Magnetic 1

Scale 1:500

Wellsite Lithology Log

Well Data

Well Name:	Magnetic 1
Status:	Exploration
Area:	Surat (8743)
Basin:	Bowen Basin
Location:	ATP 645
UWI:	100000799278

Partners:

BNG (Surat) Pty Ltd 100%

Rigs:	TCL 1, Easternwell 106
Latitude:	27° 09' 37.2870" S
Longitude:	149° 25' 10.2877" E
Spud Date:	09-04-2015 15:15 (TCL1)
TD Date:	13-05-2015 (Easternwell 106)
Rig Release:	27-05-2015 19:00 (Easternwell 106)
Datum:	AHD
RT Elevation:	312.25m
TD Formation:	Timbury Hills Formation
TD Depth:	3095.00m MDRT (driller)
	3097.02m MDRT (logger)

Remarks:

Geologists

Operations Geologist:	Anthony Mountford
Wellsite Geologist:	Anthony Drake
Wellsite Geologist:	Andrew Morris
Wellsite Geologist:	Brendan Lacy
Wellsite Geologist:	John Pitman

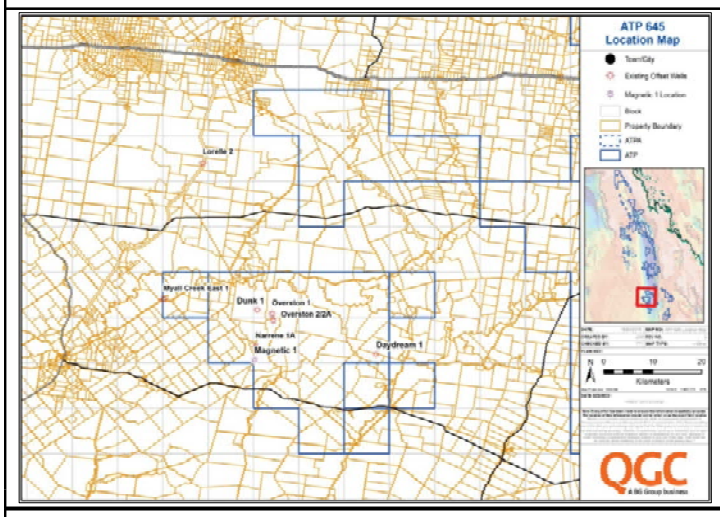
Contractors

Drilling:	TCL
	Easternwell Energy
Wireline Logging:	Schlumberger
Cementing:	Halliburton
Mud Engineering:	Newpark
Mud Logging:	Weatherford
MWD:	Pathfinder
Coring:	Halliburton

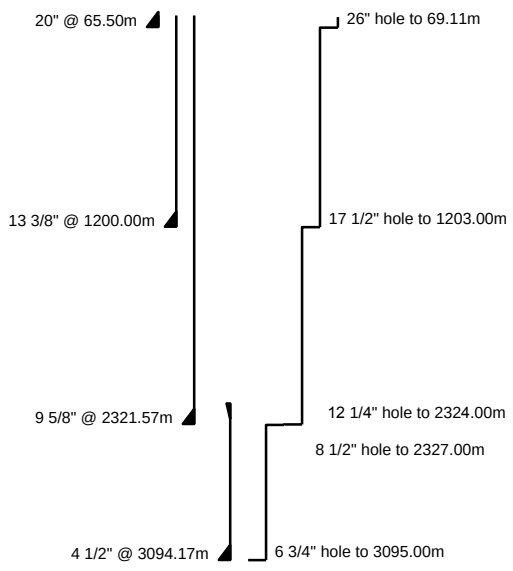
Hole and Casing

Bit Size (inch)	Depth (m)	Casing Size (inch)	Shoe Depth (m)
26"	69.11	20"	65.50
17 1/2"	1203.00	13 3/8"	1200.00
12 1/4"	2324.00	9 5/8"	2321.57
8 1/2"	2327.00	N/A	
6 3/4"	3095.00	4 1/2"	3094.17

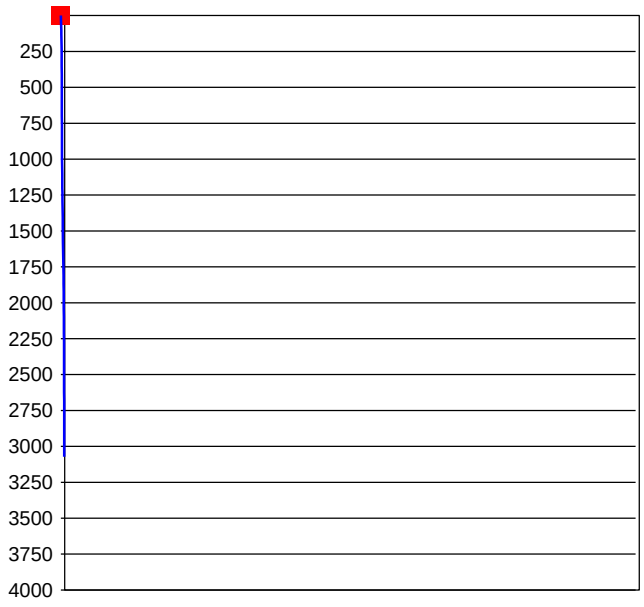
Location Map



Well Structure



Profile View of Well Path



Events and Remarks

Date	Depth (mMDRT)	Details
09-04-2015	27.71	TCL 1 move onto location. Rig up to spud. Make up 26" BHA. Spud well and drill ahead.
10-04-2015	69.11	Continue to drill ahead to section TD. Circulate hole clean. POOH to run 20" Casing. Lay out BHA.
11-04-2015	69.11	Rig up and run 20" casing. Cement in place.
12-04-2015	69.11	Rig down equipment. Cut 20" conductor at GL. Cement cellar floor. Move off location. Rig released.
13-04-2015	69.11	Easternwell rig 106 moving onto location.
14-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
15-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
16-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
17-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
18-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
19-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
20-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
21-04-2015	69.11	Rig 106 continue to rig move onto location and rig up.
22-04-2015	282.00	Commenced drilling Magnetic 1 at 04:00 hours on 22-04-2015 and drilled 17 1/2" surface hole.
23-04-2015	885.00	Drilled ahead 17 1/2" surface hole.
24-04-2015	1203.00	Drilled ahead 17 1/2" surface hole to 1203.00m MDRT. POOH and lay-down 17½" BHA. Rigged up to run 13 3/8" surface casing.
25-04-2015	1203.00	Picked up Weatherford casing gear and rigged up to run casing. Shimmed mast. RIH 13 3/8" surface casing. Rigged up Halliburton cement unit and cement surface casing. Waited on cement.
26-04-2015	1203.00	Continued to wait on cement. Slacked off and cut 13 3/8" casing. Installed wellhead. Nippled up BOP.
27-04-2015	1208.00	Pressure test BOP. Make up drill-pipe stands and rack back. Pick up 12 ¼" BHA and shallow test MWD. RIH with 12¼" BHA and drill out shoe track. Drill 5m of new formation. Circulate and condition mud.
28-04-2015	1832.00	Rigged up Halliburton and conducted LOT. Drilled ahead 12¼" hole.
29-04-2015	2324.00	Drilled ahead 12¼" hole to 2324m MDRT. Circulated hole clean.
30-04-2015	2324.00	Circulated hole. Conducted five std check-trip and RIH to bottom. POOH to csg shoe. Slipped drill line. RIH to TD, no fill. Circulated hole. POOH to 2240m. RIH to bottom. Circulated hole. POOH. Laid out LWD. Rigged up wireline loggers.
01-05-2015	2324.00	Continued rigging up wireline. RIH logging tools. Comms with tools lost - fault find wireline computer system. POOH wireline string and swapped out

01-05-2015	2324.00	Continued rigging up wireline. RIH logging tools. Comms with tools lost - fault-find wireline computer system. POOH wireline string and swapped ou wireline truck with replacement. RIH wireline and conducted wireline run 1. Rigged up to run casing.
02-05-2015	2324.00	Rigged up to run 9 5/8" casing. Shimmed mast to realign. Damaged threads on float and intermediate joint while making up. Laid out joints. Picked up spare float and intermediate joints and made up same. Ran in hole 9 5/8" casing.
03-05-2015	2324.00	Continued running in 9 5/8" casing to 2005m MDRT. Repaired drag-line securing rope. Continued running in 9 5/8" casing and washed to bottom. Landed and circulated casing. Rigged up Halliburton and cemented casing. Flushed wellhead and BOP.
04-05-2015	2327.00	Completed jetting wellhead/BOP. Installed pack-off and pressure tested same. Installed wear bushing. Slipped and cut line. Made up 8½" BHA and RIH. Drilled out shoe-track and new hole to 2327.00m MDRT. Circulated hole. Conducted XLOT. POOH.
05-05-2015	2375.00	Drilled 6 3/4" production hole.
06-05-2015	2876.00	Drilled 6 3/4" production hole.
07-05-2015	2936.60	Drilled 6 3/4" production hole to core point. Conducted wiper trip. POOH to surface. Made up 6 3/4" coring BHA.
08-05-2015	2972.60	Ran in hole 6 3/4" coring BHA for Core Run 1 to bottom. Tagged bottom. Cored 6 3/4" hole. Circulated BU. POOH.
09-05-2015	2976.00	POOH to surface and recovered core 1. Made up coring BHA 2 and ran in the hole to bottom. Cored 6 3/4" hole.
10-05-2015	3008.60	Cored 6 3/4" hole to 3008.60m MDRT. POOH.
11-05-2015	3008.60	Continued to pull out of the hole with Core 2 to surface. Lay out Corpro assembly and retrieve core. Lay down core in inner sleeves. Made up test assembly and test BOPs.
12-05-2015	3020.00	Replaced seals completed reruns of pressure tests Picked up Pathfinder tools and made up 6 3/4" Smith TCI bit. RIH & logged cored interval. Drilled 6 3/4" hole from 3008.6m MDRT.
13-05-2015	3095.00	Drilled 6 3/4" hole to 3095.00m MDRT (TD). Circulated BU. Conducted wiper trip up and inside 9 5/8" casing shoe. Slipped drilling line. Ran back in hole to 2560m MDRT.
14-05-2015	3095.00	Ran in the hole from 2560m MDRT to 3055m MDRT. Circulated hole clean. Flow checked & POOH to surface. Rigged up wireline and conducted Suite 2.
15-05-2015	3095.00	Continue with wireline logging Suite 2.
16-05-2015	3095.00	Continue with wireline logging Suite 2.
17-05-2015	3095.00	Complete wireline logging Suite 2. Rigged down Schlumberger. Made up 6 3/4" clean out assembly with 9 5/8" casing scraper & RIH.
18-05-2015	3095.00	Continued to RIH. Washed down from 3070m MDRT to TD (6m fill). Pumped sweep and circulated hole clean. Flow checked. Dropped drift in pipe & POOH. Laid out 4" DP, BHA and clean out assembly. Rigged up WFT TRS. Ran 4 1/2" liner..
19-05-2015	3095.00	Ran 4 1/2" liner 869m MDRT. Picked up WFT lower PBR and liner hanger. RIH hanger to 3060m MDRT on 5 1/2" drill pipe. Washed down and tagged bottom at 3095m MDRT. Made up WFT cement head. Set 4 1/2" liner.
20-05-2015	3095.00	Conducted cement job. Rigged down cement head. Set liner hanger top packer. Released running tool from liner hanger & circulated. POOH liner running tools and laid down. Pulled wear bushing & jetted BOP. Pressure tested. RIH CTD motor on 2 3/8" tubing.
21-05-2015	3095.00	RIH 2 3/8" tubing from 100m MDRT to 819m MDRT. Picked up polish mill assembly with SRCT tool. RIH on 5 1/2" DP & tagged top of cement. Drilled out to 3042.02m MDRT. Dressed top of PBR's. Dropped seating ball. Circulated & landed ball.
22-05-2015	3095.00	Pumped well bore clean up chemical train as per program. Flushed with freshwater. Circulated with drill water. Ran inflow test - all good. Pumped brine. Flow checked & POOH laying out 5 1/2" drill pipe to 890m MDRT.
23-05-2015	3095.00	Broke down & laid out wellbore clean up assembly. POOH & laid down 2 3/8" tubing. Laid out WFD CTD motor. Rigged down 2 3/8" handling equipment. Rigged up Weatherford TRS and PDHG. Ran 4 1/2" 18.9 lb/ft tieback.
24-05-2015	3095.00	Rigged up Halliburton casing string and tested. Rigged up wireline and commenced Suite 3.
25-05-2015	3095.00	Continue with wireline logging.
26-05-2015	3095.00	Continued with suite 3. Completed logging and rig down wireline. Back out and laid out landing joint/running tool. Installed BPV with GE. Nippled down BOP's.
27-05-2015	3095.00	Nipple down BOP and installed suspension cap. Rig released.

