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GREENSLOPES-1
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PHOENIX OIL & GAS N.L.

PEP 101
GREENSLOPES 1
Well Completion Report

Volume 2
APPENDICES

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APPENDIX 1

LITHOLOGICAL DESCRIPTIONS

GREENSLOPES NO. 1
SAMPLE DESRCIPTIONS

AT:

140 - 150m: CEMENT (70%)

MUDSTONE (30%). (Arenaceous/silty) light grey, blocky calcareous.

TRACE: Coal, fossils, fossil fragments, calcite fragments, occasional quartz liths + grains, yellow-brown, limonitic, subangular.

140 - 160m: MUDSTONE (100%)
Olive - light grey, blocky, very calcareous, fossiliferous, bioclastic, slightly micaceous, occasional calcite fragments.

TRACE: rare free quartz grains.

160 - 170m: MUDSTONE (100%)
Olive - light grey, blocky, very calcareous, very fossiliferous-fossil fragments (bioclastic), sub-fissile, slightly micaceous, occasional calcite fragments.

TRACE: free quartz grains.

170 - 180m: MUDSTONE (100%)
As above, with occasional carbonaceous fragments + specks.

180 - 190m: MUDSTONE (100%) As above.

190 - 200m: MUDSTONE (100%)
As above with increase in fossils, fossil fragments + calcite fragments.

TRACE: quartz grains, coal specks.

200 - 210m: MUDSTONE (100%) As above.

210 - 220m: MUDSTONE (100%) As above.

220 - 230m: MUDSTONE (100%) As above.

230 - 240m: MUDSTONE (100%) As above
Very Bioclastic.

240 - 250m: MUDSTONE (100%)
As above. Very calcareous, very bioclastic, slightly limonitic, arenaceous - silty in part.

250 - 260m: MUDSTONE (100%)
Light - medium grey, blocky - subfissile, amorphous, slightly silty, slightly carbonaceous, very calcitic, bioclastic, calcite fragments.

TRACE: free quartz grains - slightly limonitic.

260 - 270m: MUDSTONE (100%)
Light grey, blocky - slightly amorphous, very calcareous, bioclastic, carbonaceous specks, rare free quartz grains.

270 - 280m: MUDSTONE (100%)
Light-medium grey, blocky-subfissile, soft-friable, very calcareous, fossiliferous - bioclastic, slightly carbonaceous, slightly micaceous, rare - trace free quartz grains.

280 - 290m: MUDSTONE (100%)
Olive -light grey, medium grey, blocky, soft - subfissile, very calcarous, slightly micaceous, slight carbonaceous specks, occasional free quartz, abundant shell fragments, coral and spicules, micro-gastropods, slightly sandy, slighty limonitic.

290 - 300m: MUDSTONE (100%)
As above. With abundant calcite lithics + fragments.

300 - 310m: MUDSTONE (100%)
As above with trace glauconite, slightly micromicaceous, decreasing complete fossils and increasing fossil fragments + calcareous fragments.

Slight mineral fluorescence.

310 - 320m: MUDSTONE (100%)
As above with trace glauconite and decreasing fossils + fragments.

320 - 330m: MUDSTONE (100%) As above.

330 - 340m: LIMESTONE (70%)
Yellow-orange-brown, limonitic, granular - sucrosic, microcrystalline, carbonaceous specs, pyritic specks, argillaceous matrix.

MUDSTONE (30%) : Light grey, calcaveous as above.

TRACE: glauconite, pink - orange liths, carbonaceous specks, pyrite specks.

Good mineral fluorescence.

340 - 350m:

MUDSTONE (70%)
Light grey - olive grey, blocky, soft, slightly argillaceous, very calcareous, fossiliferous - bioclastic.

LIMESTONE (30%): Light grey - white, granular, microcrystalline, trace carbonaceous specks, slightly pyritic, slightly limonitic.

TRACE: Glauconite, carbonaceous fragments, pink grains + carbonaceous specks.

350 - 360m:

SANDSTONE (90%)
Orange-brown, fine-coarse grained, subrounded, unsorted, hard, some grains pitted, dirty limonitic matrix, slight calcareous-calcitic cement, fossiliferous, abundant calcite fragments, abundant ferruginous nodules (ironstone) fossil replacement + nodules.

SILTSTONE (20%) : Light grey, fine grained, slightly argillaceous, slightly micaceous, carbonaceous specks, calcareous trace lithic grains, grades to mudstone in part.

Visual porosity: TIGHT.

SHOWS: None - slight mineral fluorescence.

360 - 370m:

SANDSTONE (70%)
Yellow - orange - brown, some clear - white grains, dirty, medium - coarse, subangular-subrounded, poorly to unsorted, hard, cemented, slightly calcareous, abundant fossils (sponge + spicules) pyritic, limonitic.

SILTSTONE (20%): Light - dark grey, very fine to fine grained, argillaceous, grades to mudstone, occasionally hard, usually friable, carbonaceous, slightly calcareous, slightly glauconitic.

FERRUGINOUS (NODULES - (Ironstone?) (10%):
Abundant black, amorphous nodules, shiney, brittle, also dull, black-dark brown fragments + fossil replacement, some with pyritic lustre. Occasional resinous-glossy lustre-pyritization in part.

TRACE: red lithic grains + fragments.

Visual porosity : POOR.

SHOWS: None - slight mineral fluorescence.

370 – 380m:

SILTSTONE (90%)
Medium – dark grey, occasional dark brown, grades to mudstone in parts, very fine grained, very hard to hard, occasionally soft - friable, occasionally argillaceous, pyritic, carbonaceous, quartzose, very fossiliferous – bioclastic.

SANDSTONE (10%) : Yellow – clear, medium – very fine grained, subrounded-subangular, poorly sorted, some grains pitted, occasionally pyritic.

TRACE: Coloured lithic grains – pink – red, Dolomite.

Visual porosity: POOR.

SHOWS: None.

380 – 390m:

SILTSTONE (70%) As above grades to mudstone.

SANDSTONE (30%) As above.

TRACE: Coloured lithic grains.

Visual porosity: POOR.

SHOWS: None.

390 – 400m:

SANDSTONE (80%)
Clear, white, milky with pink, yellow orange, green, fine to medium with occasional coarse grains, subangular – subrounded, occasional grains with pyritic inclusions, moderate – poor sorting, hard, slight calcitic cement. Some grains pitted + secondary growths, occasionally limonitic, abundant coloured lithic grains – brown, pink, red, green. (granitic wash).

SILTSTONE 20% Medium - dark grey, occasionally dark brown-black, very fine grained, argillaceous, occasionally grades to mudstone, pyritic, slightly carbonaceous, very hard – friable. occasionally fossiliferous.

TRACE: occasional ferruginous fragments & nodules.

Visual porosity: FAIR – GOOD.

SHOWS: None.

400 - 410m: SANDSTONE (90%)
As above.

SILTSTONE (10%) As above

TRACE : mudstone, lithic fragments as above, ferruginous nodules.

Visible porosity: FAIR - GOOD.

SHOWS: None.

410 - 420m: SANDSTONE (100%)
Clear, white, pink, grey - brown, occasionally milky, very fine to fine grained, subrounded, moderately sorted, moderately hard - friable, occasional large clear - pink quartz grains with pyritic inclusions, occasionally pitted. Abundant coloured lithic fragments, slight calcareous cement

TRACE: ferruginous-pyritic nodules, occasional fossils, grey-green fine-grained lithic fragments.

Visual porosity: FAIR - GOOD.

SHOWS: None.

420 - 430m: SILTSTONE (80%)
Light medium - medium grey, occasionally dark grey, medium brown - green/grey, very fine - fine grained, occasionally sucrosic, soft - firm, occasionally blocky, very calcareous, very fossiliferous, pyritized, slightly carbonaceous.

SANDSTONE (20%) Clear, pink, brown, white, occasional milky grains, very fine - very coarse, subrounded, moderate - poorly sorted, moderately hard - friable, pyritic inclusions in large grains, grain shatter in some large grains. Abundant coloured lithic fragments.

COAL : very slight trace - blocky, dark brown, soft - friable, resinous lustre.

430 - 440m: Nil return.

440 - 450m: SANDSTONE (70%) As above.

SILTSTONE (30%) As above. Grades to mudstone in part.

TRACE: coal - black, soft - friable, resinous lustre, subvitrinous.

TRACE dark red lithic fragments - garnets, fossils fragments, occasional pyrite + limonite.

Visual porosity: FAIR.

SHOWS: None.

450 - 460m: MUDSTONE (80%)
Light - medium grey, occasionally dark grey, dark brown, grey - green, amorphous, blocky, soft-plastic, occasionally hard - brittle, slightly carbonaceous, pyritic, glauconitic, slightly calcareous, slight fossil fragments, trace calcite fragments.

SANDSTONE (20%) Clear-yellow/orange, occasionally milky, very fine - fine grained, occasionally coarse, angular-subrounded, large quartz grains with frosted + pitted surfaces with pyritic + carbonaceous inclusions, secondary cementation - regrowths, limonitic, pyritic, fossiliferous.TRACE: Glauconite, chert, pyritic nodules, volcanic detritus, coloured lithic fragments.

Visual Porosity: POOR.

SHOWS: None.

460 - 470m: MUDSTONE (90%)
As above with increased calcargillites, very blocky, grades to very fine grained argillaceous siltstone in part.

SANDSTONE (10%). As above. Fossiliferous

TRACE : Ironiferous fragments, coloured volcanic liths, pyritic nodules, chert pebbles.

Visual porosity: POOR.

SHOWS: None.

470 - 480m:

SILTSTONE (70%)
Light - medium grey, dark grey, olive green-grey, very fine - fine grained, sucrosic, soft - friable grades to mudstone in part, slightly carbonaceous, slightly glauconitic, slightly argillaceous, pyritic, occasional free quartz grains, slightly fossiliferous.

SANDSTONE (20%) Clear, yellow, orange - brown, occasionally milky, very fine - medium fine grained, rarely coarse grained, subangular - subrounded, moderately - well sorted, hard - brittle, Calcitic cement, pyritic, carbonaceous.

MUDSTONE (10%) Light grey - medium grey - green, very calcareous, argillaceous, carbonaceous, slightly glauconitic, soft - plastic, blocky - amorphous, micaceous.

TRACE: Coloured lithic fragments - volcanic detritus, chert pebbles, carbonaceous fragments, fossil fragments.

Visual Porosity: NIL

SHOWS: None.

480 - 490m:

SILTSTONE (70%) As above

SANDSTONE (20%) As above

MUDSTONE (10%) As above

TRACE: as above.

490 - 500m:

MUDSTONE (100%)
Light - medium grey, occasionally green, black, carbonaceous, blocky, soft - firm, plastic - dispersive, occasionally brittle, occasional free quartz grains, slightly calcareous, occasionally micromicaceous, chloritic - light green grains, carbonaceous fragments, occasional calcite fragments, slightly pyritic, limonitic slightly sandy. Grades to very fine grained - soft siltstone in part.

TRACE: Fossil fragments, free quartz grains - white, clear, yellow, fine grained, glauconite.

500 - 510m: MUDSTONE (100%) As above.

510 - 520m: MUDSTONE (100%) As above.

520 - 530m: SILTSTONE (80%)
Light grey - light green, dark grey occasionally black, fine grained, grades to mudstone, occasional free quartz grains in matrix, soft - friable, occasionally hard - brittle, quartzose, sucrosic, carbonaceous, very slightly calcareous, chloritic, pyritic.

MUDSTONE (20%) Light grey, white, light green - grey, light brown, blocky, soft - firm, plastic, dispersive, calcareous.

TRACE : coal-carbonaceous fragments, black - dark brown, pyritic, hard - brittle, micaceous/carbonaceous shale.

530 - 540m: SILTSTONE (80%) As above

MUDSTONE (20%) As above

TRACE As above.

540 - 550m: SILTSTONE (70%) As above

MUDSTONE (30%)

As above. Very carbonaceous with small soft black lignitic, specks, mudstone with carbonaceous partings, slightly fossiliferous, slightly pyritic.

TRACE: As above.

550 - 560m: MUDSTONE (60%)
Light grey - green to light grey, occasionally dark grey to black, blocky, soft - friable, some hard - dispersive, black carbonaceous specks and fragments, occasional - rare free quartz grains, micaceous, chloritic, silicic, slightly calcareous, trace pyritic.

SILTSTONE (20%) Light - dark grey-black, greenish, grey, occasionally light brown, very fine to fine grained, grades to mudstone, blocky, soft to friable, occasional carbonaceous partings, chloritic, pyritic, slightly calcareous.

550 - 560m cont.

SANDSTONE (20%) Light grey to white, occasional pink grains, fine to medium, moderately sorted, subrounded, some grains with secondary silicification and slight calcitic cement, limonitic, fossiliferous.

TRACE: Dark green, grey, black, brown lithic fragments, feldspar, fossil fragments - predominantly spicules + fragments, coal-lignite, pyritic.

Visual porosity: POOR

SHOWS: None.

560 - 570m:

SANDSTONE (60%)
Light grey, white, light brown, clear - milky, fine - medium, occasionally coarse grained, angular - subangular and subrounded, moderately sorted, occasional pitted and frosted large grains with carbonaceous inclusions, slightly argillaceous matrix, very slightly calcareous, pyritic.

SILTSTONE (20%) As above.

MUDSTONE (20%) As above.

TRACE: Fossil fragments, frequent dark volcanic lithic fragments.

Visual Porosity : POOR.

SHOWS: None.

570 - 580m:

SILTSTONE (90%)
Light grey - green grey, dark grey - black, very fine - fine, sucrosic in parts, soft - friable, occasionally brittle, siliceous, slightly micaceous, carbonaceous, blocky to subfissile, some carbonaceous partings, limonitic in part, slightly calcareous, very chloritic, occasional pyritic specks. Rare free quartz grains in matrix.

MUDSTONE (10%) As above.

COAL (Trace): Lignitic, black - dark brown, earthy, limonitic, friable - soft.

TRACE: Dark volcanic liths, quartz grains, fossil fragments.

Visible porosity: POOR.

SHOWS: None.

580 – 590m: SILTSTONE (90%) As above.

MUDSTONE (10%) As above with trace microlaminations.

SANDSTONE (Trace): clear, white, yellow grains, fine grained, subrounded – subangular, free quartz grains, calcareous.

TRACE: Fossil fragment, pyrite, volcanic debris.

590 – 600m: SILTSTONE (100%)
Light grey/green – light grey, occasionally light brown to black, very fine – fine grained, soft – friable, occasionally subfissile, occasionally brittle and silicified, slightly calcareous, very chloritic, slightly carbonaceous, carbon specks in matrix, occasional carbonaceous and pyritic partings, argillaceous grading to mudstone.

COAL (Trace): – lignitic fragments, soft–friable, dark brown, earthy, occasionally hard–subvitrinous, grades to carbonaceous shale.

TRACE: Dark lithic fragments, shell fragments, quartz grains, pink grains.

600 – 610m: SILTSTONE (100%) As above.

TRACE: Pyritic fragments, pink grains, mudstone, coal fragments, mica, rare red lithic grains, rare large white quartz grains.

610 – 620m: SILTSTONE (100%) As above.

620 – 630m: SILTSTONE (90%) As above grades to mudstone in part.

MUDSTONE (10%) Light grey – white, slightly calcareous, soft, blocky – amorphous, slightly carbonaceous, slightly pyritic, slightly sandy.

COAL (Trace) – black, hard friable, shaley / argillaceous sub–bituminous to lignitic.

TRACE: occasional large red lithic grains – garnet?, occasional pyrite and ironiferous, nodules.

630 - 640m: MUDSTONE (100%)
Light grey - grey green, blocky, brittle - friable, grades to soft, dispersive, argillaceous, also grades to siltstone, very carbonaceous, slightly pyritic. Very chloritic.

COAL (Trace) black, brown, fragmented, hard, friable, sub-bituminous - lignitic, some large fragments.

TRACE: fossils, large quartz grains and rock fragments.

640 - 650m: SILTSTONE - MUDSTONE (100%) As above.

TRACE: Large lithics - volcanic / coloured rock fragments, dark green, black, liths, + chlorite grains, chert fragments, garnet, pyrite, pink quartz grains.

650 - 660m: SILTSTONE- MUDSTONE (100%) As above. Silty matrix.

TRACE: Rock liths, pyrite, coal - very small fragments and specks, quartz grains - large lithic grains.

660 - 670m: SILTSTONE - MUDSTONE (100%) As above.

TRACE: As above.

670 - 680m: MUDSTONE (80%) As above.

SILTSTONE (20%) As above. Trace calcareous matrix.

TRACE: Fossils - occasional large yellow - brown liths, quartzose grains and fragments, Coaly - carbonaceous material, - rare pyrite.

680 - 690m: SILTSTONE (70%) As above.

MUDSTONE (10%) As above.

SANDSTONE (20%) Clear - white - milky, light grey - green/grey, yellow - brown, very fine - fine, subrounded, well sorted, slightly calcareous - argillaceous, grades to siltstone, carbonaceous material coated on some grains, slightly micaceous, chloritic matrix

TRACE: Coloured rock fragments, fossil fragments.

Visual porosity: NIL.

SHOWS: None.

690 - 700m:

SANDSTONE (80%)
Light grey - white, some yellow, brown, grains, very fine - medium fine, occasionally coarse, well sorted, subangular - subrounded, hard - brittle, slightly argillaceous, very calcareous - calcitic cement, some nodular pyrite + quartz grain aggregates, rare carbonaceous specks, grades to siltstone in part.

SILTSTONE (10%) Light grey - green, dark grey - black - brown, very fine - fine grained, sucrosic - argillaceous, grades to mudstone, blocky, carbonaceous, micaceous - very chloritic, pyritic, occasionally fossiliferous.

MUDSTONE (10%) Light grey - grey/green occasionally white, amorphous to blocky, dispersive, very chloritic, very carbonaceous, slightly calcareous.

TRACE: Fossil fragments, very large chert and free quartz grains, (-orange - yellow subangular, milky, frosted, conchoidal fracture), pyrite, rare rock fragments.

Visual Porosity: POOR

SHOWS: None.

700 - 710m:

SILTSTONE (60%) As above.

MUDSTONE (40%) As above, becoming very calcareous, very carbonaceous.

TRACE: As above.

710 - 720m:

MUDSTONE (80%)
Light grey - green/grey, soft-dispersive, blocky - amorphous, siliceous, micromicaceous, slightly calcareous, carbonaceous, slightly fossiliferous, very chloritic, carbonaceous specks.

SILTSTONE (20%) Light grey - green/grey, occasionally black, very fine grained, quartzose, carbonaceous specks, slightly pyritic, occasional microlaminations, slightly argillaceous - grades to mudstone, carbonaceous partings in mudstone and siltstone often with pyrite.

COAL (Trace) - Carbonaceous material, black, blocky, subfissile dull lustre, brittle fracture, often earthy and lignitic - pyritic.

TRACE: Occasional fine grained pink quartz, fossil fragments.

720 – 730m: MUDSTONE (80%) As above.

SILTSTONE (20%) As above grades to sandstone in parts.

TRACE: carbonaceous fragments, coloured lithics, fossil fragments.

730m – 740m: MUDSTONE (80%) As above.

SILTSTONE (20%) As above. Slightly calcareous.

TRACE: Carbonaceous fragments, calcite fragments, coloured lithics, fossil fragments, occasional free quartz grains.

740 – 750m: MUDSTONE (90%) As above. Slight microlaminations with carbonaceous partings, very dispersive.

SILTSTONE (10%) As above.

SANDSTONE (Trace): light grey – green, very fine grained, , calcitic cement.

TRACE: coal fragments, coloured lithics, fossils.

750 – 760m: MUDSTONE (90%) As above

SILTSTONE (10%) As above

TRACE: sandstone as above, coal fragments, increased pyrite, coloured lithics.

760 – 770m: SILTSTONE (70%) Light grey – green/grey, occasionally dark grey, very fine – fine grained, blocky, brittle to soft, occasionally friable, sucrosic, quartzose, micaceous, very chloritic, very carbonaceous with specks and partings in parts, calcareous, argillaceous in part grades to mudstone.

MUDSTONE (20%) Light grey – green occasionally buff, carbonaceous, calcareous, very chloritic, blocky, soft.

SANDSTONE (10%) light grey, white, yellow, some coloured grains, subrounded – subangular, loose, unconsolidated grains, muddy clay matrix, carbonaceous.

TRACE: Large red lithic fragments – chert, pyrite, fossils, carbonaceous fragments.

770 - 780m: SILTSTONE (60%) As above grades to Mudstone.

MUDSTONE (40%) As above.

TRACE: Coloured lithic fragments and grains. fossils, carbonaceous fragments, pyrite and limonite.

780 - 790m: SILTSTONE (90%) Light grey, very fine - fine grained, blocky, soft - friable, silicic, slightly calcareous, slightly chloritic, very carbonaceous - specks and fragments throughout, slightly micaceous, trace pyrite specks in matrix grades to calcareous mudstone.

MUDSTONE (10%) Light grey - white, blocky - amorphous, dispersive, very calcareous, slightly chloritic, very carbonaceous, slightly pyritic,

SANDSTONE (Trace) Light grey - white, very fine grained, well sorted, calcareous cement, argillaceous matrix, some unconsolidated grains, angular, + pitted, some larger pink grains with carbonaceous inclusions, very pitted and subrounded, occasionally with pyritic coatings on grain surfaces, i.e. from pyritization of cemented aggregates.

TRACE: small coal fragments, subvitrinous - sub-bituminous, carbonaceous material.

790 - 800m: SILTSTONE (80%) As above.

MUDSTONE (20%) As above.

SANDSTONE (Trace): As above.

TRACE: Carbonaceous material, pyrite, lithic fragments.

Visible porosity: NIL.

SHOWS: Very, very slight slow faint yellow fluorescence on cut and crushing from carbonaceous partings - bituminous material in sample.

800 - 810m: SILTSTONE (90%)
Light grey - olive grey, very fine - fine grained, silicic, slightly calcareous, slightly chloritic, blocky, subfissile, occasionally friable - brittle , sucrosic, very carbonaceous with specks and carbonaceous partings grades to mudstone in parts.

800 – 810m cont.

MUDSTONE (10%) Light – medium grey – grey/green, blocky, resinous to soft – dispersive, very carbonaceous, slightly chloritic, slightly calcareous, silicic, trace pyritic.

SANDSTONE (Trace) – unconsolidated grains in argillaceous matrix with carbonaceous material and pyrite, very fine – fine grained, pink, white, grey.

TRACE: carbonaceous material and sub–bituminous – subvitrinous coal fragments – very small, fossil fragments.

810 – 820m:

SILTSTONE (90%) As above.

MUDSTONE (10%) As above.

SANDSTONE (Trace):
As above.

TRACE: accessories as above.

820 – 830m:

SILTSTONE (80%) As above.

MUDSTONE (20%) As above.

TRACE: Sandstone as above, accessories as above.

830 – 840m:

SANDSTONE (70%)
Light – light grey, green, white, clear, occasionally milky, occasionally pink, brown, very fine – fine, moderately – well sorted, grades to siltstone, very slight calcareous matrix, cemented, hard – brittle to friable, occasionally unconsolidated, slightly pyritic, carbonaceous fragments, some large pink free quartz grains, with carbonaceous inclusions, very pitted and fractured.

SILTSTONE (20%) As above.

MUDSTONE (10%) As above.

TRACE: Carbonaceous material, black, brown, earthy to hard, brittle, sub–bituminous, subfissile – friable, occasional – lithic grains.

Visual porosity: POOR

SHOWS: None. Very Slight Mineral Fluorescence.

840 - 850m:

SANDSTONE (90%)
Light grey, white, clear, frosted, rare pink, very fine - fine grained, sub-angular, occasionally subrounded, moderately - well sorted, trace carbonaceous specks, pyritic, slightly chloritic, argillaceous matrix, slight calcareous cement, grades to muddy siltstone.

SILTSTONE (10%) Light grey - green, very fine grained as above.

MUDSTONE (Trace): As Above

TRACE: calcitic fragments, pyrite, very small pink, red coloured grains, good trace very small fragments hard black subviticnous coal pyrite and dark volcanic lithic grains.

Visual Porosity: POOR

SHOWS: None. Very faint mineral fluorescence.

850 - 860m:

SILTSTONE (60%) As above grades to sandstone.

SANDSTONE (30%) Light grey - light grey - green, white, clear, milky, occasionally pale brown-green, very fine - coarse, occasionally very coarse, angular to subrounded, poorly sorted, some large grains fractured and shattered, some with secondary cement, frosting, pitting, carbonaceous inclusions and partings on fracture surfaces, occasional lithic fragments, chloritic in silty matrix, friable - brittle, red and green grains, silty - argillaceous matrix, slightly calcareous, frequent large free quartz grains.

MUDSTONE (10%) As above.

COAL (Trace): small fragments, black, hard - friable, shiny lustre, sub-bituminous in part, earthy-lignitic in part, shaley pyritic, occasionally straited.

Visual Porosity: POOR

SHOWS: None: Very small mineral fluorescence 1 - 2 grains.

860 - 870m: SILTSTONE (80%) As above

SANDSTONE (20%) As above plus occasional aggregates of quartz grains in pyritic matrix, some very large quartz grains.

MUDSTONE (Trace): As Above.

TRACE: Fossils, limonite, chert, dark lithic rock fragments, abundant - pyritic and carbonaceous fragments, green grains.

Visible porosity: POOR - NIL.

SHOWS: None.

870 - 880m: SILTSTONE (90%) As above

MUDSTONE As above.

TRACE: Accessories as above.

880 - 895m: SILTSTONE (100%) As above

TRACE MUDSTONE As above.

TRACE SANDSTONE As above.

TRACE : Accessories as above.

890 - 895m: SILTSTONE (90%) As above.

MUDSTONE (10%) As above.

TRACE SANDSTONE As above.

TRACE: Accessories as above.

900 - 903m: CEMENT (90%)

SILTSTONE (10%) Light grey - blocky, soft silicic.

TRACE: Sandstone as above.

903 - 906m: CEMENT (90%)

SILTSTONE (10%) As above.

TRACE: Sandstone, limonite.

906 - 909m: CEMENT (70%)

SILTSTONE (10%) As above

SANDSTONE (20%) Clear white, very fine - fine grained, angular - subangular, well sorted, occasional limonitic grains, occasional green glauconitic grains, possible cavings.

909 - 912m: CEMENT (20%)

SILTSTONE (50%): Light grey - olive grey, occasionally dark grey - fine brittle, occasionally soft, carbonaceous, occasionally argillaceous, chloritic in parts, pyritic, occasionally fossiliferous.

SANDSTONE (30%): Light grey - white, clear - milky, occasional yellow grains, very fine - fine, well sorted, angular - subangular.

TRACE: Lithic grains - green and yellow, pyrite, fossils.

912 - 915m: SILTSTONE (40%)
Light - olive grey, occasionally dark grey, very fine - fine grained, silicic, slightly calcareous, chloritic, blocky, Subfissile, firm - friable, very pyritic grades to very carbonaceous siltstone - mudstone grading to carbonaceous argillite.

MUDSTONE (30%) Light grey - dark grey, argillaceous, amorphous to blocky, chloritic, slightly calcareous grades to carbonaceous argillite.

SANDSTONE (20%) Light grey - white, clear, milky - opaque, occasionally yellow, very fine - fine grained, argillaceous, subangular, pitted and frosted with carbonaceous and pyritic inclusions.

COAL (10%) Black, firm - friable, brittle fracture, blocky, pyritic, occasional resinous lustre, argillaceous grades to carbonaceous mudstone in part.

TRACE: Coloured lithic grains, pyrite.

Visible Porosity: POOR

SHOWS: None.

915 - 918m: SILTSTONE (60%) As above.

SANDSTONE (30%) As above.

MUDSTONE (10%) As above.

TRACE: Cement, coal, pyrite, coloured lithics, calcite.

Visible Porosity: POOR

SHOWS: None.

918 - 921m: SILTSTONE (70%) Light medium grey, olive grey/dark grey, very fine - fine grained, blocky, subfissile in parts, soft - friable, occasionally firm grades to mudstone in parts, silicic, slightly calcareous, chloritic, very carbonaceous in part, grades to carbonaceous, argillite. Some interlaminated and interbedded with coals and carbonaceous claystone.

MUDSTONE (30%) Light - medium grey - grey/green, blocky and resinous, soft-dispersive, very carbonaceous in part, grades to argillaceous and carbonaceous claystone.

TRACE: Sandstone, coal as above, lithic grains, limonite, cement.

Visible porosity: POOR.

SHOWS: None.

921 - 924m: CEMENT (40%)

SILTSTONE (30%) As above

MUDSTONE (20%) As above

COAL (10%) As above.

TRACE: As above.

924 - 927m: CEMENT (60%)

SILTSTONE (20%) as above.

MUDSTONE (10%) as above.

COAL (10%) as above.

TRACE: As above

927 - 930m: CEMENT (10%)

MUDSTONE (60%) Light - medium grey, blocky - dispersive, very carbonaceous in part, with sub-bituminous partings and specks, resinous, grades to argillaceous and carbonaceous claystone.

SILTSTONE (30%) Light - medium grey, occasionally olive grey, very fine - fine grained, silicic, slightly calcareous, slightly pyritic, slightly chloritic, very carbonaceous in places, with carbonaceous specks and partings.

TRACE: Coal - hard, black, blocky, resinous - friable, quartz and coloured lithics, pyrite.

Visible porosity: NIL.

SHOWS: None.

930 - 933m: SILTSTONE (40%)
Light - medium grey, olive grey, green, very fine - fine grained, firm - brittle, occasionally soft, very carbonaceous and chloritic, argillaceous in parts.

MUDSTONE (40%) Light - medium grey, blocky-amorphous, carbonaceous, chloritic, slightly calcareous, slightly pyritic.

COAL (20%) - Black, blocky, sub-resinous, hard - firm, grades to carbonaceous mudstone - claystone, pyritic.

TRACE: Sandstone - clear, white, light grey, milky, very fine - fine, subangular - subrounded, moderately sorted, pyritic and carbonaceous coatings on fractures, pitting and frosting.

Visible Porosity: FAIR (in sandstone).

SHOWS: None: slight mineral fluorescence.

933 - 936m: SILTSTONE (40%) As above.

MUDSTONE (30%) As above.

SANDSTONE (10%) As above, angular - subrounded moderately - poorly sorted, very slightly calcareous, no matrix, mainly unconsolidated grains.

COAL (20%) As above.

TRACE: Cement.

933 - 936m cont.

Visible porosity: POOR - FAIR.

SHOWS: None.

936 - 939m:

SILTSTONE (40%) As above.

SANDSTONE (30%) As above.

MUDSTONE (20%) As above grades to siltstone to coal in parts.

COAL (10%) As above.

TRACE: cement, pyrite, limonite and coloured lithic fragments.

Visible Porosity: FAIR - GOOD

SHOWS: None.

939 - 942m:

SILTSTONE (60%) As above.

MUDSTONE (30%) As above.

COAL (10%) As above - woody-fibrous, lignitic.

SANDSTONE (Trace): As above.

TRACE: Red and green lithic fragments, mica, feldspar - mainly green grains, pyrite, common green lithics, occasional red lithics.

Visible porosity: POOR.

SHOWS: None.

942 - 945m:

SILTSTONE (60%) As above

MUDSTONE (20%) As above

COAL (10%) As above - woody-fibrous, lignitic.

SANDSTONE (10%) As above.

TRACE: green lithics, slight calcite, slight - trace mica, pyrite and red lithic fragments.

Visible porosity: POOR.

SHOWS: None.

945 - 948m:

SILTSTONE (50%) As above

MUDSTONE (20%) As above

COAL (10%) As above

SANDSTONE (20%) As above - lithic, quartzose.

TRACE: green and red lithics, occasional orange grains.

Visible porosity: POOR.

SHOWS: None.

948 - 957m:

SILTSTONE (40%) : As above.

MUDSTONE (30%): As Above.

SANDSTONE (20%): As above.

COAL (10%) Black, blocky, occasionally fibrous, commonly hard, resinous - brittle, friable, firm, sub-bituminous grades to carbonaceous shale,

TRACE: mica, pyrite, feldspar, quartz grains commonly pitted and fractured with carbonaceous inclusions and coatings on fractured surfaces.

Visible porosity: POOR.

SHOWS: None.

951 - 954m:

SANDSTONE (40%)
Clear, grey - white, milky, very fine - fine, subangular - subrounded, moderately sorted, silty matrix slightly calcareous, pyritic, pitted, frosted,

SILTSTONE (30%) As above.

MUDSTONE (20%) As above.

COAL (10%) As above.

TRACE: green lithic fragments and cement.

Visible Porosity: FAIR.

SHOWS: None.

954 - 957m:

SANDSTONE (40%)
Light grey - white, translucent - clear, milky, very fine - fine, subangular - subrounded, moderately sorted, slightly calcareous, silty/argillaceous matrix, slightly pyritic, slight carbonaceous coatings on fractures, limonitic .

SILTSTONE (30%) Light - medium grey, green, olive grey, very fine - fine, blocky, firm, subfissile, sucrosic, silicic, slightly calcareous chloritic, carbonaceous, grades to argillaceous/carbonaceous, mudstone and shale.

MUDSTONE (20%) Light-brown, occasionally green, blocky, soft - dispersive, very pyritic chloritic, micromicaceous, silicic, carbonaceous in part, grades to carbonaceous shale.

COAL (10%) Black, hard, occasionally argillaceous, blocky, subfissile - fissile, occasionally fibrous, very pyritic.

TRACE: lithic fragments, limonite, pyrite, green lithics.

Visible porosity: FAIR.

SHOWS: None.

957 - 960m:

SILTSTONE (60%)
Light - medium grey, grey/green, very fine - fine grained, blocky, soft - firm, occasionally subfissile, silicic, slightly calcareous, chloritic, very carboncaceous, grades to argillaceous/carbonaceous mudstone in parts.

MUDSTONE (20%) Light grey, amorphous-dispersive, chloritic slightly micaceous, very slightly calcareous, pyritic, grades to carbonaceous claystone/shale.

COAL (20%) Black, hard, subfissile, resinous, argillaceous, pyritic.

SANDSTONE (Trace): red and green grains, very fine - fine, subangular - subrounded, moderately - well sorted, brittle - unconsolidated, slightly cemented, slightly silty-calcareous matrix, limonitic, - lithic sandstone.

Visible porosity: POOR.

SHOWS: None.

960 - 967m: SILTSTONE (60%) As above.

MUDSTONE (20%) As above.

COAL (20%) As above

SANDSTONE (Trace): As above.

Visible porosity: POOR.

SHOWS: None.

963 - 966m: SILTSTONE (70%) As above.

MUDSTONE (20%) As above.

COAL (10%) As above.

SANDSTONE (Trace): As above.

Visible porosity: POOR.

SHOWS: None.

966 - 969m: MUDSTONE (70%)
Light green, grey, black, amorphous-dispersive, chloritic, carbonaceous, pyritic, slightly calcareous, silicic, grades to argillaceous claystone.

SILTSTONE (20%) Light - medium grey, occasionally dark grey, blocky, silicic, slightly calcareous, chloritic, carbonaceous grades to carbonaceous mudstone.

COAL (10%) Black, blocky, hard, resinous, argillaceous, pyritic.

SANDSTONE (Trace): quartzose, limonitic, lithic.

Visible porosity: POOR.

SHOWS: None.

969 - 972m: MUDSTONE (70%) As above

SILTSTONE (20%) As above

COAL (10%) As above.

SANDSTONE (Trace): Lithic, quartzose, limonitic carbonaceous unconsolidated.

Visible porosity: POOR.

SHOWS: None.

972 - 978m: MUDSTONE (60%) As above.

SILTSTONE (30%) As above.

COAL (10%) As above.

SANDSTONE (Trace): As above.

Visible Porosity: POOR.

SHOWS: None.

978 - 981m: SILTSTONE (40%) As above with increased chlorite.

MUDSTONE (30%) As above with increased chlorite.

SANDSTONE (20%) white - pale grey, translucent, clear, occasionally yellow, very fine - fine grained, subangular - subrounded, moderately sorted, lithic, quartzose, brittle, slightly limonitic.

TRACE: lithic grains, feldspar, rock fragments.

Visible porosity: POOR.

SHOWS: None.

981 - 984m: SANDSTONE (40%)
Light grey - white, translucent - clear, milky, occasionally yellow, very fine - fine, subangular - subrounded, moderate - well sorted, slight calcareous cement, unconsolidated, silty matrix, limonitic, grains with shatter - fracture, surfaces with carbonaceous coatings, lithic and quartzose.

SILTSTONE (30%) :
Light grey - grey/green, occasionally black, very fine grained, sucrosic, blocky, firm - friable, occasionally hard, occasionally subfissile, silicic, argillaceous, carbonaceous and chloritic, grades to carbonaceous mudstone, trace pyritic.

MUDSTONE (20%) Light grey - green/grey, soft-blocky, dispersive, silicic, slightly calcareous, carbonaceous, grades to carbonaceous claystone in parts.

COAL (10%) Hard, black, blocky, resinous, occasionally friable, argillaceous, pyritic.

981 - 984m cont.

TRACE: dark rock fragments - dark grey - dark green, limonitic.

Visible Porosity: GOOD.

SHOWS: None.

984 - 987m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above.

MUDSTONE (10%) As above.

TRACE COAL As above.

Visible porosity: POOR.

SHOWS: None.

987 - 990m:

SILTSTONE (60%) As above.

SANDSTONE (20%) As above unconsolidated.

MUDSTONE (20%) As above.

TRACE : coal, calcareous cement, limonite.

Visible porosity: POOR.

SHOWS: None.

Change to 6m samples

990 - 996m:

MUDSTONE (40%) As above becoming chloritic.

MUDSTONE (30%) As above.

SANDSTONE (30%) As above unconsolidated.

TRACE: coal, dark rock fragments, occasional red liths, limonite, feldspar, occasional large angular, fractured quartz grains.

996 - 1002m:

MUDSTONE (80%) As above.

SILTSTONE (10%) As above.

COAL (10%) As above.

TRACE SANDSTONE As above.

TRACES: as above.

1002 - 1008m: MUDSTONE (70%) As above.

SILTSTONE (20%) As above.

SANDSTONE (10%) As above.

TRACE: coal as above.

1008 - 1014m: MUDSTONE (80%) As above.

SILTSTONE (20%) As above.

SANDSTONE (Trace): As above.

TRACE: coal, rock fragments as above.

1014 - 1020m: MUDSTONE (90%)
Light - medium grey, grades to dark grey - black, soft - firm, occasionally dispersive, blocky, calcareous, very carbonaceous, occasionally argillaceous, grades to black carbonaceous shale in part.

COAL (10%) Black, blocky, resinous, hard, brittle to subfissile, grades to argillaceous shale.

SANDSTONE (Trace): clear-translucent, pale grey, very fine grained, unconsolidated, limonitic, lithic, quartzose.

TRACE: accessories as above.

1020 - 1026m: MUDSTONE (100%)
Light-medium grey, occasionally green, blocky - amorphous, soft-dispersive, carbonaceous, slightly chloritic, slightly limnonitic, silicic, argillaceous grades to carbonaceous argillite,

TRACE: sandstone - very fine grained as above, coal very small fragments, rock fragments.

1026 - 1032m: MUDSTONE (80%) As above.

SILTSTONE (20%) As above.

TRACE: coal, sandstone, rock fragments.

1032 - 1038m: MUDSTONE (90%) As above.

1032 - 1038m cont.

SILTSTONE (10%) Light - dark grey, very fine grained, argillaceous, silicic, slightly calcareous, slightly chloritic, carbonaceous grades to carbonaceous argillaceous - mudstone occasionally.

TRACE: sandstone as above, limonite, very calcareous mudstone.

1038 - 1044m:

SILTSTONE (70%)
Light - medium grey, olive grey, occasionally dark grey - black, blocky, fine grained - sucrosic, firm - hard, occasionally friable + splitting, argillaceous, calcareous, chloritic grades to argillaceous carbonaceous mudstone - claystone.

MUDSTONE (30%) Light-medium grey, soft-dispersive, slightly chloritic, blocky, occasionally plastic, slightly calcareous, carbonaceous specks and partings, grades to argillaceous coal/shale in places.

COAL (Trace): dark, hard, brittle, dull argillaceous.

TRACE: pyrite, coloured lithic fragments, sandstone - clear, translucent, white, very fine, - fine, angular - subrounded, unconsolidated grains in silty matrix.

1044 - 1050m:

SILTSTONE (80%) As above .

MUDSTONE (20%) As above.

COAL (Trace): black, blocky, fissile - subfissile, argillaceous, grades to carbonaceous shale, dull - resinous, pyritic, micromicaeous.

TRACE: mica, lithic grains, sandstone, fine - medium grained, clear, translucent, white and orange grains, some angular - subangular, generally subangular - subrounded, some grains with carbonaceous coatings on fractures, limonitic, lithic quartzose, generally unconsolidated.

1050 - 1056m:

SILTSTONE (80%) As above.

MUDSTONE (20%) As above.

COAL (Trace): As above.

TRACE: Sandstone, pyrite, mica, coloured lithic grains as above.

1056 - 1062m:

MUDSTONE (70%) As above.

SILTSTONE (30%) As above.

COAL (Trace): As above.

TRACE: chert, sandstone - very fine - fine with occasional coarse grains, very angular, clear - transulcent, white lithic quartzose - silty matrix, calcareous cement.

1062 - 1068m:

MUDSTONE (70%) As above.

SILTSTONE (30%) As above.

TRACE: coal as above, sandstone as above, lithics, mica, limonite.

1068 - 1074m:

SILTSTONE (80%)
Light - medium grey, olive grey, green, very fine - fine grained, blocky, soft - firm, occasionally brittle, flakey in parts, occasionally dispersive, silicic, slightly calcareous, very carbonaceous, with carbonaceous specks and partings, slightly micromicaceous, chloritic, pyritic, very carbonaceous, occasionally argillaceous, grades to carbonaceous shale.

SANDSTONE (10%) Light grey, white, clear - translucent-milky, subangular - subrounded, some angular fragments, fine - medium, occasionally coarse, moderately well sorted, moderately hard - brittle, white kaolinitic matrix, slightly calcareous, carbonaceous fragments, lithic, quartzose .

Visible Porosity: POOR

SHOWS: None.

1074 - 1080m:

SILTSTONE (100%) As above. very calcareous.

TRACE: coal as above, sandstone as above with occasional pink grains, lithic and quartzose generally unconsolidated, lithic fragments.

Visible Porosity: POOR.

SHOWS: None.

1080 - 1086m: SILTSTONE (100%) As above.

TRACE: coal, mudstone, quartz grains, lithic fragments as above.

Visible porosity: POOR.

SHOWS: None.

1086 - 1092m: SILTSTONE (100%) As above very carbonaceous, slightly calcareous.

TRACE: mudstone, sandstone, lithic fragments.

Visible porosity: POOR.

SHOWS: None.

1092 - 1098m: SILTSTONE (80%) As above, very calcareous, very carbonaceous.

MUDSTONE (20%) Light - medium grey, blocky, amorphous, soft - friable, dispersive, silicic, micromicaceous, very carbonaceous, very calcareous cement - lime mud cement.

SANDSTONE (Trace): white, light grey, translucent - occasional yellow grains.

TRACE: coal - grades to argillaceous shale and mudstone, pyrite, chert.

Visible porosity: POOR.

SHOWS: None.

1098 - 1104m: SILTSTONE (80%)
Light - medium grey, dark grey, olive grey and occasionally green, fine - very fine, blocky, argillaceous, very calcareous, very carbonaceous, silicic, soft - firm, occasionally subfissile along carbonaceous partings, pyritic, slightly chloritic, grades to carbonaceous mudstone, very bituminous - carbonaceous.

MUDSTONE (20%) Light - medium grey, blocky, - amorphous, very dispersive, micromicaceous, silicic, very micritic, very carbonaceous, occasionally chloritic, occasionally pyritic grades to argillaceous coal - carbonaceous siltstone.

1098 - 1104 m cont.

SANDSTONE (Trace): - angular, coarse grains, unconsolidated, limonitic - pyritic, carbonaceous coatings and inclusions.

TRACE: pyrite, dark rock fragments, coal - hard, black, blocky, resinous-dull, argillaceous, pyritic, occasionally subfissile, grades to agillaceous claystone.

Visible porosity: POOR.

SHOWS: 1-2 fragments very very minor, yellow fluorescence on cut/crush-sub-bituminous coating on grains and 1 or 2 fragments.

1104 - 1110m:

SILTSTONE (90%)
As above, very calcitic-micritic cemented.

MUDSTONE (10%) As above, interlaminated with carbonaceous bands .

TRACE: coal as above, quartz grains and dark rock fragments, pyrite as above.

Visible porosity: POOR.

SHOWS: None.

1110 - 1116m:

SILTSTONE (80%) As above. very micritic, chloritic.

MUDSTONE (20%) As above.

TRACE: coal, quartz grains, and dark rock fragments as above.

Visible porosity: POOR.

SHOWS: None.

1116 - 1122m:

SILTSTONE (70%) As above, very calcareous.

MUDSTONE (30%) As above, very calcareous.

SANDSTONE (10%) Clear, white, light grey, fine - very fine, subangular - subrounded, moderately sorted, calcareous, cemented, calc-argillaceous-matrix.

TRACE: coal, quartz grains, and dark rock fragments, calcite fragments and flakes.

Visible porosity: POOR - NONE.

SHOWS: None.

1122 - 1128m:

SILTSTONE (70%) As above.

SANDSTONE (20%) Clear, white, translucent, milky, occasional yellow grains, very fine - fine, rare coarse grains, subangular - subrounded, occasionally angular, moderately - well sorted, limonitic, carbonaceous, calcitic cement, slight argillaceous matrix, trace carbonaceous material and grains. Tight lithic and quartzose, sandstone.

