/A.

Poor to fair porosity, abundant pale blue
yellow fluorescence. Occasional bright blue
white. Instant white streaming cut from blue
white.
- 4850' - 4855' --- 90% SANDSTONE: A/A, fine to coarse grained,
poorly sorted.
10% SILTSTONE: A/A.

Poor to fair porosity, scattered pale blue
yellow and blue white fluorescence. No cut.
- 4855' - 4860' --- 100% SANDSTONE: off white, clear/white, off white
generally fine to medium grained, A/A, clear/
white is medium to very coarse grained, sub
rounded to well rounded, poorly sorted,
siliceous cement, spotty patches of pink
dolomitic matrix, hard, well cemented.
TR SILTSTONE: A/A.

Poor to trace fair porosity, scattered pale
blue yellow and blue white fluorescence,
occasionally bright blue white, minor faint
slow streaming cut.

EST. TOP PACOOTTA P4 @ 4858 FT.

4860' - 4865' --- 100% SANDSTONE: clear/white, off white, fine to coarse grained, subrounded to rounded, poorly sorted, siliceous/minor calcareous cement, spotty patches of pink dolomitic matrix throughout, hard to brittle.

TR SILTSTONE: A/A.

Poor porosity, scattered pale blue yellow fluorescence, faint white streaming cut.

4865' - 4870' --- 100% SANDSTONE: clear/white, minor off white, fine to coarse grained, subrounded to rounded, poorly sorted, siliceous/minor calcareous cement, spotted throughout with pink patches of dolomitic matrix, hard to brittle, occasionally friable.

TR SILTSTONE: light green, fissile, brittle to soft, micaceous in parts.

Poor porosity, minor scattered pale blue yellow fluorescence. No cut.

4870' - 4880' --- 100% SANDSTONE: clear/white, trace off white, A/A.
TR SILTSTONE: light green, grey, A/A.

Poor porosity, minor pale blue yellow fluorescence. No cut.

4880' - 4888' --- 100% SANDSTONE: clear/white, fine to coarse, sub-
TD rounded to rounded, moderate to good sphericity, poorly sorted, siliceous/calcareous cement, hard, occasionally friable, spotted zones of pink dolomitic matrix throughout.

TR SILTSTONE: light green, fissile, flaky, soft, micaceous.

Poor porosity, trace pale blue yellow fluorescence, No cut.

TD @ 4888 FEET: REACHED AT 0215 HRS 3/10/84.