Key

Breccia	Limestone	B Boundstone	Carbonaceous
Conglomerate	Dolomitic Limestone	G Grainstone	Bituminous
Sand/Sandstone	Dolomite	M Mudstone	Oolitic
Silt\Siltstone	Calcareous Dolomite	P Packstone	Chalky
Clay/Claystone	Chert	W Wackestone	Glauconitic
Marl	Anhydrite	Silty	Mic Micaceous
Shale	Halite	Argillaceous	Pyritic
Tuff	Polyhalite	Calcareous	Spicules
Volcanics	Coal/Lignite	Dolomitic	Fossilifereous
	No Sample	Brecciated	

Dates	Mud/Casing	Drilling Parameters	Cuttings Lithology	Stratigraphy: Formation	Stratigraphy: Member/Unit	Lithology Interpreted	Shows	Lithological Descriptions	Gas Data	Remarks
	N/A Shoe @ mMDRT	Gamma - GRCA 0 (API) Units 250 ROP 250 m/hr 0 WOB 0 (klbs) 50 ▼1 new bit 26"	20 40 60 80 0m 25m						Deep Resistivity 0.2 (ohm.m) 2000 Medium Resistivity 0.2 (ohm.m) 2000 Shallow Resistivity 0.2 (ohm.m) 2000 Total Gas 0.1 (Units) 1000	

22 Apr 2015

20" Shoe @
65.50mMDRT

WOB: 4 klbs
TRQ: 0 lbs.ft
SPP: 95 psi
Flow: 152 gpm
RPM: 0

1 made 60.40m in 11.75hrs

1 new bit 17 1/2"

68m - 207m: RPM acquisition not functional

Mud Type:
KCl/Polymer
Dens: 8.8ppg
PV/YP: 8/8
pH: 10.0
Additives: Barite, Rheopac LV, Xanthan Gum, Soda Ash, JK-261, KCl, Sodium Bicarbonate, Idcide-20, Rheoben NT

WOB: 7 klbs
TRQ: 0 lbs.ft
SPP: 259 psi
Flow: 448 gpm
RPM: 0

Mud Type:
KCl/Polymer
Dens: 8.8ppg
PV/YP: 8/6
pH: 9.5
Additives: Barite, Rheopac LV, Xanthan Gum, Soda Ash, JK-261, KCl, Sodium Bicarbonate, Idcide-20, Rheoben NT

WOB: 8 klbs
TRQ: 4995 lbs.ft
SPP: 393 psi
Flow: 447 gpm
RPM: 78

Mud Type:
KCl/Polymer

50m
75m
100m
125m
150m
175m
200m
225m

Wallumbilla Formation

SILTSTONE: medium grey, very finely arenaceous grading to silty SANDSTONE, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks.

SANDSTONE: light to medium grey, translucent in parts, very fine to fine grained, well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderately strong siliceous cement, abundant light to medium grey argillaceous / silty matrix, trace lithics, trace carbonaceous flecks, trace glauconite, poor visual porosity, no fluorescence

SILTSTONE: medium grey, very finely arenaceous grading to silty SANDSTONE, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks

SANDSTONE: medium grey, very fine to fine grained, well sorted, sub angular to sub rounded, friable, weak siliceous cement, abundant light to medium grey argillaceous / silty matrix, trace lithics, trace carbonaceous flecks, trace glauconite, poor visual porosity, no fluorescence

SILTSTONE: medium grey, firm, argillaceous grading to silty CLAYSTONE, blocky to sub blocky, trace lithics, trace carbonaceous specks.

SILTSTONE: medium grey, firm, argillaceous grading to silty CLAYSTONE, blocky to sub blocky, trace lithics, trace carbonaceous specks.

SILTSTONE: medium grey, medium brownish grey, firm, argillaceous grading to silty CLAYSTONE, blocky to sub blocky, trace lithics.

SILTSTONE: medium grey, firm, argillaceous grading to silty CLAYSTONE, sub fissile to sub blocky, trace carbonaceous specks, trace lithics.

SANDSTONE (trace): medium greenish grey, very fine grained, well sorted, sub angular to sub rounded, friable, weak siliceous cement, occasional grey silty matrix, occasional glauconitic grains, poor visual porosity, no fluorescence.

SILTSTONE: medium grey, occasional medium grey brown, firm, argillaceous grading to silty CLAYSTONE, minor very finely arenaceous, sub blocky to sub fissile, occasional carbonaceous specks and micro-laminations, trace lithics.

SANDSTONE: light grey, light to medium greenish grey, very fine grained, grading to arenaceous SILTSTONE, moderately well sorted, sub angular to sub rounded, friable, weak siliceous cement, abundant grey silty matrix, trace glauconitic grains, trace carbonaceous specks, poor visible porosity, no fluorescence.

SILTSTONE: medium greyish brown, medium grey, firm, argillaceous grading to silty CLAYSTONE, minor very finely arenaceous, sub blocky to sub fissile, occasional carbonaceous specks, trace lithics, trace glauconitic inclusions, rare pyrite nodules.

SANDSTONE: medium to light grey, very fine grained, grading to arenaceous SILTSTONE, moderately well sorted, sub angular to sub rounded, friable, weak siliceous cement, abundant grey silty matrix, trace glauconitic grains, trace carbonaceous specks, poor

No resistivity data recorded

69.11mMDRT
26"

76.800m
76.79m TVDBRT
Inc: 1.76°
Azi: 299.84°

103.000m
102.98m TVDBRT
Inc: 1.49°
Azi: 296.23°

131.300m
131.27m TVDBRT
Inc: 0.97°
Azi: 292.01°

182.800m
182.76m TVDBRT
Inc: 0.97°
Azi: 284.98°

238.100m
238.06m TVDBRT
Inc: 0.62°
Azi: 277.78°

23 Apr 2015

22 Apr 2015

Mud Type:
Dens: 8.9ppg
PV/YP: 8/7
pH: 9.5
Additives: Barite, Rheopac LV, Xanthan Gum, Soda Ash, JK-261, KCl, Sodium Bicarbonate, Idcide-20, Rheoben NT

WOB: 8 klbs
TRQ: 6902 lbs.ft
SPP: 1008 psi
Flow: 760 gpm
RPM: 103

250m

275m

300m

visible porosity, no fluorescence.

SILTSTONE: medium grey, medium greyish brown, medium greenish-grey, firm, argillaceous grading to silty CLAYSTONE, sub blocky to sub fissile, minor very finely arenaceous, trace carbonaceous and lithic specks, trace glauconitic inclusions.

SANDSTONE: medium grey, medium greyish brown, medium greenish grey, very fine to fine, grading to arenaceous SILTSTONE, moderately sorted, sub angular to sub rounded, friable, weak siliceous cement, abundant grey silty matrix, occasional glauconitic grains, trace carbonaceous specks, poor visible porosity, no fluorescence.

SILTSTONE: medium grey, light to medium greyish brown, light brown, firm, occasionally moderately hard, argillaceous and grading to silty CLAYSTONE, arenaceous in part and grading to silty SANDSTONE, blocky to sub fissile, minor sideritic alteration, occasional carbonaceous and lithic specks.

SANDSTONE: light to medium grey, light to medium greyish brown, minor off white, very fine to fine, grading to arenaceous SILTSTONE in part, moderately sorted, sub angular to sub rounded, friable to occasionally moderately hard, weak to occasionally moderately strong calcareous cement, common to abundant grey to brown silty/argillaceous matrix, occasional to locally common glauconitic grains, trace carbonaceous specks and sideritic inclusions, poor visible porosity, no fluorescence.

294.000m
293.96m TVDBRT
Inc: 0.09°
Azi: 196.48°

325m

350m

375m

SILTSTONE: medium to light greyish brown, medium grey, firm, arenaceous in part and grading to silty SANDSTONE, sub fissile to sub blocky, occasional to locally common carbonaceous and lithic specks.

SANDSTONE: off white, light grey, very fine to fine, grading to arenaceous SILTSTONE in part, moderately well sorted, sub angular to sub rounded, moderately hard to friable, common moderately strong calcareous cement, occasional grey silty matrix, occasional glauconitic grains, occasional to locally common carbonaceous specks and lithic inclusions, poor visible porosity, no fluorescence.

SILTSTONE: medium grey, firm, argillaceous, very finely arenaceous in part, sub fissile to blocky, trace carbonaceous and lithic specks.

SANDSTONE: light grey, off white, very fine to fine, moderately well sorted, sub angular to sub rounded, friable to occasionally moderately hard, weak to occasional moderately strong calcareous cement, occasional grey silty and white argillaceous matrix, occasional glauconitic grains, occasional to locally common carbonaceous and lithic specks, poor visible porosity, no fluorescence.

SILTSTONE: medium grey, medium greyish brown, firm, argillaceous and grading to CLAYSTONE, occasionally very finely arenaceous, blocky to sub fissile, trace to occasional carbonaceous and lithic specks.

SANDSTONE: light to medium grey, medium greenish grey, very fine to fine, moderately well sorted, sub angular to sub rounded, friable to occasionally moderately hard, weak to occasional moderately strong calcareous cement, occasional grey silty and white argillaceous matrix, occasional to locally abundant glauconitic grains, occasional to locally common carbonaceous and lithic specks, poor visible porosity, no fluorescence.

No resistivity data recorded

351.800m
351.76m TVDBRT
Inc: 0.09°
Azi: 336.93°

WOB: 15 klbs
TRQ: 7923 lbs.ft
SPP: 1942 psi
Flow: 729 gpm
RPM: 113

400m

425m

450m

Bungil Formation

SILTSTONE: medium to dark brownish grey, medium dark grey, argillaceous grading to silty CLAYSTONE, firm to moderately hard, blocky to sub fissile, rare carbonaceous specks, trace lithics.

SANDSTONE: light to medium grey, very fine to fine grained, well sorted, sub angular to sub rounded, friable to moderately hard, moderately strong siliceous cement, minor calcareous cement, common light grey argillaceous / silty matrix, common lithics, trace glauconite, trace carbonaceous specks, very poor visual porosity, no fluorescence

SILTSTONE: medium to dark brownish grey, medium dark grey, argillaceous grading to silty CLAYSTONE, firm to moderately hard, blocky to sub fissile, rare carbonaceous specks, trace lithics.

SANDSTONE: light to medium grey, very fine to fine grained, well sorted, sub angular to sub rounded, friable to moderately hard, moderately strong siliceous cement, minor calcareous cement, common light grey argillaceous / silty matrix, common lithics, trace glauconite, trace carbonaceous specks,

409.400m
409.35m TVDBRT
Inc: 0.79°
Azi: 304.14°

WOB: 18 klbs
TRQ: 11374 lbs.ft
SPP: 1927 psi
Flow: 736 gpm
RPM: 106

very poor visual porosity, no fluorescence

SILTSTONE: medium to dark brownish grey, medium dark grey, argillaceous grading to silty CLAYSTONE, firm to moderately hard, blocky to sub fissile, rare carbonaceous specks, trace lithics.

SANDSTONE: medium grey, very fine to fine grained, sub angular to sub rounded, well sorted, friable to moderately hard, moderately strong siliceous cement, trace calcareous cement, common light grey argillaceous matrix, rare lithics, trace glauconite, minor carbonaceous specks, very poor visual porosity, no fluorescence

SILTSTONE: medium to brownish grey, medium dark brownish grey, argillaceous grading to silty CLAYSTONE, firm to moderately hard, blocky to sub fissile, rare carbonaceous specks, trace lithics.