MUDSTONE (10%) As above, increased chlorite.

TRACE: coal - hard, black, blocky, subfissile, firm - brittle, argillaceous, pyritic grades to carbonaceous claystone. Common calcite fragments and flakes.

Visible Porosity: NIL - TIGHT.

SHOWS: None - Minor fluorescence in calcite flakes - mineral fluorescence.

1128 - 1134m:

SILTSTONE (60%)
Light - medium grey, occasionally dark grey + olive grey, very fine - fine grained, Soft - firm, occasionally brittle, sucrosic, - resinous, blocky - subfissile along carbonaceous planes, pyritic, silicic, very carbonaceous, slightly chloritic, micromicaceous, very micritic - calcareous cement and matrix grades to calcareous mudstone.

MUDSTONE (20%) Light - medium grey, blocky - amorphous, occasionally dispersive, very calcareous matrix, slightly chloritic, very carbonaceous, occasionally pyritic, grades to carbonaceous argillite.

SANDSTONE (20%) Light grey - white, clear - translucent - milky, very fine - fine, occasionally medium grained, subangular - subrounded, moderate - well sorted, firm - brittle, occasional coarse grains - angular + fractured, calcitic cement, slight kaolinitic matrix, carbonaceous flecks.

TRACE: coal - hard, black, blocky, dull - resinous, argillaceous, grades to carbonaceous mudstone, pyritic, sub-bituminous in parts. Trace calcite flakes + fragments, occasional dolomite, dark rock fragments, rare mica.

Visible Porosity: TIGHT.

SHOWS: None.

1134 - 1140m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above.

MUDSTONE (10%) As above.

TRACE: coal - As above, calcite flakes as above, accessories as above.

Visible porosity: NONE.

SHOWS: None - slight mineral fluorescence in calcite.

1140 - 1146m:

SILTSTONE (60%) As Above. Decreasing calcite + increasing carbonaceous.

SANDSTONE (20%) as above, decreased calcite cement.

MUDSTONE (20%) As above.

TRACES: accessories as above.

Visible porosity: NIL.

SHOWS: None.

1146 - 1152m:

SILTSTONE (70%) As above.

SANDSTONE (30%) As above, silty matrix.

MUDSTONE (Trace): as above.

TRACES: accessories as above.

Visible Porosity: TIGHT.

SHOWS: None.

1152 - 1158m:

SILTSTONE (90%)
Light - medium grey, olive grey, occasionally dark grey - black, grading to argillaceous siltstone - mudstone, very fine - fine grained, sucrosic - resinous, blocky, firm - hard, occasionally brittle, occasionally subfissile, slightly chloritic, slightly calcitic - micritic, increased silicic cement, very pyritic, slightly argillaceous in parts very carbonaceous, (carbonaceous specks, flecks, fragments + partings), grades to carbonaceous mudstone.

1152 - 1158m cont.

SANDSTONE (10%) Light grey - white, translucent - milky, occasionally orange, very fine - fine, occasional coarse grains, occasional large free quartz fragments, subangular - subrounded, occasionally angular, fair - moderately sorted, fractured, pitted, occasionally some large grains with carbonaceous inclusions/coatings, silicic cement in part, calcitic cement in part, silty-argillaceous matrix, hard - brittle, very limonitic/pyritic, lithic.

TRACE: pyrite - flakes + fragments, coal - argillaceous, resinous, black, blocky - flakey, pyritic grades to + interlaminated with carbonaceous + silty mudstone.

Visible Porosity: POOR.

SHOWS: Very very minor slight pale yellow fluorescence on crush + cut of bituminous - carbonaceous material in siltstone + mudstone. Slight mineral fluorescence - calcite fragments.

1158 - 1161m:

SILTSTONE (90%)
As above, very calcareous.

SANDSTONE (10%) As above, very carbonaceous within matrix.

TRACES: mudstone, coal as above.

Visible porosity: NIL.

SHOWS: None, slight mineral fluorescence from calcite.

1161 - 1164m:

SILTSTONE (60%)
As above, less calcareous.

MUDSTONE (20%) As above.

COAL (20%) Hard, black, brown, blocky - flakey, Subfissile, brittle - soft, occasionally argillaceous, grades to carbonaceous claystone, pyritic, resinous, occasionally sub-bituminous.

TRACES: Sandstone - occasional coloured grains, fine - medium grained, hard, lithic, quartzose silty matrix, calcitic cement, limonitic, pyritic.

Visible porosity: NIL.

SHOWS: None.

1164 - 1170m:

SILTSTONE (70%)
As above, very calcareous.

MUDSTONE (20%) As above.

SANDSTONE (10%) Light grey, white, translucent - milky, very fine - fine, subangular - subrounded, moderately sorted, hard - brittle, white clay-kaolinitic matrix, calcitic cement, also clear fractured fragments in silty matrix, lithic, pyritic, carbonaceous.

TRACES: coal - As above, occasionally earthy -lignitic, pyrite, orange + green lithic fragments, feldspar, calcite, micromica.

Visible Porosity: POOR.

SHOWS: NIL - Mineral fluorescence in calcite.

1170 - 1176m:

SILTSTONE (70%)
Light - dark grey, occasionally black-grading to carbonaceous mudstone, medium fine - fine grained, resinous - sucrosic, blocky, firm - hard, occasionally soft, subfissile in parts, occasionally argillaceous, silicic, chloritic, very carbonaceous, very calcareous, occasional free quartz grains, pyritic.

SANDSTONE (30%) Light grey - white, translucent - milky, very fine - fine, occasionally coarse, moderately well sorted, subangular - subrounded, calcitic cement, with carbonaceous fragments, silty - kaolinitic matrix, occasional coloured lithics + pyritic.

MUDSTONE (Traces): Light grey - black, argillaceous-carbonaceous claystone, chloritic, silicic, blocky - dispersive, soft, slightly pyritic.

TRACES: calcite fragments + flakes, coal - subvitrineous - sub-bituminous - lignitic, black, hard, occasionally earthy as above.

Visible Porosity: POOR.

SHOWS: None - very, very minor mineral fluorescence.

1176 - 1182m:

SILTSTONE (40%)
As above, very calcareous, chloritic.

MUDSTONE (30%) As above, grades to hard, black, carbonaceous argillite.

COAL (20%) Large fragments, black - dark grey, blocky - subfissile, hard - firm, argillaceous in parts, resinous, subvitrinous - sub-bituminous, slightly pyritic, grades to carbonaceous shale. SANDSTONE (Trace): white - clear, translucent, very fine - fine, quartzose, moderately sorted, hard-brittle, lithic (pink + brown), calcitic cement, silty matrix - slightly carbonaceous occasionally unconsolidated.

TRACE: pyrite, lithic fragments.

Visible Porosity: TIGHT.

SHOWS: 1 or 2 grains mineral fluorescence.

1182 - 1188m:

SILTSTONE (60%)
Light - medium grey, green, chloritic, very fine - fine grained, resinous, blocky, soft - firm subfissile in part, occasionally hard, silicic, very calcareous, chloritic, carbonaceous, pyritic, grades to argillaceous carbonaceous mudstone.

SANDSTONE (30%) Light grey/green, white, occasionally yellow, translucent - milky, occasionally clear, fine - medium, occasionally coarse, subangular - subrounded, occasionally angular, moderately - poorly sorted, calcitic cement, white clay-kaolinitic matrix in part, carbonaceous fragments/pyritic fragments + lithic grains also in matrix - (lithic, quartzose sandstone), hard - brittle, some loose - unconsolidated grains, carbonaceous coatings - sub-bituminous on grains.

MUDSTONE (10%) Light - medium grey, blocky, very carbonaceous, resinous, dispersive, very calcareous.

TRACE: dark green, red, pink + brown lithic fragments, feldspar, mica, calcite flakes.

Visible Porosity: POOR - FAIR.

SHOWS: None: Very very faint, pale yellow fluorescence on cut + crush with sub-bituminous fragments in siltstone, pale yellow mineral fluorescence in calcite flakes.

1188 - 1194m:

SILTSTONE (40%) As above.

SANDSTONE (30%) As above.

COAL (20%) Hard, black, argillaceous, shaley, resinous, subfissile in part, hard - firm, silicic in part, grades to black carbonaceous shale.

MUDSTONE (10%) As above.

TRACES: calcite.

Visible porosity: NIL.

SHOWS: None - very faint mineral fluorescence.

1194 - 1200m:

SILTSTONE (60%) As above, very calcareous, chloritic, carbonaceous.

SANDSTONE (30%) As above, very calcareous, carbonaceous, cemented.

MUDSTONE (10%) As above. Very calcareous chloritic, carbonaceous.

TRACE: coaly - shale, rose quartz - loose grains, large lithic fragments - red + brown, feldspar, dark rock fragments.

Visible Porosity: POOR - FAIR.

SHOWS: None.

1200 - 1203m:

No sample taken.

1203 - 1206m:

SILTSTONE (70%)
Light - medium grey, occasionally dark grey - light brown, very fine - fine, resinous, occasionally sucrosic, blocky, soft - firm, occasionally hard, silicic with occasional free quartz grains, decreased calcitic cement, slightly chloritic, very carbonaceous, slightly pyritic, subfissile in parts, grades to argillaceous, carbonaceous mudstone.

MUDSTONE (30%) Light - medium grey, dispersive, occasionally blocky, resinous, very carbonaceous, grades to carbonaceous claystone - shale .

1203 - 1206m cont.

SANDSTONE (Trace): fine - medium, occasional coarse grains, clear - white, occasionally yellow, translucent - milky, subangular - subrounded, carbonaceous inclusions, pyritic, kaolinitic matrix, hard.

TRACES: coal, calcite.

Visible Porosity: NIL.

SHOWS: None.

1206 - 1209m:

SILTSTONE (80%)
As above, very calcareous.

SANDSTONE (10%) As above.

MUDSTONE (10%) As above.

TRACE: coal, carbonaceous mudstone, pyrite, chlorite.

Visible porosity: NIL.

SHOWS: None.

1209 - 1212m:

SILTSTONE (80%)
As above, very calcareous, very carbonaceous.

SANDSTONE (10%) As above, occasional very large clear, angular fragments.

MUDSTONE (10%) As above.

TRACES: accessories as above.

1212 - 1215m:

SANDSTONE (60%)
Clear - translucent, occasionally orange - yellow, white - light grey, milky, fine - medium, occasionally coarse grained, occasional rose quartz grains, angular - subangular, occasionally subrounded, poorly sorted, some frosted, + pitted, occasional grain shatter, white kaolin matrix, calcitic cement, lithic - sublithic, carbonaceous + pyritic.

SILTSTONE (40%) As above.

TRACES: mudstone - very carbonaceous + calcareous, calcite, lithic grains.

Visible Porosity: FAIR - GOOD

SHOWS: None.

1215 - 1218m: No sample taken.

1215 - 1221m: SILTSTONE (70%)
Medium - dark grey, black, blocky, carbonaceous, less calcareous, resinous - sucrosic, very slightly pyritic.

MUDSTONE (30%) As above.

SANDSTONE (Trace): As above.

TRACES COAL accessories as above.

Visible porosity: POOR.

SHOWS: None.

1221 - 1224m: SILTSTONE (100%)
Dark brown - medium grey, very fine - fine grained, blocky, resinous, carbonaceous, very slightly calcareous - silicic, chloritic .

MUDSTONE (Trace): Light-medium grey, blocky, dispersive, soft - plastic, chloritic, carbonaceous, slightly calcareous, grades to claystone.

TRACES: sandstone - loose unconsolidated grains, coal - carbonaceous mudstone.

Visible porosity: NIL.

SHOWS: None.

1224 - 1227m: SILTSTONE (90%)
Light - dark grey, dark - light brown, as above.

MUDSTONE (10%) Light - medium grey, brown, slightly calcareous, very carbonaceous grades to carbonaceous claystone.

TRACES: coal as above, calcite, lithic grains, pyrite.

Visible porosity: NIL.

SHOWS: None.

1227 – 1230m:

SILTSTONE (70%)
As above light–medium grey, grey/green, very calcareous, very carbonaceous.

MUDSTONE (30%) As above.

TRACE: sandstone, carbonaceous claystone – mudstone, pyrite, mica, coloured lithics.

Visible porosity: NIL.

SHOWS: None.

1230 – 1233m:

SILTSTONE (80%) As above.

MUDSTONE (20%) As above.

TRACE: accessories as above, white clay matrix, chert, coloured lithics.

Visible porosity: NIL.

SHOWS: None.

1233 – 1236m:

SILTSTONE (100%) As above, increasing chlorite, less calcareous.

TRACE: mudstone – carbonaceous claystone as above, sandstone, coal – shiney – resinous, hard – brittle, subfissile, black, small fragments, occasionally earthy.

Visible porosity: NIL.

SHOWS: None.

1236 – 1242m:

SILTSTONE (70%) As above.

MUDSTONE (10%) As above.

SANDSTONE (10%) As above.

COAL (10%) As above.

TRACES: Accessories as above.

Visible porosity: NIL.

SHOWS: None.

1242 - 1245m:

SILTSTONE (70%) As above.

MUDSTONE (20%) As above.

SANDSTONE (10%) As above.

TRACE COAL As above, accessories as above.

Visible porosity: NIL.

SHOWS: None.

1245 - 1248m:

SANDSTONE (70%)
Light grey - white, translucent - milky, very fine - fine, occasionally medium grained, subangular - subrounded, moderately sorted, calcitic cement, kaolinitic - silty matrix, lithic - sublithic, carbonaceous specks, pyritic, occasional grains have sub- bituminous coatings on fragments.

SILTSTONE (30%) Light - medium grey, very fine - fine, resinous, blocky, chloritic, carbonaceous, calcitic, occasional calcite fragments within matrix, carbonaceous flecks + partings, pyritic,

TRACE: mudstone - dispersive - calcareous, calcite fragments.

Visible Porosity: NIL

SHOWS: None.

1248 - 1251m:

SANDSTONE (60%)
Light grey - white as above, very calcitic cemented, silty matrix, chloritic + carbonaceous, very calcareous, calcite flakes abundant in matrix.

SILTSTONE (30%) As above. slightly calcareous - contains occasional free quartz grains in matrix + occasional calcite flakes.

MUDSTONE (10%) Light grey-white, dark grey - black, blocky - amorphous, occasionally dispersive, soft, carbonaceous, interlaminated with black coaly bands, argillaceous grades to carbonaceous claystone.

TRACE: coal - carbonaceous mudstone, pyrite, lithic fragments, calcite flakes.

Visible Porosity: NIL.

SHOWS: None.

1251 - 1254m:

SANDSTONE (60%)
As above, very very calcitic cemented - no matrix

SILTSTONE (30%) As above.

MUDSTONE (10%) grades to carbonaceous mudstone-coal as above.

TRACE: pyritic nodules.

Visible Porosity: NIL - TIGHT.

SHOWS: None.

1254 - 1257m:

SANDSTONE (70%)
As above. very calcitic cemented, dirty sand.

SILTSTONE (20%) As above, very carbonaceous, slightly calcareous.

MUDSTONE (10%) As above, very carbonaceous, very calcareous, dispersive.

TRACE: coal, - occasionally subvitrinous, pyrite nodules.

Visible Porosity: NONE

SHOWS: Very very faint pale yellow, patchy, spotty fluorescence through sample. Very very faint slow pale yellow ring on cut + crush. Fluorescence assocated with sub-bituminous carbonaceous material in sandstone.

1257 - 1260m:

SILTSTONE (60%)
Light - medium grey, dark grey, occasionally green, dark brown, blocky, subfissile, soft - firm, occasionally hard, occasionally plastic, very fine - fine grained, occasional free quartz grains, very carbonaceous, pyritic, occasionally chloritic, grades to carbonaceous argillite in parts, silicic in parts, slightly calcareous.

SANDSTONE (30%) White - light grey, occasional free orange grains, clear - translucent, milky, very fine - fine, occasionally medium, subangular - subrounded, moderately sorted, slightly calcitic cement, clay - silty matrix, subfissile, carbonaceous fragments.

1257 – 1260m cont.

MUDSTONE (10%) Light – medium grey, occasionally green, occasionally white, silicic – slightly calcareous, slightly chloritic, very carbonaceous, slightly pyritic, blocky – amorphous dispersive, soft – plastic.

COAL (Trace): – hard, black, blocky, splitting fragmented, subfissile, occasionally subvitrinous, commonly sub–bituminous, argillaceous, grades to carbonaceous mudstone.

TRACE: pyrite.

Visible Porosity: NONE – TIGHT.

SHOWS: Very very faint – trace pale yellow patchy, spotty fluorescence, very very faint trace pale yellow cut, patchy spotty fluorescence.

1260 – 1263m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above, occasionally coarse angular coloured grains, calcitic cement. TIGHT.

MUDSTONE (10%) As above grades to carbonaceous black claystone – shale.

COAL (Trace): – hard, black, blocky, subvitrinous platey, subfissile, argillaceous, resinous, shiney, occasionally dull.

TRACE: spherical pyritic nodules, occasional round quartz grains, orange – yellow, feldspar, coloured rock fragments, red, orange brown, green, fossil – one or two very small fossil shells .

Visible Porosity: TIGHT.

SHOWS: slight mineral fluorescence associated with calcite fragments. One or two grains very pale yellow faint patchy, spotty, fluorescence on sand grains, no cut. .

1263 – 1266m:

SILTSTONE (70%) As above.

SANDSTONE (20%) As above, occasionally very large shattered grains, white – translucent, occasionally orange, decreased calcitic cement.

MUDSTONE (10%) As above, grading to muddy coal.

TRACES: coloured lithic fragments, coal, pyrite nodules, mica, calcitic flakes.

1263 - 1266m cont.

Visible Porosity: NIL.

SHOWS: none - very, very, slight mineral fluorescence.

1266 - 1269m:

SILTSTONE (60%)
As above, chloritic in parts, very carbonaceous.

SANDSTONE (40%) As above, very very calcitic cement.

TRACE: mudstone as above, grades to argillaceous coal, calcitic fragments and pyrite as above.

Visible porosity: NIL.

SHOWS: NIL - Trace very faint mineral fluorescence.

1269 - 1272m:

SILTSTONE (70%)
Light - medium grey, occasionally dark grey - black fine grained, resinous - sucrosic, blocky, subfissile, soft, slightly chloritic, very carbonaceous grades to carbonaceous siltstone in parts, silicic in parts.

SANDSTONE (20%) Light grey - white, clear - translucent, milky, very fine - fine, occasionally medium - coarse, subangular - subrounded, occasionally angular, poor - moderately sorted, very calcitic cement, slight white clay matrix, carbonaceous fragments, lithic fragments, carbonaceous coatings in fractures and inclusions.

MUDSTONE (10%) Light - medium grey, occasionally white, very dispersive, occasionally soft - plastic, silicic to very calcareous, occasionally chloritic, very carbonaceous, slightly pyritic grades to carbonaceous argillite.

TRACES: coal - small flecks, platey-splitting, hard - firm, subvitrinous - subbituminous, dull - resinous, argillaceous grades to carbonaceous, mudstone, coloured lithic fragments.

Visible porosity: NIL.

SHOWS: None.

1272 - 1275m:

SILTSTONE (40%) As above.

MUDSTONE (40%) As above, very dispersive, slightly calcareous.

SANDSTONE (20%) As above, loose-unconsolidated, lithic (red and green grains), carbonaceous flecks, calcitic cement.

TRACE: coal fragments - small black specks-small fragments, argillaceous carbonaceous mudstone, pyrite.

Visible porosity: NIL.

SHOWS: None.

1275 - 1278m:

SILTSTONE (60%)
As above, increasingly chloritic - light grey to green.

SANDSTONE (30%) As above.

MUDSTONE (10%) As above, occasionally pyritic.

TRACE: coal as above, lithic grains, pyrite, fossil shell fragments.

Visible porosity: NIL.

SHOWS: None.

1278 1281m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above, very calcitic cement and matrix.

MUDSTONE (10%) As above.

TRACE: Accessories as above.

Visible porosity: NIL.

SHOWS: None.

1281 - 1284m:

SANDSTONE (60%)
Light grey - white, orange, brown, yellow, milky - translucent clear, fine - medium grains occasionally coarse, occasionally very fine, angular - subrounded, poorly sorted, calcitic cement, carbonaceous, lithic red and green grains, pyritic, limonitic, carbonaceous.

1281 – 1284m cont.

SILTSTONE (40%) Light – medium grey, green, occasionally dark grey, very fine–fine grained, resinous – dull, blocky, subfissile, silicic, chloritic, carbonaceous, occasionally pyritic, argillaceous grades to carbonaceous mudstone.

MUDSTONE (Trace): light – medium grey, white, green, carbonaceous, argillaceous, silicic, dispersive, blocky, soft – plastic, grades to argillaceous coal.

TRACE: coal – sub–bituminous – subvitrinous, black, hard, blocky, resinous – dull fragments, lithic fragments and grains, (clear red – green), dark rock fragments, limonite and pyrite, fossil fragments.

Visible Porosity: POOR – FAIR.

SHOWS: NONE.

1284 – 1287m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above, occasional free quartz grains, clear, yellow, orange, brown.

MUDSTONE (10%) As above, grades to argillaceous, carbonaceous claystone.

TRACE: coal as above, accessories as above.

Visible porosity: POOR.

SHOWS: None.

1287 – 1290m:

SILTSTONE (70%) As above.

SANDSTONE (20%) As above.

MUDSTONE (10%) As above.

TRACE: pyrite, lithic fragments, increased coal as above – large, platey, fragments. .

Visible porosity: POOR.

SHOWS: None.

1290 - 1293m:

SANDSTONE (40%)
As above, increased calcitic cement.

SILTSTONE (40%) As above, increasingly chloritic.

MUDSTONE (10%) As above, very dispersive.

COAL (10%) As above.

TRACES As above.

Visible Porosity: POOR - NIL.

SHOWS: NONE

1293 - 1296m:

SANDSTONE (40%)
As above very calcitic cement.

SILTSTONE (40%) As above.

MUDSTONE (10%) As above.

COAL (10%): as above.

TRACE: calcite, pyrite, coloured lithic fragments, fossil fragments.

Visible Porosity: NONE - TIGHT.

SHOWS: NONE.

1296 - 1299m:

SILTSTONE (60%)
As above, increased chlorite.

SANDSTONE (40%) As above, increased lithic coloured rock fragments, increased calcitic cement.

TRACE: coal, mudstone, accessories as above.

Visible Porosity: NIL

SHOWS: NONE.

1299 - 1302m:

SILTSTONE (70%)
Light - medium grey, green, black, grey, occasionally brown, resinous - dull, very fine - fine, blocky, silicic, chloritic, carbonaceous, occasionally argillaceous and limonitic, grades to carbonaceous mudstone and argillite.
Trace slickensides on some fragments.

1299 - 1302m cont.

SANDSTONE (30%) Clear, white, occasionally yellow - orange brown, translucent to milky, very fine - fine, also fine - medium, and some coarse grains, angular - subangular, occasionally subrounded, poorly sorted, grain shatter and frosting, carbonaceous and limonitic/pyritic, calcitic cement, silty matrix, lithic, moderately hard - brittle break.

MUDSTONE (Trace) - Light grey-black, blocky amorphous, dispersive - soft, carbonaceous, interlaminated, argillaceous, slightly chloritic, silicic, slightly calcareous.

TRACES: microfossils, calcite fragments, lithic grains and pyrite, dark green rock fragments and red grains, coal.

Visible Porosity: POOR

SHOWS: NONE.

1302 - 1305m:

SILTSTONE (80%)
As above, microlaminated with coals and mudstone.

SANDSTONE (20%) As above, increased lithic fragments within calcareous and clay matrix.

TRACE: mudstone as above, coal, coloured rock fragments - dark green, red, orange, mica, calcite fragments, pyritic nodules.

Visible porosity: POOR.

SHOWS: None.

1305 - 1308m:

SILTSTONE (80%) As above.

SANDSTONE (20%) As above.

TRACE: mudstone as above, coal fragments.

Visible Porosity: NONE.

SHOWS: NONE - Trace mineral fluorescence.

1308 - 1311m:

SILTSTONE (60%) As above.

SANDSTONE (30%) As above. Very fine - fine grained.

MUDSTONE (10%) As above. Grades to carbonaceous argillite.

TRACE: as above.

1308 - 1311m cont.

Visible Porosity: NONE.

SHOWS: NONE - Trace mineral fluorescence.

1311 - 1314m:

SANDSTONE (60%)
As above.

SILTSTONE (40%) As above.

TRACE: mudstone, coal, lithic fragments.

Visible Porosity: NONE.

SHOWS: NONE - Trace mineral fluorescence - speckled grains.

1314 - 1317m:

SILTSTONE (70%) As above.

SANDSTONE (20%) As above. Very calcareous.

MUDSTONE (10%) As above, very dispersive.

TRACE: fossils, calcite flakes, coaly fragments.

Visible Porosity: NONE.

SHOWS: NONE - Trace mineral fluorescence.

1317 - 1320m:

SANDSTONE (60%)
White, milky, occasionally clear - translucent, orange, yellow, subangular - subrounded, occasionally angular, very fine - fine, occasionally fine - medium, moderately sorted, occasional large free quartz grains -angular, decreased calcitic cement, silty clay matrix with carbonaceous and lithic grains - green, red, grey, slightly pyritic hard - brittle.

SILTSTONE (40%) Light - medium grey, grey/green, dark grey-black, blocky, silicic - argillaceous, very carbonaceous, chloritic, fine grained, resinous - sucrosic, grades to carbonaceous - argillaceous mudstone, slightly micromicaceous.

MUDSTONE (Trace) light grey, dispersive, blocky - amorphous.

TRACES: carbonaceous fragments, pyrite, coal, rock fragments red and green grains, mica.

Visible Porosity: NONE.

SHOWS: NONE - Trace faint yellow speckly mw fluorescence - calcite.

1320 – 1323m: MUDSTONE (60%)
Light – dark grey, dark brown, amorphous, very dispersive, chloritic, slightly silicic, very carbonaceous grades to carbonaceous argillite.

SILTSTONE (30%) As above.

SANDSTONE (10%) As above. – decreased calcitic cement, occasionally loose unconsolidated.

TRACE: coaly fragments, abundant green grains throughout matrix.

Visible Porosity: POOR.

SHOWS: NONE – slightly faint speckled yellow mineral fluorescence – calcite.

1323 – 1326m: Contaminated sample contains cellar contents sandstone, mudstone, laterite and debris.

1326 – 1329m: As above.

1329 – 1332m: SILTSTONE (90%) As above.

MUDSTONE (10%) As above.

TRACE: sandstone – calcitic cement as above, coaly fragments as above – still contaminated.

SHOWS: NONE – Spotty, patchy, yellow mineral fluorescence throughout samples no cut .

1332 – 1335m: SILTSTONE (60%) As above, becoming more argillaceous and carbonaceous, brown – black, grading to argillaceous carbonaceous mudstone.

SANDSTONE (30%) As above, with very large free yellow quartz.

MUDSTONE (10%) As above, becoming more carbonaceous.

TRACE: coal – flakey, large fragments, blocky, fractured, hard, – firm, black, subfissile, argillaceous in parts.

Visible Porosity: NIL.

SHOWS: NONE – Trace faint – bright yellow mineral fluorescence throughout sample, spotty, speckled, no cut.

1335 - 1338m:

SANDSTONE (70%)
Light grey-black, white, milky, clear - translucent, occasionally yellow, very fine - medium, occasionally coarse, angular - subrounded, moderately sorted, very calcitic cemented, silty - argillaceous matrix, lithic fragments, carbonaceous and chloritic, slightly pyritic, grain shatter, occasionally frosted, pitted and occluded with carbonaeous + pyritic inclusions.

SILTSTONE (30%) Light - medium grey, grading to grey/brown to black, very fine - fine grained, blocky, resinous, soft - firm, occasionally hard chloritic, pyritic, very carbonaceous, microlaminated with argillaceous siltstone and carbonaceous mudstone .

MUDSTONE (Trace) Light grey, soft - dispersive, carbonaceous, silicic argillaceous, slightly chloritic, slightly micromicaceous.

TRACES: coal - carbonaceous claystone, hard - soft, black - brown, subvitrinous - sub-bituminous, subfissile, blocky, argillaceous grades to mudstone, calcite flakes, fossils, coloured (red) lithic fragments and green grains.

Visible Porosity: NONE.

SHOWS: NONE - Trace faint - bright, yellow speckled mineral fluorescence throughout sample-calcite. No cut.

1338 - 1341m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above.

MUDSTONE (Trace) As above, coloured lithic fragments, coal - carbonaceous claystone/mudstone as above.

Visible Porosity: NONE.

SHOWS: NONE - Trace faint yellow mineral fluorescence in one - two grains-calcite no cut.

1341 - 1344m:

SILTSTONE (60%) As above.

COAL (30%) black - dark grey, dark brown, Hard - firm, blocky - platey, subfissile, subvitrinous, subbituminous, occasionally earthy, occasionally silty-arenaceous, grades to carbonaceous shale, microlaminated with mudstone, occasionally argillaceous, resinous - dull lustre, occasionally splitting, occasionally pyritic.

1341 - 1344m cont.

SANDSTONE (10%) As above.

MUDSTONE (Trace) As above.

TRACE: pyritic nodules, decreased coloured lithics, calcite flakes.

Visible Porosity: NONE.

SHOWS: NONE - Trace faint yellow mineral fluorescence - one - two grains-calcite. No cut.

1344 - 1347m:

SANDSTONE (70%)
White - light grey, occasionally yellow, clear - translucent, milky, very fine - fine, occasional medium grains, subangular - subrounded, moderate - well sorted, white kaolin matrix, decreasing calcitic cement, intergranular carbonaceous and pyritic matrix.

SILTSTONE (30%) As above.

TRACE: coal fragments as above, mudstone, rare calcite, grey rock fragments .

Visible Porosity: POOR.

SHOWS: NONE - slight mineral fluorescence.

1347 - 1350m:

SILTSTONE (60%)
Light - medium grey, occasionally light brown + dark grey, very fine - fine, resinous - sucrosic, grades to argillaceous, arenaceous, carbonaceous mudstone, microlaminated, with argillaceous mudstone, - carbonaceous mudstone + coal, blocky, soft - firm, occasionally brittle, very carbonaceous, pyritic - carbonaceous specks, very slightly chloritic.

SANDSTONE (30%) Clear-white, translucent, milky, occasional yellow grains, very fine - fine, occasionally medium, subangular - subrounded, well sorted, white kaolin matrix, slightly calcitic cement, slightly lithic.

MUDSTONE (10%) Light - white, occasionally light brown, soft-plastic, dispersive, very carbonceous, arenaceous, argillaceous in parts.

TRACE: coaly fragments - argillaceous carbonaceous mudstone, feldspar, large coloured rock fragments.

Visible Porosity: NIL.

SHOWS: NONE - faint yellow mineral speckled fluorescence.

1350 – 1353m:

SILTSTONE (60%)
As above. Very blocky, occasionally brittle.

SANDSTONE (40%) As above increased calcitic cement, very hard.

TRACE: mudstone – dispersive as above, coaly fragments as above, pyrite, rock fragments.

Visible Porosity: TIGHT.

SHOWS: NONE – increased faint yellow mineral fluorescence – no cut.

1353 – 1356m:

SILTSTONE (60%) As above. Very blocky.

SANDSTONE (40%) As above. Decreased calcitic cement, increased kaolinitic matrix.

TRACE: coal, mudstone, accessories as above.

Visible Porosity: NIL.

SHOWS: NONE – 1 – 2 grains faint yellow mineral fluorescence–calcite.

1356 – 1359m:

SILTSTONE (70%) As above increasingly chloritic.

SANDSTONE (30%) As above.

TRACE: mudstone, coal, lithic fragments as above.

Visible Porosity: NIL.

SHOWS: NONE – increased faint yellow specks mineral fluorescence in calcite.

1359 – 1362m:

SILTSTONE (70%) As above.

SANDSTONE (30%) White, milky, clear, light grey, occasionally yellow, very fine – fine, subangular – subrounded, moderately sorted, kaolinitic – silicic, matrix, slightly calcitic cement, slightly less lithic, carbonaceous.

TRACE: mudstone, white kaolin, decreasing coaly fragments.

Visible Porosity: NIL.

SHOWS: NONE – 1 to 2 grains, yellow specks mineral fluorescence – calcite

1362 - 1356m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above.

TRACE: mudstone, coaly fragments, lithic fragments.

Visible Porosity: NIL.

SHOWS: NONE - decreasing faint specks yellow mineral fluorescence.

1365 - 1368m:

SILTSTONE (70%) As above.

SANDSTONE (20%) As above.

MUDSTONE (10%) As above.

TRACES: accessories as above.

Visible porosity: NIL.

SHOWS: NONE - one to two mineral fluorescence.

1368 - 1371m:

SILTSTONE (80%)
Light - medium grey, olive grey, occasionally brown, grading to dark grey - black, very fine - fine, resinous, blocky, subfissile, soft - plastic, occasionally firm - brittle, microlaminated with carbonaceous mudstone, very carbonaceous, slightly chloritic.

SANDSTONE (20%) White - clear, translucent, occasionally yellow, very fine - fine, occasionally medium grains, moderately well sorted, pyritic, carbonaceous, kaolinitic, silicic cement, slightly calcareous, grain fracture, carbonaceous specks, limonitic, carbonaceous coating on some grains

MUDSTONE (Trace) - light grey dispersive, grades to carbonaceous mudstone, black - brown, blocky, sub-bituminous - earthy, grading to coal.

TRACES: Lithic fragments, rare calcite fragments.

Visible Porosity: NIL.

SHOWS: NONE.

1371 - 1374m:

SILTSTONE (80%)
As above increased brown argillaceous-siltstone fragments.

SANDSTONE (10%) As above, calcitic cemented.

MUDSTONE (10%) As above.

TRACE: Carbonaceous - coaly fragments and lithic grains, calcite flakes.

Visible Porosity: NIL.

SHOWS: NONE - 1 to 2 grains mineral fluorescence.

1374 - 1377m:

SILTSTONE (100%) As above.

TRACE: Sandstone, mudstone, coal, calcite, accessories as above.

Visible Porosity: NIL.

SHOWS: NONE - 1 to 2 grains mineral fluorescence.

1377 - 1380m:

SILTSTONE (90%) As above.

SANDSTONE (10%) As above slight calcitic cement, kaolinitic matrix .

TRACE: mudstone, coal, less calcareous, calcitic flakes.

Visible Porosity: NIL.

SHOWS: None - 1 to 2 grains light yellow mineral fluorescence.

1380 - 1383m:

SILTSTONE (90%) As above.

SANDSTONE (10%) As above.

TRACE: mudstone, coal, calcite, pyrite as above.

Visible Porosity: NIL.

SHOWS: rare mineral fluorescence .

1383 - 1386m:

SILTSTONE (70%) As above.

SANDSTONE (30%) As above increased calcite cement, white kaolin matrix, very calcareous.

TRACE: pyrite, mudstone - grades to very carbonaceous claystone, coal - subvitrinous - earthy, splitting - fibrous occasionally blocky.

1383 - 1386m cont.

Visible porosity: NIL.

SHOWS: None.

1386 - 1389m:

SILTSTONE (70%)
Light - medium grey, olive green, occasionally brown, grading to dark grey - black, very fine - fine, resinous, blocky, subfissile, soft - plastic, occasionally firm grades to carbonaceous mudstone, slightly chloritic, microlaminated with carbonaceous mudstone.

SANDSTONE (20%) White, clear, translucent, occasionally yellow, milky, very fine - fine, occasionally medium, moderately sorted, carbonaceous, kaolinitic, silicic cement, slightly calcareous, intergranular carbonaceous and chloritic-kaolinitic matrix.

MUDSTONE (10%) Light grey - medium grey, soft, plastic, dispersive, slightly chloritic, very carbonaceous grades to carbonaceous claystone.

TRACE: coal, calcite fragments, coloured lithics.

Visible Porosity: NIL.

SHOWS: NONE.

1389 - 1392m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above very calcitic cement.

TRACE: coal, mudstone, calcitic flakes.

Visible Porosity: NIL.

SHOWS: NONE.

1392 - 1395m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above, decrease in calcitic cement.

TRACE: mudstone, carbonaceous fragments, pyrite, coloured lithics.

Visible Porosity: NIL.

SHOWS: NONE.

1395 - 1398m:

SANDSTONE (60%)
As above, increased calcitic cement.

SILTSTONE (40%) As above, slightly chloritic.

TRACE: mudstone, carbonaceous fragments, pyrite, calcite flakes, no mineral fluorescence.

Visible Porosity: NIL.

SHOWS: NONE.

1398 - 1401m:

SANDSTONE (60%)
As above. Occasionally very coarse free grains, clear white, shatter fracture, lithic, calcitic cement.

SILTSTONE (40%) As above.

TRACE: mudstone, coal, coloured lithic fragments, slightly less calcite.

Visible Porosity: NIL.

SHOWS: NONE.

1401 - 1404m:

SANDSTONE (60%) As above.

SILTSTONE (40%) As above.

TRACE: mudstone, coal, calcite as above .

Visible Porosity: NIL.

SHOWS: NONE

1404 - 1407m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above.

TRACE: as above .

Visible Porosity: NIL.

SHOWS: NONE.

1407 - 1410m:

SILTSTONE (70%)
Light - medium grey, olive grey, occasionally dark grey - black - brown, very fine - fine, resinous - dull, blocky, soft - firm, occasionally subfissile, very carbonaceous, microlaminated with carbonaceous mudstone and shale, arenaceous occasionally calcareous and chloritic.

1407 – 1410m cont.

SANDSTONE (30%) Light grey, white, clear – translucent, milky, occasional yellow grains, very fine – fine, occasionally medium, moderately sorted, very calcitic cemented, with intergranular carbonaceous pyrite and chlorite grains, slight kaolinitic matrix – dirty brown argillaceous matrix.

TRACE: mudstone, coal, coloured lithic grains, pyrite, mica.

Visible Porosity: NIL.

SHOWS: NONE.

1410 – 1413m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above, less calcareous .

TRACE: mudstone, coal, pyrite, lithic fragments.

Visible Porosity: NIL.

SHOWS: NONE

1413 – 1416m:

SILTSTONE (60%) As above.

SANDSTONE (40%) As above. Very calcitic cemented.

TRACE: mudstone, coal, pyrite, lithic fragments.

Visible Porosity: NIL.

SHOWS: NONE.

1416 – 1419m:

SANDSTONE (70%) (very dirty sand)
Light grey, blue-grey, white, orange, yellow, trace rose quartz fragments and grains, clear, translucent, milky, very fine – coarse, angular – subrounded, very poorly sorted, occasionally some pyritic aggregates, dirty brown, silicic intergranulated with pyrite and rock fragments, generally white kaolin matrix, with very calciticcement, intergranular dark rock fragments, lithic – sublithic, pyrite and carbonaceous specks, some large fractured grains – free quartz, clear – white, with carbonaceous and pyritic inclusions and coatings, some limonitic.

SILTSTONE (30%) Light grey – green/grey, black, brown, and dark grey, very fine – fine, resinous, soft – plastic, carbonaceous, pyritic and chloritic, grades to carbonaceous mudstone.

1416 – 1419m cont.

TRACE: mudstone, coal as above, chlorite, coloured rock fragments.

Visible Porosity: NIL.

SHOWS: NONE – rare mineral fluorescence – calcite.

1419 – 1422m:

SANDSTONE (90%)
White – light grey, light yellow, occasional rose quartz, very fine – very coarse, angular – subrounded, very poorly sorted, grain fracture and shatter, very calcitic cemented, slight kaolinic matrix – silty, coarse grains – loose, pitted, frosted, fractured, pyritic and carbonaceous inclusions, slightly chloritic, slightly pyritic–limonitic, sublithic sandstone.

SILTSTONE (10%) Light – dark grey, soft – firm, silicic, chloritic, carbonaceous, argillaceous in parts, grades to carbonaceous mudstone.

TRACE: mudstone, coal, – small, black, blocky, hard, subvitrinous fragments, rock lithics, calcite grains.

Visible Porosity: NIL – FAIR.

SHOWS: NONE – Trace – rare mineral fluorescence – calcite.

1422 – 1425m:

SANDSTONE (100%) (clean sand)
As above, less calcitic cement, occasional rose quartz grains.

TRACE: siltstone – dark grey, carbonaceous – carbonaceous mudstone, coal – small black, brittle, subvitrinous fragments, dark green lithic fragments.

Visible Porosity: POOR – FAIR.

SHOWS: NONE.

1425 – 1428m:

SANDSTONE (100%)
As above, increased calcitic cement, increased coloured lithics including rose quartz.

TRACE: siltstone as above, coal, dark rock fragments, calcite flakes, pyrite.

Visible Porosity: POOR.

SHOWS: None.

1428 - 1431m:

SANDSTONE (100%)
As above increased silty matrix.

TRACE: Accessories as above

Visible Porosity: POOR.

SHOWS: none.

1431 - 1434m:

SANDSTONE (100%)
White, yellow, red, green, pink, clear - translucent, occasionally milky, fine-medium, occasionally coarse - very coarse, subrounded - subangular, occasionally angular, moderately well sorted, white kaolin matrix, slight calcitic cement, slight silicic cement, occasional carbonaceous + pyritic inclusions, sublithic, with red, green, yellow, dark grey rock fragments and grains, slightly chloritic, some loose to tight, hard, brittle, very clean sand, grain fracture and frosting.

TRACE: coal, mica

Visible Porosity: POOR - FAIR

SHOWS: None.

1434 - 1437m:

SANDSTONE (100%) As above.

TRACE As above.

Visible porosity: POOR.

SHOWS: None.

1437 - 1440m:

SANDSTONE (100%)
White, clear, pink, yellow, green/grey, fine - medium, occasionally coarse, subangular - subrounded, occasionally angular, occasionally loose/unconsolidated, hard, brittle, fractured, frosted + pitted on some grains, slight white kaolin matrix, very very slight calcitic cement, slight silicic cement, occasional carbonaceous coatings on grains, slightly lithic with dark green, dark red, pink and rose quartz grains, pyritic and carbonaceous flecks, slightly chloritic.

TRACES: coal - hard, black, friable, earthy, pyritic to subvitrinous, dull - resinous, interlaminated with sandstone, chlorite, siltstone light grey - green, chloritic.

Visible porosity: POOR - FAIR.

SHOWS: None.

1440 – 1443m:

SANDSTONE (100%)
As above.

TRACE: rare coal, accessories as above.

Visible porosity: POOR – FAIR

SHOWS: None.

1443 – 1446m:

SANDSTONE (100%)
As above.

TRACE: siltstone, accessories as above.

Visible porosity: POOR – FAIR.

SHOWS: None.

1446 – 1449m:

SANDSTONE (100%)
As above, less calcitic cement, friable, loose – unconsolidated

TRACE: as above, less siltstone.

Visible porosity: GOOD – FAIR

SHOWS: None.

1449 – 1452m:

SANDSTONE (100%)
As above, very slight calcitic cement, friable, loose – unconsolidated.

TRACE: as above, slight increase in coal fragments – subvitrinous, hard, black, shiny.

Visible porosity: FAIR – GOOD.

SHOWS: None.

1452 – 1455m:

SANDSTONE (100%)
As above, angular – subangular, good clean sand, very slight calcitic cement, kaolin matrix

TRACE: as above

Visible porosity: FAIR.

SHOWS: None.

1455 – 1458m

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR.

SHOWS: None.

1458 - 1461m:

SANDSTONE (100%)
As above.

TRACE: as above, siltstone.

Visible porosity: POOR - FAIR

SHOWS: None.

1461 - 1464m:

SANDSTONE (100%)
As above.

TRACE: as above, decreased rock lithics.

Visible porosity: FAIR - POOR.

SHOWS: None.

1464 - 1467m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

1467 - 1470m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

1470 - 1473m:

SANDSTONE (100%)
As above, very very slight calcitic cement, very clean sand.

TRACE: as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

1473 - 1476m:

SANDSTONE (100%)
Sublithic sandstone interlaminated with thin siltstones, clear - translucent, white, occasionally yellow, occasionally pink, pale grey, green, milky, fine - medium, occasionally coarse, subangular - subrounded, occasionally angular, shattered, frosted, kaolin matrix, very very slight calcitic cement, slightly pyritic, slightly carbonaceous, slightly chloritic, slight increase in dark red clear grains and green grains.

TRACE: siltstone, coal fragments, vitrinous - subvitrinous.

Visible porosity: POOR - FAIR.

SHOWS: None.

1476 - 1479m:

SANDSTONE (100%)
As above, occasional pale grey-green grains.

TRACE: very thin orange cherts, very thin chloritic and carbonaceous siltstones, coals, slight trace pyritized cement/matrix.

Visible Porosity: POOR - FAIR

SHOWS: None.

1479 - 1482m:

SANDSTONE (100%)
As above, slight increase in coloured lithic grains and fragments ie. dark green, chlorite, rose quartz, red grains - feldspar.

TRACE: slight increase in siltstone and coal fragments.

Visible porosity: FAIR - POOR.

SHOWS: None.

1482 - 1485m:

SANDSTONE (100%)
As above.

COAL (trace) - slight increase, hard, black, brittle, dull to resinous, very pyritic, fissile - subfissile, blocky, shiny, occasionally subvitrinous, micro-interlaminated and intergradational dark grey siltstone and coal - carbonaceous mudstone.

TRACE: pyrite nodules, green/grey chloritic siltstone - carbonaceous siltstone, mudstone, chert flakes.

1482 - 1485m cont.

Visible porosity: POOR - FAIR.

SHOWS: None.

1485 - 1488m:

SANDSTONE (100%) (silty - coaly sand)
Clear - white, light grey, translucent, milky, occasionally yellow, pink, grey, green, fair - medium, rare coarse grains, angular - subangular, occasionally subrounded, shattered grains, frosted, frequent sub-bituminous coating on grains - increased calcitic cement.

TRACE: siltstone, coal, dark rock fragments, silty coaly sand.

Visible porosity: FAIR - POOR.

SHOWS: None - no fluorescence. No cut.

1488 - 1491m:

SANDSTONE (100%)
As above becoming coarser, decreased silt and coal.

TRACE: siltstone, coal.

Visible porosity: FAIR - POOR.

SHOWS: None.

1491 - 1494m:

SANDSTONE (100%)
As above becoming cleaner, decreased siltstone and coal, very coarse - coarse, angular - subangular grains, good clean sand, loose-unconsolidated, increased rose quartz and chloritic grains, rare kaolinitic matrix.

TRACE: Siltstone,

Visible porosity: FAIR.

SHOWS: None.

1494 - 1497m:

SANDSTONE (100%) (good clean sand)
As above, becoming finer, fine to medium grained, subangular - subrounded.

TRACES: as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1497 - 1500m:

SANDSTONE (100%)
As above, fine - very fine, occasionally subangular - subrounded, moderately well sorted, less coloured grains.

1497 - 1500m cont.

TRACE: small coal and silt fragments.

Visible porosity: GOOD.

SHOWS: None.

1500 - 1503m:

SANDSTONE (100%)
As above.

TRACE: siltstone, coloured grains, coal as above.

Visible porosity: GOOD.

SHOWS: None.

1503 - 1506m:

SANDSTONE (100%)
Clear - white, pink, coloured as above, very fine - medium, occasionally coarse - very coarse, shattered fragments, carbonaceous - sub-bituminous coatings on some grains, slight calcitic cement, trace-increased calcite grains slightly silicic, kaolinitic matrix, unconsolidated.

TRACE: siltstone, coloured grains, rose quartz.

Visible porosity: GOOD.

SHOWS: None - speckled yellow mineral fluorescence.

1506 - 1509m:

SANDSTONE (100%)
As above, clean unconsolidated sand.

TRACE: as above.

Visible porosity: GOOD.

SHOWS: None.

1509 - 1512m:

SANDSTONE (100%)
White, clear, pink, orange, yellow, light grey, green, translucent, occasionally milky, fine - medium, occasional coarse, angular - subangular occasionally subrounded, poor - moderately sorted, some grains shattered and frosted, rare carbonaceous coatings and inclusions, slight increased calcitic cement.

TRACE: siltstone, coal, pyrite, chlorite.

Visible porosity: FAIR - GOOD.

SHOWS: None - 1 to 2 grains mineral fluorescence.

1512 - 1515m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR - GOOD.

SHOWS: None - very faint spotty yellow fluorescence throughout - mineral fluorescence - no cut.

1515 - 1518m:

SANDSTONE (90%)
As above, fine - very coarse, angular - subrounded, poorly sorted, increased calcitic cement, kaolinitic matrix, intergranular pyrite and carbonaceous fragments.

SILTSTONE (10%) :Light - dark grey, grey/green carbonaceous and chloritic in part, subfissile, microlaminated, grades to argillaceous and carbonaceous mudstone.

TRACE: coal fragments.

Visible porosity: POOR - FAIR.

SHOWS: None - occasional very faint spotty speckled yellow fluorescence throughout - mineral fluorescence - no cut.

1518 - 1521m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR.

SHOWS: None.

1521 - 1524m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR.

SHOWS: None.

1524 - 1527m:

SANDSTONE (100%)
As above, fine - medium grained, slightly calcitic.

TRACE: accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None - mineral fluorescence.

1527 - 1530m:

SANDSTONE (90%)
White - clear, translucent, occasionlly pink, green, orange green, fine - coarse, occasionally very coarse, large fragmented grains, poorly sorted, angular - subrounded, frosted, pitted, slightly calcitic, dirty sand, silty matrix.

SILTSTONE (10%) : Light-medium grey, grades to argillaceous carbonaceous mudstone and coal.

COAL (trace) hard, black, vitrinous - sub-bituminous, firm, brittle, subfissile.

TRACE: pyrite.

Visible porosity: FAIR.

SHOWS: None - trace mineral fluorescence.

1530 - 1533m:

SANDSTONE (90%)
As above.

SILTSTONE (10%) : As above.

TRACE: coal, pyrite, rock fragments.

Visible porosity: FAIR.

SHOWS: None - trace mineral fluorescence.

1533 - 1536m:

SANDSTONE (90%)
As above, very calcitic cement.

SILTSTONE (10%) : As above.

Visible porosity: FAIR.

SHOWS: None - trace mineral fluorescence.

1536 - 1539m:

SANDSTONE (100%)
As above - becoming cleaner.

SILTSTONE (trace) very calcareous.

Visible porosity: FAIR.

SHOWS: None - trace mineral fluorescence.

1539 - 1542m:

SANDSTONE (90%)
As above.

SILTSTONE (10%)
As above.

TRACE: coal, mudstone, pyrite, coloured lithics, dolomite, calcite fair - good visble porosity.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1542 - 1545m:

SANDSTONE (100%)
As above.

TRACE: Siltstone, accessories as above, coal, chert.

Visible porosity: FAIR - GOOD.

SHOWS: None - trace speckled mineral fluorescence.

1545 - 1548m:

SANDSTONE (100%)
As above.

TRACE: accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None - very faint trace speckled fluorescence..

1548 - 1551m:

SANDSTONE (100%)
As above, very very faintly trace calcareous.

TRACE: accessories as above, chert flakes - orange brown, mudstone - white - coal.

Visible porosity: VERY GOOD - GOOD.

SHOWS: None.

1551 - 1554m:

SANDSTONE (100%)
As above, increased pink and yellow grains, slight increased calcitic cement and kaolinitic matrix, very good clean sand.

TRACE: very slight trace coal, trace feldspar and rock fragments.

Visible porosity: GOOD.

SHOWS: None - slight mineral fluorescence.

1554 -1557m:

SANDSTONE (80%)
White, light grey, grey/green, pink, yellow, orange, red, brown, clear-translucent, very fine - medium, occasionally coarse, angular - subrounded, moderately - poorly sorted, slight calcitic cement, kaolin-silty matrix, grain fracture and carbaceous inclusions, slightly pyritic, sublithic.

SILTSTONE (20%) : Light - dark grey, grades to black, occasionally grey/green, fine grained - sucrosic, resinous, soft - firm to brittle, blocky, carbonaceous grades to argillaceous carbonaceous mudstone.

TRACE: Mudstone, coal-hard black, resinous to sugary, brittle, subfissile, dark rock fragments.

Visible porosity: FAIR.

SHOWS: None - slight mineral fluorescence.

1557 - 1560m:

SANDSTONE (100%)
As above, decreased coloured grains, slightly calcitic cement.

TRACE: Siltstone, coal, mudstone, coloured lithics.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1560 - 1563m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1563 - 1566m:

SANDSTONE (100%)
As above.

TRACE: Slight increase in siltstone, mudstone coal.

Visible porosity: GOOD - FAIR.

SHOWS: None - 1 or 2 grains mineral fluorescence.

1566 - 1569m:

SANDSTONE (80%)
As above - sublithic sandstone slightly calcitic, trace white kaolin matrix.

SILTSTONE (20%) : Light - dark grey, brown, sucrosic, blocky, soft - plastic, occasionally subfissile, occasionally argillaceous, arenaceous, slightly chloritic, grades to argillaceous carbonaceous mudstone in parts.

COAL (trace)- hard, black, blocky, resinous-dull, occasionally subvitrinous, subfissile, firm - brittle, occasionally argillaceous, silty grades to carbonaceous claystone-mudstone, slightly pyritic.

TRACE: Dolomite, calcite, lithic fragments, pyrite.

Visible porosity: FAIR.

SHOWS:: None - trace mineral fluorescence.

1569 - 1572m:

SILTSTONE (80%)
Light-dark grey, brown, black, blocky, soft - firm subfissile, carbonaceous chloritic, argillaceous, arenaceous, sucrosic-resinous.

SANDSTONE (20%) : White, clear, translucent, occasionally yellow, very fine - fine - medium, moderately well sorted, slight calcitic cement, kaolinitic-silty matrix, sublithic, trace carbonaceous and chloritic.

TRACE: Coal as above, mudstone-light grey-brown, dispersive, dolomite, calcite.

Visible porosity: FAIR.

SHOWS: None.

1572 - 1575m:

SILTSTONE (80%)
As above, very blocky, carbonaceous and argillaceous grades to carbonaceous shale.

SANDSTONE (20%) : Clear, white-milky, very fine - fine, moderately sorted, hard-brittle, kaolinitic matrix, very calcitic cement.

TRACE: Coal-large hard, black, blocky fragments grades to carbonaceous mudstone, pyrite, coloured lithic fragments, chlorite, calcite, dolomite.

Visible porosity: VERY POOR.

SHOWS: Trace mineral fluorescence.

1575 - 1578m:

SANDSTONE (70%)
As above with yellow, pink, orange green, grains, very calcitic cement, with kaolinitic matrix.

SILTSTONE (10%) : Light-dark green/grey, chloritic, carbonaceous, blocky - resinous, dull, soft - firm, occasionally hard, silicic, argillaceous, grades to carbonaceous mudstone and chloritic mudstone.

MUDSTONE (10%) : Light grey-brown, occasionally green, soft-dispersive, slightly micromicaceous grades to carbonaceous claystone.

COAL (10%) : Hard, black, pyritic, blocky, subfissile, soft - firm, brittle grades to carbonaceous shale.

TRACE: calcite flakes, dark rock fragments, pyrite.

Visible porosity: NIL.

SHOWS: None.

1578 - 1581m:

SANDSTONE (70%)
As above very very calcareous.

SILTSTONE (20%) : As above.

COAL (10%) : As above.

TRACE: mudstone, calcite flakes as above.

Visible porosity: NIL.

SHOWS: None.

1581 - 1584m:

SANDSTONE (90%)
As above, decreased calcitic cement.

SILTSTONE (10%) : As above.

TRACE: coal as above, mudstone, calcite flakes trace as above.

Visible porosity: NIL.

SHOWS: None.

1584 - 1587m:

SANDSTONE (100%)
Clean-white sand, clear, translucent, white, occasionally milky, occasionally pink rose quartz, rare orange-yellow, occasional green, fine - medium, occasional coarse angular - subangular, occasionally subrounded, well sorted, loose-unconsolidated, trace kaolinitic matrix, very slight calcitic cement, silicic, trace lithic grains.

TRACE: coal fragments as above, siltstone fragments as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1587 - 1590m:

SANDSTONE (100%)
As above, slightly coarser, trace siltstone, mica and coal fragments.

Visible porosity: GOOD.

SHOWS: None.

1590 - 1593m:

SANDSTONE (100%)
As above, increased pink, red and yellow grains.

TRACE: rare siltstone, coal and dark lithic grains.

Visible porosity: GOOD.

SHOWS: None.

1593 - 1596m:

SANDSTONE (100%)
As above.

Visible porosity: GOOD.

SHOWS: None.

1596 - 1599m:

SANDSTONE (100%)
As above.

TRACE: Accessories as above, slight increased coally fragments.

Visible porosity: GOOD.

SHOWS: None.

1599 - 1602m:

SANDSTONE (100%)
As above.

TRACE: Accessories as above.

Visible porosity: GOOD.

SHOWS: None.

1602 - 1605m:

SANDSTONE (100%)
As above, increase in coloured grains-rose quartz and yellow stained grains.

TRACE: accessories as above.

Visible porosity: Good.

SHOWS: None.

1605 - 1608m:

SANDSTONE (100%)
As above.

TRACE: accessories as above, slight increase siltstone fragments, light-dark green, silicic, chloritic.

Visible porosity: GOOD.

SHOWS: None..

1608 - 1611m:

SANDSTONE (80%)
As above, increased coarseness - occasional very coarse grains and fragments.

SILTSTONE (20%) : Light - dark green, arenaceous-carbonaceous chloritic, blocky, soft - firm subfissile, silicic, resinous-dull, pyritic.

TRACE: dark green rock fragments, coal - grades to carbonaceous siltstone and grades to carbonaceous shale, mudstone.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1611 - 1614m:

SANDSTONE (60%)
As above, fine - coarse, poorly sorted, angular grains lithic slightly calcitic.

SILTSTONE (20%) : Light - dark grey, olive grey, green, occasionally brown, very chloritic, silicic, slightly carbonaceous - very carbonaceous, occasionally argillaceous, pyritic, grades to and is microlaminated with carbonaceous mudstone.

COAL (10%) : Hard, black, blocky, occasionally brown, earthy, pyritic grades to carbonaceous mudstone.

MUDSTONE (10%) : Argillaceous + carbonaceous, slightly chloritic.

TRACE: common coloured and dark lithic fragments, calcite fragments, pyrite.

Visible porosity: FAIR - POOR.

SHOWS: None.

1614 - 1617m:

CONTAMINATED SAMPLE

SANDSTONE (60%)
White, light grey, clear, translucent, pink, orange, yellow, green, fine - medium grains, occasionally coarse, angular - subangular occasionally subrounded, very calcareous + chloritic.

SILTSTONE (30%) : Light - dark grey, chloritic, carbonaceous, argillaceous, pyritic, arenaceous.

RUBBISH: (10%) - contamination.

Visible porosity: FAIR.

SHOWS: None.

1617 - 1620m:

SANDSTONE (100%)
Clear, white, occasionally red, pink and yellow, translucent, fine - medium, subangular - subrounded, moderately well sorted, loose - unconsolidated, trace calcitic cement.

TRACE: rare coal fragments - hard black vitrinous - rare chloritic - carbonaceous siltstone fragments, lithic grains.

Visible porosity: GOOD.

SHOWS: None.

1620 - 1623m:

SANDSTONE (100%)
As above, less coloured grains, occasional medium - coarse grains.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

1623 - 1626m:

SANDSTONE (100%)
As above, fine - medium, occasional coarse, increased coloured grains, common rose quartz loose - unconsolidated.

Visible porosity: VERY GOOD.

SHOWS: None.

1626 - 1629m:

SANDSTONE (100%)
As above.

TRACE: as above, slight - trace calcareous, loose - unconsolidated.

Visible porosity: VERY GOOD.

SHOWS: None.

1629 - 1632m:

SANDSTONE (100%)
As above, increased coaly fragments, increased carbonaceous - sub-bituminous coatings on grains.

TRACE: as above, increased coal - hard, black, blocky, vitrinous - subvitrinous, occasionally sub-bituminous, subfissile.

Visible porosity: GOOD.

SHOWS: None.

1632 - 1635m:

SANDSTONE (100%)
As above, very very clean fine grained well sorted sand, increase in rose quartz.

Visible porosity: GOOD.

SHOWS: None.

1635 - 1638m:

SANDSTONE (100%)
As above.

TRACE: increased siltstone fragments, accessories as above.

Visible porosity: GOOD.

SHOWS: None.

1638 - 1641m:

SANDSTONE (100%)
As above, decrease in coloured grains.

TRACE: coal as above, siltstone as above.

Visible porosity: GOOD.

SHOWS: None.

1641 - 1644m:

SANDSTONE (100%)
Clear, translucent, white, occasionally red, pink, yellow, medium brown, + green fine-grained, occasionally subangular -subrounded, occasionally angular, very well sorted, no cement, very faint trace kaolinitic matrix (very clean sand).

TRACE: rare siltstone + coal fragments, very slight trace rock fragments.

Visible porosity: EXCELLENT.

SHOWS: None.

1644 - 1647m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: EXCELLENT.

SHOWS: None. Trace mineral fluorescence.

1647 - 1650m:

SANDSTONE (100%)
As above, trace calcitic cement, trace kaolinitic matrix.

TRACE: as above, calcite fragments.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None - trace mineral fluorescence.

1650 - 1653m:

SANDSTONE (100%)
As above, slight increased coal + pyrite fragments.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

1653 - 1656m:

SANDSTONE (100%)
As above, increased from fine - medium grained, slightly coarser, angular - subangular, some grain shatter, very calcareous.

TRACE: slight increased coal + siltstone fragments.

Visible porosity: GOOD.

SHOWS: None.

1656 - 1659m:

SANDSTONE (100%)
As above, very calcitic cemented, medium grained, occasionally coarse, frequent grain frosting and shatter, slightly pyritic.

TRACE: increased coloured grains, slight increased siltstone fragments.

Visible porosity: FAIR.

SHOWS: None.

1659 - 1662m:

SANDSTONE (100%)
Clear white, orange, red, yellow, pink, predominantly clear, (coloured frequency increased), medium grained, occasionally coarse, angular - subangular, moderately sorted, occasionally subrounded, pyritic, very very calcitic cemented, no trace of matrix, slightly lithic, grain shatter, fractured, pyritic - carbonaceous inclusions and coatings.

TRACE: slight increase in siltstone fragments.

Visible porosity: FAIR.

SHOWS: None - trace mineral fluorescence.

1662 - 1665m:

SANDSTONE (100%)
As above, common coloured grains, very calcitic - cemented.

TRACE: siltstone, carbonaceous, chloritic, calcite fragments.

Visible porosity: FAIR.

SHOWS: None.

1665 - 1668m:

SANDSTONE (100%)
Clear, translucent, white, trace coloured grains, fine - medium grained, moderatley sorted, subangular - subrounded, occasionally angular, loose, very calcitic, slight sub-bituminous/carbonaceous material coating some grains.

TRACE: calcite flakes, decreased siltstone fragments, pyrite, coal.

Visible porosity: GOOD.

SHOWS: None.

1668 - 1671m:

SANDSTONE (100%)
As above, occasionally coarse grained, slightly calcitic

Visible porosity: GOOD.

SHOWS: None.

1671 - 1674m:

SANDSTONE (100%)
As above

TRACE: slight trace chloritic silstone.

Visible porosity: GOOD.

SHOWS: None.

1674 - 1677m:

SANDSTONE (100%)
As above, frequent coloured grains.

Visible porosity: GOOD.

SHOWS: None.

1677 - 1680m:

SANDSTONE (100%)
As above, decreased calcitic cement.

Visible porosity: GOOD.

SHOWS: None.

1680 - 1683m:

SANDSTONE (100%)
As above, clay - silty matrix, slight decrease in calcitic cement.

TRACE: increase in coal and siltstone fragments and grains, increase in lithic fragments, mudstone, rock lithics.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1683 - 1686m:

SANDSTONE (100%)
As above.

TRACE: decrease in coal and siltstone fragments, mudstone.

Visible porosity: FAIR.

SHOWS: None.

1686 - 1689m:

SANDSTONE (100%)
As above.

TRACE: slight increase in siltstone fragments.

Visible porosity: FAIR.

SHOWS: None.

1689 - 1692m:

SANDSTONE (90%)
As above, very calcitic cement and silty matrix.

SILTSTONE (10%) : Light - dark grey fragments, coaly, chloritic grades to carbonaceous mudstone in part.

Visible porosity: FAIR - POOR.

SHOWS: None - trace mineral fluorescence in 1-2 grains.

1692 - 1695m:

SANDSTONE (90%)
As above very calcitic.

SILTSTONE (10%) : As above very chloritic and carbonaceous.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1695 - 1698m:

SANDSTONE (90%)
As above, dirty sand, very carbonaceous coatings on grains, shattered fragments and calcitic cemented, lithic .

SILTSTONE (10%) : As above grades to carbonaceous mudstone.

TRACE: mudstone and coal.

Visible porosity: FAIR - POOR.

SHOWS: None.

1698 - 1701m:

SANDSTONE (100%)
Clear, white, translucent, trace to frequent coloured grains, fine - medium grained, occasionally angular, moderately sorted, subrounded - subangular, frosted grains, carbonaceous inclusions and coatings common, loose, calcitic cement, slightly lithic.

TRACE: siltstone, slight coal.

Visible porosity: GOOD.

SHOWS: None.

1701 - 1704m:

SANDSTONE (100%)
As above, increasing pyritization of cement/matrix -coating on grains, increased coloured grains.

TRACES: slight decrease in siltstone, slight coal.

Visible porosity: GOOD.

SHOWS: None.

1704 1707m:

SANDSTONE (90%)
As above, increased calcitic cement, increased lithic fragments.

SILTSTONE (10%) : Light - dark grey, carbonaceous chloritic/arenaceous - argillaceous, slightly pyritic, grades to carbon mudstone, coal fragments.

TRACE: coal fragments.

Visible porosity: GOOD.

SHOWS: None.

1707 - 1710m:

SANDSTONE (100%)
As above, very pyritic ,very calcareous.

Visible porosity: FAIR - POOR.

SHOWS: None.

1710 - 1713m:

SANDSTONE (100%)
As above, fine grained, generally loose. Tight - Agglomerates very calcitic cemented + hard - intergranulated with pyrite and carbonaceous fragments.

Visible porosity: NONE.

SHOWS: None.

1713 - 1716m:

SANDSTONE (100%)
As above, becoming finer grained.

Visible porosity: FAIR - GOOD.

SHOWS: None - trace mineral fluorescence.

1716 - 1719m:

SANDSTONE (100%)
As above, angular, increased pyritic nodules + fragments, very calcareous.

Visible porosity: FAIR - GOOD.

SHOWS: None - trace

1719 - 1722m:

SANDSTONE (90%)
As above, medium - coarse grained, very calcareous, angular - subangular, fractured - shattered grains, very pyritic, very calcitic, very lithic.

SILTSTONE (10%) :
As above, grades to carbonaceous mudstone, and coal.

Visible porosity: FAIR - GOOD

SHOWS: None - trace mineral fluorescence.

1722 - 1725m:

SANDSTONE (70%)
As above, frequent coloured grains, very fine - coarse, angular - subangular, poorly sorted, very calcitic cemented, lithic, pyritic, hard + tight.

SILTSTONE (30%)

Light - dark grey/green, arenaceous, argillaceous, chloritic, carbonaceous, grades to carbonaceous mudstone, very pyritic.

TRACE: mudstone, coal, pyritic nodules.

Visible porosity: VERY POOR.

SHOWS: None.

1725 -1728m:

SANDSTONE (90%)
White, translucent, clear, occasionally - rarely coloured, fine - medium, occasionally coarse, subangular - subrounded, moderately sorted, fractured - shattered grains, slightly pyritic, slightly carbonaceous, very calcareous, slightly lithic.

1725 - 1728m cont.

SILTSTONE (10%) : Light - dark grey, green, very chloritic, very carbonaceous, arenaceous - argillaceous, pyritic, occasional chert fragments, grades to chloritic mudstone, occasionally grades to carbonaceous mudstone.

TRACE: coal.

Visible porosity: POOR - FAIR.

SHOWS: None.

1728 - 1731m:

SANDSTONE (100%)
As above, becoming finer grained, rare coloured grains, slightly calcitic cemented, trace kaolin matrix.

Visible porosity: FAIR.

SHOWS: None.

1731 - 1734m:

SANDSTONE (100%)
As above, occasionally coarse grained.

TRACE: decrease in siltstone fragments.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1734 - 1737m:

SANDSTONE (100%)
As above, very calcitic cement, trace kaolin matrix.

TRACE: siltstone, dolomite, calcitic flakes, coal.

Visible porosity: TIGHT - POOR.

SHOWS: None.

1737 - 1740m:

SANDSTONE (100%)
As above, increased coarse grains.

TRACE: dolomite, calcite, coal and siltstone.

Visible porosity: FAIR.

SHOWS: None - mineral fluorescence.

1740 - 1743m:

SANDSTONE (90%)
White, translucent, clear, occasional coloured grains, very coarse - coarse occasionally medium grained, very angular- subangular, occasionally subrounded, very poorly sorted, very calcitic cemented, slightly silicic cemented, very hard - brittle, some grain shatter, some carbonaceous coating, lithic.

SILTSTONE (10%) : Light grey - green - black, blocky, subfissile, arenaceous, calcareous, chloritic, grades to mudstone and shale.

TRACE: mudstone, coal, slight dolomite, calcite.

Visible porosity: POOR - GOOD.

SHOWS: None - mineral fluorescence.

1743 - 1746m:

SANDSTONE (60%)
Clear - translucent, white occasionally pink grains, very fine - very coarse, angular - subrounded, very poorly sorted, very hard, very slight calcitic cement, some aggregates with kaolin matrix, occasionally silicic cemented, intergranular pyrite, siltstone fragments and carbonaceous specks.

SILTSTONE (30%)
Light grey - dark grey, green, brown, black, blocky, very fine - medium, soft, occasionally subfissile, arenaceous, argillaceous, very chloritic, very carbonaceous, grades to soft, dispersive carbonaceous mudstone, resinous - dull, ccasionally pyritic, free carbonaceous specks, free quartz.

MUDSTONE (10%)
Light grey - dark brown, soft - dispersive, occasionally chloritic, occasionally very calcareous - lime mud, carbonaceous grades to carbonaceous shale.
TRACE: coal - hard, black, blocky, grades to carbonaceous mudstone, lithic grains, dolomite, calcite flakes, pyrite, cherty flakes, occasionally very large quartz fragments.

Visible porosity: VERY TIGHT - NIL.

SHOWS: None - mineral fluorescence.

1746 – 1749m:

SANDSTONE (90%)
Clear, white, translucent, very occasionally pink, fine – medium, occasionally coarse grained, subangular – subrounded, moderately sorted, occasionally fractured and shattered, trace frosted and pitted, trace kaolin cement, occasionally silicic cement, slightly carbonaceous.

SILTSTONE (10%)
As above, occasionally hard – brittle, very silicic.

TRACE: coal, green grains, mudstone – soft dispersive and calcareous, calcitic fragments.

Visible porosity: TIGHT.

SHOWS: None.

1749 – 1752m:

SANDSTONE (80%)
As above, occasional coarse grains, frequently kaolin matrix, very slightly calcareous, occasionally pyritised matrix – pyrite nodules/ aggregates with quartz and carbonaceous grains.

SILTSTONE (20%)
As above, commonly grades to shale, slightly calcareous.

TRACE: coal, pyrite nodules, quartz grains.

Visible porosity: FAIR – TIGHT.

SHOWS: None.

1752 – 1755m:

SANDSTONE (90%)
Clear – white, translucent, occasionally pink/yellow, fine –medium, occasionally coarse, subangular – subrounded, occasionally angular, moderately – poorly sorted, hard, kaolinitic to silty matrix, occasionally pyritic in matrix/ cement, pyritic inclusions, fractured and shattered grains, very slightly calcitic cement, slightly silicic cement, silty matrix, sub–lithic.

SILTSTONE (10%)
Light – dark grey, grey/green, black – brown, arenaceous, slightly argillaceous, chloritic, very carbonaceous, grades to subfissile carbonaceous shale, occasionally pyritic, occasionally grades to mudstone.

1752 – 1755m cont.

TRACE: mudstone – light grey, soft and firm, coal, pyrite, occasionally calcite, sublithic rock fragments, muscovite.

Visible porosity: POOR – FAIR.

SHOWS: None

1755 – 1758m:

SANDSTONE (100%)
As above, increased coloured grains and carbonaceous coatings occasionally interlaminated with very thin coal beds.

TRACE: siltstone as above, coal, trace rock fragments.

Visible porosity: POOR – FAIR.

SHOWS: None.

1758 – 1761m:

SANDSTONE (90%)
As above.

SILTSTONE (10%)
As above.

TRACE: coal, mudstone, feldspar, accessories as above.

Visible porosity: FAIR – POOR in aggregates.

SHOWS: None.

1761 – 1764m:

SANDSTONE (80%)
Coloured grains as above, very fine - coarse, occasionally very coarse, angular – subrounded, very poorly sorted, kaolin matrix, silty, very calcareous. Tight.

SILTSTONE (10%)
As above grades to carbonaceous–arenaceous shale.

MUDSTONE (10%)
Light – dark grey, soft, occasionally dispersive, grades to carbonaceous claystone – coal.

TRACE: coal, lithic grains.

Visible porosity: TIGHT.

SHOWS: None.

1764 – 1767m:

SANDSTONE (90%)
As above, fine – medium grained, occasional loose grains, subangular – subrounded, poor – moderately sorted, kaolin matrix.

SILTSTONE (10%)
As above, trace coal.

TRACE: coal, mudstone, lithic grains.

Visible porosity: POOR – FAIR.

SHOWS: None.

1767 – 1770m:

SANDSTONE (100%)
As above, becoming finer grained.

TRACE: siltstone, mudstone, coal, lithic grains.

Visible porosity: POOR – FAIR.

SHOWS: None.

1770 – 1773m:

SANDSTONE (100%)
As above.

TRACE: accessories as above.

Visible porosity: POOR – FAIR.

SHOWS: None.

1773 – 1776m:

SANDSTONE (80%)
As above, slightly calcareous.

SILTSTONE (20%)
As above.

TRACE: mudstone, coal, lithic grains.

Visible porosity: POOR – NIL.

SHOWS: None.

1776 – 1779m:

SANDSTONE (100%)
As above, fine – medium grained.

TRACE: coal, siltstone fragments.

Visible porosity: POOR – NIL.

SHOWS: None.

1779 – 1782m:

SANDSTONE (90%)
White, clear, translucent, occasionally yellow, pink, fine – medium, occasionally coarse, angular to subrounded, moderate - poorly sorted, hard, common kaolin–silty matrix, very slight trace calcitic cement, pyritic, carbonaceous.

SILTSTONE (10%)
Light - dark grey, black, blocky, occasionally subfissile, grades to shale, chloritic, carbonaceous, arenaceous, occasionally argillaceous, resinous – sucrosic, firm – brittle, occasionally soft.

TRACE: mudstone, coal, lithic grains, pyrite.

Visible porosity: POOR – FAIR.

SHOWS: None.

1782 – 1785m:

SANDSTONE (90%)
As above.

SILTSTONE (10%)
As above, increasing soft fragments .

TRACE: mudstone, accessories as above.

Visible porosity: POOR – FAIR.

SHOWS: None.

1785 – 1788m:

SANDSTONE (60%)
White, translucent, clear, occasionally yellow, milky, trace coloured grains, very fine – very coarse, angular – subrounded, very poorly sorted, kaolin matrix, very slight calcitic cement, very slight silicic cement, sublithic, slightly pyritic slightly carbonaceous.

SILTSTONE (30%)
Light – dark grey, grey/green, black, brown, arenaceous – argillaceous resinous – dull, occasionally sucrosic, very carbonaceous, very chloritic in parts, blocky, grades to black subfissile shale in parts, slightly pyritic, slightly calcareous.

MUDSTONE (10%)
Light grey – white, occasionally green, soft, dispersive, occasionally firm, very calcareous, slightly pyritic, very carbonaceous, grades to argillaceous coal.

1785 - 1788m cont.

TRACE: coal - hard black, subvitvinous - sub-bituminous, pyrite, rock fragments.

Visible porosity: FAIR.

SHOWS: None - slight mineral fluorescence.

1788 - 1791m:

SANDSTONE (70%)
As above.

SILTSTONE (20%)
As above

MUDSTONE (10%)
As above

TRACE: coal as above, accessories as above.

Visible porosity: FAIR.

SHOWS: None.

1791 - 1794m:

SANDSTONE (100%)
White, clear, translucent, milky frosted, occasional - rare pink and yellow, fine - medium, subangular - subrounded, occasionally angular, moderately sorted, occasional fracture and shatter, trace kaolin matrix, slight calcitic cement, occasionally chloritic, occasionally carbonaceous specks and coatings, slightly pyritic.

SILTSTONE (Trace): light grey - green/grey, black, occasionally dispersive, soft - firm, grades to carbonaceous shale.

TRACE: coal and mudstone, dark lithic grains, pyrite.

Visible porosity: FAIR.

SHOWS: None.

1794 - 1797m:

SANDSTONE (100%)
As above, fine - very fine, increased coloured grains.

TRACE: siltstone as above, mudstone, coal.

Visible porosity: FAIR.

SHOWS: None.

1797 - 1800m:

SANDSTONE (90%)
As above, slight to very calcareous.

SILTSTONE (10%)
As above

TRACE: mudstone, coal, common white kaolin.

Visible porosity: FAIR.

SHOWS: None.

1800 - 1803m:

SANDSTONE (100%)
As above, fine - medium, occasionally coarse.

TRACE: siltstone, coal-vitrinous - subvitrinous.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1803 - 1806m:

SANDSTONE (100%)
As above, increased carbonaceous coatings interlaminated minor thin coals, slight calcitic cement.

TRACE: siltstone as above, mica, pyrite, coal.

Visible porosity: FAIR.

SHOWS: None.

1806 - 1809m:

SANDSTONE (100%)
As above, increased coloured grains, red and yellow, increased chlorite grains, slight calcitic cement, trace pyritic, slightly lithic - dark rock fragments.

TRACE: coal, hard, black, large fragments, vitrinous, blocky with conchoidal fracture, siltstone, kaolin, pyrite.

Visible porosity: FAIR.

SHOWS: None.

1809 - 1812m

SANDSTONE (100%)
As above, very fine - fine, increased coloured grains, increased pink rose quartz, increased pyrite.

TRACE: pyrite, decreased coal, siltstone, kaolin.

Visible porosity: FAIR.

SHOWS: None.

1812 - 1815m:

SANDSTONE (100%)
As above, medium grained, subrounded, very calcareous.

TRACE: slight trace coal and siltstone.

Visible porosity: FAIR.

SHOWS: None.

1815 - 1818m:

SANDSTONE (100%)
As above, medium - coarse grained, subangular - subrounded, very calcitic cemented, trace kaolin matrix.

TRACE: siltstone, coal, pyrite.

Visible porosity: FAIR - POOR.

SHOWS: None.

1818 - 1821m:

SANDSTONE (10%)
Multi-coloured grains, fine - medium, subangular - subrounded, occasionally angular, poorly sorted, hard, brittle, occasionally friable, kaolin matrix in agglomerates, very slight calcitic cement lithic occasionally pyritic, trace-frequent coloured grains - red + green.

SILTSTONE (30%) : Light - dark grey, green, brown, arenaceous, occasionally argillaceous, very carbonaceous, occasionally calcareous, firm - soft, blocky, grades to carbonaceous mudstone in parts, trace pyritic, chloritic.

MUDSTONE (10%) : Light - dark grey, buff, generally soft - dispersive, slightly micromicaceous, chloritic, carbonaceous.

TRACE: coal, increased coloured grains, occasional red grains.

Visible porosity: POOR.

SHOWS: None.

1821 -1824m:

SANDSTONE (70%)
As above, very fine - medium, subrounded, occasionally subangular, very very calcareous, lithic, carbonaceous, chloritic.

SILTSTONE (30%)
As above.

1821 – 1824m cont.

TRACE: coal, lithic grains, rare volcanic debris, pyrite, calcite.

Visible porosity: POOR.

SHOWS: None.

1824 – 1827m:

SANDSTONE (90%)
As above, very fine – fine grained.

SILTSTONE (10%)
As above.

TRACE: coal as above, accessories as above.

Visible porosity: POOR.

SHOWS: None.

1827 – 1830m:

SANDSTONE (80%)
As above, very fine – fine, very slightly calcareous.

SILTSTONE (20%)
As above.

TRACE: coal, chlorite grains, lithic fragments.

Visible porosity: POOR.

SHOWS: None.

1830 – 1833m:

SANDSTONE (70%)
Predominantly yellow, white, clear, translucent, pale yellow, light grey occasionally green, very fine – fine, occasionally medium, angular – subangular, subrounded, moderately sorted, chloritic, rarely carbonaceous, trace pyritic, slightly calcareous, silty matrix, slightly lithic, brittle, friable aggregates.

SILTSTONE (30%)
Light – dark grey, green, arenaceous – argillaceous, blocky, resinous, – dull, very carbonaceous, chloritic, slightly pyritic.

TRACE: coal, pyrite, coloured lithic grains.

Visible porosity: POOR – NIL.

SHOWS: None.

1833 – 1836m:

SANDSTONE (80%)
Coloured grains as above, very fine – medium grained, occasionally coarse grained, angular – subrounded, poorly – moderately sorted, very clay matrix, slightly pyritic, slightly chloritic, slightly lithic, very calcareous.

SILTSTONE (90%)
As above, grades to carbonaceous mudstone, trace chloritic mudstone.

MUDSTONE (10%)
Light grey – green, very soft – plastic, occasionally dispersive, grades to carbonaceous, argillaceous, occasionally calcareous in parts, micromicaceous in parts.

TRACE: coal, volcanic debris, pyrite, calcite, pale orange – buff, silty limestone fragments. (Tuff?)

Visible porosity: POOR – FAIR.

SHOWS: None.

1836 – 1839m:

SANDSTONE (100%)
White, clear, translucent, pink, yellow, green very fine – fine occasionally medium – coarse, rare very coarse grained, angular – subangular, occasionally subrounded, moderately – poorly sorted, slightly lithic, slightly pyritic, slight intergranular carbonaceous specks, kaolin matrix, trace calcitic cement.

TRACE: siltstone, calcite fragments, mica, lithic grains, coal, pyrite.

Visible porosity: POOR – FAIR.

SHOWS: None.

1839 – 1842m:

SANDSTONE (100%)
As above, very very calcareous.

TRACE: accessories as above.

Visible porosity: FAIR – GOOD.

SHOWS: None.

1842 - 1845m:

SANDSTONE (100%)
Very fine - fine grain, very clean sand as above.

TRACE: accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1845 - 1848m:

SANDSTONE (100%)
As above, fine - medium, occasionlly coarse, very fractured, angular - subangular, shattered grains, silicic cemented, slight carbonaceous coatings.

TRACE: coal, siltstone, lithic grains, calcite, rare silty limestone.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1848 - 1851m:

SANDSTONE (60%)
Clear, white, translucent, trace coloured grains, angular - subangular, very occasionally subrounded, very poorly sorted, very calcitic cement, calcareous matrix - silty matrix, slightly lithic, slightly chloritic, slightly pyritic, slightly carbonaceous, occasionally aggregates of chloritic carbonaceous matrix.

SILTSTONE (30%)
Light - dark grey, green/grey, very fine - fine, arenaceous to argillaceous, carbonaceous, chloritic, occasionally calcareous grades to carbonaceous and argillaceous mudstone. Also buff - light orange calcareous siltstone, fine grains with calcareous matrix, grading to silty limestones.

MUDSTONE (10%)
Light grey - dark grey, green, soft-dispersive, chloritic, carbonaceous.

TRACE: dolomite, pyrite.

Visible porosity: POOR.

SHOWS: None - trace mineral fluorescence.

1851 - 1854m:

SILTSTONE (60%)
As above, fine - medium grained, also buff siltstone (10%) as above, grades to silty limestone.

1851 - 1854m cont.

SANDSTONE (20%)
Very fine - coarse as above, tight.

MUDSTONE (10%) : As above.

TRACE: coal - carbonaceous mudstone as above, pink rose quartz, pyrite, lithic grains.

Visible porosity: NIL.

SHOWS: None - trace mineral fluorescence.

1854 - 1857m:

SILTSTONE (60%)
As above, becoming carbonaceous - chloritic, argillaceous mudstone - dispersive.

LIMESTONE - TUFF (10%)
As above, Buff - silty, calcareous.

SANDSTONE (20%)
As above.

TRACE: coal, lithic grains, pyrite.

Visible porosity: NIL.

SHOWS: None - trace mineral fluorescence.

1857 - 1860m:

SILTSTONE (40%)
As above.

MUDSTONE (30%)
As above.

COAL (10%)
As above.

SANDSTONE (10%)
As above

LIMESTONE - TUFF (10%)
Silty as above.

TRACE: pyrite, lithic fragments as above.

Visible porosity: NIL.

SHOWS: None.

1860 - 1863m:

SANDSTONE (80%)
Coloured grains as above, fine - medium, occasionally coarse, subangular - subrounded, moderately sorted, calcitic cemented, kaolin matrix, slightly chloritic, slightly carbonaceous, pyritic.

SILTSTONE (20%)
Light - dark grey, green, occasionally brown, often grades to soft dispersive - carbonaceous/ chloritic, mudstone.

TRACE: mudstone, pyrite, coal.

Visible porosity: GOOD.

SHOWS: None.

1863 - 1866m:

SANDSTONE (80%)
As above.

SILTSTONE (20%)
As above.

TRACE: accessories as above.

Visible porosity: GOOD - FAIR.

SHOWS: None.

1866 - 1869m:

SANDSTONE (100%)
As above, subangular-subrounded, fine - medium grained, slightly calcareous.

TRACE: siltstone, coal.

Visible porosity: FAIR.

SHOWS: None.

1869 - 1872m:

SANDSTONE (100%)
As above - increased coloured grains.

TRACE: siltstone, coal, lithic grains.

Visible porosity: FAIR.

SHOWS: None.

- 1875m: SANDSTONE (100%)
As above.

TRACE: coal, lithic grains, feldspar, siltstone, calcite, dolomite, buff silty limestone.

Visible porosity: FAIR.

SHOWS: None.

75 - 1878m: SANDSTONE (100%)
As above, increased coloured grains, fine - medium, coarse - very coarse, angular to subangular, occasionally subrounded, some grain shatter, fracture, occasional pitting and frosting, trace silicic cement, calcitic cement, slight kaolin matrix, occasionally lithic.

TRACE: calcite flakes, feldspar, coal, pyrite, chlorite, siltstone.

Visible porosity: FAIR - POOR.

SHOWS: None.

878 - 1881m: SANDSTONE (100%)
As above.

TRACE: buff silty limestone, siltstone, coal, lithics as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

1881 - 1884m: SANDSTONE (100%)
Clear, white, translucent, occasional coloured grains, rose quartz, yellow, fine - medium, occasionally very coarse, subangular - subrounded, occasionally angular, occasionally shattered and fractured, very slight calcitic cement, occasional silicic cement.

TRACE: siltstone, coal, lithic grains, pyrite, trace bedding on siltstone fragments.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1884 - 1887m:

SANDSTONE (80%)
As above with occasional very large quartz grains.

SILTSTONE (20%)
As above.

TRACE: green and red grains, buff silty limestone, lithic fragments, pyrite.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1887 - 1890m:

SANDSTONE (80%)
As above, very slight calcitic cement - decreased.

SILTSTONE (10%)
As above.

MUDSTONE (10%)
Very calcareous-dispersive.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

1890 - 1893m:

SANDSTONE (100%)
As above.

TRACE: siltstone, calcite, silty limestone.

Visible porosity: FAIR.

SHOWS: None.

1893 - 1896m:

SANDSTONE (100%)
As above, fine grained, increased coloured grains.

TRACE: siltstone, accessories as above, lithic fragments.

Visible porosity: FAIR.

SHOWS: None.

1896 - 1899m:

SANDSTONE (100%)
As above.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None - mineral fluorescence throughout.

1899 - 1902m:

SANDSTONE (100%)
As above, very fine - fine grained.

TRACE: accessories as above.

Visible porosity: GOOD - FAIR.

SHOWS: None.

1902 - 1905m:

SANDSTONE (90%)
As above, fine - medium, occasionally coarse, very slightly calcareous, increased coloured grains.

SILTSTONE
As above, slight caltcitic matrix.

TRACE: accessories as above, increased lithic grains.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1905 -1908m:

SANDSTONE (60%)
Clear, translucent, white, orange, red, pink, green, grey, very fine - medium occasionally coarse, angular - subangular, subrounded, poorly sorted, fractured, shattered, occasionally pitted, carbonaceous specks and inclusions, pyritic coatings, very slightly calcitic, slight kaolin matrix, silty matrix.

SILTSTONE (40%)
Light - dark grey, grey/green black brown, blocky, occasionally shaley-subfissile, carbonaceous, arenaceous, very fine - fine, argillaceous grades to carbon mudstone micromic in parts very chloritic, occasionally calcareous.

TRACE: coal, pyrite, lithic fragments, rock fragments.

Visible porosity: POOR.

SHOWS: None.

1908 - 1911m:

SANDSTONE (80%)
As above, very calcitic cemented.

SILTSTONE (20%)
As above, grades to carbonaceous mudstone-shale.

1908 - 1911m cont.

TRACE: mudstone, coal - small interlaminations of coal with sands and siltstones, mica, calcite flakes.

Visible porosity: NIL.

SHOWS: None.

1911 - 1914m:

SANDSTONE (90%)
As above, subrounded, very slightly calcareous, kaolin-silty matrix.

SILTSTONE (10%)
As above.

TRACE: coal, mudstone, lithic grains.

Visible porosity: POOR - FAIR.

SHOWS: None.

1914 - 1917m:

SANDSTONE (90%)
As above, fine - medium, occasionally coarse grained.

SILTSTONE (10%)
As above, slight trace bedding.

TRACE: accessories as above.

Visible porosity: POOR - FAIR.

SHOWS: None - trace mineral fluorescence.

1917 - 1920m:

SANDSTONE (100%)
As above, medium - coarse, occasionally fine, occasionally very coarse, slight calcitic cement.

TRACE: siltstone - very silicic, calcite, lithic grains.

Visible porosity: POOR.

SHOWS: None - trace mineral fluorescence.

1920 - 1923m:

SANDSTONE (100%)
As above, fine - medium, occasionally very fine, occasionally coarse grained.

TRACE: coal, siltstone, pink and orange grains, lithic grains.

Visible porosity: POOR.

SHOWS: None.

1923 - 1926m:

SANDSTONE (90%)
As above, occasionally coarse, kaolin matrix, occasionally silicic cement, trace lithic grains.

SILTSTONE (10%)
As above, trace sedimentary structure on fragments.

TRACE: coal, lithic rock fragments, chlorite, feldspar, pyrite.

Visible porosity: POOR - GOOD.

SHOWS: None.