SANDSTONE: white, off white, very light grey, very fine to predominantly fine grained, well sorted, sub angular to sub rounded, firm to friable, weak calcareous cement, common off white argillaceous matrix, trace glauconite, rare carbonaceous specks, trace lithics, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, argillaceous grading to CLAYSTONE, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks and thin laminae.

SANDSTONE: off white, very light brownish grey, very fine to fine grained, well sorted, sub angular to sub rounded, firm to friable, weak calcareous cement, common off white to very light brown argillaceous matrix, trace very fine glauconite, trace lithics, minor fine carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, argillaceous grading to CLAYSTONE, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks and thin laminae.

SANDSTONE: off white, very light brownish grey, very light brown, very fine to fine grained, trace coarse sub rounded quartz grains, well sorted, sub angular to sub rounded, friable to occasionally moderately hard, weak to moderately strong calcareous cement, common off white to very light brown argillaceous matrix, trace lithics, minor fine carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, argillaceous grading to CLAYSTONE, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks.

SANDSTONE: white to off white, fine grained, well sorted, sub angular to sub rounded, friable to firm, weak to moderately strong siliceous cement, trace calcareous cement, abundant white argillaceous matrix, common carbonaceous material, trace lithics, poor visual porosity, no fluorescence

SILTSTONE: light brown, light brownish grey, light grey, firm, blocky to sub fissile, argillaceous grading to CLAYSTONE.

SILTSTONE: light brown, light brownish grey, light grey, firm, blocky to sub fissile, argillaceous grading to CLAYSTONE, occasionally very finely arenaceous.

SANDSTONE: white, off white, translucent, clear, fine to medium grained, sub angular to sub rounded, moderately sorted, friable, loose in parts, weak calcareous cement, minor white argillaceous matrix, trace lithics, trace carbonaceous fragments, fair inferred porosity, no fluorescence

SANDSTONE: translucent, clear, fine to medium grained, moderately sorted, sub rounded, loose to friable, trace siliceous and calcareous cement, minor white argillaceous matrix, rare carbonaceous fragments, fair inferred porosity, no fluorescence

SILTSTONE: very light brown, light brownish grey, firm, blocky to sub blocky, argillaceous, trace carbonaceous specks.

SANDSTONE: white to off white, very light brown, fine to occasionally medium grained, moderately well sorted, sub angular to sub rounded, friable, weak siliceous cement, common very light brown argillaceous matrix, trace carbonaceous fragments, trace lithics, trace glauconite, poor visual porosity, no fluorescence

SANDSTONE: white to off white, very light brown, translucent, fine grained, well sorted, sub angular to sub rounded, friable, weak calcareous cement, trace weak siliceous cement, common very light brown argillaceous matrix, trace carbonaceous fragments, trace

467.200m
467.15m TVDBRT
Inc: 0.35°
Azi: 309.94°

525.000m
524.95m TVDBRT
Inc: 0.18°
Azi: 41.44°

582.900m
582.85m TVDBRT
Inc: 0.09°
Azi: 333.85°

640.600m
640.55m TVDBRT
Inc: 0.26°
Azi: 166.42°

475m
500m
525m
550m
575m
600m
625m
650m

WOB: 9 klbs
TRQ: 6925 lbs.ft
SPP: 2000 psi
Flow: 741 gpm
RPM: 112

Mud Type:
KCl/Polymer
Dens: 9.0ppg
PV/YP: 9/13
pH: 9.0
Additives: Soda Ash, Rheopac LV, Xanthan Gum, JK-161 LV, KCl, JK-261, Idcide-20, Barite

WOB: 7 klbs
TRQ: 5948 lbs.ft
SPP: 2009 psi
Flow: 1106 gpm
RPM: 114

23 Apr 2015

Mooga Sandstone

Mud Type:
KCl/Polymer
Dens: 9.1ppg
PV/YP: 11/16
pH: 9.5
Additives: Soda Ash, Rheopac LV, Xanthan Gum, JK-161 LV, KCl, JK-261, Idcide-20, Barite

WOB: 18 klbs
TRQ: 7499 lbs.ft
SPP: 1983 psi
Flow: 1103 gpm
RPM: 113

675m

700m

WOB: 19 klbs
TRQ: 7677 lbs.ft
SPP: 2014 psi
Flow: 1103 gpm
RPM: 111

725m

750m

775m

WOB: 14 klbs
TRQ: 10486 lbs.ft
SPP: 2265 psi
Flow: 1155 gpm
RPM: 105

800m

825m

850m

Mud Type:
KCl/Polymer
Dens: 9.1ppg
PV/YP: 12/15
pH: 10.5
Additives: Soda Ash, Rheopac LV, Xanthan Gum, JK-161 LV, KCl, JK-261, Idcide-20, Barite

WOB: 8 klbs
TRQ: 9522 lbs.ft
SPP: 2228 psi

875m

Orallo Formation

lithics, trace glauconite, poor visual porosity, no fluorescence

COAL: black, dark brownish black, dull, brittle, occasionally moderately hard, silty and grading to carbonaceous siltstone in part.

SILTSTONE: very light to dark brown, light brownish grey, firm, blocky to sub blocky, argillaceous, carbonaceous in part, trace carbonaceous specks.

SANDSTONE: very light brown, off white, very fine to fine grained, well sorted, friable, weak calcareous and siliceous cement, abundant very light brown argillaceous matrix, abundant carbonaceous fragments, trace lithics, poor visual porosity, no fluorescence.

SILTSTONE: medium grey, medium greyish brown, firm, minor moderately hard, very finely arenaceous in part, minor sideritic alteration, trace to occasional carbonaceous specks and lithic inclusions, occasional carbonaceous flakes and inclusions.

SANDSTONE: off white, light grey, translucent to clear, very fine to coarse, occasional very coarse, very poorly sorted, sub angular to rounded, occasional angular, friable to loose, weak calcareous cement, common white argillaceous and grey silty matrix, trace carbonaceous and lithic specks, poor visible and poor to good inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, medium to dark brownish grey, medium grey, firm, sub blocky to sub fissile, argillaceous, occasionally very finely arenaceous, trace to occasional carbonaceous and lithic specks, occasional carbonaceous flakes.

COAL: black, dull to sub vitreous, brittle, angular to conchoidal fracture, blocky to fissile.

SANDSTONE: off white, light grey, very fine to fine, grading to arenaceous SILTSTONE in part, moderately well sorted, sub angular to sub rounded, friable, weak siliceous and occasional calcareous cement, abundant white argillaceous and grey silty matrix, trace carbonaceous and lithic specks, very poor visible porosity, no fluorescence.

SILTSTONE: light to dark greyish brown, light to medium grey, firm, sub blocky to sub fissile, arenaceous, argillaceous in part, trace to occasional carbonaceous and lithic specks.

SANDSTONE: off white, light grey, translucent to clear, very fine to coarse, occasional very coarse, very poorly sorted, sub rounded to angular, loose to friable, weak siliceous and occasional calcareous cement, common to locally abundant white argillaceous and grey silty matrix, trace carbonaceous and lithic specks, poor inferred and very poor visible porosity, no fluorescence.

SILTSTONE: light to dark greyish brown, medium grey, firm, sub blocky to sub fissile, arenaceous in part, occasional to locally common carbonaceous specks and inclusions, trace lithic specks.

SANDSTONE: off white, light grey, light brownish grey, translucent to clear, very fine to very coarse, very poorly sorted, rounded to sub angular, occasionally angular, friable to loose, weak siliceous and trace calcareous cement, locally abundant white argillaceous and common grey silty matrix, occasional carbonaceous specks and lithics, trace mica flakes, very poor visible and fair to good inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, medium brown, firm, sub blocky to sub fissile, arenaceous in part, occasional to locally common carbonaceous specks and inclusions, trace lithic specks.

SANDSTONE: translucent to clear, grey, green, off white, fine to coarse, poorly sorted, sub rounded to sub angular, loose to friable, weak siliceous and calcareous cement, locally abundant white argillaceous matrix, common lithic grains, trace carbonaceous inclusions, good inferred and poor visible porosity, no fluorescence.

SILTSTONE: light to dark brown, light to dark greyish brown, light to medium grey, firm, sub blocky to sub fissile, argillaceous, minor very finely arenaceous, carbonaceous in part, occasional to locally common carbonaceous specks and flakes.

SANDSTONE: off white, translucent to clear, grey, green, very fine to medium, occasional coarse, poorly sorted, sub rounded to sub angular, friable to loose, weak siliceous and occasional calcareous cement, locally abundant white argillaceous matrix, common

698.300m
698.25m TVDBRT
Inc: 0°
Azi: 294.3°

No resistivity data recorded

756.300m
756.25m TVDBRT
Inc: 0.26°
Azi: 166.77°

814.100m
814.05m TVDBRT
Inc: 0.09°
Azi: 338.95°

871.900m
871.85m TVDBRT
Inc: 0.26°
Azi: 7.78°

23 Apr 2015

24 Apr 2015

Flow: 1156 gpm
RPM: 113

WOB: 15 klbs
TRQ: 8741 lbs.ft
SPP: 2186 psi
Flow: 1157 gpm
RPM: 118

Mud Type:
KCl/Polymer
Dens: 9.1ppg
PV/YP: 10/15
pH: 9.5
Additives: Xanthan Gum, JK-161 LV, KCl, Soda Ash, Rheopac LV, Idcide-20, Barite

WOB: 22 klbs
TRQ: 9613 lbs.ft
SPP: 2288 psi
Flow: 1156 gpm
RPM: 96

900m

925m

950m

975m

1000m

1025m

1050m

1075m

Ceramunda Sandstone

lithic grains, trace carbonaceous and lithic specks, very poor visible and fair inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, light to medium brownish grey, firm, sub blocky to sub fissile, argillaceous, very finely arenaceous in part, trace to occasional carbonaceous and lithic specks, occasional carbonaceous flakes.

SANDSTONE: off white, light grey, translucent to clear, very fine to fine, occasional medium to coarse, poorly sorted, sub angular to sub rounded, occasional angular, friable to loose, weak siliceous and minor calcareous cement, abundant white argillaceous and common grey silty matrix, trace carbonaceous and lithic specks, very poor visible and poor inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, light brown, firm, minor moderately hard, sub blocky to sub fissile, argillaceous, very finely arenaceous in part, minor sideritic alteration, trace to occasional carbonaceous and lithic specks.

SANDSTONE: off white, light grey, translucent to clear, fine to medium, occasional coarse to very coarse, poorly sorted, sub angular to sub rounded, occasional angular, friable to loose, weak siliceous cement, abundant white argillaceous and common grey silty matrix, trace carbonaceous and lithic specks, very poor visible and poor inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, light to medium brownish grey, firm, minor moderately hard, sub blocky to sub fissile, very finely arenaceous in part, minor sideritic alteration, trace carbonaceous and lithic specks.

SANDSTONE: off white, light grey, translucent to clear, grey, green, very fine to medium, occasional coarse to very coarse, very poorly sorted, sub angular to sub rounded, friable to loose, weak siliceous and minor calcareous cement, locally abundant white argillaceous and common grey silty matrix, trace carbonaceous specks, very poor visible and fair inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, light to medium brownish grey, firm, sub blocky to sub fissile, argillaceous, very finely arenaceous in part, trace carbonaceous and lithic specks.

SANDSTONE: off white, light grey, translucent to clear, very fine to fine, occasional medium to very coarse, poorly sorted, sub angular to sub rounded, friable to loose, weak siliceous and minor calcareous cement, locally abundant white argillaceous and common grey silty matrix, trace carbonaceous specks, very poor visible and fair inferred porosity, no fluorescence.

SANDSTONE: off white, translucent to clear, very fine to medium, rare coarse, moderately poorly sorted, sub angular to sub rounded, occasional angular, friable to loose, weak siliceous cement, locally common white argillaceous matrix, trace calcareous inclusions, trace carbonaceous specks, poor visible and fair to good inferred porosity, no fluorescence.