1926 - 1929m:

SANDSTONE (100%)
White, clear, translucent, occasionally pink, orange, very fine - fine, subrounded, well sorted, friable - firm, frosted, occluded, trace calcitic cement, slightly carbonaceous, slightly pyritic, slightly chloritic, trace matrix - kaolin and silty.

SILTSTONE (Trace)

Light-dark grey - white, green arenaceous - argillaceous, chloritic, carbonaceous, slightly calcareous in parts, grades to carbonaceous mudstone in parts.

TRACE: coal, hard, black, vitrinous and sub-vitrinous, conchoidal fracture, occasionally interlaminated with siltstone.

Visible porosity: POOR - FAIR.

SHOWS: None.

1929 - 1932m:

SANDSTONE (100%)
As above, decreased siltstone.

TRACE: accessories as above, siltstone.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1932 - 1935m:

SANDSTONE (100%)
As above, very slightly calcareous - nil.

TRACE: siltstone, accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1935 – 1938m:

SANDSTONE (100%)
As above, slight–trace calcareous.

TRACE: siltstone as above, lithic grains, accessories as above.

Visible porosity: FAIR – POOR.

SHOWS: None.

1938 – 1941m:

SANDSTONE (100%)
As above, very calcareous cemented, occasionally coarse grained.

TRACE: siltstone increased trace coal.

Visible porosity: POOR.

SHOWS: None.

1941 – 1944m:

SANDSTONE (90%)
As above, very calcareous, very fine - medium, occasionally coarse, interlaminated carbonaceous specks, pyrite, and chlorite grains, with quartz grains in kaolinitic and calcitic matrix.

SILTSTONE (10%)
As above.

TRACE: coal, accessories as above.

Visible porosity: POOR.

SHOWS: None.

1944 – 1947m:

SANDSTONE (100%)
As above.

TRACE: increased coloured grains, decreased calcite.

Visible porosity: FAIR.

SHOWS: 3 – 4 grams faint – bright yellow fluorescence (+ yellow mineral fluorescence) instant yellow cut, pale yellow – brown ring – no trace in sample.

1947 – 1950m:

SANDSTONE (100%)
Fine – medium, occasionally coarse, mainly clean sandstone.

TRACE: very slight siltstone and lithic fragments, coal.

1947 – 1950m cont.

Visible porosity: POOR.

SHOWS: None.

1950 – 1953m:

SANDSTONE (100%)
Clear, white, translucent, trace pink and yellow grains, occasionally green, fine –medium, occasonally fine, subangular – subrounded, slight frosting and grain fracture, trace red and green grains, slightly lithic, slightly carbonaceous.

TRACE: pyrite, siltstone.

Visible porosity: FAIR.

SHOWS: None.

1953 – 1956m:

SANDSTONE (100%)
As above, slight increased coloured grains, slightly calcareous.

Visible porosity: FAIR.

SHOWS: None – trace mineral fluorescence.

1956 – 1959m:

SANDSTONE (100%)
As above, medium, occasionally coarse, angular – subrounded, moderately – poorly sorted, increased coloured grains.

TRACE: increased coal and lithic fragments.

Visible porosity: FAIR – GOOD.

SHOWS: None – trace mineral fluorescence.

1959 – 1962m:

SANDSTONE (100%)
As above, medium - coarse grained, angular – subangular, occasionally subrounded, moderately – poorly sorted, no cement, very slightly calcareous, increased carbonaceous coatings + inlusions.

TRACE: coal fragments – large, hard, black, blocky, subfissile, pyritic, siltstone – dark grey, arenaceous, occasional very very large, milky, white, quartz fragments, calcite.

Visible porosity: GOOD.

SHOWS: None.

1962 – 1965m:

SANDSTONE (80%)
As above, blue/green, clear, translucent, ocasionally pink and yellow, occasionally red and green grains, trace pyritic and carbonaceous, very chloritic, very calcitic cement.

SILTSTONE (20%) : Light – dark grey, grey/green, arenaceous – argillaceous, chloritic, carbonaceous, very fine – fine, blocky, occasionally subfissile, grades to chloritic mudstone.

TRACE: mudstone, coal, coloured rock fragments, calcite.

Visible porosity: NIL – POOR.

SHOWS: None – slight mineral fluorescence.

1965 – 1968m:

SANDSTONE (50%)
Very fine – medium, clear, white, pink, red, blue/green, orange, yellow (predominantly coloured grains in very fine – fine range), angular – subrounded, poorly sorted, very calcitic cement, trace kaolinitic – silty matrix, carbonaceous, chloritic, slightly pyritic, sublithic, slight silicic cement.

SILTSTONE (40%)
White – dark grey, grey/green, black, brown, blocky, arenaceous, argillaceous, soft – firm, occasionally subfissile, carbonaceous, chloritic, pyritic, micromicaceous.

MUDSTONE (10%)
Light grey – green/grey, arenaceous – argillaceous, chloritic, carbonaceous, soft, dispersive, blocky.

TRACE: coal, pyrite, very small round pyrite pebbles.

Visible porosity: NIL – POOR.

SHOWS: None – slight mineral fluorescence.

1968 – 1971m:

SILTSTONE (80%)
As above, grades to dispersive mudstone.

SANDSTONE (20%)
As above.

TRACE: mudstone, pyrite, coal, coloured rock fragments.

1968 – 1971m cont.

Visible porosity: NIL – POOR.

SHOWS: None.

1971 – 1974m:

SILTSTONE (90%)
As above, grades to soft argillaceous mudstone, very calcareous.

SANDSTONE (10%)
As above.

TRACE: mudstone, coal, pyrite.

Visible porosity: NIL.

SHOWS: None.

1974 – 1977m:

SANDSTONE (50%)
As above, very calcareous.

SILTSTONE (40%)
As above, very calcareous grades to mudstone.

MUDSTONE (10%)
Trace as above.

TRACE: accessories as above.

Visible porosity: NIL – POOR.

SHOWS: None.

1977 – 1980m:

SANDSTONE (50%)
As above, very calcareous.

SILTSTONE (40%)
As above, very calcareous grades to soft carbonaceous/chloritic dispersive mudstone.

MUDSTONE (10%)
As above.

TRACE: accessories as above.

Visible porosity: NIL – POOR.

SHOWS: None.

1980 – 1983m:

SANDSTONE (80%)
As above, trace very calcareous.

SILTSTONE (20%)
As above.

TRACE: coal, mudstone.

1980 - 1983m cont.

Visible porosity: FAIR - POOR.

SHOWS: None.

1983 - 1986m:

SANDSTONE (100%)
As above, very fine - fine, subrounded, well sorted, no calcitic cement.

TRACE: siltstone, lithic grains.

Visible porosity: FAIR - GOOD.

SHOWS: None.

1986 - 1989m:

SANDSTONE (100%)
White, clear, translucent, occasionally pink, yellow, green, very fine - fine, occasionally subangular - subrounded, well sorted, slightly pyritic, slight carbonaceous, slight - occasional calcitic cemented, slightly lithic.

TRACE: coal.

Visible porosity: POOR - FAIR.

SHOWS: None - slight mineral fluorescence.

1989 - 1992m:

SANDSTONE (100%)
As above, very calcitic cemented.

TRACE: increased coal fragments.

Visible porosity: POOR.

SHOWS: None - slight mineral fluorescence.

1992 - 1995m:

SANDSTONE (100%)
As above, very calcitic cemented.

TRACE: increasing grain size fine - medium, frequent red and green grains, increased coal and siltstone fragments.

Visible porosity: POOR.

SHOWS: None - slight mineral fluorescence.

1995 - 1998m:

SANDSTONE (100%)
As above, fine - medium grained, occasionally coarse, very calcareous with calcite fragments, angular - subangular, moderately sorted, slightly pyritic, slightly carbonaceous.

TRACE: siltstone as above, mudstone, very slightly calcareous, micromicaceous, dispersive, coal.

1995 – 1998m cont.

Visible porosity: POOR – FAIR.

SHOWS: None.

1998 – 2001m:

SANDSTONE (100%)
As above.

TRACE: slight decrease in siltstone fragments.

Visible porosity: POOR – FAIR.

SHOWS: slight mineral fluorescence.

Slight bright yellow speckled fluorescence in sample, instant yellow – white, cut, yellow ring. No trace of residual oil, hydrocarbon on or around grains, no visible indications.

2001 – 2004m:

SANDSTONE (100%)
As above. Occasional very large quartz grains.

TRACE: silstone fragments increasing size and frequency.

Visible porosity: POOR – FAIR.

SHOWS: None.

2004 – 2007m:

SANDSTONE (100%)
As above, medium – coarse grained.

TRACE: siltstone – light grey/dark grey, green micromicaceous in parts, coal.

Visible porosity: POOR.

SHOWS: None.

2007 – 2010m:

SANDSTONE (100%)
White, clear, translucent, rare coloured grains, very fine – fine, subangular – subrounded, well sorted, calcitic – slightly cemented, trace kaolin matrix, trace pyrite and carbonaceous material on grains, trace chloritic.

TRACE: calcite, feldspar, very slight siltstone and coaly fragments.

Visible porosity: POOR.

SHOWS: None.

2010 - 2013m:

SANDSTONE (100%)
As above, very fine - medium, occasionally coarse grained, slight silicic cement - secondary silicified, trace pyritic and carbonaceous inclusions, some clear quartz grains with coloured grains within centre, i.e. secondary silicification, increased coloured grains, pink grains, trace calcareous, kaolin matric.

TRACE: siltstone.

Visible porosity: POOR.

SHOWS: None.

2013 - 2016m:

SANDSTONE (100%)
As above, very fine - medium, occasionally coarse grained, occasional very large grains, some with carbonaceous coatings, (coaly stringers).

TRACE: siltstone - very large fragments, dark grey resinous, subfissile in parts, hard - firm, carbonaceous micromicaceous grades to coal.

Visible porosity: POOR - FAIR.

SHOWS: None.

2016 - 2019m:

SANDSTONE (100%)
As above, very fine - fine, occasional medium grained, decreased coloured grains.

TRACE: decreased siltstone and coal fragments.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2019 - 2022m:

SANDSTONE (100%)
As above, very fine, occasional coarse, red grains common, very calcitic cemented, kaolin matrix.

TRACE: very slight siltstone fragments.

Visible porosity: POOR - FAIR.

SHOWS: None.

2022 - 2025m:

SANDSTONE (100%)
As above, very fine grained, occasionally medium, very very calcitic cemented, intergranular coloured grains, carbonaceous and pyritic grains, occasional pyritic nodules, frequent pink and red grains.

2022 - 2025m cont.

TRACE: calcite, slight coal and siltstone.

Visible porosity: POOR.

SHOWS: None.

2025 - 2028m:

SANDSTONE (100%)
White, clear, translucent, pink, occasionally red, slight green, slight yellow, very fine grained, occasionally fine - medium grains, subrounded, well sorted, slight calcitic cemented.

TRACE: slight - trace feldspar, slight - trace lithic fragments, slight siltstone fragments, calcite, chlorite.

Visible porosity: GOOD.

SHOWS: None.

2028 - 2031m:

SANDSTONE (100%)
As above, fine - medium, decrease in coloured grains, good traces kaolin matrix, slight-very calcareous.

TRACE: very slight coal + siltstone.

Visible porosity: GOOD.

SHOWS: None.

2031 - 2034m:

SANDSTONE (100%)
As above, very fine - fine grained, slightly calcareous.

TRACE: chlorite fragments, decrease in coloured grains, very slight coal fragments very small.

Visible porosity: GOOD - FAIR.

SHOWS: None.

2034 - 2037m:

SANDSTONE (100%)
As above, increased coloured grains, trace - red, green, yellow, brown.

TRACE: lithic grains, siltstone microlaminated coal, mudstone and siltstone.

Visible porosity: FAIR.

SHOWS: None.

2037 - 2040m:

SANDSTONE (100%)
Very, very fine - fine, occasional medium, occasional coarse grains, multicoloured, slight - very calcareous.

TRACE: pyritised coal, fragments, accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2040 - 2043m:

SANDSTONE (100%)
As above.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2043 - 2046m:

SANDSTONE (100%)
As above.

TRACE: as above.

Visible porosity: FAIR.

SHOWS: None.

2046 - 2049m:

SANDSTONE (100%)
As above, very fine - fine.

TRACE: as above.

Visible porosity: FAIR.

SHOWS: None.

2049 - 2052m:

SANDSTONE (100%)
As above, occasionally very large quartz grains.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2052 - 2055m:

SANDSTONE (100%)
White, clear, translucent, predominantly grey/blue, pink, yellow, red, green, very fine - fine, occasionally medium, subangular - subrounded, well sorted, slightly calcitic cemented, trace carbonaceous.

2052 - 2055m cont.

TRACE: pyrite, siltstone, chlorite.

Visible porosity: FAIR.

SHOWS: None - very slight mineral fluorescence.

2055 - 2058m:

SANDSTONE (100%)
As above, abundant coloured grains very calcitic cement, occasionally very large quartz milky grains.

Visible porosity: FAIR.

SHOWS: None.

2058 - 2061m:

SANDSTONE (100%)
As above, occasionally very large clear - milky quartz grains, some with pyrite, or carbonaceous specks + inclusions, also slight trace of secondary silicification - slight calcitic cemented, loose sand.

Visible porosity: FAIR.

SHOWS: None.

2061 - 2064m:

SANDSTONE
As above.

Visible porosity: FAIR.

SHOWS: None.

2064 - 2067m:

SANDSTONE (100%)
As above, occasioanlly medium grained, slight calcitic cement, slight silicic cement, trace white kaolin matrix.

TRACE: mudstone, siltstone, coaly fragments.

Visible porosity: FAIR.

SHOWS: None.

2067 - 2070m:

SANDSTONE (100%)
As above, very calcareous in parts, kaolin matrix.

TRACE: accessories as above.

Visible porosity: FAIR - POOR.

SHOWS: None.

2070 - 2073m:

SANDSTONE (100%)
As above, very calcareous.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2073 - 2076m:

SANDSTONE (100%)
As above, increased blue/grey coloured grains, kaolin matrix, slightly calcareous.

TRACE: accessories as above, increased siltstone and claystone.

Visible porosity: FAIR.

SHOWS: None.

2076 - 2079m:

SANDSTONE (100%)
As above, very calcitic cement, kaolinitic matrix,

TRACE: accessories as above, slight increase in small coaly fragments, microlaminated coal, kaolinite, mudstone and siltstone fragments.

Visible porosity: FAIR.

SHOWS: None.

2079 - 2082m:

SANDSTONE (100%)
Green, blue/grey, white, clear, translucent, pink, orange, brown, green, red, very fine - fine, subangular - subrounded, well sorted, very calcitic cemented, very kaolinitic, slight - trace carbonaceous and pyritic, slightly chloritic.

TRACE: slight siltstone, slight coaly fragments - very small.

Visible porosity: FAIR.

SHOWS: Very faint yellow speckled fluorescence in sample. Instant yellow - white cut. Slight ring - very minor.

2085 - 2088m:

SANDSTONE (100%)
As above, very fine - medium, very calcitic cement, occasional very large quartz pebbles, slightly micromicaceous.

TRACE: accessories as above, increased trace siltstone.

Visible porosity: FAIR.

SHOWS: None.

2088 - 2091m:

SANDSTONE (100%)
As above, with occasional very large quartz pebbles, microlaminated coal and sandstone in some aggregates.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2091 - 2094m:

SANDSTONE (100%)
As above, with occasional very large quartz pebbles, very calcitic cement, kaolinitic.

TRACE: chlorite, accessories as above.

Visible porosity: FAIR - POOR.

SHOWS: None.

2094 - 2097m:

SANDSTONE (100%)
As above, increased coarse grains, trace silicic cement, calcitic cement, very cemented, kaolinitic, very hard-brittle, angular - subangular, poorly sorted, very carbonaceous coated, very pyritic, occasional pyritized cement - replacement.

Visible porosity: VERY POOR.

SHOWS: None.

2097 - 2100m:

SANDSTONE (100%)
As above, very calcitic, very kaolinitic, very angular, some silicic cement, pyritic, chloritic.

TRACE: siltstone, coal.

Visible porosity: POOR - FAIR.

SHOWS: None.

2100 - 2103m

SANDSTONE (100%)
White, black/grey, yellow, clear, translucent, orange, pink, red, fine - medium, occasionally very coarse grained, moderate - well sorted, angular - subangular, occasionally subrounded, carbonaceous, pyritic, chloritic, occasionally lithic, dark rock fragments, occasional pyritic nodules, trace kaolinitic, slightly - very calcitic cemented, slight silicic cemented, trace grain fracture-shatter, pitted and frosted grains.

Visible porosity: POOR - FAIR.

SHOWS: None.

2103 - 2106m:

SANDSTONE (100%)
As above, slightly dirtier sand, very fine - coarse, pyritic, cemented, very carbonaceous, increased coaly fragments, microlaminated in parts with brown clay, kaolinitic and carbonaceous matrix in parts.

TRACE: mica, large pyritic nodules - pyritized matrix/cement within aggregages containing carbonaceous + quartz grains, siltstone.

Visible porosity: POOR.

SHOWS: None.

2106 - 2109m:

SANDSTONE (100%)
As above, medium - coarse grained, angular - subangular, moderately - poorly sorted, some very large quartz pebbles, carbonaceous, pyritic, very slightly calcitic cemented some pyritization,

TRACE: coal and siltstones - very large fragments,

Visible porosity: FAIR - GOOD.

SHOWS: None.

2109 - 2112m:

SANDSTONE (100%)
As above, fine - medium grained, occasional - trace very large quartz pebbles, occasionally subrounded, occasionally angular, calcitic cement - silicic cement, silty-kaolinitic matrix.

TRACE: large nodules/aggregates with pyritized cement, quartz + carbonaceous grains. Trace large cherty, siltstone fragments.

Visible porosity: FAIR - POOR.

SHOWS: None - trace mineral fluorescence.

2112 - 2115m:

SANDSTONE (100%)
As above.

TRACE: accessories as above.

Visible porosity: FAIR - POOR.

SHOWS: None.

2115 - 2118m:

SANDSTONE (100%)
White, clear, translucent, red-orange, green yellow, very fine - fine occasionally abundant very large coarse quartz grains/pebbles, subangular - subrounded, poorly sorted, lithic - dark rock fragments and grains, trace calcitic cement, aggregates of pyrite, quartz + chlorite grains.

TRACE: siltstone, light-dark grey, occasionally black, micromicaceous, carbonaceous, microlaminated, very fine - fine, blocky, hard to brittle, occasionally soft - firm, occasional buff, silty limestone to very calcareous silt, coal - large, black, hard, blocky, resinous fragments, pyritic grades to carbonaceous siltstone/mudstone, trace kaolin with/interlaminated ironiferous bands, pyrite nodules.

Visible porosity: NONE - FAIR.

SHOWS: None - Trace mineral fluorescence.

2118 - 2121m:

SANDSTONE (100%)
As above, generally increasingly dirty sand, very calcitic cement, calcite flakes and calcareous matrix to trace kaolinitic- silty matrix, very fine - coarse grains, angular - subrounded, poorly sorted, some grain fracture.

TRACE: buff silty limestone - calcareous siltstone, siltstone - black, carbonaceous, chloritic, micromicaceous, coal, lithic grains, dolomite.

Visible porosity: POOR - FAIR.

SHOWS: None - Trace mineral fluorescence.

2121 - 2124m:

SANDSTONE (100%)
As above, very calcitic cement and matrix.

TRACE: accessories as above.

Visible porosity: POOR - FAIR.

SHOWS: None - trace mineral fluorescence.

2124 - 2127m: Pulled out - no sample - no circulation.

2127 - 2130m: Pulled out - no sample - no circulation.

2130 - 2133m:

SANDSTONE (100%)
As above, increased coloured grains.

TRACE: increased siltstone + coal fragments, increasing buff silty limestone/siltstone, dolomite, orange/buff calcite fragments. Contaminated with pipe.

Visible porosity: POOR.

SHOWS: None - pipe dope contamination.

2133 - 2136m:

SANDSTONE (100%)
Light grey, white, clear, translucent occasionally pink, green, yellow, orange, red and green, fine - medium, occasionally coarse, subangular - subrounded, moderately sorted, kaolinitic matrix, slight calcitic cemented, slightly carbonaceous around grain surfaces, pyritic, and carbonaceous inclusions in quartz grains, some very large quartz pebbles, increasing inclusions in grains, occasional frosting and pitting.

TRACE: dark rock fragments, small coal fragments, calcite fragments, pyrite nodules/aggregates with carbonaceous grains, quartz, rose quartz, some dark rock fragments in matrix.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2136 - 2139m:

SANDSTONE (100%)
As above, increased kaolin and clay matrix with some calcitic matrix, increased calcitic cement increased quartz pebbles.

TRACE: coal.

2136 - 2139m cont.

Visible porosity: POOR - NIL.

SHOWS: None.

2139 - 2142m:

SANDSTONE (100%)
As above, very fine - very coarse, with large quartz fragments/pebbles, angular - subangular, occasionally subrounded, very poorly sorted, brown clay - kaolin matrix, slight - very calcareous, occasionally pyritized matrix with aggregates of carbonaceous and quartz grains, silty matrix - blue/grey with mica, rock fragments and quartz grains.

TRACE: coloured grains, dark rock fragments, coaly fragments, siltstone - light - dark grey, very fine - fine, argillaceous siliceous, blocky, occasionally soft - firm - hard, occasionally - rare very large grains.

Visible porosity: POOR - FAIR.

SHOWS: None - trace mineral fluorescence in 1 or 2 grains.

2142 - 2145m:

SANDSTONE (100%)
As above, clean sand, fine - medium, occasional very large quartz grains, very calcitic cement.

TRACE: Decreased siltstone, decreased coal, occasional pyrite nodules.

Visible porosity: POOR - FAIR.

SHOWS: None - trace mineral fluorescence - 1-2 grains.

2145 - 2148m:

SANDSTONE (100%)
Light grey - white, clear translucent, occasional coloured grains, very fine - medium, occasionally coarse, moderately sorted, trace carbonaceous material and grains, subangular - subrounded, occasionally angular, very slight calcitic cement, trace kaolin matrix, very slight trace silicic cement.

TRACE: Very slight - trace coal, very slight - trace dark rock fragments, pyrite.

Visible porosity: FAIR.

SHOWS: None.

2148 - 2151m:

SANDSTONE (100%)
As above, fine - medium, occasionally coarse, occasional very large coarse grains, increased traces of secondary silicification on large grains with inclusions, trace carbonaceous material on grains.

TRACE: feldspar, calcite.

Visible porosity: FAIR.

SHOWS: None.

2151 - 2154m:

SANDSTONE (100%)
As above, becoming finer, increased trace kaolinitic matrix, very calcitic.

Visible porosity: FAIR.

SHOWS: None.

2154 - 2157m:

SANDSTONE (100%)
As above, very fine - fine grained, with very large quartz pebbles, trace kaolinitic cement, slight trace silicic cement.

TRACE: large coal fragments, increased red and green grains.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2157 - 2160m:

SANDSTONE (100%)
As above, fine - medium grained, trace coarse grains, increased coloured rock fragments, slightly calcareous, no cement, slight secondary silicification, trace carbonaceous matter on grains and in matrix between grains.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2160 - 2163m:

SANDSTONE (100%)
As above, fine - medium, occasionally coarse.

TRACE: increased coal fragments, slight increased siltstone - dark, light grey, green, increased calcite fragments, coaly stringers.

2160 - 2163m cont.

Visible porosity: FAIR.

SHOWS: None.

2163 - 2166m:

SANDSTONE (100%)
As above, fine grained, decreased coloured grains, increased kaolin, increased carbonaceous fragments.

TRACE: as above, increased coal fragments, coaly stringers

Visible porosity: FAIR.

SHOWS: None.

2166 - 2169m:

SANDSTONE (100%)
Generally blue/grey, white, translucent, clear, milky, occasionally yellow-orange, trace pink and green, very fine - fine, occasionally medium - coarse, angular - subangular, occasionally subrounded, moderately sorted, trace calcareous, trace kaolinitic, microlaminated coal, kaolin + sandstone.

TRACE: siltstone, coal fragments, grading to dirty sand.

Visible porosity: FAIR.

SHOWS: None.

2169 - 2172m:

SANDSTONE (90%)
As above, fine - medium, occasionally coarse, subangular, occasionally subrounded, poor - moderately sorted, slight calcitic cement - very calcitic, good trace kaolin - clay matrix - white + brown, dispersive - soft, aggregates - some with brown to light orage coating on grains - possible trace zeolitic cement in some aggregates on grains - sublithic, increased coloured grains, occasional to rare secondary silicification.

SILTSTONE (10%) : Light - dark grey, black, grey/green, brown, micromicaceous, carbonaceous, argillaceous - arenaceous, blocky, pyritic, subfissile.

TRACE: microlaminated sandstone, coal and kaolin fragments, coal, dark rock fragments, chlorite, pyrite, calcite.

Visible porosity: FAIR.

SHOWS: None.

2172 - 2175m:

SANDSTONE (90%)
As above, grading to clean sand.

SILTSTONE (10%)
As above.

TRACE: accessories as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

2175 - 2178m:

SANDSTONE (90%)
As above, medium - coarse grained, occasionally fine grained.

SILTSTONE (10%)
As above.

TRACE: accessories as above, increased kaolin, decreased coal, increased chlorite.

Visible porosity: POOR - FAIR.

SHOWS: None.

2178 - 2181m:

SANDSTONE (100%)
As above, fine - medium grained, occasionally coarse, trace calcitic cement, grading to cleaner sand.

TRACE: decreased siltstone, kaolin, coal and calcite - still approximately 5% - trace, accessories as above.

Visible porosity: POOR - FAIR.

SHOWS: None.

2181 - 2184m:

SANDSTONE (100%)
Grey, white, clear, translucent, milky, occasionally orange, yellow, brown, green, pink, fine - coarse, angular - subrounded, poorly sorted, slight calcitic cement-trace silicic cement, very slight kaolin matrix, occasionally silty matrix, chloritic, carbonaceous, pyritic, sublithic grading to clean sand.

TRACE: coal - hard, black, blocky - vitrinous to subvitrinous, subfissile, micromicaceous, occasionally arenaceous, trace siltstone dark - light grey, black, brown, green, arenaceous - argillaceous, soft - firm, occasionally subfissile, slight trace dolomite, slight calcite fragments, pyrite.

2181–2184m cont.

Visible porosity: FAIR – GOOD.

SHOWS: None.

2184 – 2187m:

SANDSTONE (100%)
As above, fine – medium, trace zeolitic cement.

TRACE: accessories as above.

Visible porosity: FAIR – GOOD.

SHOWS: None.

2187 – 2190m:

SANDSTONE (100%)
As above, increased kaolin – to large dispersive aggregates, very calcareous in parts, subangular – subrounded.

TRACE: siltstone as above, accessories as above.

Visible porosity: FAIR – GOOD.

SHOWS: None.

2190 – 2193m:

SANDSTONE (100%)
As above, with increased kaolinitic matrix aggregates, very calcareous in parts.

TRACE: decreased siltstone, accessories as above, calcite flakes.

Visible porosity: FAIR – GOOD.

SHOWS: None.

2193 – 2196m:

SANDSTONE (100%)
white, grey, clear, translucent, occasional coloured grains, very fine – medium, subrounded occasionally subangular, well sorted, trace calcareous, trace chloritic, trace carbonaceous microlaminated.

TRACE: small coal fragments, slight kaolin, siltstone, microlaminated.

Visible porosity: FAIR – GOOD.

SHOWS: very very faint pale yellow speckled fluorescence, very very slow pale yellow stream on cut, no crush, possible contamination, no evidence on grains in sample.

2169 - 2199m: SANDSTONE (100%)
As above.

TRACE: increased siltstone and claystone, pyrite nodules, pyritized matrix with quartz and carbonaceous inclusions.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2199 - 2202m: SANDSTONE (100%)
Clear, white, translucent, light - dark, rare - occasional pink, yellow, grains, very fine - fine, occasionally medium, subrounded - subangular, moderately - well sorted, no calcitic cement, very slightly trace carbonaceous, trace chloritic.

TRACE: coal, lithic grains, kaolin, siltstone.

Visible porosity: GOOD.

SHOWS: None.

2202 - 2205m: SANDSTONE (100%)
As above, silty matrix.

TRACE: increased kaolin, dark grey siltstone, volcanic fragments.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2205 - 2208m: SANDSTONE (100%)
As above, very very fine grained, very calcareous, increased very fine coloured grains, slight trace kaolin matrix, increased calcitic cement.

TRACE: silty limestone, accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2208 - 2211m: SANDSTONE (100%)
As above.

TRACE: slight increased very very small coal fragments, accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2211 - 2214m:

SANDSTONE (100%)
As above, very fine - fine, occasionally medium, very calcareous.

TRACE: very slight coal fragments, accessories as above.

Visible porosity: GOOD - FAIR.

SHOWS: None.

2214 - 2217m:

SANDSTONE (70%)
Coloured grains, as above, fine - medium, occasionally medium - coarse grained, subangular - subrounded, moderate - poorly sorted, kaolin - silty matrix, very calcareous, chloritic, lithic, carbonaceous, pyritic.

SILTSTONE (20%)
Light - dark grey, brown, green, black, micromicaceous in parts, arenaceous - argillaceous, carbonaceous, firm - soft, occasionally hard and silicic, trace conch fracture, trace blocky, occasionally subfissile, grades to mudstone, slightly pyritic.

MUDSTONE - clay (10%)
Light grey - buff, soft - dispersive - plastic, argillaceous carbonaceous in parts, white kaolin clay - very dispersive, slightly pyritic.

TRACE: coal fragments, slight trace rock fragments.

Visible porosity: POOR - FAIR.

SHOWS: None.

2217 - 2220m:

SANDSTONE (90%)
White, grey/blue, clear, translucent, occasionally yellow, orange, green, very fine - medium, occasionally coarse, poor - moderately sorted, slight - trace calcitic cemented, kaolin-silty matrix trace calcareous matrix, pyritic, carbonaceous, chloritic, some grain fracture, frosting, slight trace lithic grains.

SILTSTONE/MUDSTONE (10%)
Light - dark grey, black, grey/green, silicic - arenaceous, occasionally argillaceous, occasionally carbonaceous, trace chloritic, trace kaolin microlaminated siltstone and mudstone occasionally with calcareous material or calcite flakes, mudstone often grades to coal, slight micromicaceous in parts.

2217 - 2220m cont.

Visible porosity: POOR - FAIR.

SHOWS: None.

2220 - 2223m:

SANDSTONE (100%)
As above.

TRACE: microlaminated mudstone, siltstone + claystone as above, siltstone + mudstone - very chloritic in parts, trace kaolin, accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2223 - 2226m:

SANDSTONE (100%)
As above, occasional very large coarse quartz grains, trace banded grey in some blocky quartz grains - cherty, occasionally very large red/brown coloured rock fragments, chloritic slightly calcitic, very faint silicic dark grey - grey/green, micromicaceous, carbonaceous, arenaceous - argillaceous, large kaolin aggregates - white - dispersive.

TRACE: coal, lithic fragments, pyrite, calcite fragments, occasional microlaminated sandstone/ mudstone.

Visible porosity: POOR - FAIR.

SHOWS: None.

2226 - 2229m:

SANDSTONE (90%)
As above, with very large milky quartz pebble fragments.

MUDSTONE/CLAY (10%)
White - light grey, grey/green, brown, dark grey, black, predominantly white and light grey dispersive - soft occasionally chloritic, often chloritic matrix.

TRACE: coal.

Visible porosity: FAIR.

SHOWS: None.

2229 - 2232m:

SANDSTONE (100%)
White, clear, translucent, occasionally orange, red, yellow green, pink, very fine - fine, occasionally medium, very occasional coarse grains, moderately well sorted, subangular - subrounded, occasionally angular, trace calcareous, trace kaolin, trace carbonaceous coatings and inclusions, common coloured lithic grains.

TRACE: coal, siltstone, mudstone, soft, white - grey - brown, dispersive.

Visible porosity: GOOD.

SHOWS: None.

2232 - 2235m:

SANDSTONE (100%)
As above.

TRACE: decrease in siltstone and claystone.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2235 - 2238m:

SANDSTONE (100%)
As above, increased grain size, fine - medium, occasionally angular, subangular - subrounded, moderate - poorly sorted.

TRACE: decrease in siltstone fragments, as above, kaolin or claystone fragments, trace coal, lithic fragments.

Visible porosity: GOOD.

SHOWS: None.

2238 - 2241m:

SANDSTONE (100%)
As above, trace secondary silicification in places.

TRACE: accessories as above, slight increase kaolin.

Visible porosity: FAIR.

SHOWS: None.

2241 - 2244m:

SANDSTONE (100%)
As above, increased calcareous to kaolin matrix.

TRACE: increased claystone/mudstone-grey/brown, green, microlaminated with siltstone, coal, kaolinitic blebs, very slight calcite. Very rare garnet fragments/grains, trace secondary silicic.

Visible porosity: POOR - FAIR.

SHOWS: None.

2244 - 2247m:

SANDSTONE (100%)
Very clean sands, coloured grains as above, very fine - fine grained, subangular - subrounded, well sorted, occasional silicic cemented, occasional zeolite cement, occasional calcitic cement, trace carbonaceous.

TRACE: pyrite, coal, chlorite, small rock fragments, siltstone microlaminated with sandstone, occasional very large quartz grains.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2247 - 2250m:

SANDSTONE (100%)
As above, very calcareous, occasional lithic fragments.

TRACE: coal/pyritized, microlaminated siltstone/ mudstone.

Visible porosity: FAIR - GOOD.

SHOWS. None - very slight trace mineral fluorescence.

2250 - 2253m:

SANDSTONE (100%)
White, clear, translucent, occasionally yellow, red-orange, green, fine - medium, subangular, moderately sorted, very slightly carbonaceous, no calcitic cement,

TRACE: very slight kaolin, very slight trace siltstone, very slight trace lithic grains.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2253 - 2256m:

SANDSTONE (90%)
As above, occasionally coarse grained, increased kaolin - silty matrix, very slight calcitic cement, trace pyritic.

COAL (10%)
Hard, black, shiny, vitrinous - subvitrinous, occasionally firm - brittle, friable, microlaminated with sandstone/siltstone in parts.

TRACE: siltstone - light-dark grey, black, green, arenaceous - argillaceous, chloritic, carbonaceous grades to mudstone, kaolinite fragments, pyrite nodules and aggregates with quartz and carbonaceous grains.

Visible porosity: FAIR.

SHOWS: None.

2256 - 2259m:

SANDSTONE (100%)
As above, fine grained, very slight calcareous matrix.

TRACE: very slight siltstone, mudstone and coal, very slight kaolin, lithic coloured grains.

Visible porosity: GOOD:

SHOWS: None.

2259 - 2262m:

SANDSTONE (100%)
As above, very fine - fine grained, very slight calcareous matrix - no cement, abundant kaolin matrix, abundant coloured grains, clean sand.

TRACE: Very slight siltstone and coal.

Visible porosity: GOOD.

SHOWS: None.

2262 - 2265m:

SANDSTONE (100%)
As above, abundant kaolin matrix.

TRACE: very slight trace coal and pyritic carbonaceous mudstone, lithic grains.

Visible porosity: GOOD.

SHOWS: None.

2265 - 2268m:

SANDSTONE (100%)
As above, very dirty sand with very very clay - argillaceous silty matrix, very slightly calcareous matrix, very carbonaceous, very pyritic, sandstone aggregates, brittle - soft - friable, very lithic, microlaminated sandstone, siltstone and coal.

TRACE: siltstone and coal fragments, frequent kaolin fragments, dispersive mudstone, very silty and carbonaceous matrix.

Visible porosity: FAIR.

SHOWS: None.

2268 - 2271m:

SANDSTONE (100%)
White, translucent, clear, occasionally coloured grains, fine grained, occasionally medium - coarse, well sorted, subangular - subrounded, very slight calcitic cement, abundant kaolin matrix, trace silty matrix, trace carbonaceous and dark rock fragments.

TRACE: opalised grains, pyrite, coal and siltstone.

Visible porosity: FAIR.

SHOWS: None.

2271 - 2274m: No sample trip no circ.

2274 - 2277m: No sample trip no circ.

2277 - 2280m:

SANDSTONE (100%)
As above, very chloritic, slight calcitic cement, argillaceous, very calcareous in matrix-kaolin matrix.

TRACE: mudstone - brown, yellow, pyrite, coal - grades to carbonaceous mudstone, siltstone fragments.

Visible porosity: FAIR - GOOD.

SHOWS: Coal stringer sample:- pale patchy yellow fluorescence with occasional bright yellow specks. Instant bright white/yellow streaming cut - remaining. Pale yellow ring. Very small trace of stain on some grains within argillaceous matrix.

2280 - 2283m:

SANDSTONE (100%)
As above - cleaner sand, abundant clay-kaolin-silty matrix, abundant coloured grains.

TRACE: decreased coal + siltstone.

Visible porosity: FAIR - GOOD.

SHOWS: Sample: very little trace on some grains, pale yellow spotty speckled fluorescence. Instant bright yellow - white streaming cut - short lived. Pale yellow ring sample.

2283 - 2286m:

SANDSTONE (100%)
As above, very muddy siltstone/sandstone sample, increased brown grey clay - kaolin - silty matrix.

TRACE: Increased siltstone - dark grey - light grey, micromicaceous, carbonaceous-subfissile - blocky.

Visible porosity: FAIR.

SHOWS: One fragment showing pale yellow fluorescence in sample. Slow streaming pale yellow cut, instant bright white/yellow streaming cut on crush, lingering bright yellow ring. No real traces on grains - fluorescence mainly in argillaceous matrix.

2286 - 2289m:

SANDSTONE (100%)
White, clear, translucent, milky, pink, orange, red, occasionally green, generally grey/blue, coloured sand, very fine - fine grained, well sorted, subangular - occasionally subrounded, very calcareous matrix and cement, trace kaolin matrix, carbonaceous - silty matrix, slightly pyritic, chloritic, occasional inclusions in grains, trace dark rock fragments.

TRACE: siltstone, light - dark grey, green, brown, silicic - arenaceous, argillaceous, blocky - sucrosic, soft - firm, occasionally subfissile, trace carbonaceous, chloritic and micromicaceous, coal - very very small fragments, hard black vitrinous, calcile.

Visible porosity: GOOD.

SHOWS: None.

2289 - 2292m:

SANDSTONE (100%)
Generally blue/grey to white sandstone as above, fine - medium, occasionally coarse, clean, occasional coloured grains, mainly yellow, white kaolin to very calcareous matrix, trace cement.

TRACE: siltstone as above, coal as above, large blebs kaolin - dispersive.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2292 - 2295m:

SANDSTONE (100%)
As above.

TRACE: accessories as above, occasional pyritic nodules/aggregates with quartz and carbonaceous specks.

Visible porosity: FAIR - GOOD.

SHOWS. None.

2295 - 2298m:

SANDSTONE (100%)
Predominantly white to light grey, abundant pink, yellow, orange, red grains, fine - medium, occasionally coarse grained, loose-unconsolidated, slightly chloritic, very very slight calcareous matrix, trace kaolin matrix, some grains with black inclusions, trace secondary silicifications.

TRACE: siltstone - large fragments, black grey, very micacaceous in parts, very chloritic in parts, carbonaceous, very slight trace coal and rock fragments.

Visible porosity: GOOD.

SHOWS: None.

2298 - 2301m:

SANDSTONE (100%)
Light grey, white, clear translucent, abundant, pink, red, orange grains, very fine - fine grained, occasionally medium - coarse, moderately-well sorted, slight trace kaolinitic to brown argillaceous matrix.

TRACE: siltstone fragments, dark rock fragments, pyrite.

Visible porosity: GOOD.

SHOWS: None.

2301 – 2304m:

SANDSTONE (100%)
As above, very fine grained – clean sand.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2304 – 2307m:

SANDSTONE (100%)
As above.

TRACE: abundant chlorite, siltstone, and mudstone – dark brown, dark grey – light grey, green, abundant coloured grains, accessories as above, slight increased chloritic siltsone.

Visible porosity: FAIR – GOOD.

SHOWS: None.

2307 – 2310m:

SANDSTONE (60%)
Grey, white, clear, abundant pink, yellow, orange, red, green grains, fine – medium grained, subrounded, occasionally subangular, moderately sorted, argillaceous to very calcitic cement and matrix, carbonaceous, pyritic, lithic.

SILTSTONE (30%)
Light – dark grey, green, brown, micromicaceous, blocky, sucrosic, resinous, soft – firm, occasionally friable, occasionally arenaceous – argillaceous, chloritic in parts, carbonaceous grades to carbonaceous argillaceous mudstone in parts.

MUDSTONE (10%)
Light – dark grey, grey/brown, buff, soft – dispersive, carbonaceous, micromicaceous, occasionally silicic, occasionally chloritic.

TRACE: pyrite, abundant coloured grains, coal fragments – hard, black, blocky – vitrinous, calcite.

Visible porosity: POOR.

SHOWS: None.

2310 - 2313m:

SANDSTONE (70%)
As above, occasionally coarse grained.

SILTSTONE (20%)
As above.

MUDSTONE (10%)
As above.

TRACE: coal, abundant rose quartz and coloured lithics, abundant orange, yellow, green grains, chlorite and carbonaceous fragments, trace fragments with zeolitic cement-bright orange.

Visible porosity: POOR.

SHOWS: None.

2313 - 2316m:

SANDSTONE (90%)
Light - grey/green, white, clear, translucent, abundant pink and yellow grains, yellow stained grains, occasionally green, fine - medium, moderately sorted, subangular - subrounded, chloritic in parts, trace calcitic cement, trace carbonaceous, (getting sandier), kaolin-clay matrix, occasionally interlocking silica fragments - secondary silicification.

SILTSTONE (10%)
Light - dark grey, black, occasionally white/ grey, blocky, sucrosic - resinous, soft to firm, occasionally friable, occasionally subfissile, micromicaceous in parts, argillaceous-arenaceous.

TRACE: mudstone-light grey, dispersive, soft, kaolinitic white - dispersive, coal, kaolinite fragments, pyrite, dark rock fragments.

Visible porosity: POOR.

SHOWS: None.

2316 - 2319m:

SANDSTONE (100%)
Light grey, sandstone, clear-translucent, white, occasional pink + yellow grains, fine - medium, occasionally coarse, moderately sorted, subangular - subrounded, occasionally angular, trace calcareous, trace kaolinitic matrix.

TRACE: chlorite, pyrite, siltstone as above, coal as above, slight trace dark rock fragments.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2319 –2322m:

SANDSTONE (100%)
As above, very calcareous, abundant coloured grains.

TRACE: accessories as above.

Visible porosity: FAIR.

SHOWS: None.

2322 – 2325m:

SANDSTONE (100%)
As above, very calcareous, abundant coloured grains.

TRACE: accessories as above, mudstone, kaolin.

Visible porosity: GOOD.

SHOWS: None.

2325 – 2331m:

SANDSTONE (100%)
As above, occasionally coarse grained, occasional coloured fragments, very slightly calcareous.

TRACE: very slight trace siltstone as above, coal as above, abundant kaolin.

Visible porosity: GOOD.

SHOWS: None.

2331 – 2334m:

SANDSTONE (100%)
As above, fine - very fine, coloured grains, occasional very large quartz grains, very calcareous, abundant kaolin.

TRACE: siltstone, coal.

Visible porosity: GOOD.

SHOWS: None.

2334 – 2337m:

SANDSTONE (100%)
Light grey – sandstone, white, clear, translucent, occasionally pink, yellow and green grains, very fine - fine, occasionally medium, moderately sorted, subangular – subrounded, occasionally angular, occasional grain fracture and frosting, occasional carbonaceous inclusions and coatings, slightly pyritic, very kaolinitic and calcareous cement/matrix, yellow–orange ironiferous–siliceous cemented sandstone fragments/aggregates with coloured grains and dark rock fragments.

2334 - 2337m cont.

TRACE: siltstone, coal, kaolinite, chlorite.

Visible porosity:

(i) Grey sand - GOOD - FAIR.

(ii) Orange sand - POOR.

SHOWS: None.

2337 - 2340m:

SANDSTONE (100%)
As above, light grey sandstone and orange sandstone as above, very calcitic cemented.

TRACE: siltstone, kaolinite, abundant coloured grains, chlorite, dark rock fragments.

Visible porosity

(i) Grey sand - GOOD.

(ii) Orange sand - POOR.

2340 - 2343m:

SANDSTONE (100%)
As above, light grey, calcareous-kaolinitic matrix, very calcitic cemented sandstone - fine - medium, occasionally coarse, moderate - poorly sorted, ironiferous-limonitic quartzose silicic cemented sandstone as above.

TRACE: siltstone as above, kaolinite as above, coal, lithic grains.

Visible porosity:

(i) Grey sand - GOOD.

(ii) Orange sand - POOR.

2343 - 2346m:

SANDSTONE (100%)
As above, light grey sand with orange sandstone - medium grains, occasionally coarse.

TRACE: siltstone, slight - very calcareous kaolinite, increased mudstone and clay fragments, coal, dark lithic grains.

Visible porosity:

(i) GOOD as above.
(ii) POOR as above.

SHOWS: None.

2346 - 2349m:

SANDSTONE (100%)
As above, predominantly light grey white sandstone, subrounded grains, fine - medium, good trace kaolinitic matrix, no calcitic cement, trace coloured grains.

TRACE: siltstone, coal.

Visible porosity: EXCELLENT - GOOD.

SHOWS: None.

2349 - 2352m:

SANDSTONE (100%)
Light grey - sandstone, white, clear, translucent, occasional rare, yellow, pink, red and green, fine - medium, occasionally coarse, subrounded, occasionally subangular, very slightly calcareous in matrix, abundant kaolin, slightly sublithic, slightly carbonaceous, slightly pyritic.

TRACE: siltstone fragments - light-dark grey, blocky, carbonaceous, micromicaceous, grades to argillaceous-mudstone, slight trace coal, slight trace chert, dark lithic grains.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2352 - 2355m:

SANDSTONE (100%)
As above.

TRACE: abundant coal - hard, black, vitrinous, fragmented, accessories as above.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2355 - 2358m:

SANDSTONE (100%)
As above, abundant red and pink grains, trace yellow, trace green clay matrix, abundant kaolin matrix + aggregates, carbonaceous/coally coatings on some large quartz grains.

TRACE: mudstone - claystone, siltstone as above, coal. Thin interbedded microlaminated coal stringers, rare - trace chloritic siltstone with multicoloured quartz grains, trace dark rock fragments.

Visible porosity: GOOD.

SHOWS: None.

2358 - 2361m:

SANDSTONE (100%)
As above, very clean white, loose sand, occasional pink/red and green grains.

TRACE: black/white siliceous - carbonaceous siltstone, cherts, increased coal, siltstone, kaolin.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2361 - 2364m:

SANDSTONE (100%)
As above, no calcitic cement, trace kaolin, abundant coloured grains.

Visible porosity: EXCELLENT - GOOD.

SHOWS: None.

2364 - 2367m:

SANDSTONE (100%)
Light grey sandstone, white, clear, translucent grains, abundant pink, red, orange, yellow, occasionally green, fine - medium, occasionally coarse, subrounded, occasionally subangular, moderate - well sorted, no calcitic cement, trace kaolin - silty matrix.

TRACE: siltstone, very slight trace coal.

Visible porosity: EXCELLENT - GOOD.

SHOWS: None.

2367 - 2370m:

SANDSTONE (100%)
As above, medium - grained, occasionally coarse.

TRACE: accessories as above.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2370 - 2373m:

SANDSTONE (100%)
As above, medium grained, occasionally coarse.

TRACE: accessories as above.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2373 - 2376m:

SANDSTONE (100%)
As above, fine - medium grained, abundant coloured grains, slight - very calcareous matrix and trace cement.

TRACE: rare siltstone, rare pyrite nodules/ aggregates with carbonaceous and quartz grains.

Visible porosity: EXCELLENT.

SHOWS: None.

2376 - 2379m:

SANDSTONE (100%)
As above, very fine - fine grained, occasionally medium, occasional secondary re-crystallized quartz grains - secondary cement.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2379 - 2382m:

SANDSTONE (100%)
As above, very fine - fine, occasionally medium, occasional secondary re-crystallized quartz grains, abundant coloured grains.

Visible porosity: GOOD.

SHOWS: None.

2382 - 2385m:

SANDSTONE (100%)
As above, slightly kaolinitic, trace calcareous.

TRACE: coal, garnets.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2385 - 2388m:

SANDSTONE (100%)
As above, fine - very coarse, angular, occasional large quartz pebbles + fragments, poorly sorted, trace kaolin, trace aggregates of kaolin and quartz grains, very calcareous to silty matrix, trace yellow quartzose -iroriferous sandstone.

TRACE: siltstone - dark grey/green, micromicaceous, slight trace multi-coloured grains, slight trace garnet, dark rock fragments, calcite.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2388 - 2391m:

SANDSTONE (100%)
Light grey sandstone, white, clear, translucent, fine - medium grained, occasionally coarse, subangular - subrounded, moderately sorted, very slight calcitic cement, trace calcareous to kaolinitic matrix, slightly carbonaceous, occasional silty matrix.

TRACE: dark rock fragments, coloured grains, garnet - red-clear/translucent, siltstone - very very small fragments, coal - very very small fragments.

Visible porosity: FAIR.

SHOWS: None.

2391 - 2394m:

SANDSTONE (100%)
As above, medium - coarse grained, occasionally fine, angular - subangular, occasionally subrounded, poorly sorted, re-crystallized quartz overgrowths to secondary silicification, slight trace of carbonaceous material on some grains.

TRACE: coal, abundant coloured grains, dark rock fragments, slight trace red and pink garnets, kaolinite, siltstone.

Visible porosity: FAIR - GOOD.

SHOWS: very very faint spotty yellow fluorescence in sample. Very very faint yellow cut - very slow and short-lived, no trace in sample.

2394 - 2397m:

SANDSTONE (100%)
As above, slight secondary re-crystallization of quartz.

TRACE: accessories as above.

Visible porosity: GOOD - EXCELLENT.

SHOWS: None.

2397 - 2400m:

SANDSTONE (100%)
As above, very slight calcareous-kaolinitic matrix, carbonaceous.

TRACE: calcite flakes, pyritic silty coal, pyrite nodules/aggregates with quartz and carbonaceous specks.

Visible porosity: GOOD.

SHOWS: None.

2400 - 2403m:

SANDSTONE (100%)
Light grey - pale yellow sandstone as above, very fine - fine, occasionally medium, subangular - subrounded, well sorted, silty - kaolinitic matrix, trace carbonaceous specks.

TRACE: ironiferous stringers, slight trace siltstone, dark lithics, coloured grains, pink translucent garnets.

Visible porosity: GOOD.

SHOWS: None.

2403 - 2406m:

SANDSTONE (100%)
Light grey sandstone as above - decreased yellow grains, slightly calcareous, silty matrix, trace pyritic.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2406 - 2409m:

SANDSTONE (100%)
Light grey sandstone as above, increased pink, red-orange grains, slight silty matrix, slightly pyritic.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2409 - 2412m:

SANDSTONE (100%)
Light grey sandstone, white, clear, yellow, occasional red and pink grains, fine - medium, subrounded - subangular, moderately sorted, very calcitic cement, slightly calcareous-kaolinitic + silty matrix, slight brown clay matrix - very calcareous.

TRACE: calcite flakes, pyrite, siltstone - very small fragments, coal - small fragments.

Visible porosity: GOOD.

SHOWS: None.

2412 - 2415m:

SANDSTONE (100%)
Light grey as above.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2418 - 2421m:

SANDSTONE (100%)
Light grey white sandstone as above.

TRACE: accessories as above, slight trace siltstone - grey, blocky.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2421 - 2424m:

SANDSTONE (100%)
Light grey - light yellow sandstone as above.

TRACE: accessories as above, slight trace brown clay with orange zeolitic cement and fragments, slight trace siltstone - grey, blocky.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2424 - 2427m:

SANDSTONE (100%)
Light grey - yellow sandstone as above, slight increase in grain size - medium, very calcareous, increased silty matrix.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2427 - 2430m:

SANDSTONE (100%)
Light grey sandstone as above, slight kaolin-silty matrix.

TRACE: accessories as above.

Visible porosity: GOOD - FAIR.

SHOWS: None.

2430 – 2433m:

SANDSTONE (100%)
As above, light grey sandstone, decreased coloured grains.

TRACE: slight increased trace grey siltstone, accessories as above.

Visible porosity: GOOD – FAIR.

SHOWS: None.

2433 – 2436m:

SANDSTONE (100%)
As above, light grey sandstone, abundant coloured grains, slight silty matrix, slight light green-clay matrix, slight orange zeolitic cement/matrix.

TRACE: accessories as above.

Visible porosity: GOOD.

SHOWS: None.

2436 – 2439m:

SANDSTONE (60%)
Light grey sandstone, white, clear, translucent very fine – fine, subrounded, well sorted, silty-calcareous matrix, trace kaolin, trace orange/yellow sandstone with yellow limonitic-kaolinitic matrix/cement, slight calcitic cement, slightly carbonaceous.

SILTSTONE (30%)
Light – dark grey, green, brown, micromicaceous in parts, carbonaceous in parts, pyritic, grades to carbonaceous- argillaceous mudstone in parts, blocky, sucrosic – resinous, occasionally subfissile, arenaceous – argillaceous, occasionally friable, chloritic in parts.

MUDSTONE (10%)
Light – dark grey, brown, buff, soft, dispersive, occasionally plastic, carbonaceous in part, micromicaceous in part, occasionally silicic, occasionally chloritic, slightly pyritic.

TRACE: abundant coloured grains, trace – rare garnet, buff calcareous silty fragments (abundant, soft-dispersive limestone/mudstone and siltstone aggregates washed out of sample), trace kaolin.

Visible porosity: POOR.

SHOWS: None.

2439 - 2442m:

SANDSTONE (70%)
As above.

SILTSTONE (20%)
As above.

MUDSTONE (10%)
As above.

TRACE: accessories as above, garnets.

Visible porosity: FAIR - POOR.

SHOWS: None.

2442 - 2445m:

SANDSTONE (70%)
As above, very very calcareous matrix and cement, abundant coloured grains.

SILTSTONE (20%)
As Above.

MUDSTONE (10%)
As above, soft - dispersive.

TRACE: accessories as above, buff silty limestone - calcareous siltstone as above.

Visible porosity: POOR.

SHOWS: None.

2445 - 2448m:

SANDSTONE (80%)
As above, very very calcareous- silty matrix + cement.

SILTSTONE (20%)
As above.

TRACE: chlorite, accessories as above, green clay matrix, mudstone as above.

Visible porosity: POOR.

SHOWS: None - fluorescence in calcitic/kaolin grains/aggregates.

2448 - 2451m:

SILTSTONE (50%)
As above, very clay/mudstone matrix.

SANDSTONE (40%)
As above, trace calcitic cement and matrix, slightly lithic.

MUDSTONE (10%)
As above, very dispersive, brown clay and green clay matrix very carbonaceous, micromicaceous.

Visible porosity: VERY POOR.

SHOWS: None – slight mineral fluorescence.

2451 – 2454m:

SANDSTONE (50%)
As above, very calcareous matrix/cement.

SILTSTONE (40%)
As above, silty matrix.

MUDSTONE (10%)
As above, very dispersive.

TRACE: coal, pyrite, calcite, chlorite, very slight garnet.

Visible porosity: POOR.

SHOWS: None.

2454 – 2457m:

SANDSTONE (90%)
Light grey sandstone, white, clear, translucent, occasionally pink, and yellow, fine – medium, occasionally very fine, subrounded – subangular, well sorted, very calcitic cemented, calcareous matrix, silty argillaceous matrix, trace green clay matrix, slightly carbonaceous.

SILTSTONE (10%)
Light – dark grey, green, brown, blocky, soft – firm, resinous – sucrosic, carbonaceous in parts, chloritic in parts, kaolinitic in parts, often grades to argillaceous, carbonaceous, chloritic mudstone.

TRACE: mudstone, soft, dispersive, kaolinite, calcite, lithic grains – yellow, red, black, green, coal, abundant coloured grains, garnet, one or two grains dark red and pink, chlorite, pyrite.

Visible porosity: POOR.

SHOWS: None.

2457 – 2460m:

SANDSTONE (100%)
Light grey, white, clear, translucent, coloured grains, very fine – fine, occasionally medium, subrounded – subangular, trace calcitic cement, occasionally pale yellow sandstone well cemented, trace silty argillaceous matrix.

TRACE: calcite, pyrite, kaolin, siltstone, coloured grains, lithics, coal.

Visible porosity: FAIR.

SHOWS: None.

2460 – 2463m:

SANDSTONE (100%)
As above, very calcareous matrix and cement.

TRACE: kaolin, calcite, siltstone, coal, green clay matrix, coloured grains.

Visible porosity: FAIR – POOR.

SHOWS: None.

2463 – 2466m:

SANDSTONE (100%)
As above, very calcareous matrix.

TRACE: siltstone as above, green siltstone, calcite, kaolin, coal, slight trace green clay matrix.

Visible porosity: FAIR – POOR.

SHOWS: None.

2466 – 2469m:

SANDSTONE (100%)
As above, fine – coarse, angular – subangular, poorly sorted, abundant coloured grains, abundantly kaolinitic-very calcareous matrix, trace cement.

TRACE: mudstone, coal.

Visible porosity: POOR.

SHOWS: None.

2469 – 2472m:

SANDSTONE (100%)
As above, medium – coarse grained, occasionally very coarse, angular – subangular, moderate – poorly sorted, trace – very calcareous, slight green clay matrix, slightly carbonaceous.

TRACE: kaolin, siltstone, pyrite, chlorite and garnet – pink.

2469 - 2472m cont.

Visible porosity: POOR - FAIR.

SHOWS: 1 or 2 grains pale yellow faint fluorescence - slow yellow cut, bright white/yellow streaming cut on crush.

2472 - 2475m:

SANDSTONE (100%)
Light grey, white, clear, translucent, occasionally yellow, pink and orange grains, fine - medium, occasionally coarse, angular, occasionally subangular - subrounded, moderate - poorly sorted, slight calcitic cement, calcareous matrix, trace green clay on some grains, trace kaolinitic, secondary silicification, rare red/pink garnets.

TRACE: coal, calcite, microlaminated, siltstone- micromicaceous carbonaceous, arenaceous.

Visible porosity: POOR - FAIR.

SHOWS: None.

2475 - 2478m:

SANDSTONE (100%)
As above, clean sand, light grey - yellow, medium, occasionally coarse, subangular - subrounded, occasionally angular, trace rose quartz, trace silty - kaolinitic matrix, very very slightly calcareous.

TRACE: very very slight green grains and dark rock fragments, accessories as above.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2478 - 2481m:

SANDSTONE (100%)
As above, tight clean white sant - two sorts :-

i) subangular - subrounded, kaolin matrix and slight calcitic cement in parts grades to

ii) angular - subangular, coarse grained with silic cement and quartz over growths in parts.

TRACE: accessories as above.

Visible porosity: i) FAIR.

ii) POOR.

SHOWS: None.

2481 - 2484m:

SANDSTONE (100%)
As above, very clean sand, angular - subangular, subangular - subrounded, coarse - medium grained, very slightly calcareous, trace calcareous matrix.

TRACE: kaolin, chlorite, calcite.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2484 - 2487m:

SANDSTONE (100%)
As above, fine - coarse, angular - subrounded, some aggregates with very angular grains and kaolin matrix, occasionally silicic matrix, others-subrounded with slight kaolin matrix, friable to brittle,trace green clay matrix.

Visible porosity: FAIR - GOOD.

SHOWS: None.

2487 - 2490m:

SANDSTONE (100%)
Light grey, white, clear, translucent, fine-coarse, angular - subangular, very fractured and shattered grains, poorly sorted, calcareous, trace kaolin, very silicic, quartz overgrowths, silicified,interlocked grains in aggregates.

TRACE: green grains and green clay matrix, slight mudstone, dark rock fragments, pyrite.

Visible porosity: NONE.

SHOWS: None.

2490 - 2493m:

SANDSTONE (100%)
Light grey, orange-yellow sandstone, white, clear, translucent, orange, red, multi-coloured grains abundant, yellow stained grains, very fine - fine, occasionally medium, moderately - well sorted, subangular - subrounded, silicic cement, trace chloritic, poor - abundant kaolin and silty clay matrix, very calcareous. Yellow sandstone has yellow clay or yellow stained clay matrix, slightly carbonaceous.

TRACE: siltstone - dark grey-brown/grey, carbonaceous, micromicaceous, argillaceous-arenaceous, firm-hard, occasionally silicic, microlaminated with mudstone and carbonaceous laminations, chloritic in parts, trace pyrite fragments, coal, dark rock fragments.

2490 - 2493m cont.

Visible porosity: POOR.

SHOWS: None.

2493 - 2496m:

SANDSTONE (100%)
Light grey, orange-yellow sandstone, white, clear, translucent, orange, red, multi-coloured grains, abundant yellow stained grains, very fine - fine, occasionally medium, moderately - well sorted, subangular - subrounded, silicic cement, slightly calcareous, trace chloritic, trace kaolin matrix and green clay matrix, yellow sandstone has yellow clay or yellow stained clay matrix, trace pyritic, trace carbonaceous.

TRACE: siltstone, dark grey/brown - grey, carbonaceous, micromicaceous, argillaceous - arenaceous, firm - hard, occasionally silicic, microlaminated with mudstone, chloritic in parts, pyrite fragments, coal, dark rock fragments.

Visible porosity: POOR - NIL.

SHOWS: None.

2496 - 2499m:

SANDSTONE (100%)
As above, very silicic.

TRACE: as above.

Visible porosity: NIL.

SHOWS: None.

2499 - 2502m:

SANDSTONE (100%)
As above, abundant well cemented aggregates with interlocking quartz grains, silicic and calcitic cemented.

TRACE: slight siltstone and kaolin.

Visible porosity: POOR.

SHOWS: None.

2502 - 2505m:

SANDSTONE (100%)
Light grey - yellow sandstone, clear, white, yellow, translucent, occasionally red, pink and green grains, fine - coarse, angular - subangular, poorly sorted, well cemented, silicic - very calcitic cement, trace green and white clay matrix, abundant aggregates and flakes of quartz with interlocking quartz grains, well cemented, silicic and hard - brittle.

2502 - 2505m cont.

SILTSTONE (Trace)
Light-dark grey, greey-grey, blue/green, brown, sucrosic-resinous grading to marly mudstone, microlaminated buff and black to shaley, trace green clay and chlorite, subfissile-fissile and blocky, trace pyrite, slightly carbonaceous.

TRACE: mudstone - light green-grey to blue/grey, silicic to arenaceous, grades to buff and white clay, dark rock fragments.

Visible porosity: NONE.

SHOWS: None.

2505 - 2508m:

SANDSTONE (60%)
Light grey-white sandstone, clear, translucent, slight brown - yellow, fine - medium, occasionally coarse, (large cemented aggregates) angular - subangular, poorly sorted, silicic cemented, re-crystallized interlocking grains, trace calcitic cement, very slight trace kaolin and green clay matrix, occasionally brown clay, occasionally silty, occasional chlorite grains in aggregates.

SILTSTONE (30%)
Light - dark grey, green, grey, blue/grey, brown, blocky - subfissile, resinous - sucrosic, firm - hard, occasionally brittle, carbonaceous, pyritic, occasionally micromicaceous, chloritic, microlaminated with multi-coloured clays.

MUDSTONE (10%)
Light - dark grey - green, grey, silicic-arenaceous, argillaceous grades to carbonaceous shale in parts.

TRACE: coloured rock fragments, pyrite, coal.

Visible porosity: POOR - NIL.

SHOWS: None.

2508 - 2511m:

SANDSTONE (60%)
As Above.

SILTSTONE (20%)
As above.

CLAYSTONE/MUDSTONE (10%)
As above, occasionally dispersive, plastic, green to black - brown, occasionally buff, very calcareous fragments.

2508 - 2511m cont.

Visible porosity: NIL.

SHOWS: None.

2511 - 2514m:

CLAYSTONE/MUDSTONE (60%)
Black - brown, dark grey - light grey, green, blue/grey, white - buff, blocky, soft-firm, amorphous, occasionally dispersive, silicic, argillaceous, occasionally grading to shale, subfissile - flakey, microlaminated, slightly chloritic.

SANDSTONE (20%)
As above, silicified and kaolin matrix.

SILTSTONE (20%)
As above.

TRACE: calcite, coal, rock fragments, pyrite, red and orange grains.

Visible porosity: NIL.

SHOWS: None.

2514 - 2517m:

CLAYSTONE/MUDSTONE (50%)
As above.

SANDSTONE (40%)
As above.

SILTSTONE (10%)
As above.

TRACE: accessories as above.

Visible porosity: NIL.

SHOWS: None.

2517 - 2520m:

SANDSTONE (50%)
As above.

CLAYSTONE/MUDSTONE (10%)
As above.

SILTSTONE (40%)
As above.

TRACE: accessories as above.

Visible porosity: NIL.

SHOWS: None.

2520 - 2523m:

SANDSTONE (60%)
Light grey, grey/green, white, clear, translucent, very fine - fine, angular - subangular, poorly sorted, very calcareous, silty matrix, calcitic + silicic cemented, chloritic, pyritic, carbonaceous.

SILTSTONE (30%)
Light - dark grey, grey/green, blue, silicic, resinous to sucrosic, blocky, occasionally subfissile, chloritic in parts, arenaceous - argillaceous, carbonaceous in parts, pyritic in parts.

CLAYSTONE/MUDSTONE (10%)
Light - dark grey, green/grey, soft - firm, blocky - amorphous occasionally dispersive, occasionally carbonaceous, occasionally chloritic, microlaminated grey and white clays.

TRACE: coal, dark rock fragments, accessories as above.

Visible porosity: NIL - TIGHT.

SHOWS: None.

2523 - 2526m:

SANDSTONE (50%)
As above.

MUDSTONE/CLAYSTONE (30%)
Light grey, dark grey, green/grey, buff - grey, very calcareous, carbonaceous in parts, chloritic in part, argillaceous grades to shale in part, occasionally dispersive.

SILTSTONE (20%)
As above.

TRACE: as above.

Visible porosity: NIL - TIGHT.

SHOWS: None.

2526 - 2529m:

SANDSTONE (50%)
As above, very calcareous + calcitic cemented.

MUDSTONE/CLAYSTONE (30%)
As above, very calcareous.

2526 - 2529m cont.

SILTSTONE (20%)
As above, very calcareous.

TRACE; coloured rock fragments, pyrite, zeolite-orange fragments, green matrix.

Visible porosity: NIL.

SHOWS: None.

2529 - 2532m:

SILTSTONE (40%)
As above.

MUDSTONE/CLAYSTONE (30%)
As above, grades to shale.

SANDSTONE (30%)
As above, grades to siltstone, very chloritic, less silicic cement, more very small fine - very fine grains, occasionally coarse - with calcitic cement, slightly carbonaceous.

TRACE: shale, calcite flakes, mudstone - very dispersive, multi-coloured, occasionally balling.

Visible porosity: NIL.

SHOWS: None.

2532 - 2535m:

SANDSTONE (40%)
As above.

CLAYSTONE/MUDSTONE (40%)
As above.

SILTSTONE (10%)
As above, very shaley, very calcareous, very black.

Visible porosity: NIL.

SHOWS: None.

2535 - 2538m:

SANDSTONE (40%)
As above - calcitic cement, very fine - fine grained sandstone, very calcareous.

CLAYSTONE/MUDSTONE (40%)
As above.

SILTSTONE (10%)
As above, very shaley, very black.

Visible porosity: NIL.

SHOWS: None.

2538 - 2541m: No sample, pulled out no circ.

2541 - 2544m:

SILTSTONE (50%)
Light - dark grey, green/grey, sucrosic, resinous, blocky, occasionally buff-orange, chloritic in parts, trace carbonaceous specks, micromicaceous.

SANDSTONE (30%)
Light grey, white, clear, translucent, occasionally yellow, very fine - fine, moderately sorted, subangular - subrounded, calcareous clay matrix, calcitic cemented, trace carbonaceous, pyritic, chloritic, micromicaceous.

MUDSTONE (10%)
Light - dark grey, brown, amorphous, blocky, often dispersive, silicic, argillaceous grades to black carbonaceous claystone to shale, occasionally chloritic.

CHERT (10%)
Light brown - yellow, thin, flat fragments, very siliceous, streaky chertlike material,

TRACE: volvanoclastic debris.

Visible porosity: NIL.

SHOWS: None.

2544 - 2547m:

SILTSTONE (60%)
Light - dark grey, green, grey, black, very fine - fine grained, sucrosic, resinous, carbonaceous, blocky, occasionally subfissile, calcareous.

SANDSTONE (30%)
Light grey-white, clear, translucent, occasionally yellow, very fine - fine, calcitic cemented, silty and clay matrix, subangular - subrounded, moderate - well sorted, trace pyrite, trace carbonaceous, trace chloritic.

CLAYSTONE/MUDSTONE (10%)
Light-dark grey, brown/grey, argillaceous/ arenaceous, carbonaceous, micromicaceous, very calcareous, chloritic in part, grades to claystone and shale.

TRACE: calcite fragments, yellow/brown chert, black carbonaceous shale grading to argillaceous coals.

Visible porosity: NIL.

SHOWS: None.

2547 - 2550m:

SILTSTONE (30%)
As above.

SANDSTONE (30%)
As above.

SHALE/CLAYSTONE (40%)
Black, carbonaceous, subfissile, occasionally blocky, trace pyritic, occasionally arenaceous - argillaceous.

TRACE: calcite fragments and veining, chert.

Visible porosity: NIL.

SHOWS: None.

2550 - 2553m:

SHALE/CLAYSTONE (50%)
As above.

SILTSTONE (30%)
As above.

SANDSTONE (20%)
As above.

TRACE: accessories as above.

Visible porosity: NIL.

SHOWS: None.

2553 - 2556m:

SHALE/CLAYSTONE (60%)
As above, grades to coal in parts.

SILTSTONE (20%)
As above.

SANDSTONE (20%)
As above.

TRACE: accessories as above.

Visible porosity: NIL.

SHOWS: None.

2556 - 2559m:

SHALE/CLAYSTONE (80%)
As above.

SILTSTONE (10%)
As above.

SANDSTONE (10%)
As above.

TRACE: as above.

Visible porosity: NIL.

SHOWS: None.

2559 - 2562m:

SHALE/CLAYSTONE (90%)
Black, blocky - subfissile, argillaceous in parts, carbonaceous, micaceous, grades to carbonaceous claystone/mudstone.

SILTSTONE (10%)
Light - dark grey, grey/green, black, blocky, occasionally subfissile, carbonaceous, micromicaceous, chloritic, arenaceous - argillaceous, calcareous.

SANDSTONE (Tr)
White, light grey, clear, translucent, calcitic cemented, trace mudstone.

TRACE: calcite fragments, mudstone, pyrite, zeolite fragments, chlorite and serpentine.

Visible porosity: NIL.

SHOWS: None.

2562 - 2565m:

SHALE (80%)
As above.

SILTSTONE (10%)
As above.

SANDSTONE (10%)
As above.

TRACE: mudstone as above, calcite fragments, weathered basalt fragments :- porphyritic with light grey/green matrix, occasionally serpentinised, trace grey/green vesicular tuff- soft to hard, with glassy sherds, trace serpentine, trace dark green and light grey/green dolerite fragments, trace chert, trace red and orange grains.

Visible porosity: NIL.

SHOWS: None.

2565 - 2568m:

SHALE (50%)
As above, very carbonaceous, fissile - subfissile.

SILTSTONE (20%)
As above, very calcareous.

SANDSTONE (10%)
As above, calcitic cement, trace quartz vein, trace calcite veins.

BASALT (20%)
Grey/green, grey/black as above.

TRACE: tuff as above, pink, orange, red and green clear grains, kaolin, pyrite fragments, serpentine.

Visible porosity: NIL.

SHOWS: None.

2568 - 2571m:

BASALT (50%)
As above, some serpentinised.

SHALE (30%)
As above.

SILTSTONE (20%)
As above.

SANDSTONE (10%)
As above.

TRACE: grey/green tuff, kaolin, serpentinite, chert, coal, coloured grains, quartz veins, banded quartz veins-cherts, calcite veins.

Visible porosity: NIL.

SHOWS: None.

2571 - 2575m:

SHALE/CLAYSTONE (60%)
Black, blocky, subfissile, argillaceous in part, very carbonaceous, micromicaceous, grades to carbonaceous claystone/mudstone, grades to coal.

BASALT (30%)
Weathered, porphyritic, vesicular, light-dark grey/green phenocrysts in light grey/green matrix, occasionally serpentinised, occasional grey/black to white/black phenocrysts.

SILTSTONE (10%)
Light-dark grey, carbonaceous, grey/green, chloritic black, blocky, occasionally subfissile, micromicaceous, chloritic, arenaceous, argillaceous, calcareous.

TRACE: mudstone, calcite fragments, quartz veins, chert, pyrite, coloured grains, grey/green tuff with dark green glassy fragments, vesicular grey-white tuff with black glassy sherds:- soft - hard.

Visible porosity: NIL.

SHOWS: None.

2574 - 2577m:

BASALT (60%)
As above, grey/black to white/ black fragments/ grains.

SHALE (30%)
As above.

SILTSTONE (10%)
As above.

TRACE: pyrite, calcite fragments, grains + veining, quartz fragments, coloured grains, mudstone, tuff as above, serpentinite fragments, brown grains - translucent.

Visible porosity: NIL.

SHOWS: None.

2577 - 2580m:

SHALE (40%)
As above.

BASALT (30%)
As above.

SILTSTONE (10%)
As above.

MUDSTONE (10%)
As above.

TRACE: as above.

Visible porosity: NIL.

SHOWS: None.

2580 - 2583m:

SHALE (50%)
Black, carbonaceous, subfissile-fissile, flakey, micaceous, argillaceous, grades to claystone in part occasionally pyritic.

BASALT (30%)
Grey/green - green, grey-grey/black, porphyritic, vesicular, occasionally serpentinised, occasional red - brown with red - brown phenocrysts, trace glassy sherds, trace serpentinite.

SILTSTONE (10%)
Light - dark grey, arenaceous - silicic, blocky grades to mudstone, very calcareous.

MUDSTONE (10%)
Light dark grey, carbonaceous, occasionally dispersive, argillaceous, soft, very calcareous.

TRACE: calcite veining, quartz fragments and veins, light-dark green vesicular tuff with glassy sherds, kaolin, coloured grains.

Visible porosity: NIL.

SHOWS: None.

2583 - 2586m:

BASALT (60%)
As above, occasionally red - brown, black to grey with phenocrysts of orange - red, possibly zeolitic, possibly jasper?

SHALE (30%)
As above.

MUDSTONE (10%)
As above.

TRACE: siltstone as above, increased abundant serpentinite fragments, accessories as above.

Visible porosity: NIL.

SHOWS: None.

2586 - 2589m:

BASALT (80%)
As above, with abundant red - orange - brown basalt with orange - red phenocrysts and serpentinite fragments/crystals, abundant serpentine fragments, abundant green/grey basalt-weathered, abundant grey-black.

SHALE (20%)
As above.

2586 - 2589m cont.

TRACE: abundant calcite fragments, abundant quartz fragments, trace sandstone, grey/green tuff - vesicular and soft with small black glassy sherds, chert.

Visible porosity: NIL.

SHOWS: None.

2589 - 2592m

BASALT (100%)
As above, black-grey, red-brown, mixed volcanic debris.

TRACE: tuff, quartz fragments and grains, pyroxenes, calcite veins, accessories as above.

2592 - 2595m:

BASALT (100%)
Grey, green, black, black /rey, red-brown, brown/ orange/red with jasper ? grains and large jasper ? fragments, red-brown basalt with serpentine and vitric sherds, olivine basalt.

TRACE: calcite, tuff, quartz fragments and grains, pyroxenes, volvanic mixed debris, calcite veins, accessories as above.

2595 - 2598m:

BASALT (100%)
As above.

TRACE: Tuff as above, accessories as above.

2598 - 2601m:

BASALT (100%)
As above.

TRACE: as above.

2601 - 2604m:

BASALT (100%)
As above.

TRACE: as above.

2604 - 2607m:

BASALT (100%)
As above.

TRACE: as above, quartz veins, serpentine, calcite, olivine, jasper, pyroxene fragments, etc.

T.D. 2608m:

APPENDIX 2

SIDEWALL CORE DESCRIPTIONS

[redacted] SIDEWALL SAMPLE

WELL GREENSLOPES NO. 1 RUN 1 FIELD [redacted] DATE 10/1/86

CORES SHOT 24 REC'D 21 CHGD 21 GUN 1 GEOLOGIST L. MITCHELL PAGE

DEPTH	REC.	MATERIAL	GRAIN SIZE	CALC.	ARG.	CON.	SHOW	ODOR	FLUORESCENCE
1367	20	Siltstone - light grey/blue aren	VP	S	S	F	-	N	NIL
1373	35	Siltstone - Light grey/blue aren sl carb	P	-	M	F	-	N	NIL
1381	30	Mudstone - dark grey sl silty	T	-	M	F	-	N	NIL
1567	35	Siltstone - dark grey - aren	VP	-	S	F	-	N	Very very faint 1-2 grains min fluor
1816	25	Mudstone - dark grey - microlam coaly	T	-	M	S	-	N	NIL
1853	25	Siltstone - dark grey - aren	VP	-	S	S	-	N	Very very faint 1-2 grains min fluor
1905	-	Lost							
1963	25	Mudstone - dark grey/blue aren/arg microlam	T	-	V	S	-	N	NIL
1977	15	Mudstone - dark grey - v aren occ quartz gr	T	-	V	S	-	N	NIL
2039.5	-	Lost							
2172	35	Sandstone - light grey/blue - silty	VF-F	S	S	S	-	N	NIL
2214	20	Sandstone - white - microlam with coal	F	S	S	S-F	-	N	NIL
2265	10	Shale - black fissile microlam aren grades to mudstone carb	T	-	V	F	-	N	NIL
2283	35	Sandstone - light grey/blue-white	F	-	S	S-F	-	N	lgrain br wh flu 1-2 grains vv faint min fluor
2307	30	Siltstone - light dark grey-aren gds to clst	VF	-	M	F	-	N	NIL
2365.5	25	Sandstone - white -light grey/blue pink grn lithic grns	F-M	S	V	S	-	N	NIL
2436	20	Claystone - dark grey - sl aren subfiss grades to siltstone	T	-	V	S	-	N	NIL
2443	20	Shale - black carbonac grades to claystone	T	-	V	S	-	N	NIL
2490	18	Sandstone - white/light grey - carb lams	VF-F	S	S	F	-	N	NIL
2505	20	Mudstone - dark grey/light grey - microlam	T	S	V	S	-	N	NIL
2513	-	Lost							
2536	15	Mudstone grades to siltstone aren-dark grey	VP-T	-	M	S	-	N	NIL
2556	15	Shale - black/dark brown carb	T	-	V	S	-	N	NIL
2562	35	Basaltic tuff - blue/grey/green interlam with blue grey shaley mudstone	T	-	S	H	-	N	NIL

ABBREV. P & P. T-TITE, P-POOR, F-FAIR, G-GOOD. CALC. & ARG.: N-NON, S-SLIGHTLY, M-MODERATELY, V-VERY; CON.: S-SOFT, F-FIRM, H-HARD, SHOW & ODOR: N-NO, P-POOR, F-FAIR, G-GOOD.

APPENDIX 3

BOTTOM HOLE TEMPERATURE

EXTRAPOLATION DATA

GREENSLOPES 1

BOTTOM HOLE TEMPERATURE EXTRAPOLATION

DATA SHEET

WELL IDENTIFICATION

Company	Phoenix Oil & Gas N.L.
Well	Greenslopes 1
Field	New field
Basin	Otway Basin
State	Victoria
Location	North of Warrnambool and northeast of Port Fairy
Elevation of Reference Datum	K.B. 82.9m

DEPTH INFORMATION

Total Depth	2608m
Formation at Total Depth	Basement
Lithology at Total Depth	Metabasalt - Basic Tuff

TEMPERATURE DISTURBANCE DATA

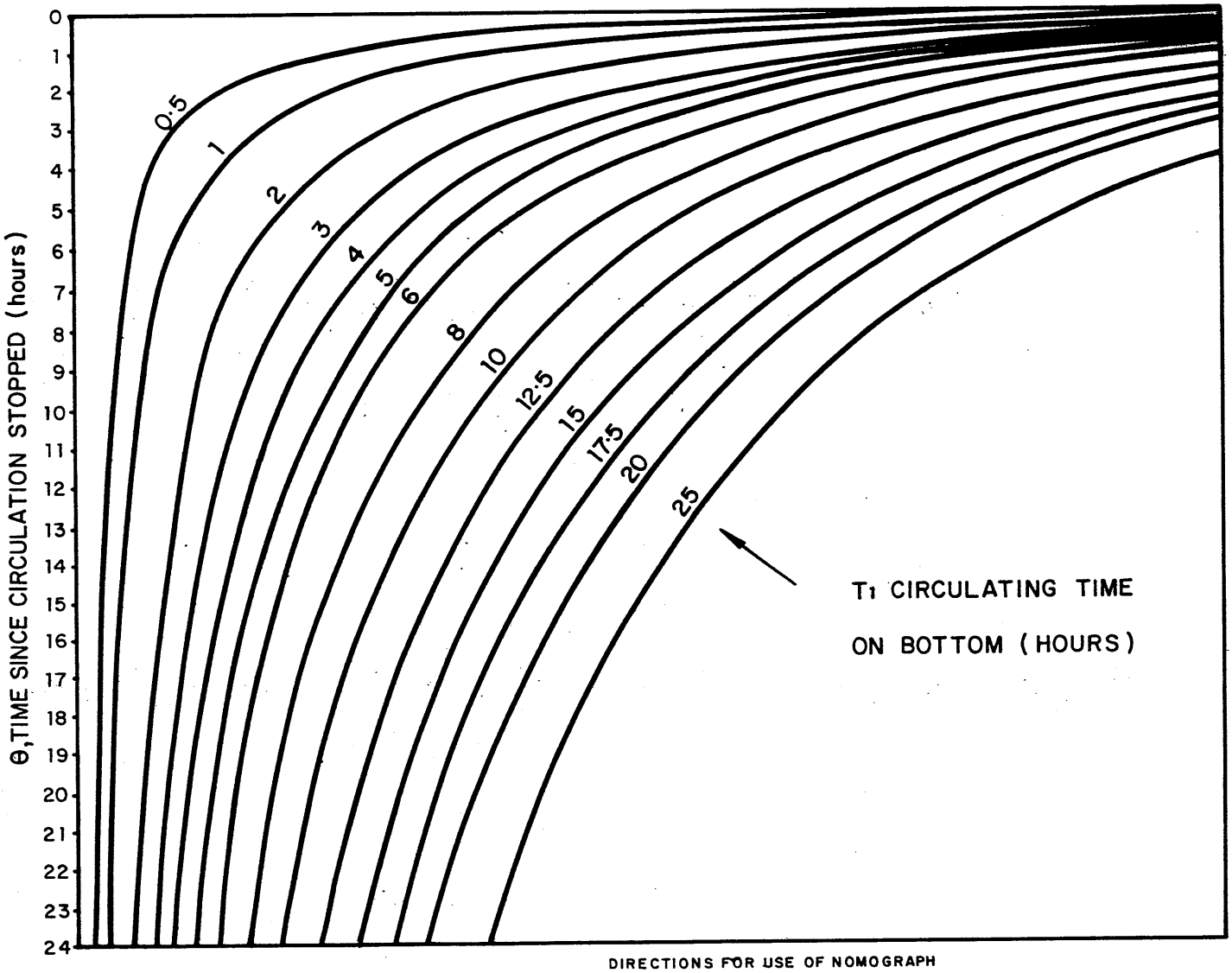
Time Bit Reached Total Depth (hour, date)	2200, 08/01/86
Time Circulation Stopped (hour, date)	2330, 08/01/86
Circulating Time (T)	1.5 hours

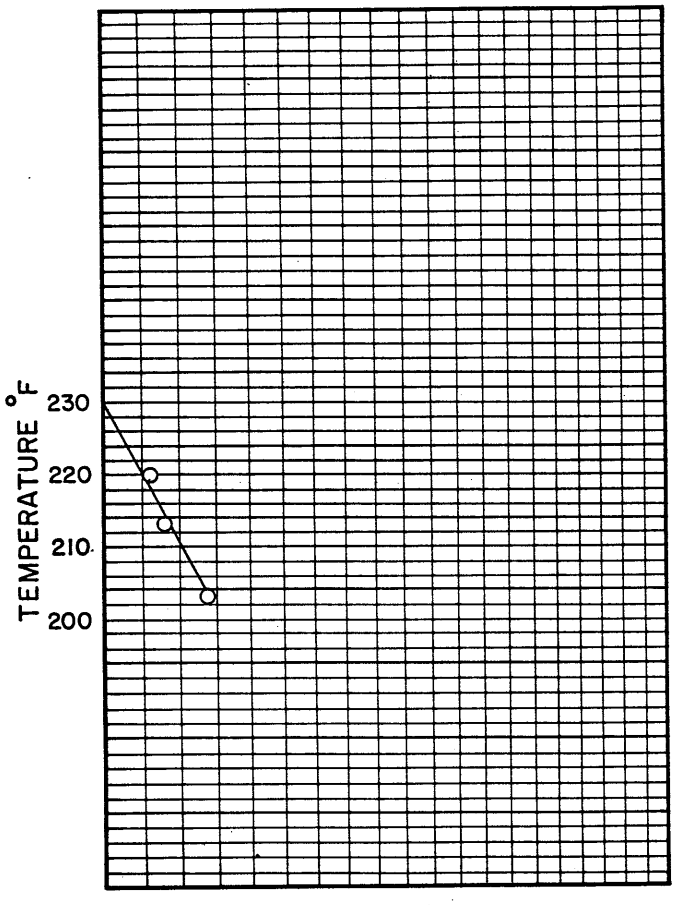
TEMPERATURE RECOVERY DATA

	1	2	3
Log Type	DLL/MSFL/GR/ SP/CAL	MEL/BCS/GR	FED/GR
Time Sonde off Bottom (hour, date)	0844, 09/01/86	1505, 09/01/86	1900, 09/01/86
Maximum Temperature Recorded	95° C (203° F)	100.6° C (213° F)	~~121.1~~° C (220° F)
Time Since Circulation Stopped	9hours 14mins	15hours 35mins	21hours 36mins

104-4

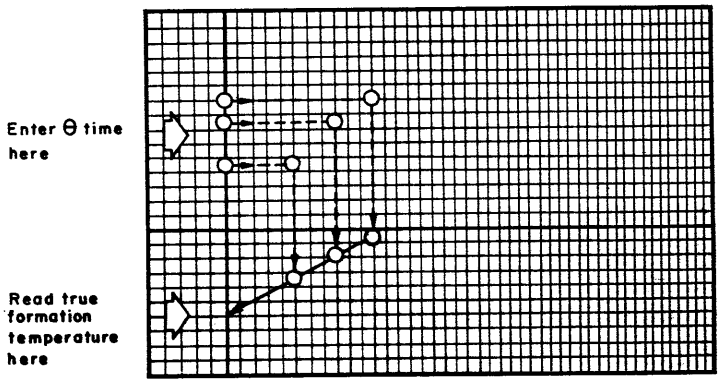
BOTTOM HOLE TEMPERATURE EXTRAPOLATION NOMOGRAPH





DIRECTIONS FOR USE OF NOMOGRAPH

1. Determine T circulating time on bottom.
2. For each temperature measurement, determine θ time since circulation.
3. Set appropriate temperature scale.
4. Proceed as shown below.



PHOENIX OIL & GAS N.L.

WELL **GREENSLOPES 1** LOG SUITE **1**

MEAN ANNUAL SURFACE TEMPERATURE **13° C (55.4° F)**

EXTRAPOLATED BHT **110° (230° F)**

AT DEPTH **2608m**

REMARKS **Thermal Gradient 3.72° C/100m (6.69° F/100m or 2.04° F/100ft)**

GEOLOGIST **L.Mitchell** DATE **09/01/86**

APPENDIX 4

LOG INTERPRETATION REPORT

HUGH CROCKER CONSULTANTS

GREENSLOPES No: 1

WELL LOG ANALYSIS

February 1986

GREENSLOPES No:1

Well Log Analysis.

Well logs available:

DLL-MSFL-GR-CAL	890m - 2607m
BHC-MEL	890m - 2603m
Geodata wellsite log	50m - 2608m

Well logs recorded by Gearhart Australia Pty. Ltd.

Borehole conditions:

9 5/8" Casing set at 898m
8 1/2" Bit drilled to 2608.7m

Mud:

Type	: KCl Polymer
Density	: 9.5 lbs/gal
Viscosity	: 46 secs
pH	: 9.5
Fluid loss	: 8.2 ccs
Rm	: 0.35 at 65F
Rmf	: 0.30 at 69F
Rmc	: 0.37 at 69F

Bottom Hole Temperature: 213F

General:

The Upper Eurmeralla Formation is shale without significant sands. It extends from the top of the logged interval to the Intra-Eurmeralla Marker at 1380m. The first sand of significance is at 1418m. The Lower Eurmeralla is characterised by sands, silts and minor clays.
The top of the Pretty Hills Sandstone is at 2310m and extends as an almost continuous sand down to the Casterton Beds at 2504m. The Casterton Beds have an upper massive shale 2504m to 2562m and a lower tight sand unit 2562m to 2592m
Basement top is at 2592m.
Hence this interpretation principally concerns the Lower Eurmeralla Formation, Pretty Hills Sandstone and the Lower Casterton Beds.

Representative levels have been selected for all zones where Gamma-Ray, S.P., or Sonic have indicated that at least some porosity may be developed. Log readings are listed in Table 1 along with the computed log interpretation results.

These logs have been checked for proper calibration and repeatability. They appear to be self consistent and, although the author was not present during logging, they appear to be well recorded and accurate.

Formation water (Rw):

The S.P. is the only independant guide to formation water resistivity (Rw). We have no information on produced waters or from adjacent wells. The S.P. is well recorded with well established shale base-line. It is positive throughout the logged interval as may be expected given the KCl mud. Using the KCl/NaCl bi-ionic cell of mud and formation water we find Rw as follows:

Depth	SP	K	Rmf	Rw
1421	13	74.5	0.14	0.212
1490	0	74.9	0.138	0.138
1585	16	75.5	0.134	0.219
1735	10	76.5	0.128	0.173
1805	16	77.1	0.125	0.20
1865	18	77.5	0.123	0.21
1990	20	78.2	0.119	0.214
2255	8	80	0.11	0.14
2300	20	80.3	0.109	0.19
2425	20	81.2	0.105	0.185
2500	20	81.7	0.103	0.18

We have not allowed for the differential mobility of K/Na ions.
These Rw values are somewhat higher than needed to balance Porosity and Deep Resistivity in the clean sands. Consequently we have selected the Rw values listed in Table 1. The presence of Bivalent ions and Bicarbonate ions in the formation waters is probably responsible for the difference between Rw approaches.