SANDSTONE: translucent to clear, off white, medium to very coarse, occasionally very fine, very poorly sorted, sub angular to sub rounded, friable to loose, weak siliceous cement, locally common white argillaceous matrix, trace calcareous inclusions, trace carbonaceous specks, poor visible and fair inferred porosity, no fluorescence.

SANDSTONE: translucent, clear, white, fine to very coarse, poor sorting, sub angular to predominantly sub rounded, trace weak siliceous cement, common white argillaceous matrix (rock flour?), trace carbonaceous fragments, good inferred porosity, no fluorescence

SANDSTONE: translucent, clear, very light grey, very fine to coarse, poor sorting, sub angular to predominantly sub rounded, friable to moderately hard very fine to fine grained aggregates, medium to coarse grains loose, moderately strong siliceous cement in fine grained aggregates with common light grey argillaceous matrix, rare carbonaceous specks, poor to fair visual porosity, no fluorescence

SILTSTONE: light to medium grey, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks, very finely arenaceous.

SANDSTONE: translucent, clear, very light grey, very fine to coarse, poor sorting, sub angular to predominantly sub rounded, friable

929.500m
929.45m TVDBRT
Inc: 0.26°
Azi: 71.06°

987.200m
987.15m TVDBRT
Inc: 0.26°
Azi: 159.12°

1045.200m
1045.15m TVDBRT
Inc: 0.53°
Azi: 182.59°

WOB: 12 klbs
TRQ: 9541 lbs.ft
SPP: 2151 psi
Flow: 1103 gpm
RPM: 113

1100m

1125m

1150m

Mud Type:
KCl/Polymer
Dens: 9.2ppg
PV/YP: 10/15
pH: 9.5
Additives: Xanthan Gum, JK-161 LV, KCl, Soda Ash, Rheopac LV, Idcide-20, Barite

WOB: 9 klbs
TRQ: 4962 lbs.ft
SPP: 2074 psi
Flow: 1094 gpm
RPM: 113

1175m

13 3/8" Shoe @ 1200.00mMDRT

24 Apr 2015

1200m

1 made1137.50m in 37.6hrs

2 new bit 12 1/4"

28 Apr 2015

Mud Type:
KCl/Polymer
Dens: 9.5ppg
PV/YP: 12/21
pH: 9.5
Additives: Citric Acid, Sodium Bicarbonate, Xanthan Gum, Idcide-20, Rheopac LV, Soda Ash, JK-161 LV, KCl, Evocon E, Evolube E

WOB: 12 klbs
TRQ: 5874 lbs.ft
SPP: 1140 psi
Flow: 681 gpm
RPM: 113

1225m

1250m

Mud Type:
KCl/Polymer
Dens: 9.5ppg
PV/YP: 12/19
pH: 10.0
Additives: Xanthan Gum, Barite, JK-161 LV, Rheopac LV, Soda Ash, Sodium Sulphite, KCl, Idcide-20

1275m

Gubbio Formation

Westbourne Formation

angular to predominantly sub rounded, friable to moderately hard very fine to fine grained aggregates, medium to coarse grains loose, moderately strong siliceous cement in fine grained aggregates with common light grey argillaceous matrix, rare carbonaceous specks, poor to fair visual porosity, no fluorescence

SANDSTONE: translucent, clear, white, fine to medium grained, trace coarse, sub angular to predominantly sub rounded, fair sorting, loose, trace white argillaceous matrix, trace carbonaceous flecks, good inferred porosity, no fluorescence

SILTSTONE: light to medium brownish grey, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks, very finely arenaceous.

SANDSTONE: translucent, clear, white, fine to very coarse, predominantly medium, poor to fair sorting, sub angular to predominantly sub rounded, loose, minor white argillaceous matrix, minor rare carbonaceous fragments, fair to good inferred porosity, no fluorescence.

SANDSTONE: translucent, clear, white, fine to very coarse, predominantly medium, poor to fair sorting, sub angular to predominantly sub rounded, loose, minor white argillaceous matrix, minor rare carbonaceous fragments, fair to good inferred porosity, no fluorescence

SILTSTONE: light to medium brown, light to medium brownish grey, firm to friable, blocky to sub blocky, trace fine carbonaceous specks, very finely arenaceous grading to very fine SANDSTONE.

SILTSTONE: light to medium brown, light to medium brownish grey, firm to friable, blocky to sub blocky, trace fine carbonaceous specks, very finely arenaceous grading to very fine SANDSTONE.

SILTSTONE: medium brown, light to medium brownish grey, firm to friable, blocky to sub blocky, minor carbonaceous flecks, very finely arenaceous.

SILTSTONE: light to predominantly medium brown, light to medium brownish grey, firm to friable, blocky to sub blocky, minor carbonaceous flecks, very finely arenaceous.

SANDSTONE: white, very fine to predominantly fine grained, sub angular to sub rounded, well sorted, trace weak siliceous cement, abundant white argillaceous matrix, trace carbonaceous fragments, poor inferred porosity, no fluorescence.

SILTSTONE: medium brown to greyish brown, firm, sub blocky to sub fissile, very finely arenaceous, trace carbonaceous and lithic specks.

SANDSTONE: white, very fine to fine grained, sub angular to sub rounded, well sorted, weak siliceous cement, abundant white argillaceous matrix, trace carbonaceous specks, trace calcareous inclusions, poor inferred porosity, no fluorescence.

SILTSTONE: medium brownish grey, light grey, firm, sub fissile to sub blocky, very finely arenaceous, occasionally grading to silty SANDSTONE, occasional carbonaceous and lithic specks, trace mica flakes and carbonaceous laminae.

SANDSTONE: white, translucent, light grey, very fine to fine grained, occasionally grading to arenaceous SILTSTONE, rare coarse quartz grains, moderately well sorted, sub angular to sub rounded, weak siliceous cement, abundant white argillaceous matrix, trace carbonaceous specks, trace mica flakes, poor inferred porosity, no fluorescence.

SILTSTONE: medium to light brownish grey, medium to light grey, firm, sub blocky to sub fissile, very finely arenaceous, occasionally grading to silty SANDSTONE, trace carbonaceous and lithic specks, trace micro micaceous.

SANDSTONE: translucent, white, fine to very coarse, sub angular to sub rounded, poor sorting, loose quartz grains, good inferred porosity, no fluorescence

SANDSTONE: white, very light grey, very fine to fine grained, trace coarse quartz grains, sub angular to sub rounded, friable, weak siliceous cement, common white argillaceous matrix, trace lithics, trace fine carbonaceous specks, poor visual porosity, no fluorescence.

1103.000m
1102.94m TVDBRT
Inc: 0.79°
Azi: 209.57°

No resistivity data recorded

1161.000m
1160.94m TVDBRT
Inc: 0.62°
Azi: 223.28°

1170.300m
1170.24m TVDBRT
Inc: 0.44°
Azi: 186.9°

Tagged TOC at 1170.4m MDRT

GR 1182-1200m MDRT logged inside casing.

1203.00mMDRT 17 1/2"

1203.000m
1202.94m TVDBRT
Inc: 0.53°
Azi: 236.47°

LOT 17.3ppg EMW

1231.800m
1231.74m TVDBRT
Inc: 0.62°
Azi: 229.44°

1289.600m
1289.53m TVDBRT
Inc: 0.62°
Azi: 236.47°

WOB: 10 klbs
TRQ: 8440 lbs.ft
SPP: 1198 psi
Flow: 682 gpm
RPM: 118

1300m

1325m

1350m

Springbok Sandstone

SANDSTONE: translucent, white, fine to very coarse, sub angular to sub rounded, poor sorting, loose quartz grains, good inferred porosity, no fluorescence

SILTSTONE: light to medium brownish grey, light to medium grey, firm to friable, blocky to sub blocky, common carbonaceous material, trace lithics, arenaceous.

SANDSTONE: white, very light grey, translucent, clear, very fine to coarse grained, poor sorting, sub angular to sub rounded, friable, weak siliceous cement, common white argillaceous matrix, trace lithics, minor carbonaceous fragments, poor to fair visual porosity, no fluorescence

SILTSTONE: light to medium brownish grey, light to medium grey, firm to friable, blocky to sub blocky, common carbonaceous material, trace lithics, arenaceous.

SANDSTONE: white, very light grey, trace translucent, clear, very fine to fine, minor medium to coarse grained, poor to fair sorting, sub angular to sub rounded, friable, weak siliceous cement, common white argillaceous matrix, trace lithics, minor carbonaceous fragments, poor to fair visual porosity, no fluorescence

COAL: black, very dark brownish black, sub vitreous lustre, hard, brittle in parts, blocky.

SILTSTONE: medium brown, medium brownish grey, firm, blocky to sub blocky, argillaceous, minor carbonaceous specks.

SANDSTONE: off white, white, very light brownish grey, very fine to fine grained, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous inclusions, poor visual porosity, no fluorescence

1347.500m
1347.43m TVDBRT
Inc: 0.79°
Azi: 236.29°

TG 17 Units

WOB: 18 klbs
TRQ: 10380 lbs.ft
SPP: 1391 psi
Flow: 746 gpm
RPM: 112

1375m

1400m

1425m

SANDSTONE: off white, white, very light brownish grey, very fine to fine grained, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous inclusions, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, firm, blocky to sub blocky, argillaceous, minor carbonaceous specks.

SANDSTONE: off white, white, very light brownish grey, very fine to fine grained, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous inclusions, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, firm, blocky to sub blocky, very finely arenaceous, rare carbonaceous fragments.

SANDSTONE: white, very fine to fine grained, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous specks, poor visual porosity, no fluorescence

1405.400m
1405.32m TVDBRT
Inc: 0.79°
Azi: 230.93°

TG 10.8 Units

WOB: 22 klbs
TRQ: 13301 lbs.ft
SPP: 1399 psi
Flow: 746 gpm
RPM: 107

Mud Type:
KCl/Polymer
Dens: 9.7ppg
PV/YP: 12/24
pH: 10.0
Additives: Xanthan Gum, Barite, JK-161 LV, Rheopac LV, Soda Ash, Sodium Sulphite, KCl, Idcide-20

1450m

1475m

1500m

Walloon Coal Measures

SILTSTONE: medium brown, medium brownish grey, firm, blocky to sub blocky, very finely arenaceous, rare carbonaceous fragments.

SANDSTONE: white, very fine to fine grained, trace medium, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium brown, medium brownish grey, firm, blocky to sub blocky, very finely arenaceous, argillaceous in parts, minor carbonaceous fragments.

SANDSTONE: white, very fine to fine grained, trace medium, moderately well sorted, sub angular to sub rounded, firm to friable, weak siliceous cement, common off white argillaceous matrix, minor carbonaceous specks, poor visual porosity, no fluorescence

COAL: black, sub vitreous lustre, moderately hard to brittle, blocky to sub fissile.

SANDSTONE: white, off white, very light brown, very fine to fine grained, occasionally medium, moderately sorted, sub angular to sub rounded, friable, rare loose, trace siliceous cement, common off white argillaceous matrix, rare carbonaceous inclusions, poor to

Gas-trap lowered - increase in background gas

TG 48 Units

1463.200m
1463.12m TVDBRT
Inc: 0.7°
Azi: 235.06°

28 Apr 2015

WOB: 28 klbs
TRQ: 13981 lbs.ft
SPP: 1490 psi
Flow: 746 gpm
RPM: 107

WOB: 26 klbs
TRQ: 9171 lbs.ft
SPP: 1546 psi
Flow: 762 gpm
RPM: 105

Mud Type:
KCl/Polymer
Dens: 10.0ppg
PV/YP: 15/30
pH: 9.5
Additives: Xanthan Gum, Barite, JK-161 LV, Rheopac LV, Soda Ash, Sodium Sulphite, KCl, Idcide-20

WOB: 30 klbs
TRQ: 13970 lbs.ft
SPP: 1532 psi
Flow: 762 gpm
RPM: 98

1525m
1550m
1575m
1600m
1625m
1650m
1675m
1700m

Hutton Sandstone

occasionally fair visual porosity, no fluorescence

COAL: black, sub vitreous lustre, moderately hard to brittle, blocky to sub fissile.

SANDSTONE: white, off white, very light brown, very fine to fine grained, occasionally medium, moderately sorted, sub angular to sub rounded, friable, rare loose, trace siliceous cement, common off white argillaceous matrix, rare carbonaceous inclusions, poor to occasionally fair visual porosity, no fluorescence

COAL: black, sub vitreous lustre, moderately hard to brittle, blocky to sub fissile

SILTSTONE: light to medium brownish grey, light to medium brown, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks/fragments, argillaceous.

SANDSTONE: white, off white, very fine to fine grained, trace medium, moderately well sorted, sub angular to sub rounded, friable, trace siliceous cement, common white to off white argillaceous matrix, rare carbonaceous fragments, poor visual porosity, no fluorescence

COAL: black, sub vitreous lustre, moderately hard to brittle, blocky to sub fissile

SILTSTONE: light to medium brownish grey, light to medium brown, firm, blocky to sub blocky, trace lithics, trace carbonaceous specks/fragments, argillaceous.

SANDSTONE: white, off white, very fine to fine grained, trace medium, moderately well sorted, sub angular to sub rounded, friable, trace siliceous cement, common white to off white argillaceous matrix, rare carbonaceous fragments, poor visual porosity, no fluorescence

SANDSTONE: off white, very light brown, very fine to fine grained, moderately well sorted, sub angular to sub rounded, friable, trace siliceous cement, common white to off white argillaceous matrix, rare carbonaceous fragments, poor visual porosity, no fluorescence

SANDSTONE: white, minor translucent, very fine to fine, minor medium, moderately well sorted, sub angular to sub rounded, firm to friable, trace siliceous cement, common white argillaceous matrix, poor visual porosity, no fluorescence

SILTSTONE: light brown, light brownish grey, firm to moderately hard, blocky to sub fissile, trace lithics, arenaceous in parts.

SANDSTONE: white, translucent, clear, fine to medium grained, moderately well sorted, sub angular to predominantly sub rounded, weak siliceous cement, common white argillaceous matrix, trace carbonaceous flecks, poor to fair visual porosity, no fluorescence

SANDSTONE: translucent, clear, white, fine to medium trace coarse, poor sorting, sub angular to predominantly sub rounded, friable to loose, trace siliceous cement, rare white argillaceous matrix, trace carbonaceous fragments, fair inferred porosity, no fluorescence.

SILTSTONE: medium to dark brown, medium greyish brown, firm to moderately hard, blocky to sub fissile, very finely arenaceous, trace carbonaceous specks trace sideritic alteration.

SIDERITE: medium brown, hard, sub fissile to blocky, silty.

SANDSTONE: translucent, clear, white, very fine to coarse grained, occasional very coarse, very poorly sorted, angular to sub rounded, loose to friable, weak siliceous cement, occasional to locally common white argillaceous matrix, trace carbonaceous flecks, trace green lithic grains, fair inferred and poor visual porosity, no fluorescence.

SILTSTONE: medium greyish brown, medium brownish grey, firm, occasionally moderately hard, blocky to sub fissile, arenaceous in part, trace carbonaceous and lithic specks.

SANDSTONE: white, translucent, clear, very fine to medium grained, moderately well sorted, sub angular to sub rounded, friable to loose, minor moderately hard, weak to minor moderate siliceous cement, occasional white argillaceous matrix, occasional carbonaceous and lithic specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: medium brownish grey, medium

TG 83 Units
No resistivity data recorded
TG 94 Units
TG 162 Units
TG 36 Units
TG 21 Units
TG 24.5 Units

1578.500m
1578.41m TVDBRT
Inc: 0.62°
Azi: 241.04°

1636.500m
1636.41m TVDBRT
Inc: 0.79°
Azi: 235.59°

LOT 11.86ppg EMW

1694.300m
1694.2m TVDBRT
Inc: 0.88°
Azi: 231.9°

WOB: 24 klbs
TRQ: 12421 lbs.ft
SPP: 1688 psi
Flow: 762 gpm
RPM: 126

Mud Type:
KCl/Polymer
Dens: 10.1ppg
PV/YP: 17/30
pH: 9.5
Additives: Xanthan Gum, Barite, JK-161 LV, Rheopac LV, Soda Ash, Sodium Sulphite, KCl, Idcide-20

WOB: 27 klbs
TRQ: 14336 lbs.ft
SPP: 1643 psi
Flow: 763 gpm
RPM: 107

WOB: 27 klbs
TRQ: 12174 lbs.ft
SPP: 1775 psi
Flow: 762 gpm
RPM: 128

29 Apr 2015 | 28 Apr 2015

1725m
1750m
1775m
1800m
1825m
1850m
1875m
1900m
1925m

Evergreen Formation

brown, medium greyish brown, firm, occasionally moderately hard, blocky to sub fissile, arenaceous in part, trace carbonaceous and lithic specks.

SANDSTONE: white, translucent, clear, very fine to fine grained, rare coarse to very coarse, moderately sorted, sub angular to sub rounded, friable to loose, minor moderately hard, weak to minor moderate siliceous cement, occasional white argillaceous matrix, occasional carbonaceous and lithic specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: light to medium brownish grey, light to medium grey, occasional dark greyish brown, firm, sub fissile to sub blocky, very finely arenaceous, argillaceous in part, trace carbonaceous and lithic specks, rare carbonaceous flakes.

SANDSTONE: white, light grey, light greyish brown, translucent, clear, very fine to fine grained, occasional medium, moderately well sorted, sub angular to sub rounded, friable to loose, occasionally moderately hard, weak to moderate siliceous cement, occasional to locally common white argillaceous and grey brown silty matrix, rare carbonaceous specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: medium to light grey, medium to occasionally dark greyish brown, firm, sub fissile to sub blocky, very finely arenaceous, trace carbonaceous and lithic specks, rare carbonaceous flakes.

SANDSTONE: white, light grey, very fine to fine grained, well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderate siliceous cement, occasional to locally common white argillaceous and grey brown silty matrix, rare carbonaceous specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: medium to light greyish brown, light to medium grey, firm, sub blocky to sub fissile, very finely arenaceous, occasional carbonaceous specks, trace carbonaceous flakes and laminae, rare micro micaceous.

SANDSTONE: white, translucent, clear, very fine to fine, occasionally medium grained, rare coarse, moderately well sorted, sub angular to sub rounded, friable, weak siliceous cement, occasional to locally common white argillaceous matrix, rare carbonaceous specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: medium to dark greyish brown, medium brownish grey, firm, sub blocky to sub fissile, very finely arenaceous, occasional carbonaceous specks, trace carbonaceous flakes and laminae.

SANDSTONE: white, light grey, very fine to fine, well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderate siliceous cement, occasional to locally common white argillaceous and grey silty matrix, rare carbonaceous specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: light to medium grey, medium to dark greyish brown, dark brown, firm, sub fissile to sub blocky, very finely arenaceous, occasional carbonaceous flakes and laminae, trace carbonaceous flake, trace micro micaceous.

SANDSTONE: white, light grey, translucent, clear, very fine to fine, occasionally medium to coarse, moderately poorly sorted, sub rounded to sub angular, friable to moderately hard, weak to moderate siliceous cement, trace calcareous cement, occasional to locally common white argillaceous and grey silty matrix, rare carbonaceous specks, poor visual and fair inferred porosity, no fluorescence.

SILTSTONE: light to medium greyish brown, medium brownish grey, firm, occasionally moderately hard, sub fissile to sub blocky, finely arenaceous, grading to silty SANDSTONE in part, occasional carbonaceous specks, trace carbonaceous flakes, trace micro micaceous.

SANDSTONE: light grey, white, light greyish brown, fine to very fine, grading to arenaceous SILTSTONE in part, moderately well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderate siliceous cement, occasional to locally common grey brown silty and white argillaceous matrix, trace carbonaceous and lithic specks, trace mica flakes, poor visual porosity, no fluorescence.

SILTSTONE: medium to light greyish brown, medium brown, firm, occasionally moderately hard, sub blocky to sub fissile, finely arenaceous, trace carbonaceous and lithic specks, rarely micro micaceous.

SANDSTONE: white, light grey, fine to very fine, well sorted, sub angular to sub rounded,

TG 7.5 Units

1752.000m
1751.89m TVDBRT
Inc: 0.88°
Azi: 226.27°

1809.800m
1809.69m TVDBRT
Inc: 0.79°
Azi: 235.5°

TG 8.0 Units

No resistivity data recorded

TG 14.5 Units

1867.600m
1867.48m TVDBRT
Inc: 0.62°
Azi: 252.46°

TG 19.25 Units

1924.800m
1924.68m TVDBRT

Mud Type:
KCl/Polymer
Dens: 10.2ppg
PV/YP: 16/34
pH: 9.5
Additives: Barite, Xanthan Gum, JK-161 LV, Rheopac LV, Soda Ash, Idcide-20, Sodium Sulphite, KCl

WOB: 17 klbs
TRQ: 10588 lbs.ft
SPP: 1775 psi
Flow: 770 gpm
RPM: 118

WOB: 32 klbs
TRQ: 13837 lbs.ft
SPP: 1758 psi
Flow: 770 gpm
RPM: 100

Mud Type:
KCl/Polymer
Dens: 10.3ppg
PV/YP: 16/33
pH: 9.5
Additives: Barite, Xanthan Gum, JK-161 LV, Rheopac LV, Soda Ash, Idcide-20, Sodium Sulphite, KCl

WOB: 26 klbs
TRQ: 13620 lbs.ft
SPP: 2115 psi
Flow: 842 gpm
RPM: 125

29 Apr 2015

1950m
1975m
2000m
2025m
2050m
2075m
2100m
2125m

Precipice Sandstone
mation

friable to loose, trace moderately hard, weak to trace moderate siliceous cement, occasional to locally common grey silty and white argillaceous matrix, trace lithic specks and carbonaceous specks, poor visual porosity, no fluorescence.

SILTSTONE: medium to medium dark greyish brown, medium grey, firm, occasionally moderately hard, sub blocky to sub fissile, finely arenaceous and grading to silty SANDSTONE in part, trace carbonaceous and lithic specks, rarely micro micaceous.

SILTSTONE: medium brown, medium brownish grey, moderately hard, blocky to sub fissile, trace lithics, trace micro micaceous, rare fine carbonaceous specks, arenaceous in parts.

SANDSTONE: white, translucent, clear, very fine to fine grained, trace medium, moderately sorted, sub angular to sub rounded, friable to moderately hard, weak siliceous cement, common white argillaceous matrix, trace lithics, trace fine carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium grey, occasionally light to medium brownish grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks.

SANDSTONE: light grey, light greenish grey, very fine to fine grained, moderately well sorted, sub angular to sub rounded, moderately strong siliceous cement, minor light grey argillaceous matrix, trace carbonaceous specks, rare lithics, very poor visual porosity, no fluorescence

SANDSTONE: white, off white, very fine to fine grained, well sorted, sub angular to sub rounded, weak siliceous cement, common white argillaceous matrix, rare lithics, rare carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium brown, light to medium brownish grey, light to medium grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks and laminae, arenaceous in parts.

SANDSTONE: light grey, occasionally off white, very fine to fine grained, well sorted, sub angular to sub rounded, moderately hard, moderately strong siliceous cement, trace to common light grey to off white argillaceous matrix, trace lithics, trace carbonaceous specks and laminae, poor visual porosity, no fluorescence

CLAYSTONE: light to medium grey, moderately hard, blocky to predominantly sub fissile, grading to SILTSTONE.

SILTSTONE: light to medium grey, light to medium brownish grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks, argillaceous in parts.

CLAYSTONE: light to medium grey, moderately hard, blocky to predominantly sub fissile, grading to SILTSTONE.

SILTSTONE: medium grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks.

SANDSTONE: very light grey to light grey, very fine to fine grained, well sorted, sub angular to sub rounded, moderately strong siliceous cement, friable to moderately hard, minor light grey argillaceous matrix, trace lithics, trace carbonaceous specks, poor visual porosity, no fluorescence

SILTSTONE: medium grey, occasionally light grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks.