Clay fraction (Vcl):

The Gamma Ray log is used to find the bulk clay fraction Vcl proportionately from a background radiation level of 35 API units and a clay radiation level of; 120 from the casing shoe to 2290m and 145 from 2290m to total depth.

In the absence of other suitable clay indicators we shall have to take this Vcl as the true clay fraction even though we recognise that not all the formation radioactivity is found in the clays. At least it is likely to be an upper limit of the true clay fraction.

Porosity (Ø):

Only the Sonic log is available for direct porosity determination and therefore a travel time of 55.5mmsec/ft appropriate for sands has been selected along with a fluid travel time of 189 mmsecs/ft.
Clay correction has then been made to this Sonic derived porosity taking a clay travel time Tcl chosen from adjacent bulk shales and as listed in Table 1.

Above 1550m the Sonic is likely to be influenced by the uncompacted sediments caused by low overburden Pressure. Therefore the Porosity is further corrected by a compaction coeficient of 1.2 above 1550m.

Saturation Sw:

The modified Poupon equation for Shaly Sands is used to compute water saturation Sw.
The Clay Fraction and its resistivity Rcl have been used to compute the solids conductivity and thus the conductivity of the non-clay fraction.
Rcl has been chosen from adjacent bulk shales as listed in Table 1. It is recognised that the interstitial clays may well have lower resistivity and therefore Rcl is too high. This leads to the computed Sw in shaly sands greater than 100%
Hence we can judge when Rcl is inappropriate and adjust it accordingly
A good balance around 100% Sw has been made for both clean and shaly water sands.

Conclusions:

1. The Lower Eurmeralla Formation has moderate to excellent porosity (15% to 30%). Clay Fraction is low to moderate. Hence these sands have good to excellent reservoir characteristics.

2. The Pretty Hills Sandstone has moderate porosity (10% to 20%) but very low clay fraction; it too has good reservoir character.

3. The Casterton Beds have low porosity and are shaly. They are essentially tight with almost no reservoir character.

4. All sands are essentially water bearing although there is possibly some residual hydrocarbon between 2287m and 2303m.

Hugh Crocker
February 1986.

HUGH CROCKER CONSULTANTS.

TABLE 1

COMPANY: PHOENIX OIL & GAS WELL: GREENSLOPES 1 DATE: FEB 86

№	DEPTH m	LLD Ωm	SP mV	GR API	Vcl %	T µs/ft		ϕ %	Rw Ωm	Rcl Ωm	Tcl µs/ft		Sw %							REMARKS.
1	1420.1	3.0	13	55	23	82		10.1	.13	1.8	100		109							
2	1422.0	4.7	13	58	27	75		4.6	.13	1.8	100		120							
3	1461.5	1.4		40	6	102		27.3	.13	2.0	100		92							
4	1489.5	1.1		36	1	100		27.4	.13	2.0	100		107							
5	1513.0	1.05		40	6	104		28.5	.13	2.0	100		101							
6	1527.0	1.4		51	19	101		23.0	.13	2.0	100		96							
7	1546.5	1.4		51	19	103		24.3	.13	2.0	100		91							Cp=1.2
8	1583.2	1.3	16	41	7	92		25.4	.11	2.0	90		94							
9	1622.5	1.25		37	2	90		25.2	.11	2.0	90		100							
10	1674.6	1.7		40	6	85		20.4	.10	2.0	90		99							
11	1720.5	2.2		39	5	78		15.5	.10	2.0	90		113							
12	1735.5	2.3	10	42	8	78		14.7	.10	2.0	90		114							
13	1799.5	1.3	16	51	19	92		22.3	.10	3.0	90		95							
14	1813.7	1.05	16	44	11	100		30.5	.15	4.0	88		100							
15	1829.5	1.15		56	25	100		27.1	.15	4.0	88		98							
16	1861.7	1.5	18	56	25	94		22.7	.15	4.0	88		100							
17	1888.5	1.4		45	12	97		28.1	.15	4.0	88		94							
18	1919.5	1.2		44	11	97		28.3	.15	4.0	88		100							
19	1953.0	1.5		40	6	90		24.3	.15	4.0	88		109							
20	1981.5	1.3	20	42	8	90		23.8	.15	4.0	88		117							
21	1985.5	1.8	20	64	34	94		20.5	.15	4.0	88		93							
22	1992.0	1.25	20	45	12	98		28.8	.15	4.0	88		96							

HUGH CROCKER CONSULTANTS. TABLE 1

COMPANY: PHOENIX OIL & GAS WELL: GREENSLOPES 1 DATE: FEB 86

Nº	DEPTH m	LLD Ωm	SP mV	GR API	Vcl %	T µs/ft		Φ %	Rw Ωm	Rcl Ωm	Tcl µs/ft		Sw %							REMARKS.
23	2043.0	1.2		45	12	94		25.6	.10	3.0	90		91							
24	2100.8	1.25		41	7	91		24.7	.10	3.0	90		95							
25	2140.0	0.96		38	3	90		25.1	.10	3.0	85		110							
26	2146.0	1.0		40	6	88		22.9	.10	3.0	85		115							
27	2158.0	1.5		38	3	88		23.6	.10	3.0	85		94							
28	2161.0	1.6		38	3	87		22.8	.10	3.0	85		94							
29	2178.0	0.95		38	3	92		26.6	.10	3.0	85		104							
30	2209.0	1.5		38	3	90		25.1	.10	3.0	85		88							
31	2244.5	1.8	8	38	3	83		19.9	.10	3.0	85		103							
32	2289.5	1.75		56	19	89		20.8	.10	5.0	85		90							
33	2294.3	1.7		38	3	88		23.6	.10	5.0	85		88							
34	2301.5	1.7	20	45	9	88		22.8	.10	5.0	85		88							
35	2315.0	1.95		51	14	86		19.7	.10	5.0	85		93							
36	2337.0	1.95		36	1	80.5		18.1	.10	5.0	85		109							
37	2359.0	2.1		33	0	80.5		18.6	.10	5.0	85		104							
38	2385.0	5.3		36	1	78		12.9	.10	5.0	85		97							
39	2419.0	7	20	35	0	70		10.8	.10	5.0	85		103							
40	2432.5	5.6		45	9	76		13.9	.15	5.0	75		96							
41	2498.3	5.8	20	44	8	76		14.1	.15	5.0	75		94							
42	2564.5	17		70	32	70		4.9	.15	4	80		74							
43	2572.0	9		70	32	68		3.4	.15	4	80		118							
44	2578.5	12		58	23	61		0	.15	4	80		-							
				MIN MAX	35 120/195															

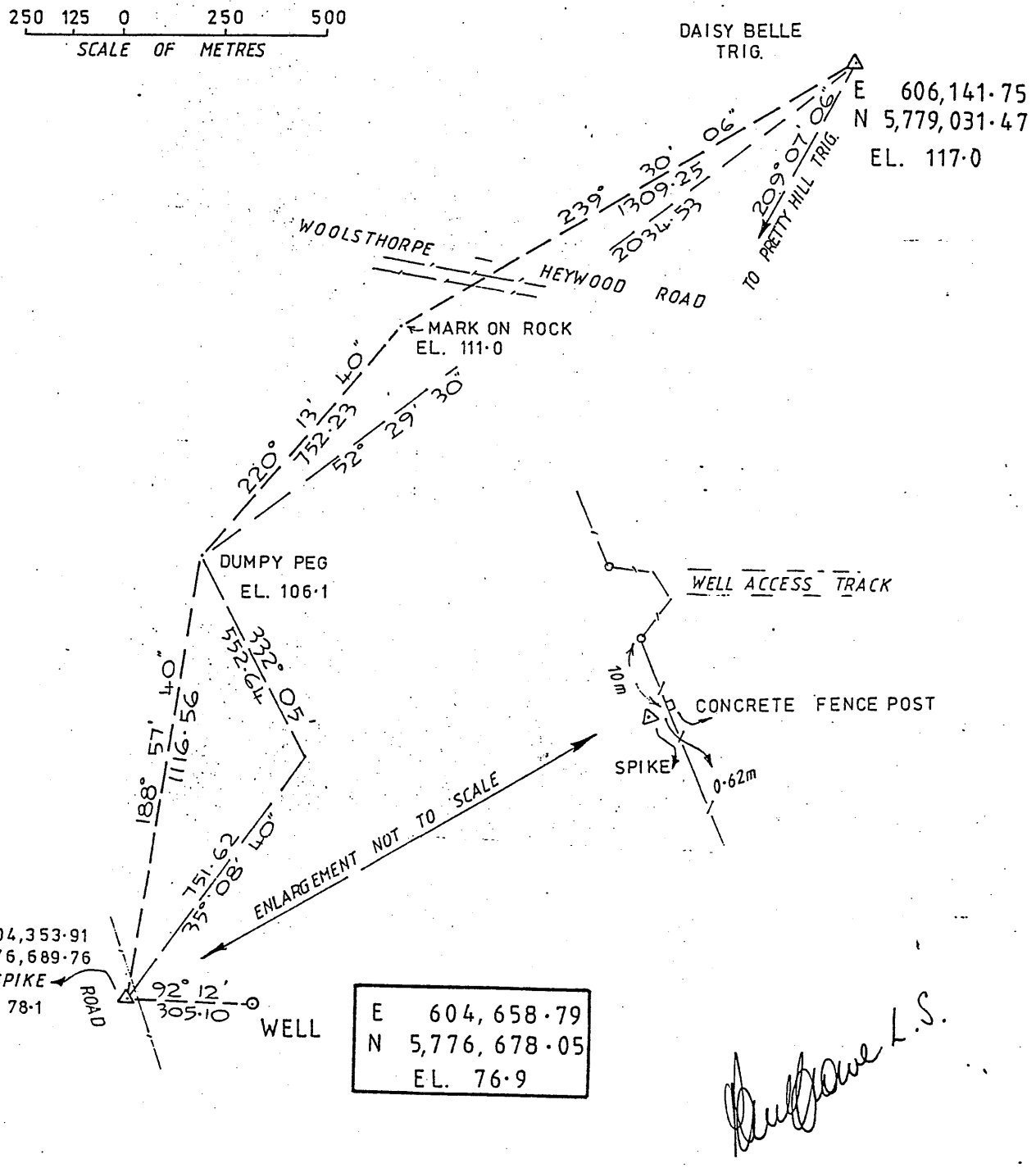
APPENDIX 5

WELL LOCATION

SURVEY

TRAVERSE DIAGRAM
DAISY BELLE TRIG. TO GREENSLOPES WELL

CO-ORDINATES AMG ZONE 54
ELEVATIONS IN METRES



Paul Crowe L.S.

DATE OF SURVEY 24 – 4 – 1986

PAUL D. CROWE
LICENSED SURVEYOR
64 THOMPSON ST.
HAMILTON VIC 3300
PH 055 724795

APPENDIX 6

PALYNOSTRATIGRAPHIC AND SOURCE ROCK ASSESSMENT REPORT

PALYNOLOGY, SOURCE ROCKS AND MATURITY IN GREENSLOPES-1, 1367-2562m

Report No. R3/86/1
March, 1986

M.J. Dudgeon
D.P.C. Hos
ECL Australia Pty Ltd
16 Altona Street
West Perth WA 6005

C O N T E N T S

I. SUMMARY

Palynological analysis of 21 sidewall cores from Greenslopes-1 (PEP-101) indicates the following subdivisions:-

1367-1381	*P.parvispinosus*	Early Aptian	Brackish to Non-marine
1567-1816	*F.asymmetricus*	Barremian - Early Aptian	Non-marine
1853	*F.wonthagiensis*	Valanginian - Barremian	Non-marine
1963-2536	*C.hughesi*	Berriasian - Valanginian	Non-marine to Brackish
2556	*C.hughesi*	Berriasian - Valanginian	Marginal Marine
2562	*C.hughesi*	Berriasian - Valanginian	Non-marine

Eight samples between 1816m to 2536m proved on kerogen analysis to have sufficient organic matter, particularly unoxidised liptinites, to be regarded as being possible good oil source rocks. The remaining samples had insufficient liptinites to have any significant potential.

From 1367m to 1381m was immature for the type of source rocks encountered in the well. The section from 1567m to 2443m had light orange spore colours regarded as mature for early oil generation. From 2490-2562m spore colours were orange indicating the zone of peak oil generation.

II. INTRODUCTION

Greenslopes No.1 was drilled in PEP-101, Otway Basin by Phoenix Oil and Gas N.L. A total of 21 sidewall cores from 1367m to 2562m were submitted for palynological analysis to determine ages and environments of deposition and to determine source rock potential and maturity.

III. PALYNOLOGY AND ENVIRONMENTS

The samples were prepared using standard methods and yields were generally good. The palynomorphs recorded are shown in Enclosure 1 and a summary of the zones, ages and environments is given in Table 1.

Four palynological zones are recognised in the sequence and they correlate with the unpublished biostratigraphic Units of CSR Oil and Gas Division (1985). The ages for the zones are derived from published and unpublished data.

1367m, 1373m and 1381m — *Pilosisporites parvispinosus* Zone
Early Aptian

The presence of *Pilosiporites parvispinosus* and *Foraminisporis asymmetricus* and the absence of any younger species indicates a correlation to the *P.parvispinosus* Zone (ECL unpublished) which is equivalent to Unit PK 3.2 of CSR (unpublished).

Micrhystridium sp. at 1367m suggests a brackish environment but the other two samples were deposited in a non-marine environment.

1567m, 1381m — *Foraminisporis asymmetricus* Zone
Berremian - Early Aptian

The first appearances of both the nominate species and *Pilosisporites notensis* correlates the assemblages with the *F.asymmetricus* Zone (ECL unpublished) that is equivalent to Unit PK 3.1 (CSR unpublished). Both samples indicate a non-marine environment.

1853m — *Foraminisporis wonthagiensis* Zone

The presence of the nominate species and absence of any younger species indicates a correlation to the zone, equivalent to Unit PK 2 (CSR unpublished). No marine indicators were observed in the sample.

1963m-2562m — *Cyclosporites hughesi* Zone
Berriasian - Valanginian

The spore-pollen assemblages in this sequence were generally not well preserved and low in diversity. They were characterised by *Cicatricosisporites australiensis*, Dictyotosporites *speciosus*, *Cyclosporites hughesi*, *Neoraistrickia truncata* and *Retitriletes solidus*.

A species conformable with *F. wonthagiensis* in the deepest sample (2562m) is disregarded as a possible mud contaminant, although no other evidence for this was apparent.

The absence of *Foraminisporis wonthagiensis* (except as mentioned above) correlates the assemblage to the *C. hughesi* Zone (ECL unpublished) equivalent to Unit PK 1.2 (CSR unpublished).

Samples at 1977m, 2214m, 2265m and 2307m had rare *Micrhystridium* sp. that suggests deposition in a brackish water environment. At 2556m relatively common *Microfasta evansii* suggests deposition in a marginal marine environment. The remaining samples in the sequence are regarded as non-marine.

IV. SOURCE ROCK POTENTIAL

The methods used to estimate source rock potential from palynological residues is discussed in Appendix 1. The results of the analyses are shown in Tables 1 and 2 and the inferred potentials are summaried in Table 1. The primary criteria used to assess source rock potential are total organic matter measured as Volume of Organic Matter (VOM in ml/10g), the abundance of the various liptinites, the oil index and the volume of unoxidised (fluorescent) liptinites. Seven of the samples had VOM values of less than 0.3ml and two others had very low yields of unoxidised liptinites and these are not considered any further. Eight samples are suggested as having possible good potentials to generate liquid hydrocarbons and the remainder are regarded as having possible moderate potentials.

Most of the samples here indicated as having good source rock potentials are just at the threshold of this category as the overall abundances of unoxidised liptinites as measured by volume of fluorescent liptinites and amorphous sapropel are not high. This reflects the generally oxidising environments in which the organic matter was deposited. The samples that are here identified as having possible good oil potentials must be correlated with the electric logs to determine whether any significant sections of potential source rocks are present in the well.

V. MATURITY

The techniques used to assess spore colours and UV fluorescence colours in the samples are discussed in Appendix 1. The observed colours are shown in Table 3 and the interpreted maturity levels for oil generation are shown in Table 1.

1367m-1381m Very early oil

Fluorescence colours of light yellow and spore colours of yellow to light orange are at a level where some source rocks can begin to generate oil but in this well the section is immature.

1567m-2443m Early oil

Light orange spore colours and yellow fluorescence colours correlate with a VRE of approximately 0.5% to 0.6% that is regarded as generally capable of generating oil.

2490m-2562m Peak oil

Spore colours of orange and fluorescence colours of gold to orange indicate the zone of main oil gneration at a VRE of approximately 0.7%. The deepest sample would suggest a slightly higher maturity level but as the palynomorphs were severely oxidised the colours are not reliable.

TABLE NO.1.

Palynological zones, ages, environments of deposition, oil potential and maturity in Greenslopes-1.

DEPTH (m)	PALYNOLOGICAL ZONE	AGE	ENVIRONMENT OF DEPOSITION	OIL POTENTIAL	MATURITY
1367.0	P. parvispinosus	Early Aptian	Brackish	Moderate	Very early oil
1373.0	P. parvispinosus	Early Aptian	Non-marine	Poor	Very early oil
1381.0	P. parvispinosus	Early Aptian	Non-marine	Moderate	Very early oil
1567.0	F. asymmetricus	Barremian-Early Aptian	Non-marine	Poor	Early oil
1816.0	F. asymmetricus	Barremian-Early Aptian	Non-marine	Good	Early oil
1853.0	F. wonthaggiensis	Valanginian-Barremian	Non-marine	Good	Early oil
1963.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Early oil
1977.0	C. hughesi	Berriasian-Valanginian	Brackish	Good	Early oil
2172.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Early oil
2214.0	C. hughesi	Berriasian-Valanginian	Brackish	Moderate	Early oil
2265.0	C. hughesi	Berriasian-Valanginian	Brackish	Good	Early oil
2283.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Early oil
2307.0	C. hughesi	Berriasian-Valanginian	Brackish	Good	Early oil
2365.5	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Early oil
2436.0	C. hughesi	Berriasian-Valanginian	Non-marine	Good	Early oil
2443.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Early oil
2490.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Peak oil
2505.0	C. hughesi	Berriasian-Valanginian	Non-marine	Good	Peak oil
2536.0	C. hughesi	Berriasian-Valanginian	Non-marine	good	Peak oil
2556.0	C. hughesi	Berriasian-Valanginian	Marginal marine	Moderate	Peak oil
2562.0	C. hughesi	Berriasian-Valanginian	Non-marine	Poor	Peak oil

PE900747

This is an enclosure indicator page.
The enclosure PE900747 is enclosed within the container PE902356 at this location in this document.

The enclosure PE900747 has the following characteristics:

ITEM_BARCODE	= PE900747
CONTAINER_BARCODE	= PE902356
NAME	= Spore/Pollen Distribution Chart
BASIN	= OTWAY
PERMIT	= PEP 101
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Spore/Pollen Distribution Chart (enclosure from WCR vol.2) for Grenslopes-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 17/07/86
W_NO	= W924
WELL_NAME	= Greenslopes-1
CONTRACTOR	=
CLIENT_OP_CO	= Phoenix Oil & Gas

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 7

PETROGRAPHIC ANALYSIS

RESOURCE DEVELOPMENT LABORATORIES

PERTH - Welshpool
52 Murray Road,
Welshpool,
Western Australia 6106
Telephone: (09) 458 7999
Telex: AA92560
P.O. Box 210, Bentley,
Western Australia 6102.

PERTH - Balcatta
4 MacAdam Place,
Balcatta,
Western Australia 6021
Telephone: (09) 344 2411
Telex: AA93837
P.O. Box 261, Tuart Hill,
Western Australia 6060.

KALGOORLIE
Great Eastern Highway,
Kalgoorlie,
Western Australia 6430
Telephone: (090) 21 1416
(090) 21 7688
Telex: AA91784
P.O. Box 174, Kalgoorlie,
Western Australia 6430.

MEEKATHARRA
Great Northern Highway,
P.O. Box 120,
Meekatharra
Western Australia 6642
Telephone: (099) 81 1086

ORIGINATOR:

DATE:

Lynn Mitchell,

Phoenix Oil and Gas,

44 Ord St,

W Perth

17-3-86

1000 0 01 43009

Preparation of two thin sections and petrographic descriptions of two well cuttings, Greenslopes No 1 (2601-4m,2607-8m)

R Townend.

Sample Greenslopes No 1 2601-4m

Well Cuttings

Thin Section.

		Dominant
Lava fragments		
"Chlorite"	major	
Clinopyroxene	major	
Plagioclase	major	
Opaques	minor	
		Accessory
Sediment		
Quartz	major	
Feldspar	minor	
Mica	accessory	
Carbonate	accessory	
Opaques	trace	
Clay	trace	
		Accessory
Tuff		
Carbonate		Trace
Amygdale(opal)		Trace

The sample is a mixture of lithologies but is dominated by a basic lava. This is porphyritic with phenocrysts of titanaugite and an altered ?olivine. They are set in finer plagioclase - pyroxene ore groundmass.This combination varies in texture and mode. Also alteration may obscure rather fine groundmass. Carbonate is a secondary phase in some of these. Probably related to this are several fragmentary bedded fragments in which the crystals are similar . In one example there is a concentration of chlorite that has a welded appearence

Sediment is represented by a fine subarkose with angular quartz and alkali feldspar in a matrix that is about 10% and mostly narrow skins of clay etc. There are also several pieces of ?organically stained shale.

Overall the association of variably textured lavas, plus the occasional non lava as part of a single chip suggests a BASIC TUFF.

Sample Greenslopes No 1 2607-8m

Well Cuttings

Thin Section

		Dominant
LAVA		
Phenocrysts	"Chlorite"	
	Clinopyroxene	
Groundmass		
	Clinopyroxene	
	Plagioclase	
	Chlorite	
	Opaques	
Amygdales		
	Carbonate	
	Opal	
	Chlorite	
		Accessory
SEDIMENT		
	Quartz	
	Feldspar	
	Volc. frag.	
	Clay	
	Shale	

This is a very similar sample to the 2601 interval . Thus it is predominantly composed of porphyritic basic lava fragments. These are characterised by fresh phenocrysts of a titaniferous augite(purple tinge) and chloritised phenocrysts of ?olivine. these are set in a groundmass of clinopyroxene, plagioclase, ores and secondary products. Some are amygdular with opal,chlorite and carbonate .

There is one fragment without fresh crystals but containing some opaque masses in an almost aphanitic secondary groundmass containing quartz amygdales. A small(0.4mm) piece has a a high content of green chlorite and a linear texture suggestive of welding.

.One fragment of fine arkose is similar to that of the 2601m interval. There are brown coloured shales identical to the other sample material.

The composite chips contain the lava,shale,quartz,and also a crystal of chromite. The porous fine cement to them does contain small crystals of clinopyroxene

Classified as a BASIC TUFF.

PE905783

This is an enclosure indicator page.
The enclosure PE905783 is enclosed within the container PE902356 at this location in this document.

The enclosure PE905783 has the following characteristics:

ITEM_BARCODE	= PE905783
CONTAINER_BARCODE	= PE902356
NAME	= Photographs of core Thinsection for Greenslopes-1
BASIN	= OTWAY
PERMIT	= PEP/101
TYPE	= WELL
SUBTYPE	= CORE_PHOTOS
DESCRIPTION	= Core photographs (from appendix 7--Petrographic Analysis-- WCR vol. 2) for Greenslopes-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W924
WELL_NAME	= GREENSLOPES-1
CONTRACTOR	=
CLIENT_OP_CO	= PHOENIX OIL AND GAS NL.

(Inserted by DNRE - Vic Govt Mines Dept)

PHOTO 1 2601-4M COMBINATION OF FINE SEDIMENT AND ALTERED BASIC VOLCANIC FRAGMENTS. NIC UNC. FIELD WIDTH 1.8MM

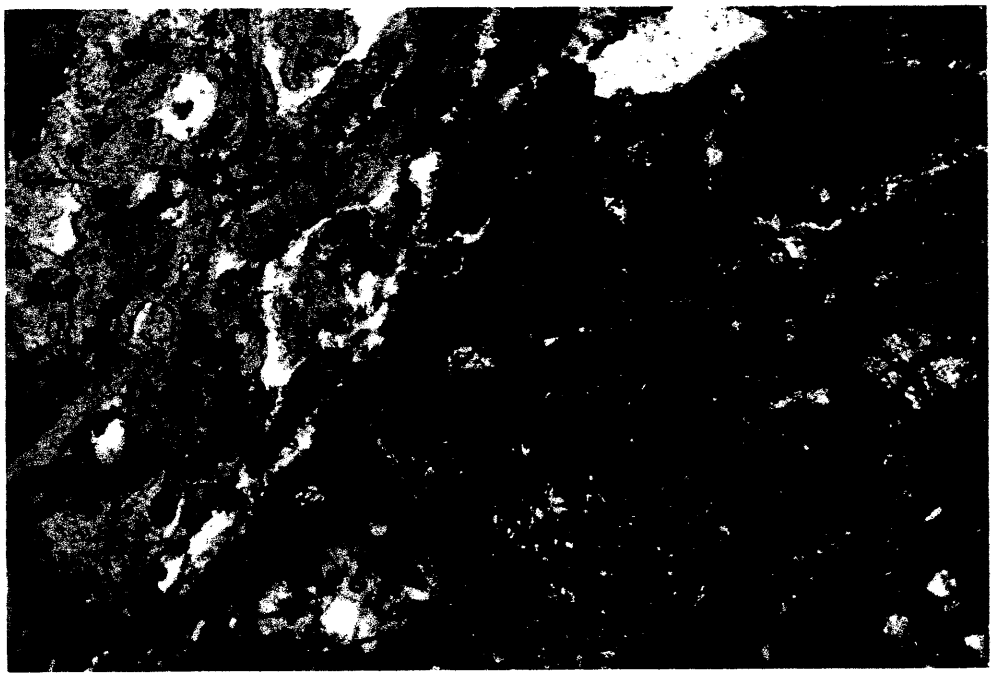


PHOTO 2 2606-8M FRAGMENTS OF WELDED BASIC LAVA(GREEN), AND ALTERED "OLIVINE BASALT". NIC UNC. FIELD WIDTH 0.7MM.

TABLE NO.2.

Palynomorph yields, preservation and kerogen constituents in Greenslopes-1. See Appendix No.1 for an explanation of the terms used. Key: VOM = volume of organic matter, HYLOGEN = vitrinitic fraction, MELANOGEN = inertinitic fraction, AMORPHOUS SAPROPEL = fine fluorescent liptinitic sapropel; 1 = poor, 2 = moderate (fair), 3 = good (high), 4 = very good (very high).

DEPTH (m)	SAMPLE NO.	WEIGHT (g)	VOM (ml)	PRESERVATION (0-4)	PALYN YIELD (0-4)	CUTICLE (0-4)	HYL-OGEN (0-4)	MELAN-OGEN (0-4)	GRANULAR SAPROPEL (0-4)	AMORPHOUS SAPROPEL (0-4)
1367.0	24	6.2	0.2	3	2	3	3	2	2	2
1373.0	23	10.0	0.1	3	2	2	2	2	2	2
1381.0	22	10.0	0.3	3	3	2	3	2	3	2
1567.0	21	10.0	0.1	1	1	1	2	3	2	1
1816.0	20	5.7	0.3	2	3	3	2	3	3	2
1853.0	19	9.2	0.6	3	3	3	3	3	4	2
1963.0	17	5.8	0.1	2	2	2	1	2	2	2
1977.0	16	5.7	0.3	3	3	4	3	2	3	2
2172.0	14	10.7	0.05	1	1	1	1	1	1	1
2214.0	13	5.2	0.2	2	2	4	3	2	2	2
2265.0	12	5.5	0.4	2	3	4	3	3	3	2
2283.0	11	10	0.05	1	1	1	1	2	1	1
2307.0	10	5.7	0.5	3	3	3	3	3	3	2
2365.5	9	8.9	0.05	1	1	0	1	1	1	0
2436.0	8	6.6	0.8	2	3	3	3	3	4	2
2443.0	7	5.0	0.3	3	3	3	3	2	4	0
2490.0	6	4.8	0.1	2	2	2	3	2	2	2
2505.0	5	5.0	0.4	2	2	4	3	3	3	2
2536.0	3	5.5	0.4	2	3	3	3	3	4	3
2556.0	2	5.5	2.1	2	2	3	3	2	4	1
2562.0	1	9.9	0.6	1	1	0	2	2	3	0

TABLE NO.3.

Kerogen yields, source rock potential and maturity indicators in Greenslopes-1. See Appendix No.1 for an explanation of the terms used. Key: VOM ml/10g = volume of organic matter (empirically equivalent to %TOC), FLUORESCENT LIPTINITES = VOM X %fluorescent liptinites (microlitres/g); 1 = poor, 2 = moderate (fair), 3 = good (high), 4 = very good (very high).

DEPTH (m)	VOM ml/10g	%SAPRO -PEL	%LIPT INITE	%FLUORESCENT LIPTINITES	VOL. FLUOR. LIPTINITES microlitres	OIL INDEX (0-4)	GAS INDEX (0-4)	SPORE COLOUR	UV LIPTINITE FLUORESCENCE COLOUR
1367.0	0.32	40	5	2	6	2	2	Yellow	Light yellow
1373.0	0.10	90	2	5	5	2	2	Yellow	Light yellow-Yellow
1381.0	0.30	80	10	10	30	2	3	Light orange	Light yellow-Yellow
1567.0	0.10	40	1	1	1	1	1	Light orange	Yellow
1816.0	0.53	60	10	5	26	3	3	Light orange-Orange	Yellow
1853.0	0.65	80	5	5	33	3	3	Light orange-Orange	Yellow
1963.0	0.17	50	5	1	2	2	2	Light orange	Yellow
1977.0	0.53	70	10	5	26	3	3	Light orange-Orange	Yellow
2172.0	0.05	30	20	20	9	1	1	Light orange-Orange	Yellow
2214.0	0.38	75	5	2	8	3	3	Light orange-Orange	Yellow
2265.0	0.73	55	15	2	15	3	3	Light orange-Orange	Yellow-Gold
2283.0	0.05	15	10	5	3	1	1	Light orange	Yellow
2307.0	0.88	90	5	3	26	3	3	Light orange-Orange	Yellow-Gold
2365.5	0.06	10	1	0	0	0	1	Orange	Dull yellow
2436.0	1.21	80	5	2	24	3	3	Light orange	Yellow
2443.0	0.60	95	2	0	0	2	3	L. orange-L. brown	Dull yellow-Orange
2490.0	0.21	80	2	1	2	2	2	Orange-Light brown	Gold-Dull yellow
2505.0	0.80	75	15	2	16	3	3	Orange	Gold
2536.0	0.73	80	5	5	36	3	3	Orange-Light brown	Gold-Orange
2556.0	3.82	95	1	1	38	2	3	Orange-Light brown	Gold-Orange
2562.0	0.61	95	0	0	0	0	1	Orange-Light brown	Orange

APPENDIX NO.1.

Explanation of the source rock parameters recorded using palynological techniques.

INTRODUCTION

A rapid and reliable technique for estimating the abundances of the various kerogen components has been developed that can determine the source rock potential of the sediments .

Samples that are to be examined for palynology and source rock potential are processed using standard techniques that include acid digestion in cold HCl, cold HF and then boiling HCl. Any remaining mineral matter is removed by flotation of the organic material in a Zn2Br solution of SG 2.10. The heavy liquid is removed by washing and the volume of organic material (VOM, see below) recovered is measured in a 10ml conical centrifuge tube after spinning at 3000 rpm for 5 minutes. A measured proportion by volume of the organic residue (kerogen) is dried on a coverslip with PVA and is then mounted on to a microscope slide with a plastic resin (Elvacite or Eukit).

Counts of the various kerogen components are made on the kerogen slide using modified point-counting procedures and the results related back to the weight of rock processed. For example, a kerogen slide may represent the residue from 1/25g (0.04g) of the sediment. It has been measured that the field of view of the 20X objective on a Nikon microscope used by ECL is 1/4000 (1/4E3) of the total area of the kerogen slide. If, on average, there are 4 palynomorphs observed in each field of view when scanning the slide, then the number of palynomorphs estimated per gram of sediment is 4x25x4E3 = 4E5/g (400,000 per gram). This would be regarded as a good yield that could provide a significant contribution to the source rock potential of the sediment.

Each of the measured kerogen components usually show a wide size range that also must be taken into consideration during the counts. In an effort to reduce the subjective element of the estimates, the same microscope objective is used to count the same parameter where this is possible. It is not feasible to directly relate the measured number of particles of a particular kerogen component or their area to an estimated volume or mass for that component. However, an empirical relationship between the abundance estimates and source rock potential has been determined based on the examination of known source rock sequences. To facilitate the display of the abundance data and discussion of these results, a simplified four point scale has been developed based on comparisons with source rocks from a wide variety of locations. For example, palynomorph abundances vary from less than 1000(1E3)/g in poor source rocks to more than 1000000(1E6)/g in very good source rocks.

GLOSSARY

1. PALYNOMORPH YIELD

   The estimated number of palynomorphs per gram of sediment expressed in terms of low (=1), moderate (=2), high (=3) and very high (=4) when compared with other source rocks (1=<1E3/g; 2=1E3-<3E4/g; 3=3E4-1E6/g; 4=>1E6/g; 20X Objective).

2. PRESERVATION

   Estimate of the general preservation level of the palynomorphs, recorded in terms of poor (=1), moderate or fair (=2), good (=3) and very good (=4).

3. SPORE-POLLEN AND MICROPLANKTON DIVERSITY

   The estimated number of different species in the sample expressed in terms of low (=1), moderate (=2), high (=3) and very high (=4) when compared with other source rocks (1=1-5; 2=6-15; 3=16-25; 4=>25).

4. PERCENT MICROPLANKTON

   The estimated proportion of dinoflagellates, acritarchs and other algal cysts expressed as a percentage when compared with the total palynomorph assemblage.

5. CUTICLE ABUNDANCE

   The estimated number of cuticle fragments (large and small) per gram of sediment expressed in terms of low (=1) to very high (=4) when compared with other source rocks (1=<1E2/g; 2=1E2-<3E3/g; 3=3E3-1E5/g; 4=>1E5/g; 10X Objective).

6. PERCENTAGE OF LIPTINITES

   The proportion of the unfiltered kerogen (as observed on a kerogen slide) that comprises palynomorphs (spores, pollen and algal cysts) and cuticle fragments is

estimated and expressed as a percentage of the total organic matter. Only the larger, properly identifiable liptinites can be included in this category. Finely degraded liptinites (less than 1 micron) are regarded as part of the sapropel group of macerals except when distinguishable by UV fluorescence.

7. PERCENTAGE OF FLUORESCENT LIPTINITES

The proportion of the unfiltered kerogen (as observed on a kerogen slide) that comprises fluorescing palynomorphs (spores, pollen and algal cysts) and fluorescing cuticle fragments is estimated and expressed as a percentage of the total organic matter. This includes the finely degraded liptinites that are regarded as Amorphous Sapropel (see below). Those liptinites that are unoxidised and able to auto-fluoresce are regarded as the most oil-prone fraction of the organic matter.

8. HYLOGEN ABUNDANCE

The estimated number of partially translucent woody or lignitic fragments per gram of sediment expressed in terms of low (=1) to very high (=4) when compared with other source rocks (1=<1E3/g; 2=1E3-<3E4/g; 3=3E4-1E6/g; 4=>1E6/g; 20X Objective). Broadly equivalent to vitrinite and previously referred to as fusain or fusinite.

9. MELANOGEN ABUNDANCE

The estimated number of opaque and angular woody fragments per gram of sediment expressed in terms of low (=1) to very high (=4) when compared with other source rocks (1=<1E3/g; 2=1E3-<3E4/g; 3=3E4-1E6/g; 4=>1E6/g; 20X Objective). Broadly equivalent to inertinite. As there is usually a gradation between melanogen and hylogen the two components can be difficult to distinguish,

10. GRANULAR SAPROPEL YIELD

The estimated number of clumps of granular sapropel per gram of sediment expressed in terms of low (=1) to very high (=4) when compared with other source rocks (1=<1E4/g; 2=1E4-<3E6/g; 3=3E6-1E7/g; 4=>1E7/g; 40X Objective). Granular sapropel is regarded as the very fine, fluffy, degraded and oxidised organic matter that shows no fluorescence and is usually a darker colour than the amorphous sapropel. The measurement of "clumps" of sapropel is highly subjective but provides a good order of magnitude estimate that is relatively consistent provided the sample processing is constant and the same objective is used.

11. AMORPHOUS SAPROPEL YIELD

The estimated number of clumps of amorphous sapropel per gram of sediment expressed in terms of low (=1) to very high (=4) when compared with other source rocks (1=<1E4/g; 2=1E4-<3E6/g; 3=3E6-1E7/g; 4=>1E7/g; 40X Objective). Amorphous sapropel is here regarded as weakly fluorescing, finely degraded liptinitic material. It appears to consist of fragments of palynomorphs eg. algae, and cuticles but may also include adsorbed hydrocarbons onto the organic debris, however, the particles are usually too small to be resolved by the microscope. The measurement of "clumps" of sapropel is highly subjective but provides a good order of magnitude estimate that is relatively consistent provided the sample processing is constant and the same objective is used.

12. PERCENTAGE OF SAPROPEL

The proportion of the unfiltered kerogen (as observed on a kerogen slide) that comprises sapropel, here regarded as very fine, (less than 1 micron) degraded organic matter is estimated and expressed as a percentage of the total organic matter. This includes both Granular and Amorphous Sapropel (see above).

13. SAPROPEL COLOUR

The overall colour of the dispersed organic matter and was the original parameter observed to estimate Thermal Alteration Index (TAI). Generally the most dominant colour is that of the granular sapropel which usually has a darker colour than the amorphous sapropel. Not usually recorded as it reflects both the environment of deposition and the maturation level.

14. SPORE COLOUR

The colour of the spore or pollen exines in transmitted white light. Variables that can affect the colour (apart from maturation) are the species type and exine thickness as well as any exposure to oxidising environments during and after deposition. The darkest colours of the least oxidised exines are taken as being the most significant. The change in colour from yellow to orange is regarded as indicating the onset of oil generation. Gas generation is suggested as becoming significant as the colours change to brown. Oil generation appears to cease as the spore

colours approach dark brown and when they become black significant gas generation also probably ceases.

15. UV LIPTINITE FLUORESCENCE COLOUR

The dominant colour of the unoxidised liptinites (exines, cuticle and some amorphous sapropel) in reflected UV light observed with a Nikon EF-D UV330-380/400DM/420K filter combination and a 20x UV-Fluor objective. Liptinites that have been oxidised prior to deposition (mostly by recycling) show reduced intensities. The fluorescent colours observed are a complex mixture not comparable to normal colours as seen with white light. The hues range from light blue to white to light yellow with increasing maturity. The colours change to yellow at the beginning of the oil window (as here interpreted) and change to gold, dull yellow, orange and dull orange to dull red at the base of the oil window. The maturation level of sediments near the base of the oil window and deposited in an oxidising environment can be difficult to interpret.

16. VOLUME OF ORGANIC MATTER (VOM)

The measured volume of organic matter (VOM) left after removal of the mineral matter in the sample (see Introduction above) provides a rapid and reliable indication of the organic richness of the samples. From experience it has been found that the values of VOM when expressed as ml/10g approximate the %TOC determinations. Generally, <0.5 ml/10g is regarded as a poor (lean) source rock, 0.5-<2.5 ml/10g is moderate, 2.5-4.5 ml/10g is good (rich) and >4.5 ml/10g is very good (very rich). However, the abundance of unoxidised liptinites in the kerogen must also be considered in assessing the oil source rock potential of the sediments.

17. VOLUME OF FLUORESCENT LIPTINITES

The total amount of potential oil generating liptinites is calculated by multiplying the Volume of Organic Matter (VOM/10g) with the percentage of fluorescent liptinites observed in the sample (see above). The results are expressed as microlitres per gram. On an empiric basis, values greater than 200 are regarded as good source rocks.

18. OIL INDEX

An estimate of the overall abundance of liptinitic material in the kerogen expressed on a scale of 1-4 (being equivalent to poor, moderate, good and very good). This provides a broad indication of the potential of the sample to generate oil or condensate. The OIL INDEX is calculated by averaging the values for Palynomorph Abundance, Cuticle Abundance and Amorphous Sapropel Abundance (see above) and rounding the result to one digit.

19 GAS INDEX

An estimate of the overall abundance of that part of the organic matter in the kerogen that is regarded as being capable of generating gas if a high enough maturation level is reached. The estimate is expressed on a scale of 1-4 (being equivalent to poor, moderate, good and very good). The GAS INDEX is calculated by averaging the values for Palynomorph Abundance, Cuticle Abundance, Amorphous Sapropel Abundance, Granular Sapropel Abundance and Hylogen Abundance (see above) and rounding the result to one digit.

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APPENDIX 8

MUD AND BIT RECAP

CONTENTS

PAGE NO.

GREENSLOPES NO. 1

1. WELL SUMMARY:

WELL NAME	GREENSLOPES NO. 1
OPERATOR:	PHOENIX OIL & GAS N.L 44 Ord Street WEST PERTH WA 6005
LOCATION:	PEP 101 OTWAY BASIN
CONTRACTOR:	G.D.S.A.
RIG:	RIG NO. 2
TOTAL DEPTH:	2608M
SPUD DATE:	17-12-85
DATE REACHED TOTAL DEPTH:	8-1-86
TOTAL DRILLING DAYS:	23
TOTAL DAYS ON WELL	24

DRILLING FLUID BY INTERVAL				MUD COST BY INTERVAL
17 1/2	0	to	133	Nil
12 1/4	133	to	901	$12,600.95
8 1/2	901	to	2608	$28,924.46
TOTAL MUD COST				$41,525.41

ENGINEER BRIAN DOBSON.

DISCUSSION BY INTERVAL:

17 1/2" Interval: 20" Conductor set - 132m

Greenslopes No. 1 was spudded at 11:00am on the 17 December, 1985. This section was drilled with fresh water and native clays built the necessary viscosity to keep the hole clean.

Three 16 jets were used and the pump was run at 735 gpm for cleaning. No wiper trip was performed and the 13 3/8" casing was set at 132 metres and cemented.

12 1/4" Interval: 132-890m

While waiting on cement and nippling up the B.O.P.'s all pits where dumped and cleaned and filled with water. After treating with Soda Ash (Soda Bicarb) 500 bbls of 6% KCL brine was mixed and used to drill out the cement and shoe. A leak off test was performed to the equivalent of 15.0 lbs/gal mud weight.

Drilling of the interval then commenced, CMC HV and polysal were added to lift Viscosity as there were no native clays to assist. The section after the casing consisted of marl with calcitic stringers. Large sections of lost circulation where encountered and approximately 200 bbls of lost circulation material (nut plug mica) were mixed in the mixing tank and circulated whilst drilling. This material was returned directly to the mixing tank bypassing the active system.

At 416m 250 bbls was lost to the hole, and another 250 bbl of Hi-Vis CMC-gel - x c polymer - mica - nut plug was mixed and circulated while drilling two singles and circulated for 2 hours, then drilled ahead with 100% returns. This Hi-Vis material was used for a pill and spotted on bottom to run 9 5/8" casing. A wiper trip was done and nine stands were reamed to bottom.

The mud was weighted up to 9.9 lbs/gal and the hole circulated clean. A wiper trip was run and 50 bbl of 11.5 lb mud was pumped to bottom before pulling out of the hole. The 9 5/8" casing was run with only a slight hangup at 560m. The casing was cemented at 890m.

8 1/2" Interval: 890-2608m

The tanks were dumped and cleaned while waiting on cement and nippling up B.O.P. and flow line. A new batch of 500 bbl KCL brine was mixed and treated with soda ash to drill out the float collar, cement and shoe.

8 1/2" Interval: Cont'd.

Polymers were mixed in the mixing tank and added to the system to keep the weight down to around 9.5 lbs/gal. The mud cleaner was used as a desilter.

The section from the 9 5/8" casing point to T.D. was mainly calcium cemented sand which caused high carbonate-bicarbonate muds. This did not allow the gels in the polymers to work properly. Prehydrated bentonite muds were used to raise viscosity. The alkalinity of the mud was around the 4.0 - 7.0 range and Ph fluctuated from 11 to 13.

Premixed polymers were continuously added to maintain filtrate around 5 - 7 cc. and prehydrated gels were added to maintain viscosity. The total depth reached was 2608m on 8 January 1986. No drill stem tests were run.

The only problem encountered was increased bit wearing causing under gauge hole and reaming had to be performed on two occasions. Bits were changed at 1327, 1614, 1726, 1997, 2131, 2278, 2541 metres.

A 7 7/8" bit was run on the last bit change in the interval from 2541m to T.D.

CONCLUSION:

The programme for Greenslopes No. 1 was proposed on the basis of a swelling shales problem. Hence the use of a KCL Polymer mud system. Other wells in the area had been drilled 20 years ago and no other data was available.

The drilling fluid used on Greenslopes No. 1 was a KCL - Polymer, and major problems were encountered with lost circulation and the fact that the polymers would not perform in the 8 1/2" section of the hole. Otherwise the hole was generally in good condition and in gauge. Maximum gauge was 10" in the section 1895m - to 2050m.

This well was drilled at a relatively high cost due to the use of KLC polymer mud and also due to the extra lost circulation material used during drilling.

RECOMMENDATIONS:

As swelling shales were not encountered in this well a Lignite - Lignosulphanoe gel mud would have been sufficient and a fraction of the cost. A simple gel mud with 3% KCL and weighted to 9.9 lbs/gal could be used to set the 9 5/8" casing and then dumped.