SANDSTONE: very light grey to light grey, very fine to fine grained, well sorted, sub angular to sub rounded, moderately strong siliceous cement, moderately hard, common off white argillaceous matrix, trace lithics, trace carbonaceous specks, poor visual porosity, no fluorescence.

SILTSTONE: medium grey, occasionally light grey, moderately hard, blocky to sub fissile, trace lithics, trace fine carbonaceous specks.

SANDSTONE: very light grey to light grey, very fine to fine grained, well sorted, sub angular to sub rounded, moderately strong siliceous cement, moderately hard, common off white argillaceous matrix, trace lithics, trace carbonaceous specks, poor visual porosity, no fluorescence

SANDSTONE: off white, very fine to fine grained, well sorted, sub angular to sub

TG 37.4 Units
1983.000m
1982.88m TVDBRT
Inc: 0.53°
Azi: 277.51°

TG 26.9 Units
1983.000m
1982.88m TVDBRT
Inc: 0.44°
Azi: 277.25°

TG 33.8 Units
2040.000m
2039.88m TVDBRT
Inc: 0.53°
Azi: 277.69°

TG 22.3 Units
2096.000m
2095.87m TVDBRT
Inc: 0.53°
Azi: 279.09°

29 Apr 2015

05 May 2015

WOB: 29 klbs
TRQ: 13850 lbs.ft
SPP: 2182 psi
Flow: 842 gpm
RPM: 127

Mud Type:
KCl/Polymer
Dens: 10.5ppg
PV/YP: 16/34
pH: 9.5
Additives: Barite, Xanthan Gum, JK-161 LV, Rheopac LV, Soda Ash, Idcide-20, Sodium Sulphite, KCl

4 1/2" Hanger @ 2205.04m

WOB: 27 klbs
TRQ: 17513 lbs.ft
SPP: 2176 psi
Flow: 843 gpm
RPM: 108

2270 - 2324m MDRT: Controlled drilling

Mud Type:
KCl/Polymer
Dens: 10.5ppg
PV/YP: 17/33
pH: 9.5
Additives: Barite, Xanthan Gum, JK-161 LV, Rheopac LV, Soda Ash, Idcide-20, Sodium Sulphite, KCl

9 5/8" Shoe @ 2321.57mMDRT

2 made 1121.00m in 32.1hrs

3 new bit 8 1/2"

3 made 3.00m in 2.0hrs

4 new bit 6 3/4"

WOB: 8 klbs
TRQ: 3590 lbs.ft
SPP: 1621 psi
Flow: 290 gpm
RPM: 64

2150m
2175m
2200m
2225m
2250m
2275m
2300m
2325m

Moolayember Formation

Snake Creek Mudstone Member

rounded, moderately hard, weak to moderately strong siliceous cement, common off white argillaceous matrix, trace lithics, trace carbonaceous material, poor visual porosity, no fluorescence

SILTSTONE: light to medium brownish grey, medium grey, occasionally medium brown, moderately hard, blocky to sub fissile, rare carbonaceous specks, trace lithics, locally arenaceous.

SANDSTONE: off white, white, very fine to fine grained, rare medium, moderately well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderately strong siliceous cement, common off white argillaceous matrix, trace lithics, trace carbonaceous specks, poor to fair inferred porosity, no fluorescence

SANDSTONE: off white, white, very fine to fine grained, rare medium, moderately well sorted, sub angular to sub rounded, friable to moderately hard, weak to moderately strong siliceous cement, common off white argillaceous matrix, trace lithics, trace glauconite, trace carbonaceous specks, poor to fair inferred porosity, no fluorescence

SILTSTONE: light to medium grey, brownish grey, moderately hard, blocky to sub fissile, trace fine carbonaceous specks, arenaceous in parts.

SANDSTONE: white to off white, very fine to medium grained, moderately sorted, sub angular to predominantly sub rounded, friable, weak siliceous cement, common off white argillaceous matrix, trace lithics, trace carbonaceous flecks, poor to fair inferred porosity, no fluorescence.

SILTSTONE: medium brownish grey, medium grey, moderately hard, sub blocky to sub fissile, trace lithics, trace fine carbonaceous specks, arenaceous in parts.

SANDSTONE: white, fine to medium grained, moderately sorted, sub angular to predominantly sub rounded, friable, weak siliceous cement, common off white argillaceous matrix, trace lithics, trace carbonaceous flecks, poor to fair inferred porosity, no fluorescence.

SILTSTONE: medium grey, medium brownish grey, moderately hard, blocky to sub fissile, occasional carbonaceous flakes, trace lithics and carbonaceous specks, trace localized carbonaceous laminae, rarely micro micaceous, arenaceous in parts.

SANDSTONE: white, off white, fine to medium grained, moderately well sorted, sub rounded to sub angular, friable, loose in part, weak siliceous cement, common white argillaceous matrix, trace lithic inclusions, trace carbonaceous specks, rare thin coaly laminae, poor visible and fair inferred porosity, no fluorescence.

SILTSTONE: medium greyish brown, medium grey, occasionally medium dark greyish brown, moderately hard, blocky to sub fissile, occasional carbonaceous specks and flakes, trace lithics and localized carbonaceous laminae, very finely arenaceous in parts.

SANDSTONE: white, off white, light grey, very fine to fine grained, well sorted, sub angular to sub rounded, friable, weak siliceous cement, locally common white argillaceous matrix, trace green and brown lithic inclusions, trace carbonaceous specks, poor visible porosity, no fluorescence.

SILTSTONE: medium greyish brown to medium dark greyish brown, moderately hard, sub fissile to sub blocky, occasional lithic specks, trace carbonaceous specks, very finely arenaceous in parts.

SANDSTONE: white, off white, light grey to greyish brown, very fine to occasionally fine grained, occasionally grading to arenaceous SILTSTONE, well sorted, sub angular to sub rounded, friable, occasionally moderately hard, weak to moderate siliceous cement, occasional white argillaceous and grey brown silty matrix, trace lithic inclusions, trace carbonaceous specks and flakes, poor visible porosity, no fluorescence.

SILTSTONE: dark to very dark grey, very dark greyish brown, moderately hard, sub fissile to fissile, generally argillaceous, very finely arenaceous in part, trace lithic and carbonaceous specks.

SILTSTONE: dark to very dark grey, moderately hard, sub fissile to sub blocky, generally argillaceous, very finely arenaceous in part, trace lithic and carbonaceous specks.

SANDSTONE: white, off white, very fine to fine grained, well sorted, sub angular to sub rounded, friable, weak siliceous cement,

TG 24.7 Units

2156.000m
2155.87m TVDBRT
Inc: 0.26°
Azi: 289.82°

TG 38.3 Units

2214.000m
2213.87m TVDBRT
Inc: 0.35°
Azi: 314.87°

No resistivity data recorded

TG 45.0 Units

TG 44.7 Units

2272.400m
2272.27m TVDBRT
Inc: 0.44°
Azi: 311.53°

TG 36.0 Units

2301.200m
2301.07m TVDBRT
Inc: 0.35°
Azi: 305.73°

2324.00mMDRT
12 1/4"
2327.00mMDRT
8 1/2"
XLOT 18.46ppg EMW

2334.600m
2334.47m TVDBRT
Inc: 0.35°
Azi: 347.91°

06 May 2015 | 05 May 2015

Mud Type:
KCl/Polymer
Dens: 10.5ppg
PV/YP: 17/34
pH: 10.0
Additives: Rheopac LV, Defoam A, Idcide-20, MAGOX, Sodium Sulphite

WOB: 9 klbs
TRQ: 10821 lbs.ft
SPP: 1823 psi
Flow: 313 gpm
RPM: 77

WOB: 16 klbs
TRQ: 6839 lbs.ft
SPP: 1882 psi
Flow: 313 gpm
RPM: 68

WOB: 15 klbs
TRQ: 6599 lbs.ft
SPP: 1998 psi
Flow: 312 gpm
RPM: 117

Mud Type:
KCl/Polymer
Dens: 10.5ppg
PV/YP: 18/38
pH: 9.0
Additives: Evocon E, Barite, MAGOX, Sodium Sulphite, Evolube E (IBC), Idcide-20, Rheopac LV

WOB: 13 klbs
TRQ: 6026 lbs.ft
SPP: 2017 psi
Flow: 313 gpm
RPM: 117

WOB: 16 klbs
TRQ: 6410 lbs.ft
SPP: 2091 psi
Flow: 313 gpm
RPM: 118

2350m
2375m
2400m
2425m
2450m
2475m
2500m
2525m
2550m

Showgrounds Sandstone

Upper Rewan

Intra Rewan Claystone

Rewan Formation

Lower Rewan

occasional white argillaceous matrix, trace lithic inclusions and carbonaceous specks, poor visible porosity, no fluorescence.

SILTSTONE: light to occasionally medium grey, moderately hard, argillaceous to very fine arenaceous in parts, common biotite flakes, minor micro carbonaceous specks, and laminations.

SANDSTONE: off white to white, trace light grey to pale brown, predominantly very fine to fine, occasionally medium, moderately well sorted, sub angular to sub rounded, friable to occasionally moderately hard aggregates, common loose grains, weak occasionally moderately strong siliceous cement, trace weak calcareous cement, common off white argillaceous to silty matrix, common mica flakes, minor carbonaceous specks and laminations, trace cream, pale green and grey lithics, very poor to poor visual and inferred porosity, no fluorescence.

SANDSTONE: light green, light orange, off white, very fine to medium, moderately well sorted, friable to occasionally moderately hard aggregates, common loose grains, weak to occasionally moderately strong siliceous cement, minor off white to trace pale green argillaceous matrix, common lithics, poor visual and inferred porosity, no fluorescence.

SILTSTONE: light green, light greenish grey, moderately hard, sub blocky to sub fissile, trace micro carbonaceous specks.

SANDSTONE: light greenish grey, light grey, trace orange, off white, very fine to medium grained, moderately well sorted, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor off white argillaceous matrix, rare lithics, poor visual porosity, no fluorescence

SILTSTONE: light green, light greenish grey, moderately hard, sub blocky to sub fissile, trace micro carbonaceous specks.

SILTSTONE: red brown, soft to firm, blocky to sub blocky, argillaceous grading to CLAYSTONE.

SANDSTONE: light greenish grey, light grey, trace orange, off white, very fine to medium grained, moderately well sorted, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor off white argillaceous matrix, rare lithics, poor visual porosity, no fluorescence

SILTSTONE: red brown, soft to firm, blocky to sub blocky, argillaceous grading to CLAYSTONE.

SANDSTONE: light greenish grey, light grey, off white, rare translucent, very fine to medium grained, moderately well sorted, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor off white argillaceous matrix, rare lithics, poor visual porosity, no fluorescence

SILTSTONE: light green, light greenish grey, moderately hard, sub blocky to sub fissile, trace micro carbonaceous specks.

SILTSTONE: red brown, soft to firm, blocky to sub blocky, argillaceous grading to CLAYSTONE.

SANDSTONE: light greenish grey, light grey, trace orange, off white, very fine to medium grained, moderately well sorted, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor off white argillaceous matrix, rare lithics, poor visual porosity, no fluorescence.

SILTSTONE: light green, light greenish grey, moderately hard, sub blocky to sub fissile.

SANDSTONE: light greenish grey, light grey, trace orange, off white, very fine to medium grained, moderately well sorted, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor off white argillaceous matrix, rare lithics, poor visual porosity, no fluorescence

SILTSTONE: light grey, light greenish grey, occasionally grey white, firm to moderately hard, sub blocky to sub fissile.

SANDSTONE: white, off white, occasionally light greenish grey, translucent, very fine to medium grained, moderately sorted, sub angular to sub rounded, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor to common off white argillaceous matrix, trace lithics, poor visual

TG 17.6 Units
TG 8.0 Units
TG 19.0 Units
TG 24.0 Units
TG 22.5 Units

2363.600m
2363.47m TVDBRT
Inc: 0.09°
Azi: 2.59°

2421.400m
2421.27m TVDBRT
Inc: 0°
Azi: 276.81°

2479.200m
2479.07m TVDBRT
Inc: 0°
Azi: 341.5°

2536.900m
2536.77m TVDBRT
Inc: 0.09°
Azi: 248.16°

porosity, no fluorescence

SILTSTONE: light grey, light greenish grey, occasionally grey white, firm to moderately hard, sub blocky to sub fissile.

SANDSTONE: white, off white, occasionally light greenish grey, translucent, very fine to medium grained, moderately sorted, sub angular to sub rounded, friable to moderately hard, loose in part, weak to moderately strong siliceous cement, minor to common off white argillaceous matrix, trace lithics, poor visual porosity, no fluorescence

WOB: 20 klbs
TRQ: 7559 lbs.ft
SPP: 2192 psi
Flow: 313 gpm
RPM: 123

2575m

TG 16.0 Units

2600m

TG 36.5 Units

COAL: black, very dark brownish black, vitreous, moderately hard, blocky to sub fissile.

SILTSTONE: light to medium brownish grey, medium dark grey, light to medium brown, moderately hard, firm in parts, blocky to sub fissile, rare carbonaceous inclusions, rare lithics, slightly argillaceous.

WOB: 16 klbs
TRQ: 7498 lbs.ft
SPP: 2185 psi
Flow: 312 gpm
RPM: 126

2625m

TG 508.0 Units

2623.800m
2623.67m TVDBRT
Inc: 0.09°
Azi: 104.46°

SANDSTONE: translucent, clear, white, light brownish grey, fine to medium grained, fair sorting, angular to sub rounded, weak siliceous cement, common white to light brown argillaceous matrix, rare carbonaceous inclusions, trace lithics, poor to fair visual porosity, no fluorescence

Mud Type:
KCl/Polymer
Dens: 10.8ppg
PV/YP: 19/36
pH: 9.5
Additives: Evocon E, Barite, MAGOX, Sodium Sulphite, Evolube E (IBC), Idcide-20, Rheopac LV

2650m

TG 249.0 Units

SILTSTONE: very light grey to medium grey, light greenish grey, medium dark grey to dark grey, friable to moderately hard, sub blocky to fissile, carbonaceous in parts grading to carbonaceous CLAYSTONE, micro micaceous in parts, arenaceous grading to very fine SANDSTONE in parts.

TG 424.5 Units

SANDSTONE: white to very light grey, transparent to translucent, very light greenish grey, very fine to coarse, predominantly fine to medium, moderately well sorted, angular to sub rounded, moderately hard, moderate siliceous cement, common to abundant white argillaceous matrix, rare coarse loose quartz grains, poor visual porosity, no fluorescence.

WOB: 11 klbs
TRQ: 4737 lbs.ft
SPP: 2194 psi
Flow: 313 gpm
RPM: 129

2675m

TG 710.0 Units

TG 290.0 Units

COAL: black to very dark brownish black, sub vitreous, firm to moderately hard, brittle in parts, blocky.

2681.500m
2681.37m TVDBRT
Inc: 0.09°
Azi: 276.37°

SILTSTONE: medium grey to dark grey, greyish black, firm to moderately hard, blocky to sub fissile, carbonaceous in parts grading to carbonaceous CLAYSTONE.

SANDSTONE: white to very light grey, light greenish grey, transparent to translucent, very fine to coarse, predominantly fine to medium, moderately well sorted, sub angular to sub rounded, trace coarse angular quartz grains, moderately hard to very hard in parts, moderate siliceous cement, abundant white argillaceous matrix, trace carbonaceous specks, poor visual porosity, no fluorescence.

WOB: 16 klbs
TRQ: 4949 lbs.ft
SPP: 2118 psi
Flow: 312 gpm
RPM: 137

2700m

TG 470.4 Units

2710.400m
2710.27m TVDBRT
Inc: 0.09°
Azi: 171.69°

TUFF: light grey, occasional light brown grey, firm to hard, siliceous in part, trace black specks, dull orange mineral fluorescence.

TG 408.5 Units

SILTSTONE: medium grey to medium dark grey, dark brownish grey, firm to moderately hard, sub blocky to sub fissile, carbonaceous in parts grading to carbonaceous CLAYSTONE, arenaceous grading to very fine SANDSTONE in parts.

Mud Type:
KCl/Polymer
Dens: 11.9ppg
PV/YP: 20/37
pH: 9.5
Additives: Evocon E, Barite, MAGOX, Sodium Sulphite, Evolube E (IBC), Idcide-20, Rheopac LV

2725m

TG 332.5 Units

SANDSTONE: very light grey to medium grey, light greenish grey, very fine to medium grained, moderately well sorted, sub angular to sub rounded, moderately hard to very hard in parts, moderate siliceous cement, minor very light grey argillaceous matrix, trace lithics, trace carbonaceous specks, poor visual porosity, no fluorescence.

WOB: 15 klbs
TRQ: 5944 lbs.ft
SPP: 2274 psi
Flow: 312 gpm
RPM: 168

2750m

TG 886.0 Units

COAL: very dark brown to black, earthy, firm to moderately hard, brittle in parts, blocky.

TUFF: light grey, occasional light brown grey, firm to hard, waxy, trace black specks, dull orange mineral fluorescence.

SILTSTONE: light grey to medium grey, very

Kianga Formation

Black Alley Shale

Scotia Coal Cycle

07 May 2015

06 May 2015

07 May 2015

08 May 2015

08 May 2015

07 May 2015

08 May 2015

WOB: 16 klbs
TRQ: 7349 lbs.ft
SPP: 2368 psi
Flow: 313 gpm
RPM: 163

WOB: 7 klbs
TRQ: 6238 lbs.ft
SPP: 2344 psi
Flow: 310 gpm
RPM: 163

Mud Type:
KCl/Polymer
Dens: 12.0ppg
PV/YP: 21/36
pH: 9.5
Additives: Evocon E, Barite, MAGOX, Sodium Sulphite, Evolube E (IBC), Idcide-20, Rheopac LV

WOB: 9 klbs
TRQ: 5585 lbs.ft
SPP: 2488 psi
Flow: 314 gpm
RPM: 164

Mud Type:
KCl/Polymer
Dens: 12.0ppg
PV/YP: 23/35
pH: 9.5
Additives: MAGOX, Rheopac LV, Sodium Sulphite, Idcide-20, Barite, Defoam AP400, Xanthan Gum

WOB: 5 klbs
TRQ: 3787 lbs.ft
SPP: 1242 psi
Flow: 143 gpm
RPM: 68

Mud Type:
KCl/Polymer
Dens: 12.0ppg
PV/YP: 20/36
pH: 9.5
Additives: Sodium Sulphite, Barite, MAGOX, Rheopac LV, Idcide-20, KCL, Defoam AP400

WOB: 6 klbs
TRQ: 5089 lbs.ft
SPP: 1364 psi
Flow: 155 gpm
RPM: 69

WOB: 5 klbs

2775m
2800m
2825m
2850m
2875m
2900m
2925m
2950m
2975m

4 made 609.60m in 25.7hrs
5 new bit 6 3/4"
5 made 36.00m in 6.3hrs
6 new bit 6 3/4"

Tinowon Formation

Upper Tinowon SST

Wallabella Coal Cycle

Lower Tinowon

Overston Sandstone

dark grey, firm to moderately hard, sub blocky to sub fissile, carbonaceous grading to COAL in parts, arenaceous grading to very fine SANDSTONE in parts, minor to trace carbonaceous specks.

COAL: black, very dark brown, dull to earthy, sub vitreous in parts, predominantly moderately hard, brittle in parts, uneven fracture.

LIMESTONE: off white to cream, pale brown in parts, crystalline, micritic in parts, moderately hard to hard, trace fossil fragments, micro layered in SILTSTONE in parts.

SANDSTONE: light grey to off white, moderately grey, pale green in parts, very fine to fine, well sorted, sub angular to sub rounded, friable aggregates, weak to moderately siliceous cement, calcareous cement in parts, minor off white to pale grey argillaceous matrix, very poor visual porosity, no fluorescence.

SILTSTONE: light grey to medium dark grey, firm to moderately hard, hard in parts, arenaceous grading to very fine SANDSTONE, sub blocky to sub fissile, trace micro carbonaceous specks.

COAL: black, very dark brown, dull to earthy, sub vitreous in parts, moderately hard, brittle in parts, sub blocky to blocky, uneven fracture

TUFF (Tr): off white to pale brown, light grey, firm to moderately hard, sub blocky, waxy in parts, trace micro black mafic specks.

SILTSTONE: medium grey, medium brown, moderately hard to hard, sub blocky to sub fissile, predominantly argillaceous to very fine arenaceous in parts, minor micro carbonaceous specks.

SANDSTONE: light grey, light brown, off white in parts, very fine to fine, well sorted, sub angular to sub rounded, friable to moderately hard aggregates, weak to moderately strong siliceous cement, trace light grey argillaceous to silty matrix, very poor visual porosity, common dull orange mineral fluorescence.

SILTSTONE: medium to dark brown, medium grey in parts, firm to predominantly moderately hard, sub blocky to sub fissile, predominantly argillaceous, carbonaceous in parts, very fine arenaceous in parts, trace carbonaceous specks and LIMESTONE fragments.

SANDSTONE: off white, pale brown to light grey, clear to translucent in parts, fine to common very coarse grains, poorly sorted, sub angular to sub rounded, generally loose grains, occasionally fractured quartz, friable to moderately hard aggregates in parts, weak to moderately strong siliceous cement, trace pale grey off white argillaceous matrix, trace lithics, good inferred porosity, poor visual porosity, no fluorescence.

SILTSTONE: medium light grey to medium dark grey, very dark grey, firm, sub blocky to sub fissile, arenaceous grading to very fine SANDSTONE in parts, carbonaceous grading to carbonaceous CLAYSTONE in parts, slightly micro micaceous.

SANDSTONE: very light grey to light grey, very light greenish grey, very fine to fine grain, trace medium to coarse grains, moderately well sorted, sub rounded to sub angular, firm to moderately hard aggregates, commonly loose, trace coarse loose quartz grains, localized weak to moderately strong siliceous cement, occasional to common very light grey argillaceous matrix, trace green and cream lithics, very poor to poor visual porosity, poor to fair inferred porosity, no fluorescence.

SANDSTONE: very light grey to light grey, light greenish grey, transparent to translucent, very fine to medium grained, trace coarse grains, moderately well to well sorted, sub rounded to sub angular, firm to moderately hard aggregates, commonly loose, localized moderately strong cement, occasional very light grey argillaceous matrix, abundant rock flour, common lithics (very light green, greenish grey), poor visual porosity, poor to fair inferred porosity.