The 8 1/2" section should be drilled with a basic gel mud using caustic and thinners and the water loss and rheology controlled to the same properties for the KCL/polymer system.

The solids control on this well was inadequate due to the mud cleaner not being fully functional. On further wells shakers - desander - mud cleaner would be sufficient with screens on shakers at 80 - 100 mesh.

[redacted] SIDEWALL SAMPLE

WELL GREENSLOPES NO. 1 RUN 1 FIELD _____ DATE 10/1/86

CORES SHOT 24 REC'D 21 CHGD 21 GUN 1 GEOLOGIST L. MITCHELL PAGE _____

DEPTH	REC.	MATERIAL	GRAIN SIZE	CALC.	ARG.	CON.	SHOW	ODOR	FLUORESCENCE
1367	20	Siltstone - light grey/blue aren	VP	S	S	F	-	N	NIL
1373	35	Siltstone - Light grey/blue aren sl carb	P	-	M	F	-	N	NIL
1381	30	Mudstone - dark grey sl silty	T	-	M	F	-	N	NIL
1567	35	Siltstone - dark grey - aren	VP	-	S	F	-	N	Very very faint 1-2 grains min fluor
1816	25	Mudstone - dark grey - microlam coaly	T	-	M	S	-	N	NIL
1853	25	Siltstone - dark grey - aren	VP	-	S	S	-	N	Very very faint 1-2 grains min fluor
1905	-	Lost							
1963	25	Mudstone - dark grey/blue aren/arg microlam	T	-	V	S	-	N	NIL
1977	15	Mudstone - dark grey - v aren occ quartz gr	T	-	V	S	-	N	NIL
2039.5	-	Lost							
2172	35	Sandstone - light grey/blue - silty	VF-F	S	S	S	-	N	NIL
2214	20	Sandstone - white - microlam with coal	F	S	S	S-F	-	N	NIL
2265	10	Shale - black fissile microlam aren grades to mudstone carb	T	-	V	F	-	N	NIL
2283	35	Sandstone - light grey/blue-white	F	-	S	S-F	-	N	1grain br wh flu 1-2 grains yv faint min fluor
2307	30	Siltstone - light dark grey-aren gds to clst	VF	-	M	F	-	N	NIL
2365.5	25	Sandstone - white -light grey/blue pink grn lithic grns	F-M	S	V	S	-	N	NIL
2436	20	Claystone - dark grey - sl aren subfiss grades to siltstone	T	-	V	S	-	N	NIL
2443	20	Shale - black carbonac grades to claystone	T	-	V	S	-	N	NIL
2490	18	Sandstone - white/light grey - carb lams	VF-F	S	S	F	-	N	NIL
2505	20	Mudstone - dark grey/light grey - microlam	T	S	V	S	-	N	NIL
2513	-	Lost							
2536	15	Mudstone grades to siltstone aren-dark grey	VP-T	-	M	S	-	N	NIL
2556	15	Shale - black/dark brown carb	T	-	V	S	-	N	NIL
2562	35	Basaltic tuff - blue/grey/green interlam with blue grey shaley mudstone	T	-	S	H	-	N	NIL

ABBREV. P & P: T-TITE, P-POOR, F-FAIR, G-GOOD. CALC. & ARG.: N-NON, S-SLIGHTLY, M-MODERATELY, V-VERY; CON.: S-SOFT, F-FIRM, H-HARD, SHOW & ODOR: N-NO, P-POOR, F-FAIR, G-GOOD.

4. MATERIALS RECAP

DresserMagcobar
DIVISION OF DRESSER INDUSTRIES, INC.

WELL SUMMARY

OPERATOR: Phoenix Oil & Gas WELL: Greenslopes. # 1.

HOLE SIZE 17 ½"

INTERVAL 0 - 133 CASING SIZE 13 3/8"

PRODUCT	QUANTITY	COST
H_2O	Native Clays	Nil.

DresserMagcobar
DIVISION OF DRESSER INDUSTRIES, INC.

WELL SUMMARY

OPERATOR: Phoenix Oil & Gas WELL: Greenslopes #1

HOLE SIZE 12 1/4

INTERVAL 133 - 901 CASING SIZE 9 5/8"

PRODUCT	QUANTITY	COST
Baite	291	$3346.50
CMC EHV	~~77~~ 38	~~$4431.00~~ $2014.00
		18.00
Lime	3	
Caustic Soda	5	$180.00
SEL	37	$721.50
Sod Bicarb	5	$91.55
KCL	250	$4500.00
XC Polymer	1	$330.00
Nut Plug	10	$131.00
Mica	16.	$142.40
Soda Ash	1	$16.50
Polysal	20	$780.00
Causti Liq.	1	$29.50
D.D. Compound.	1	$300.00
		$12,600.95

Dresser Magcobar
DIVISION OF DRESSER INDUSTRIES, INC.

WELL SUMMARY

OPERATOR: Phoenix Oil & Gas WELL: Greenslopes #1.

HOLE SIZE 8 1/2"

INTERVAL 901 - 2608. CASING SIZE Nil

	PRODUCT	QUANTITY	COST
	KCL	350	6300
	Baite	80	920
	CMC EHV	88	4664
	Polysal	196	7644
	Caustic Soda	18	648
	Sod. Bicarb	6	109.86
	Lime	13	78.00
	Soda Ash	11	181.50
	SEL	97	1891.50
	XC Polymer	14	4620.00
*	Magco 303	2	139.60
*	Sodium Sulfite	5	480.00
*	Stafo	32	1248.00
			$28,924.46¢.

*

Price Varies of $619.60

This is due to no prices for SOI + Magco 303.

Prices not put in Daily drilling reports. for SOI + Magco 303 but tallied up for total price.

One

BAROID AUSTRALIA PTY LTD

WEEKLY INVENTORY

OPERATOR Phoenix Oil & Gas WELL NAME Greenslopes #1

MATERIAL	UNIT SIZE	DATE / START WEEK	19-12-85 REC	USE	BAL	20-12-85 REC	USE	BAL	21-12-85 REC	USE	BAL	22-12-85 REC	USE	BAL	23-12-85 REC	USE	BAL	24-12-85 REC	USE	BAL	25-12-85 REC	USE	BAL	STOCK COUNT
		18																						
Magcogel	100 40	240	19.50	12	228		12	216			216			216		25	191			191			191	
Caustic Soda	~~25kg~~	84	36.0		84		3	81			81		1	80		1	79		2	77		0	77	
KCL	50 kg	780	18.0		780		160	620			620		90	530			530		140	390			390	
CMC EHV	25kg	80	53.0		80		10	70		15	55		11	44		2	42		10	32			32	
Causti big	50lb	40	29.50		40			40			40			40		1	39			39			39	
Pipe lax	205L	4	510		4			4			4			4			4			4			4	
D.D Compound	205L	4	300		4		1	3			3			3			3			3			3	
Mica Coarse	15kg	42	8.90		42			42			42		16	26			16			16			16	
Nut Plug MED	23kg	40	13.10		40			40			40		10	30			30			30			30	
Soda Ash	40 kg	10	16.52		10			10			10		1	9			9		2	7			7	
Lime	25kg	20	6.0		20			20			20			20		3	17			17			17	
Sodium Bicarb	40 kg	8	18.31		8		3	5			5		1	4		1	3			3			3	
XC Polymer	25kg	5	330.0		5			5			5		1	4			4			4			4	
Polysal	25kg	216	39.00		216		5	211		5	206		10	196			196		20	176			176	
" Pac			99.0					0			0			0			0			0			0	
Barite 11.50	50kg		11.50					0	400		400		11	389		280	109			109			109	
Sodium Sulphite			96.00					0	20		20			20			20			20			20	
Magco 303			69.80					0	32		32			32			32			32			32	
23-12-85		24-12-85 25-12.				26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13

REMARKS Aborder: 7 Barite
1 CMC HV
1 MICA
1 Nut Plug.
10 500 Briquets

~~Two~~ Three

Magcobar
DRILLING FLUID SERVICES

CONTRACTOR: Phoenix Oil & Gas — G.D.S. #2. — WELL: Greenslopes #1.

DATE:			2-1-86			3-1-86			4-1-86			5-1-86			6-1-86			7-1-86			8-1-86			TOTAL FOR WEEK		
PRODUCT	UNIT	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED.	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL
MAGCOBAR		294		15	279			279		15	264			264		15	249			249		20	229		65	22
MAGCOGEL		301		7	294			294			294			294			294			294			294		7	29
~~PERSENE~~ LIGNITE Liq.		39			39			39			39			39			39			39			39		0	39
~~IR-20~~ CMC		6		~~$0~~	6		6	0			0			0			0			0			0		6	0
RESINEX Polysal		116		30	86		20	66		15	51		15	36		~~16~~	~~36~~		~~20~~ ~~16~~	16		16	0		116	0
CAUSTIC SODA		69		1	68			68			68		2	66		2	64		2	62			62		7	6
KCL		610			610			610		100	510			510		30	480			480			480		130	48
Pipelax		4			4			4			4			4			4			4			4		0	4
D. Compound		3			3			3			3			3			3			3			3		0	3
Mica		56			56			56			56			56			56			56			56		0	56
Nut Plug		130			130			130			130			130			130			130			130		0	130
Soda Ash		58			58			58			58			58			58			58			58		0	58
Lime		8			8			8			8		2	6		1	5		2	3			3		5	3
Sod Bicarb		57			57			57			57			57			57			57			57		0	57
XC Polymer		11			11			11			11		2	9		2	7		1	6			6		5	11
Vita Flo		40			40			40			40			40		12	28		5	23		5	18		22	18
Soda Sulfide		15			15			15			15			15			15			15			15		0	15
Magco 303		30			30			30			30			30			30			30			30		0	30
Mo Fiber		80			80			80			80			80			80			80			80		0	80

~~One~~ Two

Magcobar
DRILLING FLUID SERVICES

OPERATOR Phoenix Oil & Gas CONTRACTOR G.D.S. WELL Greenslopes #1.

DATE:			26-12-85			27-12-85			28-12-85			29-12-85			30-12-85			31-12-85			1-1-86			TOTAL FOR WE	
PRODUCT	UNIT	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED.	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED
MAGCOBAR		109	200		309			309		30	309			309		15	294			294			294	309 200	15
MAGCOGEL		191	200		391		50	341		30	311			311			311			311		10	301 300	391	90
SPERSENE CAUSTIC LIG.		39			39		39	39			39			39			39			39			39	39	0
~~XP-20~~ CMC		32	40	13	59		13	46		18	28		4	24		10	14		30	14		8	6	72	66
~~REDINEX~~ Polysal.		176		15	161		15	146		20	126			126			126		10	116			116	176	60
CAUSTIC SODA		77		2	75		2	73		2	71			71			71		0	71		2	69	77	8
KCL		390			390		20	370			370	300	0	670			670		60	610			610	690	80
Pipe lax		4			4			4			4			4			4			4			4	4	0
D.D. Compound		3			3			3			3			3			3			3			3	3	0
Mica		16	40		56			56			56			56			56			56			56	56	0
Nut Plug		30	100		130			130			130			130			130			130			130	130	0
Soda Ash		7		3	4		4	0			0	60	0	60			60			60		2	58	67	9
Lime		17		3	14			14		5	9			9			9			9		1	8	17	9
Sod. Bicarb		3		3	0			0			0	60	1	59		1	58		1	57			57	63	6
xc Polymer		4			4			4		1	3	15	2	16		1	15		4	11			11	19	8
~~Poly Pac~~ StayFlo		0			0			0			0	40		40			40			40			40	40	0
Sod. Sulphite	20	~~32~~			20			20			20		4	16			16			16		1	15	20	5
Magco 303		32			32			32			32		2	30			30			30			30	32	2
mud Fiber		0	80		80			80			80			80			80			80			80	80	0

28th
7:00 Am

Four

Magcobar
DRILLING FLUID SERVICES

OPERATOR: Phoenix Oil & Gas

CONTRACTOR: G.D.S #2

WELL: Greenslopes #1.

DATE:			9-1-86			10-1-86			11-1-86			12-1-86			13-1-86			14-1-86			15-1-86.			TOTAL FOR WEEK		
PRODUCT	UNIT	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED.	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.	RECD.	USED	BAL.
MAGCOBAR		229																								
MAGCOGEL		294																								
~~DISPERSENE~~ RUSH Lig		39																								
~~CMC 250~~ CMC		0																								
~~RESINEX~~ Polyseal		0																								
CAUSTIC SODA		62																								
KCL		480																								
Pipe lax		4																								
L.D. Compound		3																								
Mica		58																								
Nut Plug		130																								
Soda Ash		58																								
Lime		3																								
Sod. Briarb		57																								
K.C. Polymer		6																								
Staflo		18																								
Sod Sulfide		15																								
Magco 303		30																								
Nuo Fiber		80																								

* Rain damaged + Breakages.

⊕ Left for rig use charged to Phoenix.

5. DRILLING FLUID RECAP

PE905782

This is an enclosure indicator page.
The enclosure PE905782 is enclosed within the container PE902356 at this location in this document.

The enclosure PE905782 has the following characteristics:

ITEM_BARCODE	= PE905782
CONTAINER_BARCODE	= PE902356
NAME	= Drilling Data Sheet for Greenslopes-1
BASIN	= OTWAY
PERMIT	= PEP/101
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Drilling Data Table (from appendix 8--Complete Mud and Bit Recap--WCR vol. 2) for Greenslopes-1
REMARKS	=
DATE_CREATED	= 8/01/86
DATE_RECEIVED	=
W_NO	= W924
WELL_NAME	= GREENSLOPES-1
CONTRACTOR	= MAGCOBAR DRILLING FLUID SERVICES
CLIENT_OP_CO	= PHOENIX OIL AND GAS NL.

(Inserted by DNRE - Vic Govt Mines Dept)

6. BIT AND HYDRAULICS RECORD

BIT & HYDRAULIC RECORD

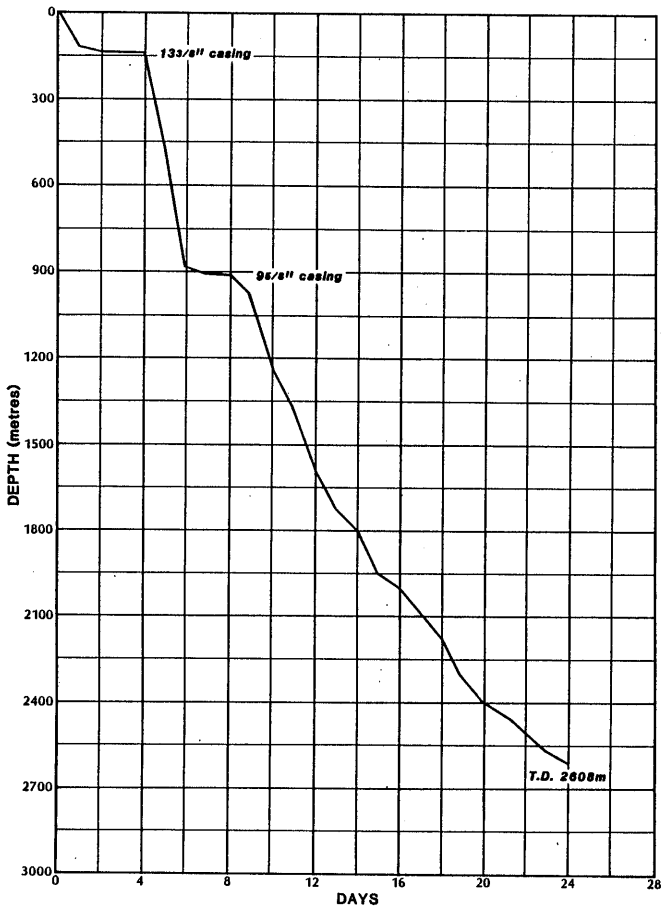
Contractor	Rig No.	Location	Well
G.D.S	#2	PEP 101	Greenslopes #1
Operator			**Engineer**
Phoenix Oil & Gas		Warrnambool Vic	B. Dobson.

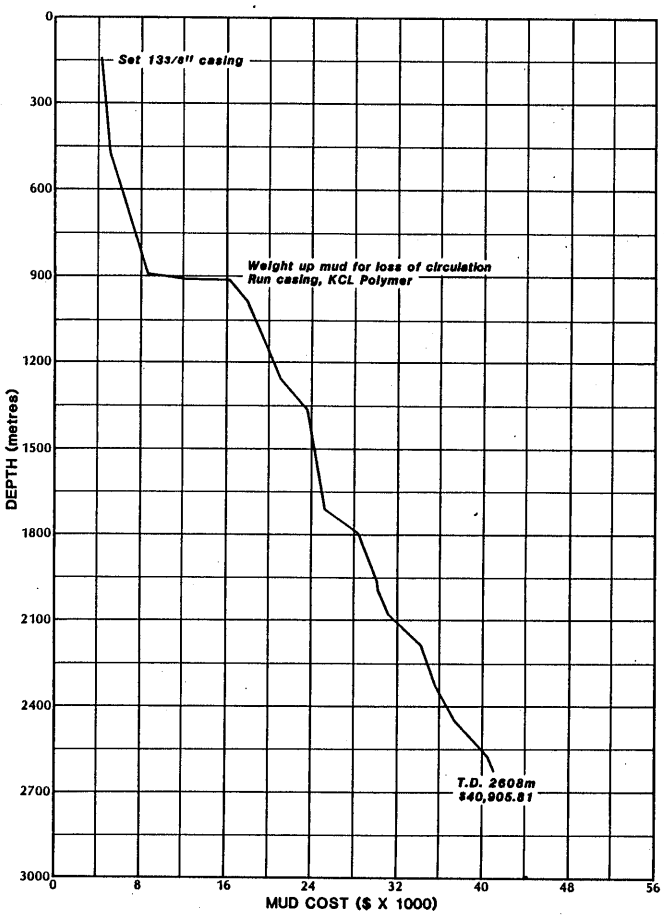
Pump Name	Size	Liner Size/Stroke	DRILL Collars O.D. x I.D. x Length	Pipe Drill	Tool Joint Type	Wt/Ft	Pump Output Bbls/Stks	
PZ 8	5½×8 6×8	5½ × 8 6 × 8		4½		16.6	.066	

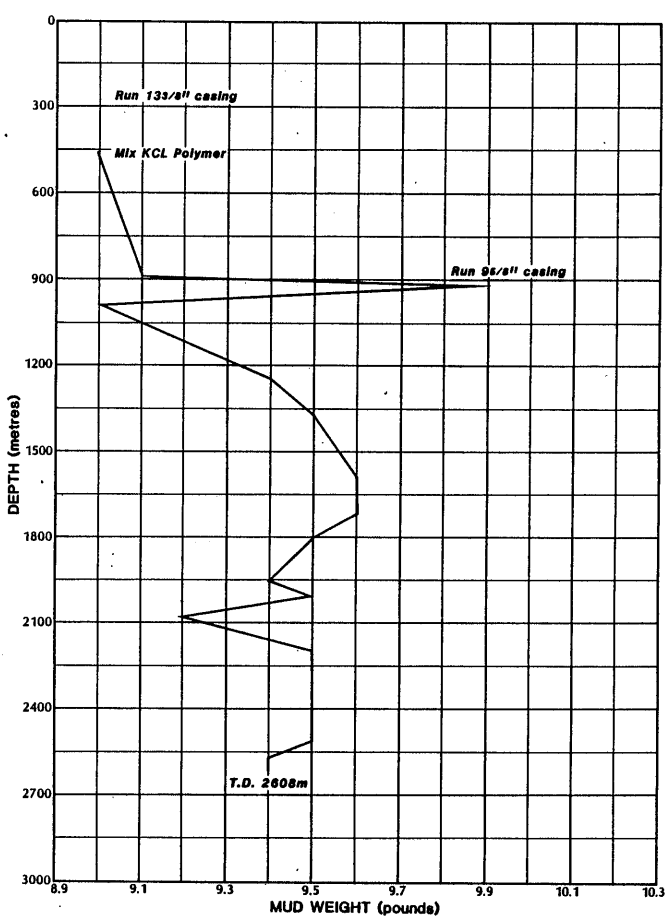
Date	Run No.	Size	Make	Type	Jet Size	Depth Out	Metres Drilled	Hours Run	Weight On Bit	R.P.M	Pump Pressure	Vert Dev.	Stks/min	Ann Vel Ft./min	Condition T-B-G
	1	17½	REED	13 J	3×16	133	133	7	5/15	12/140	900	0	100		
	2	12¼	REED	S11 J	3×13	901	768	29½	5/15	140	1100	0	95		
	3	8½	REED	HP12J	3×9	1327	426	34½	15/20	120	1750	2°	110	105	4·5·I
	4	8½	REED	HP13J	3×9	1614	287	29	10/15	120/140	1800	1°	110	105	5·2·3/16
	5	8½	REED	S21G	3×9	1726	112	16	10/15	100	2050	1°	100	105	5·6·I
	6	8½	REED	FP51A	3×9	1997	271	45½	10/25	100	1950	½°	118	105	2·4·¼
	7	8½	REED	FP51A	3×9	2131	120	13	15	100	2050	½°	118	105	2·3·3/8 REAMER
	8	8½	REED	S21G	3×9	2278	147	17½	20	100	2100	½	118	107	6·3·IN
	9	8½	REED	FP51	3×9	2541	263	61	20	100	2100	3¼	110	105	6·7·½
	10	7⅞	REED	HP51	3×9	2608	67	22½	20	100	2100	5°	110	105	1·2·IN

REMARKS Due to bit #9. ½" gauge 7⅞" run to T.O to save reaming.

7. GRAPHS







GREENSLOPES 1
WELL SUMMARY

8. DAILY MUD REPORTS

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 1

DATE 17-12-1985 DEPTH NIL

SPUD DATE 17-12-85 PRESENT ACTIVITY

OPERATOR Phoenix Oil & Gas	CONTRACTOR G. D. S.	RIG NO. 2.	
REPORT FOR Gene Jackman - Jack Lambert	REPORT FOR Betty Fowler	SECT., TWNSHP., RANGE	
WELL NAME AND NO. GreenSlopes #1.	FIELD OR BLOCK NO. PEP 101	CTY., PAR. OR OFFSHORE AREA	STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA	
BIT SIZE 17½	TYPE	JET SIZE 3x15	SURFACE SET @ FT.	HOLE	PITS	PUMP SIZE X IN.	ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	TOTAL CIRCULATING VOL.		PUMP MAKE, MODEL / ASSUMED EFF. %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE	WEIGHT	BBL/STK STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE		BBL/MIN GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES	☐F.L ☐PIT	☐F.L ☐PIT
SAMPLE FROM		
TIME SAMPLE TAKEN		
	H	H
DEPTH (ft)	2	2
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	O	O
FUNNEL VISCOSITY (sec./qt.) API @ °F		
PLASTIC VISCOSITY cP @ °F	N	N
YIELD POINT (lb/100ft²)	A	A
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	T/	T
FILTRATE API (cm^3/30 min.)	I	I
API HTHP FILTRATE (cm^3/30 min.) @ °F	V	V
CAKE THICKNESS (32nd in. API/HTHP)	E/	E
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT		
LIQUID CONTENT (% BY Vol.) OIL/WATER	C/	C
SAND CONTENT (% BY Vol.)	L	I
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	A	A
PH ☐ STRIP ☐ METER @ °F	Y	Y
ALKALINITY MUD (Pm)	S	S.
ALKALINITY FILTRATE (P_f/M_f)	/	/
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/
CHLORIDE (mg/L)		
TOTAL HARDNESS AS CALCIUM (mg/L)		

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
8.3	45	NA

BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

PRODUCTS	TREATMENT
	NIL.

REMARKS:

Spud Hole 11.00 Am.
Rigging up.

PRODUCT INVENTORY										
STARTING INVENTORY										
RECEIVED										
USED LAST 24 HR.										
CLOSING INVENTORY										
COST LAST 24 HR.										

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	—	Desilter	—	H. S. Cent.	—
Degasser	—	Shaker	1 HR.	Super Cyclone	—
Desander	—	Other	—	—	

DAILY COST NIL

CUMULATIVE COST NIL.

MAGCOBAR ENGINEER	HOME ADDRESS	PHONE
MOBILE UNIT	WAREHOUSE LOCATION	PHONE

IN U.S.A.

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 2.

DATE 18-12-1985 DEPTH 120 m

SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas. CONTRACTOR G.D.S. RIG NO. 2

REPORT FOR G. Jackman. J. Lambert REPORT FOR B. Fowler SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 FIELD OR BLOCK NO. PEP 101 CTY., PAR. OR OFFSHORE AREA STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 17½	TYPE Reed	JET SIZE 3 x 16	SURFACE SET @ 9 m FT.	HOLE 50	PITS 200	PUMP SIZE 6 x 8 x 2 X IN.		ANNULAR VEL. (FT/MIN) DP — DC —
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 130 m FT.	TOTAL CIRCULATING VOL. 250		PUMP MAKE, MODEL P2 8	ASSUMED EFF 90 %	CIRCULATION PRESSURE (PSI) 900 400
DRILL PIPE SIZE 6½	TYPE DC.	LENGTH 64	INTERMEDIATE SET @ FT.	IN STORAGE Nil	WEIGHT Nil	BBL/STK .07 .07	STK/MIN 100 125	BOTTOMS UP (MIN) 2
DRILL COLLAR SIZE 8½		LENGTH 54	PRODUCTION OR LINER SET @ FT.	MUD TYPE H_2O Native		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN) —

BHA 121.6

MUD PROPERTIES	☐F.L ☐PIT	☐F.L ☐PIT
SAMPLE FROM		
TIME SAMPLE TAKEN	17.00	18.00
DEPTH (ft)	4	4
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	2	2
FUNNEL VISCOSITY (sec./qt.) API @ °F	0	0
PLASTIC VISCOSITY cP @ °F		
YIELD POINT (lb/100ft²)	N	N
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	N/A	N/A
FILTRATE API (cm^3/30 min.)	T	T
API HTHP FILTRATE (cm^3/30 min.) @ °F	1	1
CAKE THICKNESS (32nd in. API/HTHP)	V	V
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	0	0
LIQUID CONTENT (% BY Vol.) OIL/WATER	/	/
SAND CONTENT (% BY Vol.)	.	
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud		
PH ☐ STRIP ☐ METER @ °F		
ALKALINITY MUD (Pm)		
ALKALINITY FILTRATE (P_f/M_f)	/	/
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/
CHLORIDE (mg/L)		
TOTAL HARDNESS AS CALCIUM (mg/L)		

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
8.5	45-60	—

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

PRODUCTS	TREATMENT

REMARKS:
Drilling ahead @ 120m to Casing point at 130 mt.

PRODUCT INVENTORY										
STARTING INVENTORY										
RECEIVED										
USED LAST 24 HR.		4								
CLOSING INVENTORY										
COST LAST 24 HR.										

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	—	Desilter	—	H. S. Cent.	—
Degasser	—	Shaker	12 HR	Super Cyclone	—
Desander	—	Other	—	—	—

DAILY COST Nil

CUMULATIVE COST Nil

MAGCOBAR ENGINEER B. Dobson HOME ADDRESS Gold Coast PHONE 316778

FILE UNIT WAREHOUSE LOCATION PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 3

DATE 19-12- 19 85 DEPTH 138 MT

SPUD DATE 17-12-85 PRESENT ACTIVITY WOC

OPERATOR Phoenix Oil & Gas | CONTRACTOR R.D.S | RIG NO. 2

REPORT FOR G. Jackman J. Lambert | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA	
BIT SIZE	TYPE	JET SIZE	SURFACE SET @ 9M FT.	HOLE 65	PITS	PUMP SIZE X IN.	ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 130 M	TOTAL CIRCULATING VOL. 65		PUMP MAKE, MODEL	ASSUMED EFF. % / CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE "	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK "	STK/MIN / BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE H2O		BBL/MIN	GAL/MIN / TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	18hr	19hr	—	—	—
DEPTH (ft)			BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	W	W			
FUNNEL VISCOSITY (sec./qt.) API @ °F	D	D			
PLASTIC VISCOSITY cP @ °F	C	C			
YIELD POINT (lb/100ft²)					
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	/	/			
FILTRATE API (cm^3/30 min.)					
API HTHP FILTRATE (cm^3/30 min.) @ °F					
CAKE THICKNESS (32nd in. API/HTHP)	/	/			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT					
LIQUID CONTENT (% BY Vol.) OIL/WATER	/	/			
SAND CONTENT (% BY Vol.)					
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud					
PH ☐ STRIP ☐ METER @ °F					
ALKALINITY MUD (Pm)					
ALKALINITY FILTRATE (P_f/M_f)	/	/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/			
CHLORIDE (mg/L)					
TOTAL HARDNESS AS CALCIUM (mg/L)					

PRODUCTS	TREATMENT

REMARKS:
Ran 13 3/8" casing
Cement.
Annulus empty fill ann.
from 1½" Pipe to return.

PRODUCT INVENTORY										
STARTING INVENTORY										
RECEIVED										
USED LAST 24 HR.		"								
CLOSING INVENTORY	/									
COST LAST 24 HR.										

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge		Desilter		H.S. Cent.	
Degasser		Shaker	"	Super Cyclone	
Desander	/	Other		—	

DAILY COST: NIL | CUMULATIVE COST: NIL

MAGCOBAR ENGINEER B. Dobson | HOME ADDRESS Gold Coast | PHONE 316719

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

PRINTED IN U.S.A.

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 4

DATE 20-12-1985 DEPTH 130 M

SPUD DATE 17-12-85 PRESENT ACTIVITY WOC

OPERATOR Phoenix Oil & Gas	CONTRACTOR G.O.S	RIG NO. 2
REPORT FOR G. Jackman J Lambert	REPORT FOR B. Fowler	SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1	FIELD OR BLOCK NO. PEP 101	CTY., PAR. OR OFFSHORE AREA / STATE / PROVINCE NIC

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE SET @ 9 m FT.	HOLE 65	PITS	PUMP SIZE X IN.		ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 130 m FT.	TOTAL CIRCULATING VOL. 65		PUMP MAKE, MODEL	ASSUMED EFF. %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK ~	STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE Mud up.		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	19	20	9.0-9.3	35-45	< 10 cc.
			BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	M	M	PRODUCTS	TREATMENT	
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	1	1			
FUNNEL VISCOSITY (sec./qt.) API @ °F	X	X			
PLASTIC VISCOSITY cP @ °F					
YIELD POINT (lb/100ft²)	K	K			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	C/	C/			
FILTRATE API (cm^3/30 min.)	L	L			
API HTHP FILTRATE (cm^3/30 min.) @ °F					
CAKE THICKNESS (32nd in. API/HTHP)	WB	WB			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	O	O			
LIQUID CONTENT (% BY Vol.) OIL/WATER	C	C			
SAND CONTENT (% BY Vol.)					
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud					
PH ☐ STRIP ☐ METER @ °F					
ALKALINITY MUD (Pm)					
ALKALINITY FILTRATE (P_f/M_f)	/	/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/			
CHLORIDE (mg/L)					
TOTAL HARDNESS AS CALCIUM (mg/L)					

REMARKS:
Dumped Tanks fill Fresh H2O
Mix KCL Polymer mud.
Total Surface 500 bbls.

PRODUCT INVENTORY	KCL	Caustic Soda	Soda Bicarb	D.O.	CMC HV	Polysal	Magco GEL			
STARTING INVENTORY	780	84	8	4	80	216	228			
RECEIVED										
USED LAST 24 HR.	160	3	3	1	10	5	12			
CLOSING INVENTORY	620	81	5	3	70	211	216			
COST LAST 24 HR.	2880	108	54.93	300	530	195	234			

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge		Desilter		H. S. Cent.	
Degasser		Shaker		Super Cyclone	
Desander		Other		—	

DAILY COST $4,301.93

CUMULATIVE COST $4,301.93

MAGCOBAR ENGINEER B. Dobson HOME ADDRESS Gold Coast PHONE 316778

MOBILE UNIT WAREHOUSE LOCATION PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 5

DATE 21-12-1985 DEPTH 133 m

SPUD DATE 17-12-85 PRESENT ACTIVITY Pressure Test.

OPERATOR Phoenix Oil & Gas	CONTRACTOR G.D.S.	RIG NO. 2
REPORT FOR G. Jackman J Lambert	REPORT FOR B. Fowler	SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1	FIELD OR BLOCK NO. PEP 101	CTY., PAR. OR OFFSHORE AREA
STATE / PROVINCE Vic		

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 12¼	TYPE	JET SIZE	SURFACE SET @ 9m FT.	HOLE 65	PITS 500	PUMP SIZE 6 X 8 IN.		ANNULAR VEL. (FT/MI) DP DC
DRILL PIPE SIZE 4½	TYPE	LENGTH	INTERMEDIATE SET @ 130 m FT.	TOTAL CIRCULATING VOL. 565		PUMP MAKE, MODEL P2 8	ASSUMED EFF. 75%	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .07	STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL BRINE		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☐ PIT	☐ F.L ☒ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1600	0600	9.0 - 9.2	35-42	< 10cc
	20th	21st	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)					
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	M	A	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	1	D			
PLASTIC VISCOSITY cP @ °F	Y	D			
YIELD POINT (lb/100ft²)	1				
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	N/	T/			
FILTRATE API (cm^3/30 min.)	9	O			
API HTHP FILTRATE (cm^3/30 min.) @ °F					
CAKE THICKNESS (32nd in. API/HTHP)	K/	K/			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	C	C			
LIQUID CONTENT (% BY Vol.) OIL/WATER	L/	L/			
SAND CONTENT (% BY Vol.)					
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud		B			
PH ☐ STRIP ☐ METER @ °F		R			
ALKALINITY MUD (Pm)		I			
ALKALINITY FILTRATE (P_f/M_f)	/	N/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	E/			
CHLORIDE (mg/L)					
TOTAL HARDNESS AS CALCIUM (mg/L)					
KCL %		7.5%			

REMARKS:
Testing B.O.P and system. Adding Polymer to KCL Br Prior to drilling out Cemen & Shoe.

PRODUCT INVENTORY									
STARTING INVENTORY									
RECEIVED									
USED LAST 24 HR.									
CLOSING INVENTORY									
COST LAST 24 HR.									

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	NIL	H. S. Cent.	NIL
Degasser	ON	Shaker	40x40 40x40	Super Cyclone	NIL
Desander	8x12	Other	NIL	—	

DAILY COST	CUMULATIVE COST
NIL	$4301.93¢

MAGCOBAR ENGINEER B Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 6
DATE 22-12-1985 DEPTH 460m
SPUD DATE 17-12-85 PRESENT ACTIVITY DRILLING

OPERATOR Phoenix Oil & Gas
CONTRACTOR G.D.S. RIG NO. 2.
REPORT FOR G. Jackman J. Lambert
REPORT FOR B. Fowler SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1.
FIELD OR BLOCK NO. PEP 101
CTY., PAR. OR OFFSHORE AREA
STATE / PROVINCE VIC

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 12¼	TYPE REED	JET SIZE 3x13	SURFACE SET @ 9m. FT.	HOLE 170	PITS 500	PUMP SIZE 6x8 IN. x 2.		ANNULAR VEL. (FT/MIN) DP 110 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 320	INTERMEDIATE SET @ 13⅜ 130m.	TOTAL CIRCULATING VOL. 670		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 1800
DRILL PIPE SIZE 4½	TYPE HW	LENGTH —	INTERMEDIATE SET @ — FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .0786	STK/MIN 190	BOTTOMS UP (MIN) 14
DRILL COLLAR SIZE 6¼ + 8½		LENGTH 140	PRODUCTION OR LINER SET @ — FT.	MUD TYPE KCL Polymer		12.5 BBL/MIN	526 GAL/MIN	TOTAL CIRC. TIME (MIN) 20
BHA								

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☐ PIT	☐ F.L ☐ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	18.00	0600	9.0-9.2	35-42	7 10cc.
DATE.	21st	22nd	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER		
DEPTH (ft)	300 m	460			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.0	9.0			
FUNNEL VISCOSITY (sec./qt.) API @ °F	~~35~~	40			
PLASTIC VISCOSITY cP @ °F		9			
YIELD POINT (lb/100ft²)	B	5			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	W	2/4			
FILTRATE API (cm^3/30 min.)	1	11			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—			
CAKE THICKNESS (32nd in. API/HTHP)	D	3/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☒ RETORT	1	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	N	91/—			
SAND CONTENT (% BY Vol.)	S	.5%			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud		—			
PH ☒ STRIP ☐ METER @ °F	P 11.0	9.5			
ALKALINITY MUD (Pm)	O	—			
ALKALINITY FILTRATE (P_f/M_f)	Y	+			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	M	+			
CHLORIDE (mg/L)	E	~~4~~4000			
TOTAL HARDNESS AS CALCIUM (mg/L)	R	280			
KCL %	7.5%	6.5			
Hydrostatic Head. PSi	468	649 psi			

PRODUCTS	TREATMENT
CMC HV	Viscosity
Polysal	Water Loss.
Shakers: 1)	40 x 40
2)	40 x 40 x 20

REMARKS: R. I. H Pressure Test.
Drill out Float Collar & Shoe Cmt
Drill 3m. Leak OFF Test
P.O.O.H change BHA.
Drilling ahead.
Motor & switch on Mud Cleaner no good.
Loss Circulation mixed 100 bbl HIVIS + MICA + Nut Plug.

PRODUCT INVENTORY	CMC HV	Polysal									
STARTING INVENTORY	70	211									
RECEIVED											
USED LAST 24 HR.	15	5									
CLOSING INVENTORY	55	206									
COST LAST 24 HR.	795	195									

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	~~Mud Clean~~ ~~Desilter~~	12 HR	H. S. Cent.	NIL
Degasser	ON	Shaker	40x40 40x80	Super Cyclone	NIL
Desander	18 HR.	~~Other~~ HR.	18 HR	—	

DAILY COST $990.00
CUMULATIVE COST $5291.93.

MAGCOBAR ENGINEER B. Dobson
HOME ADDRESS Gold Coast PHONE 316778
MOBILE UNIT
WAREHOUSE LOCATION PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 7

DATE 23 - 12 - 1985 | DEPTH 895 ~~955~~ m

SPUD DATE 17-12-85 | PRESENT ACTIVITY ~~957~~ ~~CASING~~ REAM

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S. | RIG NO. 2

REPORT FOR G. Jackman J. Lambert | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1. | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 12¼	TYPE Reed	JET SIZE 3x13	SURFACE SET @ 9m FT.	HOLE 450	PITS 500	PUMP SIZE 6 X 8 IN.		ANNULAR VEL. (FT/MIN) DP 110 DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 133 13 3/8	TOTAL CIRCULATING VOL. 950		PUMP MAKE, MODEL PZ 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 160	BOTTOMS UP (MIN) 33
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL/Polymer		~~BBL/MIN~~	GAL/MIN	TOTAL CIRC. TIME (MIN) 40

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1800	0600	9.0/9.2	38 - 45	∠ 10 cc
	22 ND	23 RD.	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER		
DEPTH (ft)	770 m	~~885~~ 895			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.3	9.1+	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	38	44	KCL	Clorides	
PLASTIC VISCOSITY cP @ °F	8	12	KC Polymer	Viscosity	
YIELD POINT (lb/100ft²)	6	9	CMC	"	
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2/4	4/8	Nut Plug	Loss Circ	
FILTRATE API (cm^3/30 min.)	11	7	Mica	"	
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—	Barite	WT Pill	
CAKE THICKNESS (32nd in. API/HTHP)	3/32	2/32	Polysal	Water loss.	
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☒ RETORT	9	9	Caustic	P.H.	
LIQUID CONTENT (% BY Vol.) OIL/WATER	/91	/91	Sod Bic.	Hardness. Calcium	
SAND CONTENT (% BY Vol.)	1%	.5%	Soda Ash	Hardness "	
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☐ STRIP ☐ METER @ °F	9.0	9.5			
ALKALINITY MUD (Pm)	—	—			
ALKALINITY FILTRATE (P_f/M_f)	/	/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/			
CHLORIDE (mg/L)	40000	38000			
TOTAL HARDNESS AS CALCIUM (mg/L)	280	270			
KCL %	6.0	5.0			
Hydrostatic Head.	1229	1397			

REMARKS: 416 m. Loss circ. aprox 250 bbl. Mixed 100 bbl Hi Vis Mica - Nut Plug pill. Circ pill while drilling 2 singles + circ 1 HR. Drill ahead 100% return. Mixed 100 bbl pill to spot for casing. Hole caving in ream to bottom from 9 stands off bottom.

PRODUCT INVENTORY	KCL	KC Polymer	CMC HV	Sod Bicarb	Nut Plug	Mica	Caustic Soda	Polysal	Soda Ash	Barite
STARTING INVENTORY	620	5	55	5	40	42	81	206	10	400
RECEIVED										
USED LAST 24 HR.	90	1	11	1	10	16	1	10	1	11
CLOSING INVENTORY	530	4	44	4	30	26	80	196	9	389
COST LAST 24 HR.	1620	330	583	18.31	131	142.4	36.0	390	16.52	126.5

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	24	H. S. Cent.	NIL
Degasser	ON	Shaker	24	Super Cycione	NIL
Desander	24	Other	NIL	—	NIL

DAILY COST $3393.71. | CUMULATIVE COST $ 8685.64.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

PRINTED IN U.S.A.

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 8

DATE 24 - 12 - 19 85 DEPTH

SPUD DATE 17-12-85 PRESENT ACTIVITY W.O.C

OPERATOR Phoenix Oil & Gas

CONTRACTOR G.D.S

RIG NO. 2

REPORT FOR Gene Jackman

REPORT FOR B. Fowler

SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1

FIELD OR BLOCK NO. PEP 101

CTY., PAR. OR OFFSHORE AREA

STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE SET @ 9 m FT.	HOLE 200	PITS 200	PUMP SIZE X IN.		ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 133 m FT.	TOTAL CIRCULATING VOL. 400		PUMP MAKE, MODEL	ASSUMED EFF. %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK	STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl/Polymer		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1800	0600	9.0-9.2	40-45	< 10cc.
	23 RD	24 th	BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	R	D	PRODUCTS	TREATMENT	
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	U	U	Gel	for casing/cement job	
FUNNEL VISCOSITY (sec./qt.) API @ °F	N	M			
PLASTIC VISCOSITY cP @ °F		P			
YIELD POINT (lb/100ft²)	C				
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	A/	+/			
FILTRATE API (cm^3/30 min.)	S				
API HTHP FILTRATE (cm^3/30 min.) @ °F	I	C			
CAKE THICKNESS (32nd in. API/HTHP)	N/	L/			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	9.	E			
LIQUID CONTENT (% BY Vol.) OIL/WATER	/	A/			
SAND CONTENT (% BY Vol.)		N			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud					
PH ☐ STRIP ☐ METER @ °F		T			
ALKALINITY MUD (Pm)		A			
ALKALINITY FILTRATE (P_f/M_f)	/	N/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	K/			
CHLORIDE (mg/L)		S.			
TOTAL HARDNESS AS CALCIUM (mg/L)					

REMARKS:
WT up mud to 9.9 lbs/bbl
Circ hole run wiper trip
Mixup & wt up 100 bbl high
Vis pill, pump to bottom follow
25 bbl of 11.5 lb/bbl pill.
P.O.O.H run 9 5/8" casing to bottom
Circ casing. Cement.
mix 200 bbl Gel & H_2O for Cement job

PRODUCT INVENTORY	Baite	CMC	Caustic Lig.	Lime	Caustic Soda	Sod. Bicarb	GEL			
STARTING INVENTORY	389	44	40	20	80	4	216			
RECEIVED										
USED LAST 24 HR.	280	2	1	3	1	1	25			
CLOSING INVENTORY	109	42	39	17	79	3	191			
COST LAST 24 HR.	3220	106	29.50	180	36.0	18.31	487.5			

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	20	H. S. Cent.	—
Degasser	NIL	Shaker	24	Super Cyclone	—
Desander	20	Other	NIL	—	—

DAILY COST $3915.31.

CUMULATIVE COST $12,600.95

MAGCOBAR ENGINEER Bryan Dobson

HOME ADDRESS Gold Coast

PHONE 316778

MOBILE UNIT

WAREHOUSE LOCATION

PHONE

PRINTED IN U.S.A.

THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 9

DATE 25-12-19 85 DEPTH 901 m

SPUD DATE 17-12-85 PRESENT ACTIVITY W.O.C

OPERATOR Phoenix Oil & Gas

CONTRACTOR G.O.S. RIG NO. 2

REPORT FOR Gene Jackman

REPORT FOR Barry Fowler SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1

FIELD OR BLOCK NO. PEP 101

CTY., PAR. OR OFFSHORE AREA

STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE SET @ 9 m FT. 16"	HOLE 200	PITS 500	PUMP SIZE X IN.		ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 133 FT. 13 3/8	TOTAL CIRCULATING VOL. 700		PUMP MAKE, MODEL	ASSUMED EFF. %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 m 9 5/8	IN STORAGE NIL	WEIGHT NIL	BBL/STK	STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN					
	M	A	BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	1	D			
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	x	D	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	1	1			
PLASTIC VISCOSITY cP @ °F	N	N			
YIELD POINT (lb/100ft²)	9	9			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	/	/			
FILTRATE API (cm^3/30 min.)	K	P			
API HTHP FILTRATE (cm^3/30 min.) @ °F	C	D			
CAKE THICKNESS (32nd in. API/HTHP)	L /	L/			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT		Y			
LIQUID CONTENT (% BY Vol.) OIL/WATER	T /	M/			
SAND CONTENT (% BY Vol.)	O	E			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud		R.			
PH ☐ STRIP ☐ METER @ °F	W				
ALKALINITY MUD (Pm)	A				
ALKALINITY FILTRATE (P_f/M_f)	T /	/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	E /	/			
CHLORIDE (mg/L)	R				
TOTAL HARDNESS AS CALCIUM (mg/L)					

REMARKS:
Total mud left after cement job only 200 bbls.
Cleaned Tanks mixed 500 bbls Drill water added chemicals
Repaired Valves, new screens to mud
W.O.C cement
Merry Christmas.

PRODUCT INVENTORY	KCL	CMC	Polysal	Caustic	Soda Ash					
STARTING INVENTORY	530	42	196	79	9					
RECEIVED										
USED LAST 24 HR.	140	10	20	2	2					
CLOSING INVENTORY	390	32	176	77	7					
COST LAST 24 HR.	2520	530	780	72	33					

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	NIL	H. S. Cent.	NIL
Degasser	NIL	Shaker	NIL	Super Cyclone	NIL
Desander	NIL	Other	NIL	—	NIL

DAILY COST $3935.00

CUMULATIVE COST $16,535.95

MAGCOBAR ENGINEER Brian Dobson HOME ADDRESS Gold Coast PHONE 316778

MOBILE UNIT WAREHOUSE LOCATION PHONE

PRINTED IN U.S.A.

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 10

DATE 26 - 12 19 85 | DEPTH 988

SPUD DATE 17-12-85 | PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANG

WELL NAME AND NO. Green Slopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8 1/4	TYPE Reed	JET SIZE 3x9	SURFACE SET @ 9 m FT.	HOLE 220	PITS 500	PUMP SIZE 6 X 8 IN.		ANNULAR VEL. (FT/MIN) DP 102 DC 115
DRILL PIPE SIZE 4 1/2	TYPE 16.6	LENGTH	INTERMEDIATE SET @ 133 13 3/8 FT.	TOTAL CIRCULATING VOL. 720		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 1000
DRILL PIPE SIZE HW	TYPE 4 1/2	LENGTH	INTERMEDIATE SET @ 900 9 5/8 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .06	STK/MIN 97	BOTTOMS UP (MIN) 27
DRILL COLLAR SIZE 6 1/4		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		5.82 BBL/MIN	245 GAL/MIN	TOTAL CIRC TIME (MIN) 35

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☒ PIT	☐ F.L ☒ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1400	0630	9.0-9.5	40-45	< 10 cc
	25th	KCL 26th	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	901	988			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	B	9.0			
FUNNEL VISCOSITY (sec./qt.) API @ °F	R	40			
PLASTIC VISCOSITY cP @ °F	I	14			
YIELD POINT (lb/100ft²)	N	10			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	E	2/6			
FILTRATE API (cm^3/30 min.)		9cc			
API HTHP FILTRATE (cm^3/30 min.) @ °F	A	~~9cc~~			
CAKE THICKNESS (32nd in. API/HTHP)	D	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	D	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	/	91			
SAND CONTENT (% BY Vol.)	P	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	D	—			
PH ☐ STRIP ☐ METER @ °F	4	10.0			
ALKALINITY MUD (Pm)	4	.75			
ALKALINITY FILTRATE (P_f/M_f)	M	.25/.75			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	A	+			
CHLORIDE (mg/L)	R	40,000			
TOTAL HARDNESS AS CALCIUM (mg/L)		160			
KCL %		5.5%			

PRODUCTS	TREATMENT
600 Rpm	38
300 Rpm	24
Lime	Treat Carbonates
Soda Ash	Treat Cement Cont.
Sod Bic	Treat Cement Cont.
Cmc	Hi Vis
Polysal	Water Loss
Caustic	PH.

REMARKS:
Treating out bad cement Contamination and bad Drill water. Dumped 100 bbl add 100 bbl Hi Vis Polymer KCL.

PRODUCT INVENTORY	Cmc	Polysal	Caustic	Lime	Soda Ash	Sod Bicarb					
STARTING INVENTORY	52	176	77	17	7	3					
RECEIVED											
USED LAST 24 HR.	13	15	2	3	3	3					
CLOSING INVENTORY	19	161	75	14	4	0					
COST LAST 24 HR.	68.9	58.5	72	18	49.5	54.93					

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	20	H. S. Cent.	—
Degasser	NIL	Shaker	20	Super Cyclone	—
Desander	20	Other	NIL	—	—

DAILY COST $1468.43 | CUMULATIVE COST $18,004.38

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

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MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 11

DATE 27- 12- 1985 | DEPTH 1240

SPUD DATE 17-12-85 | PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR Gene Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8 1/2	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9m FT.	HOLE 250	PITS 500	PUMP SIZE 6 x 8 IN.		ANNULAR VEL. (FT/MIN) DP 110 DC 115
DRILL PIPE SIZE 4 1/2	TYPE 16.6	LENGTH 982	INTERMEDIATE SET @ 133 FT.	TOTAL CIRCULATING VOL. 750		PUMP MAKE, MODEL P28	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 1750
DRILL PIPE SIZE 4 1/2	TYPE HW	LENGTH 250	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 110	BOTTOMS UP (MIN) 44
DRILL COLLAR SIZE 6 1/4 BHA		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		7.26 BBL/MIN	305 GAL/MIN	TOTAL CIRC. TIME (MIN) 50

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☒ PIT	☐ F.L ☒ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	16-00	0630	9.0-9.5	35-45	< 10cc
	26th	27th	BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)(M)	1090	1240			
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.4	9.4	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	36	35	KCL	KCL	
PLASTIC VISCOSITY cP @ 26. 600. 22 °F	10	9 22.	cmc	Vis	
YIELD POINT (lb/100ft²) 16. 300. 13	6	4 13	Polysal	Fluid Loss	
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2/4	1/2	caustic	Prehy. Gel.	
FILTRATE API (cm³/30 min.)	9	9.0	GEL	Vis	
API HTHP FILTRATE (cm³/30 min.) @ °F	—	—	Soda Ash	Cement.	
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	9	10	.676 lbs/Lime/bbl.		
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	90/			
SAND CONTENT (% BY Vol.)	TR	.25%			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³/cm³ mud	—	—			
PH ☒ STRIP ☐ METER @ °F	10.5	11.0			
ALKALINITY MUD (Pm)	2.15	4.0			
ALKALINITY FILTRATE (P_f/M_f)	-/	.5/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	-/	/			
CHLORIDE (mg/L)	45000	35000			
TOTAL HARDNESS AS CALCIUM (mg/L)	160	360			
KCL %	6%	5.5%			
Hydrostatic Head	1758	2000			

REMARKS:
Formation Calcite (cement) cannot get mud to gel. Added Soda Ash, Bicarb, prehydrated gel. cmc + Polysal. + H_2O. + Prehydrated polymer. P.H reading fluctuates from 10.5 to 13.0. Due to Calcium. (Lime).

PRODUCT INVENTORY	KCL	CMC	Polysal	Caustic	GEL	Soda Ash				
STARTING INVENTORY	390	19	161	75	191	4				
RECEIVED										
USED LAST 24 HR.	20	19	15	2	50	4				
CLOSING INVENTORY	370	0	146	73	141	0				
COST LAST 24 HR.	360	1007	585	72	975	66				

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	24	H. S. Cent.	—
Degasser	NIL	Shaker	24	Super Cyclone	—
Desander	24	Other	NIL	—	—

DAILY COST $3065.00 | CUMULATIVE COST $21,069.38.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 12
DATE 28-12- 19 85 DEPTH 1370
SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling.

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2
REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANG
WELL NAME AND NO. Green slopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9m ~~FT.~~	HOLE 260	PITS 500	PUMP SIZE 5½ x 8 IN. 6 x 8 ✓		ANNULAR VEL. (FT/MIN) DP 105 DC 145
DRILL PIPE SIZE 4½	TYPE 16.6.	LENGTH 1112	INTERMEDIATE SET @ 133m ~~FT.~~	TOTAL CIRCULATING VOL. 760		PUMP MAKE, MODEL PZ 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 220
DRILL PIPE SIZE 4½	TYPE H.W	LENGTH -	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 100	BOTTOMS UP (MIN) 45
DRILL COLLAR SIZE 13HH 6½ + 6¼		LENGTH 258	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl Polymer		6.6 BBL/MIN	277 GAL/MIN	TOTAL CIRC. TIME (MIN) 140

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☒ PIT	☐ F.L ☒ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	16.00	0600	9.0-9.5	35-45	< 10cc
	27th	28th	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	1290	1370			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.4	9.5			
FUNNEL VISCOSITY (sec./qt.) API @ °F	31	39			
PLASTIC VISCOSITY cP @ °F	4	10 (24)			
YIELD POINT (lb/100ft²)	2	4 (14)			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	1/2	2/11			
FILTRATE API (cm^3/30 min.)	9	8			
API HTHP FILTRATE (cm^3/30 min.) @ °F	-	-			
CAKE THICKNESS (32nd in. API/HTHP)	2/	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	TR.	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	-	-			
PH ☒ STRIP ☐ METER @ °F	11.5	11.0			
ALKALINITY MUD (Pm)	4.0	6.0			
ALKALINITY FILTRATE (P_f/M_f)	.5/-	/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	-	-			
CHLORIDE (mg/L)	30000	28000			
TOTAL HARDNESS AS CALCIUM (mg/L)	360	350			
KCl	5%	5%			
Hydrostatic Head.	2080	2256			

PRODUCT INVENTORY	XC Polymer	Caustic Soda	Gel.	Lime	CMC HV	Poly Sal.				
STARTING INVENTORY	4	73	341	14	40	146				
RECEIVED										
USED LAST 24 HR.	1	2	30	5	18	20				
CLOSING INVENTORY	3	71	311	9	22	126				
COST LAST 24 HR.	330	72	585	30	954	780				

REMARKS:
P.O.O.H change bit
Drilling ahead.

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Cleaner Desilter	18	H. S. Cent.	NIL
Degasser	ON	Shaker	40-60 40-60	Super Cyclone	NIL
Desander	18	Other	NIL	—	NIL

DAILY COST $2751.00
CUMULATIVE COST $23,820.38

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778
MOBILE UNIT | WAREHOUSE LOCATION | PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 13

DATE 29-12-19 85 | DEPTH 1590

SPUD DATE 17-12-85 | PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S. | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9 FT.	HOLE 260	PITS 500	PUMP SIZE 5½ x 8 / 6 x 8 IN.		ANNULAR VEL. (FT/MIN) DP 105 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1332	INTERMEDIATE SET @ 133 FT.	TOTAL CIRCULATING VOL. 760		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI) 1800
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 100	BOTTOMS UP (MIN) 52
DRILL COLLAR SIZE BHA		LENGTH 258	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl Polymer		6.6 BBL/MIN	277 GAL/MIN	TOTAL CIRC. TIME (MIN) 160

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☑PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	12.00 28th	0600 29th	9.0 - 9.5	40 - 45	< 10 cc
DEPTH (ft)	1450	1590	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.6	9.6	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	40	41	Magco 303	Add to 30-12-85 cost.	
PLASTIC VISCOSITY cP @ °F	9	14 (35)	Sod Sulfite		
YIELD POINT (lb/100ft²)	3	7 (21)			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2/4	2/6		Added Oxygen Scavag Sodium Sulfite	
FILTRATE API (cm^3/30 min.)	8	7.2			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—		Added down D.P. Magco 303.	
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	.25	.25			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☑ STRIP ☐ METER @ °F	11.0	9.5			
ALKALINITY MUD (Pm)	6.0	4.5			
ALKALINITY FILTRATE (P_f/M_f)	.3/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+			
CHLORIDE (mg/L)	30000	27000			
TOTAL HARDNESS AS CALCIUM (mg/L)	350	220			
KCl	5%	5%			
Hydrostatic Head	2388	2619			
OST Residue	150 ppm	500 ppm			

REMARKS:
Drilling ahead.
Added Slugs of Premixed CMC HV & H_2O. to System.
Changed bottom screens to 80 x 80 mesh.

PRODUCT INVENTORY	XC Polymer	CMC HV	Pahsel	Sod Bicarb	Magco 303	Sodium Sulfite					
STARTING INVENTORY	18	22	126	60	32	20					
RECEIVED											
USED LAST 24 HR.	2	4	0	1	2	4					
CLOSING INVENTORY	16	18	126	59	30	16					
COST LAST 24 HR.	66	212	0	18.31	?	?					

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	24	H. S. Cent.	—
Degasser	ON	Shaker	24	Super Cyclone	—
Desander	24	Other	—	—	—

DAILY COST $890.31 | CUMULATIVE COST $24,710.69

MAGCOBAR ENGINEER Sean Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

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MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 14

DATE 30-12 19 85 DEPTH 1712

SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9 FT.	HOLE 350	PITS 500	PUMP SIZE 5½ X 8 IN.		ANNULAR VEL. (FT/MIN) DP 105 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1444	INTERMEDIATE SET @ 133 FT.	TOTAL CIRCULATING VOL. 850		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 1800
DRILL PIPE SIZE 13 HA	TYPE	LENGTH 268	INTERMEDIATE SET @ 700 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 110	BOTTOMS UP (MIN) 56
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		7.2 BBL/MIN	305 GAL/MIN	TOTAL CIRC. TIME (MIN) 160

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1600	0600	9.0 - 9.5	35 - 42	< 10 cc
	29 m	30 m	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	1615	1712			
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.6	9.6	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	39	39	Barite	Heavy Pill to Trip	
PLASTIC VISCOSITY cP @ °F	12	12 (34)	Sod Bicarb	Pm	
YIELD POINT (lb/100ft²)	8	10 (22)	amc	Vis	
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2 / 4	3 / 7	xc	"	
FILTRATE API (cm^3/30 min.)	7.0	6.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—			
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☒ STRIP ☐ METER @ °F	9.5	10.0			
ALKALINITY MUD (Pm)	4.0	2.0			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+			
CHLORIDE (mg/L)	25000	22000			
TOTAL HARDNESS AS CALCIUM (mg/L)	200	250			
KCL	5%	4%			
Hydrostatic		2820			
Sulphite Residue	400	350			

REMARKS:
Drilling ahead

PRODUCT INVENTORY	XC Polymer	Chem Vis	Sod Bicarb	Barite						
STARTING INVENTORY	16	18	89	309						
RECEIVED										
USED LAST 24 HR.	1	10	1	15						
CLOSING INVENTORY	15	8	88	294						
COST LAST 24 HR.	330	530	18.31	172.5						

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	19	H. S. Cent.	—
Degasser	ON	Shaker	19	Super Cyclone	—
Desander	19	Other	NIL	—	—

DAILY COST $1050.81 | CUMULATIVE COST $25761.50

MAGCOBAR ENGINEER B. Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 15

DATE 30-12-1985 DEPTH 1800

SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil + Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE 8½	TYPE	JET SIZE 3x9	SURFACE SET @ 9 FT.	HOLE 370	PITS 500	PUMP SIZE 6x8 IN. / 5½x8			ANNULAR VEL. (FT/MIN) DP 105 DC 135
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1532	INTERMEDIATE SET @ 133 FT.	TOTAL CIRCULATING VOL. 870		PUMP MAKE, MODEL P28	ASSUMED EFF 95%		CIRCULATION PRESSURE (PSI) 2000
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 100		BOTTOMS UP (MIN) 55
DRILL COLLAR SIZE BHA		LENGTH 268	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		6.6 BBL/MIN	277 GAL/MIN		TOTAL CIRC. TIME (MIN) 165

MUD PROPERTIES	☐ F.L. ☒ PIT	☐ F.L. ☒ PIT
SAMPLE FROM		
TIME SAMPLE TAKEN	1600	0600
	30	31 st
DEPTH (ft)	1725	1800
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.6	9.5
FUNNEL VISCOSITY (sec./qt.) API @ °F	38	38
PLASTIC VISCOSITY cP @ °F	11	12
YIELD POINT (lb/100ft²)	8	10
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2/4	2/8
FILTRATE API (cm^3/30 min.)	6.5	6.0
API HTHP FILTRATE (cm^3/30 min.) @ °F	-	-
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☒ RETORT	9	9
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/
SAND CONTENT (% BY Vol.)	TR	TR
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	-	-
PH ☒ STRIP ☐ METER @ °F	10.0	9.5
ALKALINITY MUD (Pm)	4.5	4.0
ALKALINITY FILTRATE (P_f/M_f)	.2/	.3/
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+
CHLORIDE (mg/L)	29 000	30 000
TOTAL HARDNESS AS CALCIUM (mg/L)	250	200
KCL	4.5	5.0
Hydrostatic Head	2841	2934
Sulphite Residue	250	250

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0-9.5	35-45	< 10 cc

BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER

PRODUCTS	TREATMENT
KCL	KCL
Sod Bicab	P.m. Hardness.
XC	Vis
Polysal	Water loss. Filter cake

REMARKS:
Drilling ahead. P.O.O.H change bit. R.I.H drilling ahead in sand.

PRODUCT INVENTORY	KCL	Sod Bicarb	XC Polymer	Polysal						
STARTING INVENTORY	670	58	15	126						
RECEIVED										
USED LAST 24 HR.	60	1	4	10						
CLOSING INVENTORY	610	57	11	116						
COST LAST 24 HR.	1080	18.31	1320	390						

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	17	H. S. Cent.	—
Degasser	ON	Shaker	17	Super Cyclone	—
Desander	17	Other	NIL	—	—

DAILY COST $2808.31 | CUMULATIVE COST $28,569.81.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 16
DATE 1 - 1 - 19 86 DEPTH 1950
SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas
CONTRACTOR G.D.S. RIG NO. 2.
REPORT FOR G. Jackman
REPORT FOR B. Fowler SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1
FIELD OR BLOCK NO. PEP 101
CTY., PAR. OR OFFSHORE AREA
STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3x9	SURFACE SET @ 9 FT.	HOLE 375	PITS 500	PUMP SIZE 5½ X 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP 105 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH	INTERMEDIATE SET @ 133 FT.	TOTAL CIRCULATING VOL. 875		PUMP MAKE, MODEL PZ 8	ASSUMED EFF 75%	CIRCULATION PRESSURE (PSI) 1800
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE Nil	WEIGHT Nil	BBL/STK .066	STK/MIN 100	BOTTOMS UP (MIN) 60
DRILL COLLAR SIZE BHA		LENGTH 268	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl Polymer		6.6 BBL/MIN	277 GAL/MIN	TOTAL CIRC. TIME (MIN) 170

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1600	0800	9.0 - 9.5	35 - 45	< 10 cc
	31st	1st	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	1890	1950			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.4	9.4			
FUNNEL VISCOSITY (sec./qt.) API @ °F	38	37			
PLASTIC VISCOSITY cP @ °F	11	12			
YIELD POINT (lb/100ft²)	8	10			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2 / 4	2 / 6			
FILTRATE API (cm^3/30 min.)	7.0	6.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—			
CAKE THICKNESS (32nd in. API/HTHP)	2 /32	2 /32			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	/91	-/91			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☒STRIP ☐ METER @ °F	9.5	10.0			
ALKALINITY MUD (Pm)	4.0	2.0			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	-			
CHLORIDE (mg/L)	28000	28000			
TOTAL HARDNESS AS CALCIUM (mg/L)	240	250			
KCl	5.5	5			
Hydrostatic	3048	3145			
Sulfide	200	250			

PRODUCTS	TREATMENT

REMARKS:
Drilling ahead.
Ran 10 bbl slugs of prehydrated gel. Added total of 75 bbls.

PRODUCT INVENTORY	Gel	Caustic Soda	Soda Ash	CMC	Lime	Sulphite				
STARTING INVENTORY	311	71	60	8	9	16				
RECEIVED										
USED LAST 24 HR.	10	2	2	8	1	1				
CLOSING INVENTORY	301	69	58	0	8	15				
COST LAST 24 HR.	195	72	33	424	6.0	?				

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	Nil	Desilter	24	H. S. Cent.	—
Degasser	Nil	Shaker	24	Super Cyclone	—
Desander	24	Other	—	—	—

DAILY COST $730.00
CUMULATIVE COST $29,299.81

MAGCOBAR ENGINEER Brian Dobson
HOME ADDRESS Gold Coast PHONE 316778
MOBILE UNIT
WAREHOUSE LOCATION PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 17

DATE 2-1 — 1986 DEPTH 1995

SPUD DATE 17-12-85 PRESENT ACTIVITY Reaming

OPERATOR Phoenix Oil & Gas | CONTRACTOR G. D. S. | RIG NO. 2.

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8 1/4	TYPE	JET SIZE 3x9	SURFACE SET @ 9 m FT.	HOLE	PITS 500	PUMP SIZE 5 1/2 x 6 IN.		ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE 4 1/2	TYPE 16.6	LENGTH	INTERMEDIATE SET @ 133 m FT.	TOTAL CIRCULATING VOL.		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 m FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 100	BOTTOMS UP (MIN)
DRILL COLLAR SIZE 6 HA	LENGTH 268		PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL/Polymer		6.6 BBL/MIN	277 GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES	☐ F.L ☒ PIT	☐ F.L ☒ PIT
SAMPLE FROM		
TIME SAMPLE TAKEN	1600	0600
	1st	2ND
DEPTH (ft)	1960	1995
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.6	9.5
FUNNEL VISCOSITY (sec./qt.) API @ °F	38	41
PLASTIC VISCOSITY cP @ °F	10	10
YIELD POINT (lb/100ft²)	9	13
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	2/4	2/8
FILTRATE API (cm^3/30 min.)	8.0	7.0
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☒ RETORT	9	9
LIQUID CONTENT (% BY Vol.) OIL/WATER	/91	/91
SAND CONTENT (% BY Vol.)	TR	TR
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—
PH ☒ STRIP ☐ METER @ °F	9.5	9.0
ALKALINITY MUD (Pm)	3.0	2.5
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+
CHLORIDE (mg/L)	27000	28000
TOTAL HARDNESS AS CALCIUM (mg/L)	230	220
KCL	5%	5%
Hydrostatic	3228	3253
Sulfide	200	150

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0 - 9.5	35 - 45	< 10cc

BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

PRODUCTS	TREATMENT

REMARKS:
P.O.O.H change bit.
Ream last 10 stands to bottom

PRODUCT INVENTORY	Polypac	Cavachek Sodium	CEL	Barite
STARTING INVENTORY	116	69	301	294
RECEIVED				
USED LAST 24 HR.	30	1	7	15
CLOSING INVENTORY	86	68	294	279
COST LAST 24 HR.	1170	36.0	136.5	172.5

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	18	H. S. Cent.	—
Degasser	ON	Shaker	18	Super Cyclone	—
Desander	18	Other	—	—	—

DAILY COST $1515.00 | CUMULATIVE COST $30,814.81.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 18

DATE 3 - 1 19 86 DEPTH 2075

SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE VIC

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3x9	SURFACE SET @ 9 FT.	HOLE 450	PITS 500	PUMP SIZE 5½ X 8 IN. 6x8		ANNULAR VEL. (FT/MIN) DP 110 DC 150
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1807	INTERMEDIATE SET @ 130 FT.	TOTAL CIRCULATING VOL. 950		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI) 2000
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 118	BOTTOMS UP (MIN) 61
DRILL COLLAR SIZE BHA		LENGTH 268	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		7.8 BBL/MIN	330 GAL/MIN	TOTAL CIRC. TIME (MIN) 180

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐ F.L ☒ PIT	☐ F.L ☒ PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1700 2ND	0630 3RD	9.0 - 9.5	35 - 45	< 10 cc
DEPTH (ft)	1995 Reaming	2075	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.5	9.2+	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	40	40	Polypal	Water loss.	
PLASTIC VISCOSITY cP @ 600 35°F	9	10 34			
YIELD POINT (lb/100ft²) 300 24.	15	14 24			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	7/18	6/16			
FILTRATE API (cm³/30 min.)	8	7.5			
API HTHP FILTRATE (cm³/30 min.) @ °F	-	-			
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☒ RETORT	11	10			
LIQUID CONTENT (% BY Vol.) OIL/WATER	/89	/90			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³/cm³ mud	-	-			
PH ☒ STRIP ☐ METER @ °F	9.0	9.5			
ALKALINITY MUD (Pm)	1.0	1.0			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+			
CHLORIDE (mg/L)	27000	26000			
TOTAL HARDNESS AS CALCIUM (mg/L)	200	210			
KCL	4.5	4.0			
Hydrostatic	3252	3311			
Sulfide	75	100			

REMARKS:
~~R~~ P.O.H change stab over gauge check bit. R.I.H ream to bottom Drilling from aprox 9 AM 2-1-86. (24 HRS.). Screens cone for mud cleaner arrived. (No motor).

PRODUCT INVENTORY	Polypal									
STARTING INVENTORY	86									
RECEIVED										
USED LAST 24 HR.	20									
CLOSING INVENTORY	66									
COST LAST 24 HR.	780									

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	12	H. S. Cent.	—
Degasser	ON	Shaker	12	Super Cyclone	—
Desander	12	Other	—	—	—

DAILY COST $780.00 | CUMULATIVE COST $31,594.81.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 19
DATE 4 - 1 - 1986 DEPTH 2180
SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2
REPORT FOR B. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1. | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE J11	JET SIZE 3x9	SURFACE SET @ 9 m FT.	HOLE 470	PITS 500	PUMP SIZE 5½ X 8 IN. 6½ x 8		ANNULAR VEL. (FT/MIN) DP 106 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1912	INTERMEDIATE SET @ 130 m FT.	TOTAL CIRCULATING VOL. 970		PUMP MAKE, MODEL P8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 2000
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 m FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .0666	STK/MIN 115	BOTTOMS UP (MIN) 64
DRILL COLLAR SIZE BHA		LENGTH 268	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		7.6 BBL/MIN	319 GAL/MIN	TOTAL CIRC. TIME (MIN) 185

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1700	0630	9.0-9.5	35-45	<10cc
	3RD	4th	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER		
DEPTH (ft)	1995	2180			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.3	9.5			
FUNNEL VISCOSITY (sec./qt.) API @ °F	40	40			
PLASTIC VISCOSITY cP @ °F	7	8			
YIELD POINT (lb/100ft²)	15	14			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	7/14	7/13			
FILTRATE API (cm^3/30 min.)	8.0	6.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—			
CAKE THICKNESS (32nd in. API/HTHP)	3/32	3/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	10	10			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	.25%	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☒ STRIP ☐ METER @ °F	9.0	9.5			
ALKALINITY MUD (Pm)	1.5	1.0			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	—/	—/			
CHLORIDE (mg/L)	20000	28000			
TOTAL HARDNESS AS CALCIUM (mg/L)	210	220			
KCL	3.5	5.0			
Hydrostatic Head	3183	3553			
Sulphite	40	100			

PRODUCT INVENTORY	Polysal	Baroid	CMC	KCL						
STARTING INVENTORY	66	279	6	610						
RECEIVED										
USED LAST 24 HR.	15	15	6	100						
CLOSING INVENTORY	51	264	0	510						
COST LAST 24 HR.	585	172.5	318	1800						

PRODUCTS	TREATMENT

REMARKS:
P.O.O.H. change BHA & Bit.
removed Stabilizers.
R.I.H Drilling ahead.

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NL	Desilter	18	H. S. Cent.	—
Degasser	ON	Shaker	18	Super Cyclone	—
Desander	18	Other	NIL	—	—

DAILY COST $2875.50 | CUMULATIVE COST $34470.31

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778
MOBILE UNIT | WAREHOUSE LOCATION | PHONE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 20

DATE 5-1 19 86 DEPTH 2307

SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S | RIG NO. 2

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greensleeves #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3x9	SURFACE SET @ 9 FT.	HOLE 510	PITS 500	PUMP SIZE 5½ x 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP 108 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 2052	INTERMEDIATE SET @ 130 FT.	TOTAL CIRCULATING VOL. 1010		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 2300
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 700 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 118	BOTTOMS UP (MIN) 65
DRILL COLLAR SIZE BHA		LENGTH 255	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl/Polymer		7.8 BBL/MIN	330 GAL/MIN	TOTAL CIRC. TIME (MIN) 180

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	17.00	0600	9.0-9.5	35-45	<10cc
	4 hr	5 hr	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER		
DEPTH (ft)	2260	2307			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.4	9.5			
FUNNEL VISCOSITY (sec./qt.) API @ °F	39	45			
PLASTIC VISCOSITY cP @ °F	10	12 (42)			
YIELD POINT (lb/100ft²)	17	18 (30)			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	7/19	8/20			
FILTRATE API (cm^3/30 min.)	6.5	7.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	-	-			
CAKE THICKNESS (32nd in. API/HTHP)	3/32	3/32			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	10	10			
LIQUID CONTENT (% BY Vol.) OIL/WATER	90/	90/			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	-	-			
PH ☒ STRIP ☐ METER @ °F	9.5	9.0			
ALKALINITY MUD (Pm)	1.0	.5			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.2/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/			
CHLORIDE (mg/L)	28000	26000			
TOTAL HARDNESS AS CALCIUM (mg/L)	200	210			
KCl	5.0	4.5			
Hydrostatic	3684	3760			
Sulphite	100	150			

PRODUCTS	TREATMENT
Lime	Mud to thick, Carb & Bic
Polysal	water loss
Caustic	P.H.
xc Polymer	Vis.

REMARKS:
P.O.O.H @ 2260 change bit
R.I.H Drilling ahead.

PRODUCT INVENTORY	Polysal	Caustic Soda	xc Polymer	Lime						
STARTING INVENTORY	51	68	11	8						
RECEIVED										
USED LAST 24 HR.	15	2	2	2						
CLOSING INVENTORY	36	66	9	6						
COST LAST 24 HR.	585	172	660	120						

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	24	H. S. Cent.	-
Degasser	DN	Shaker	24	Super Cyclone	-
Desander	24	Other	-	—	-

DAILY COST $1329.00 | CUMULATIVE COST $35799.31

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 21
DATE 6 - 1 - 19 86 DEPTH 2439
SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas
CONTRACTOR G.D.S. RIG NO. 2
REPORT FOR C. Jackman
REPORT FOR B. Fowles SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes # 1
FIELD OR BLOCK NO. PEP 101
CTY., PAR. OR OFFSHORE AREA
STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9 FT.	HOLE 520	PITS 500	PUMP SIZE 5½ x 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP 105 DC 139
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 2171	INTERMEDIATE SET @ 130 FT.	TOTAL CIRCULATING VOL. 1020		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI) 2200
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE Nil	WEIGHT Nil	BBL/STK .066	STK/MIN 118	BOTTOMS UP (MIN) 67
DRILL COLLAR SIZE BHA		LENGTH 268	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL - Polymer		7.8 BBL/MIN	330 GAL/MIN	TOTAL CIRC. TIME (MIN) 180

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☒PIT	☐F.L ☒PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1800	0630	9.0-9.5	35-45	< 7cc
	5th	6th	BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	2350	2439			
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.5	9.5			
FUNNEL VISCOSITY (sec./qt.) API @ °F	41	40			
PLASTIC VISCOSITY cP @ °F	26) 8	7 (25			
YIELD POINT (lb/100ft²)	19) 11	12 (19			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	4 / 11	5 / 12			
FILTRATE API (cm^3/30 min.)	6.5	6.2			
API HTHP FILTRATE (cm^3/30 min.) @ °F	-	-			
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	10	10			
LIQUID CONTENT (% BY Vol.) OIL/WATER	90/	90/			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	-	-			
PH ☒ STRIP ☐ METER @ °F	9.5	9.5			
ALKALINITY MUD (Pm)	1.0	1.0			
ALKALINITY FILTRATE (P_f/M_f)	.2 /	.2 /			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	-			
CHLORIDE (mg/L)	23000	23000			
TOTAL HARDNESS AS CALCIUM (mg/L)	200	200			
KCL	4.5	4.0			
Hydrostatic	3830	3976			
Sulfide	100	150			

PRODUCTS	TREATMENT
Barite	Pill to Trip
Stafio	WT Loss
KCL	CL
Caustic	PH
xc	Vis
Lime	Carb - Bicarb

REMARKS:
Drilling ahead.
add 100 bbl Hi Vis. Low WT Loss
Low wt mud to system.

PRODUCT INVENTORY	KCL	xc	Polymer	Caustic	Soda Ash	Stafio	Barite					
STARTING INVENTORY	510	9	66	40	264							
RECEIVED												
USED LAST 24 HR.	30	2	2	12	15							
CLOSING INVENTORY	480	7	64	28	249							
COST LAST 24 HR.	540	660	72	468	172.5							

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	Nil	Desilter	24	H. S. Cent.	-
Degasser	ON	Shaker	24	Super Cyclone	-
Desander	24	Other	-	—	-

DAILY COST $1912.50
CUMULATIVE COST $37,711.81.

MAGCOBAR ENGINEER Brian Dobson
HOME ADDRESS Gold Coast PHONE 316778
MOBILE UNIT
WAREHOUSE LOCATION PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 22
DATE 7-1 19 86 DEPTH 2510
SPUD DATE 17-12-85 PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas
CONTRACTOR G.D.S RIG NO. 3
REPORT FOR ~~B. Fowler~~ G. Jackman.
REPORT FOR B. Fowler SECT., TWNSHP., RANGE
WELL NAME AND NO. Green Slopes #1
FIELD OR BLOCK NO. PEP 101 CTY., PAR. OR OFFSHORE AREA STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE Reed	JET SIZE 3x9	SURFACE SET @ 9 FT.	HOLE 525	PITS 500	PUMP SIZE 5½ X 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP 194 DC 140
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 1742	INTERMEDIATE SET @ 130 FT.	TOTAL CIRCULATING VOL. 1025		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI) 2200
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE NIL	WEIGHT NIL	BBL/STK .066	STK/MIN 118	BOTTOMS UP (MIN) 69
DRILL COLLAR SIZE BHA	LENGTH 268		PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		7.8 BBL/MIN	330 GAL/MIN	TOTAL CIRC. TIME (MIN) 185

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1800	0600	9.0 - 9.5	35 - 45	< 7 cc.
	6th	7th	BY AUTHORITY: ☒ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER		
DEPTH (ft)	2490	2510			
WEIGHT ☒ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.5	9.5	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	40	41			
PLASTIC VISCOSITY cP @ °F	9	10 33			
YIELD POINT (lb/100ft²)	12	13 28			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	5 / 10	6 / 14			
FILTRATE API (cm^3/30 min.)	6.0	6.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—			
CAKE THICKNESS (32nd in. API/HTHP)	2 /32	2 /32			
SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—			
PH ☒ STRIP ☐ METER @ °F	9.5	10.0			
ALKALINITY MUD (Pm)	1.0	.75			
ALKALINITY FILTRATE (P_f/M_f)	.2/	.1/			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	/	/			
CHLORIDE (mg/L)	20000	20000			
TOTAL HARDNESS AS CALCIUM (mg/L)	180	180			
KCL	3.5%	3.0			
Hydrostatic	4059.	4091			

REMARKS:
Drilling ahead add 200 labls of pre mixed polymer to system over last 24 Hrs.

PRODUCT INVENTORY	Rehysol	KCL	Caustic	XC Polymer	Lime	Starflo				
STARTING INVENTORY	36	480	64	7	5	28				
RECEIVED										
USED LAST 24 HR.	20		2	1	2	5				
CLOSING INVENTORY	16	480	62	6	3	23				
COST LAST 24 HR.	780	/	72	330	12	195				

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	NIL	Desilter	24	H. S. Cent.	—
Degasser	ON	Shaker	24	Super Cyclone	—
Desander	24	Other	—	—	—

DAILY COST $1389.00
CUMULATIVE COST $39,100.81.

MAGCOBAR ENGINEER Brian Dobson
HOME ADDRESS Gold Coast PHONE 316778
MOBILE UNIT
WAREHOUSE LOCATION PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
Dresser Industries, Inc.

DRILLING MUD REPORT NO. 23

DATE 8-1 — 19 86 | DEPTH 2562

SPUD DATE 17-12-85 | PRESENT ACTIVITY Drilling

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S. | RIG NO. 3

REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE

WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. PEP 101 | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 7 7/8	TYPE Reed	JET SIZE 3 x 9	SURFACE SET @ 9 FT.	HOLE 550	PITS 500	PUMP SIZE 5½ x 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP 110 DC 156
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH 2274	INTERMEDIATE SET @ 150 FT.	TOTAL CIRCULATING VOL. 1050		PUMP MAKE, MODEL P2 8	ASSUMED EFF 95%	CIRCULATION PRESSURE (PSI) 2000
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 700 FT.	IN STORAGE —	WEIGHT —	BBL/STK .066	STK/MIN 118	BOTTOMS UP (MIN) 65
DRILL COLLAR SIZE 6½ x 7	LENGTH 268		PRODUCTION OR LINER SET @ FT.	MUD TYPE KCl Polymer		BBL/MIN 7.8	GAL/MIN 330	TOTAL CIRC. TIME (MIN) 182

MUD PROPERTIES	☐F.L ☐PIT	☐F.L ☐PIT
SAMPLE FROM		
TIME SAMPLE TAKEN	1700	0630
	7PM	8M
DEPTH (ft)	2520	2562
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.5	9.4
FUNNEL VISCOSITY (sec./qt.) API @ °F	39	41
PLASTIC VISCOSITY cP @ °F	11	12
YIELD POINT (lb/100ft²)	17	16
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	4/12	5/13
FILTRATE API (cm^3/30 min.)	7.	6.2.
API HTHP FILTRATE (cm^3/30 min.) @ °F	—	—
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	9	9
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/
SAND CONTENT (% BY Vol.)	TR	TR
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	—	—
PH ☒STRIP ☐ METER @ °F	9.5	10.0
ALKALINITY MUD (Pm)	.9	.3
ALKALINITY FILTRATE (P_f/M_f)	-1/.8	.2/.7
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+
CHLORIDE (mg/L)	20000	18000
TOTAL HARDNESS AS CALCIUM (mg/L)	70	80
KCl	3%	2.5%
		4176

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0-9.5	35-45	<7cc

BY AUTHORITY: ☑ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER

PRODUCTS	TREATMENT
Barite	H.W. Pill
Polypac	W.L.
Safe Flow	W.L. & Vis

REMARKS:
P.O.O.H. change bit
Run 7⅞". Drilling
ahead.

PRODUCT INVENTORY	Safe Flow	Polypac	Barite
STARTING INVENTORY	28	16	249
RECEIVED			
USED LAST 24 HR.	5	16	20
CLOSING INVENTORY	23	0	229
COST LAST 24 HR.	195	624	230

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	N/C	Desilter	14	H. S. Cent.	—
Degasser	ON	Shaker	14	Super Cyclone	—
Desander	14	Other	—	—	—

DAILY COST $1049.00

CUMULATIVE COST $40,149.81

MAGCOBAR ENGINEER Brian Robson | HOME ADDRESS Gold Coast | PHONE 316778

MOBILE UNIT | WAREHOUSE LOCATION | PHONE

PRINTED IN U.S.A. THIS REPORT IS GOVERNED BY THE TERMS AND CONDITIONS AS SET FORTH ON THE REVERSE SIDE

MAG 39 P (API Form 47-1)

DRILLING MUD REPORT

OPERATOR

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRILLING MUD REPORT NO. 24
DATE 9-1-19 86 DEPTH 2608
SPUD DATE 17-12-85 PRESENT ACTIVITY Logging

OPERATOR Phoenix Oil & Gas | CONTRACTOR G.D.S. | RIG NO. 2
REPORT FOR G. Jackman | REPORT FOR B. Fowler | SECT., TWNSHP., RANGE
WELL NAME AND NO. Greenslopes #1 | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE Vic

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE SET @ 9 FT.	HOLE 375	PITS 500	PUMP SIZE 5½ X 8 IN. 6 x 8		ANNULAR VEL. (FT/MIN) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 130 FT.	TOTAL CIRCULATING VOL. 1075		PUMP MAKE, MODEL P28	ASSUMED EFF 95 %	CIRCULATION PRESSURE (PSI)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE SET @ 900 FT.	IN STORAGE Nil	WEIGHT Nil	BBL/STK .066	STK/MIN	BOTTOMS UP (MIN)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER SET @ FT.	MUD TYPE KCL Polymer		BBL/MIN	GAL/MIN	TOTAL CIRC. TIME (MIN)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	☐F.L ☐PIT	☐F.L ☐PIT	WEIGHT	VISCOSITY	FILTRATE
TIME SAMPLE TAKEN	1700	0630	9.0 - 9.5	35 - 45	< 7 cc.
	8m	9m	BY AUTHORITY: ☑ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER		
DEPTH (ft)	2580	2608			
WEIGHT ☐ (ppg) ☐ (lb/cu.ft) ☐ Sp. G	9.4	9.4	PRODUCTS	TREATMENT	
FUNNEL VISCOSITY (sec./qt.) API @ °F	41	46			
PLASTIC VISCOSITY cP @ °F	11	14 48			
YIELD POINT (lb/100ft²)	17	20 34			
GEL STRENGTH (lb/100ft²) 10 sec./10 min.	4 / 12	8 / 21			
FILTRATE API (cm^3/30 min.)	6.0	6.0			
API HTHP FILTRATE (cm^3/30 min.) @ °F	-	-			
CAKE THICKNESS (32nd in. API/HTHP)	2/32	2/32			
SOLIDS CONTENT (% BY Vol.) ☐CALCD. ☐RETORT	9	9			
LIQUID CONTENT (% BY Vol.) OIL/WATER	91/	91/			
SAND CONTENT (% BY Vol.)	TR	TR			
METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm^3/cm^3 mud	-	-			
PH ☐ STRIP ☐ METER @ °F	9.5	10.0			
ALKALINITY MUD (Pm)	.8	.8			
ALKALINITY FILTRATE (P_f/M_f)	.2/.8	.2/.8			
ALTERNATE ALKALINITY FILTRATE (P_1/P_2)	+	+			
CHLORIDE (mg/L)	20 000	16 000			
TOTAL HARDNESS AS CALCIUM (mg/L)	70	70			
KCL	2.0%	1.5%			

REMARKS:
Drilling ahead to 2608m.
T.D. @ aprox 24.00 HRS
8-1-86.
~~Wiper~~ & P.O.O.H. Run logs.

PRODUCT INVENTORY	Starflo	+ C (Polymer)	Caustic								
STARTING INVENTORY	23	7	64								
RECEIVED											
USED LAST 24 HR.	10	1	1								
CLOSING INVENTORY	13	6	63								
COST LAST 24 HR.	390	330	360								

EQUIPMENT

	HOURS		HOURS		HOURS
Centrifuge	Nil	Desilter	18	H. S. Cent.	—
Degasser	ON	Shaker	18	Super Cyclone	—
Desander	18	Other	18	—	—

DAILY COST $756.00
CUMULATIVE COST $40,905.81.

MAGCOBAR ENGINEER Brian Dobson | HOME ADDRESS Gold Coast | PHONE 316 718
WAREHOUSE LOCATION | PHONE

REED ROCK BIT COMPANY
A Baker International Company
P. O. BOX 2119, HOUSTON, TEXAS 77001

BIT RECORD

52001

PAGE: 1 OF 1

LE NO.

NTRACTOR: GEARHART DRILLING SERVICES	RIG NO.: #2	DRAWORKS:	O.D. X I.D. X LENGTH	MO. | DAY | YEAR	T.P. DRILLERS:
MPANY: PHOENIX OIL & GAS N.L.	FIELD:	DEPTH & H.P. RATING:	D.C.: ___ X ___ X ___	SPUD:	
LL NAME: GREENSLOPES	WELL NO.: 1	PUMP MAKE 1:	___ X ___ X ___	U.S.:	
ATE: VICTORIA	COUNTY: PEP-101	PUMP MAKE 2:	___ X ___ X ___	INTER.:	WATER SOURCE:
C.:	T'/SHIP RANGE	MUD TYPE:	DRILL PIPE:	T.D.:	FUEL SOURCE:
			T.J. TYPE:	TOTAL DAYS: TOTAL ROT. HRS.:	

UN O.	SIZE	MAKE	TYPE	JETS-32ND 1	2	3	BIT SER. NO.	DEPTH OUT	~~FOOTAGE~~ METRS	HOURS	ACCUM. HOURS	WT. 1000 LB.	RPM	VERT. DEV.	PUMP PRESS.	NO. 1 SPM	NO. 1 LIN.	NO. 2 SPM	NO. 2 LIN.	MUD WT.	MUD VIS.	DULL COND. T	B	G	REMARKS (FAILURE, MUD, ETC)
	17 1/2	REED	13J	16	16	16		133	133	7	.	5/15	12/140	0	900	100	6	125	6	—	—				
2	12 1/4	REED	511J	13	13	13	168385	901	768	29 1/2		5/15	140	0	1800	95	6	135	6	—	—				
3	8 1/2	REED	FP12J	9	9	9	90683	1327	426	34 1/2		15/120	120	2°	1750	110	5 1/2	—	—			4	5	I	
4	8 1/2	REED	HP13J	9	9	9	X71769	1614	287	29		10/15	120/140	1°	1800	110	5 1/2			9.7	40	5	2	3/16	
5	8 1/2	REED	5216	9	9	9	NAH593	1726	112	16		10/25	100	1°	2050			100	6	9.5	35	5	2	I	
6	8 1/2	REED	FP51A	9	9	9	LM5947	1997	271	45 1/2		10/25	100	1/2°	1950	118	5 1/2			9.6	38	2	4	1/4	
7	8 1/2	REED	FP51A	9	9	9	JH7341	2131	120	13		15	100	1/2	2050	118	6			9.4	39	2	3	3/8	REAMED
8	8 1/2	REED	5214	9	9	9	NAH627	2278	147	17 1/2		20	100	1/2	2100	118	5 1/2			9.5	38	6	3	IN	
9	8 1/2	REED	FP51A	9	9	9	JH7364	2541	263	61		20/65	90	3 1/4	2300	110	5 1/2			9.5	43	6	7	1/2	
10	7 7/8	REED	HP51A	9	9	9	W55311	2608	67	22 1/2		25	100	5°	2000	110	5 1/2			9.4	46	1	2	IN	