SANDSTONE: clear to translucent, light grey, off white in parts, trace light green, very fine to very coarse, predominantly fine to medium, poorly sorted, sub angular to sub rounded, angular in parts, generally loose and clean grains, friable to moderately hard aggregates in parts, weak to moderately strong siliceous cement, trace off white to light grey argillaceous matrix, minor micro light green and grey lithics, trace micro carbonaceous specks, poor to fair inferred porosity, poor

TG 2443.0 Units
TG 2720.0 Units
TG 2825.1 Units
TG 1105.8 Units
TG 2295.7 Units
TG 932.8 Units
TG 145.8 Units
TG 24.0 Units
TG 21.5 Units
TG 53.5 Units

2768.100m
2767.97m TVDBRT
Inc: 0°
Azi: 27.82°

2815.700m
2815.52m TVDBRT
Inc: 0.09°
Azi: 92.24°

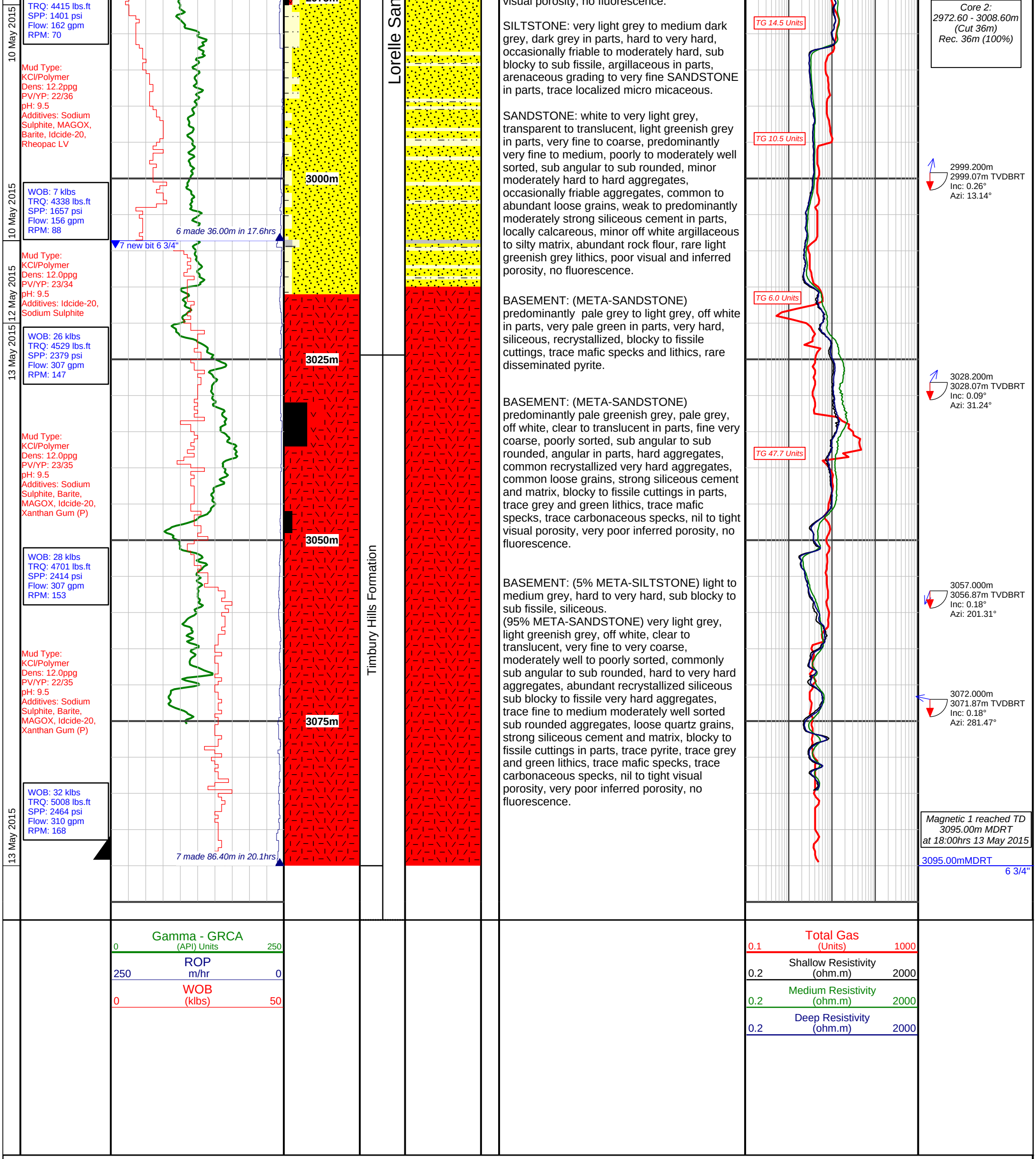
2825.800m
2825.67m TVDBRT
Inc: 0°
Azi: 220.82°

2883.700m
2883.57m TVDBRT
Inc: 0.09°
Azi: 115°

2912.100m
2911.97m TVDBRT
Inc: 0.09°
Azi: 88.48°

Core 1:
2936.60 - 2972.60m
(Cut 36.00m)
Rec 36.41m (101%)

2970.200m
2970.07m TVDBRT
Inc: 0.18°
Azi: 2.15°



Magnetic 1

Bit Summary

BHA No	Bit No	Status	Make/Type	Size	TFA	Jets	Depth In (mMDRT)	Progress (m)	Rotating Hours	Average ROP (m/hr)	Grading
1	1	new bit	Baker Hughes	26"			8.71	60.40	11.75	5.1	1-1-WT-A-0-0-WT-TD
1	1	new bit	Baker Hughes	17 1/2"	1.17	9x13	65.50	1133.89	37.6	30.3	0-1-CT-S-X-I-NO-TD
2	2	new bit	Baker Hughes	12 1/4"	0.97	4x14,2x13,1x12	1203.00	1121.00	32.1	34.9	1-3-CT-G-X-I-DL-TD
3	3	new bit	Varel	8 1/2"	0.52	3x15	2324.00	3.00	2.0	1.5	0-0-NO-A-1-0-N0-BHA
4	4	new bit	Smith	6 3/4"	0.44	4x12	2327.00	609.60	25.7	23.7	1-5-BT-S-X-0-CT-CP
5	5	new bit	Corpro	6 3/4"		-	2936.60	36.00	6.3	5.7	1-1-CT-N-X-I-PN-CP
6	6	new bit	Corpro	6 3/4"		-	2972.60	36.00	17.6	2.0	1-1-ER-N-X-I-PN-TD
7	7	new bit	Smith	6 3/4"	0.39	4x12	3008.60	86.40	20.1	4.3	1-1-NO-A-E-0-NO-TD

Conventional Core

No	Interval (m MDRT)	Cut (m)	Recovered (m)	Recovery (%)	Formation
1	2936.60 - 2972.60	36.00	36.41	101.0	Lorelle Sandstone
2	2972.60 - 3008.60	36.00	36.00	100.0	Lorelle Sandstone

Wireline Logging Summary

Suite/Run No	Hole/Casing Size	Suite	Date(s)	Interval (mMDRT)	Max Temp (°C)	Comments
1.1	12 1/4"	PEX-HRLA-SSCAN-PPC	01-05-2015	20.00 - 2326.60	88.2	Gamma only to surface
2.1	6 3/4"	FMI-SSCAN-PPC	14-05-2015	2321.31 - 3097.02	103.7	
2.2	6 3/4"	PEX-HRLA-HNGS-APS	15-05-2015	2321.31 - 3097.02	105.55	
2.3	6 3/4"	CMR-ECS	15-05-2015	2321.31 - 3097.02	110.00	
2.4	6 3/4"	MSCT	15-05-2015 to 16-05-2015	2732.80 - 3040.70	110	
2.5	6 3/4"	VSP	16-05-2015 to 17-05-2015	1198.00 - 3095.00	104.55	check shots to 32.42m MDRT
2.6	6 3/4"	CBL-VDL-CCL	17-05-2015	900.00 - 2321.31	82.2	
3.1	4 1/2"	JB-CCL	25-05-2015	2200.00 - 3039.77		Cased hole log
3.2	4 1/2"	SCMT-PBMS	25-05-2015	2150.00 - 3042.51		Cased hole log
3.3	4 1/2"	JB-CCL	25-05-2015	2000.00 - 3038.00		Cased hole log
3.4	4 1/2"	RST-PBMS	26-05-2015	2700.00 - 3038.00		Cased hole log
3.5	4 1/2"	TBDS	26-05-2015	2150.00 - 3040.00		Cased hole log

Sidewall Cores

Depth (mMDRT)	Recovery	Lithology/Comments
3040.70	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized quartz, hard to very hard, strong siliceous cement, trace to minor siliceous matrix, trace medium to coarse lithics, trace pyrite, very poor to nil visible porosity, no fluorescence.
3036.00	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized quartz, hard to very hard, strong siliceous cement, trace to minor siliceous matrix, trace medium lithics, rare pyrite, very poor to nil visible porosity, no fluorescence.
3031.90	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized quartz, hard to very hard, strong siliceous cement, trace to minor siliceous matrix, trace medium lithics, rare pyrite, very poor to nil visible porosity, no fluorescence.
3020.50	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized quartz, hard to very hard, strong siliceous cement, trace to minor siliceous matrix, trace META-SILTSTONE sub rounded to rounded very coarse to pebble, trace medium lithics, rare pyrite, very poor to nil visible porosity, no fluorescence. Fractured.
3017.30	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized sub angular quartz, hard to very hard, strong siliceous cement, trace to minor siliceous matrix, trace to minor META-SILTSTONE sub rounded to sub angular very coarse to pebble, rare medium lithics, very poor to nil visible porosity, no fluorescence.
3013.30	Good	META-SANDSTONE: light grey to light greenish grey, re-crystalized sub angular quartz, hard to very hard, strong siliceous cement, trace to minor siliceous/argillaceous matrix, minor to common SILTSTONE sub rounded to sub angular very coarse to pebble, trace pyrite, rare fine to coarse lithics, very poor to nil visible porosity, no fluorescence.
3011.30	Good	CONGLOMERATIC SANDSTONE: very light grey to light greenish grey, commonly re-crystalized sub angular quartz grading to META-SANDSTONE, hard to very hard, strong siliceous cement, trace to minor siliceous/argillaceous matrix, minor medium grey SILTSTONE sub rounded to angular very coarse to pebble, minor to common medium to coarse greyish grey lithics, very poor to nil visible porosity, no fluorescence.
2994.70	Good	CONGLOMERATIC SANDSTONE: very light grey to light greenish grey, commonly re-crystalized sub angular quartz grading to META-SANDSTONE, hard to very hard, strong siliceous cement, trace to minor siliceous/argillaceous matrix, minor medium grey SILTSTONE sub rounded to angular very coarse to pebble, common medium to pebble greyish grey lithics, very poor to nil visible porosity, no fluorescence.
2950.10	Good	SANDSTONE: very light grey to light brownish grey, very fine to very coarse clear to translucent quartz grains, sub angular to sub rounded, hard to very hard, poorly sorted, strong siliceous cement, common very light grey to light grey argillaceous matrix, trace medium grey lithics, poor to very poor visible porosity, no fluorescence.
2940.80	Good	SANDSTONE: very light grey to light brownish grey, very fine to coarse predominantly transparent to translucent quartz grains, sub angular to sub rounded, hard, poorly to moderately sorted, moderately strong siliceous cement, common very light grey argillaceous matrix, trace medium grey to dark grey medium to coarse lithics, poor to very poor visible porosity, no fluorescence.
2933.80	Good	SANDSTONE: medium light grey to medium grey, very fine to medium grained, occasionally coarse quartz, sub angular to sub rounded, hard, moderately sorted, moderately strong siliceous cement, common medium grey argillaceous matrix, trace medium grey to dark grey lithics, poor to very poor visible porosity, no fluorescence.
2931.40	Good	SANDSTONE: medium light grey to medium grey, very fine to medium grained, trace coarse, sub angular to sub rounded, hard, moderately to poorly sorted, moderately strong siliceous cement, trace light brownish grey argillaceous matrix, trace medium grey to dark grey lithics, poor to very poor visible porosity, no fluorescence.
2927.00	Good	SANDSTONE: very light grey to light brownish grey, very fine to very coarse grained, sub angular to sub rounded, hard, moderately to poorly sorted, moderately strong siliceous cement, trace very light grey to very light brownish grey argillaceous matrix, trace medium grey to dark grey lithics, trace carbonaceous fragments, poor visible porosity, no fluorescence.
2926.40	Good	ARENACEOUS SILTSTONE: medium grey to medium dark grey, arenaceous grading to very fine SANDSTONE, trace lithics, trace mica, trace pyrite, moderately hard to hard.
2914.80	Good	ARENACEOUS SILTSTONE: medium grey to medium dark grey, arenaceous grading to very fine SANDSTONE, trace lithics, trace mica, trace pyrite, moderately hard to hard.
2892.70	Good	SANDSTONE: very light grey to light greenish grey, transparent to translucent, mottled, fine to granule, sub rounded to sub angular, hard, poorly sorted, moderately strong cement, minor very light grey to very light brownish grey argillaceous matrix, trace lithics, poor to fair visible porosity, no fluorescence.
2892.20	Good	CONGLOMERATIC SANDSTONE: light grey to medium grey, very fine to medium grained, common granules and pebbles, poorly sorted, hard, moderately strong cement, argillaceous in parts, very poor visible porosity, no fluorescence.
2866.50	Good	SANDSTONE: very light grey to light brownish grey, very fine to very coarse grained, rare granule, sub angular to sub rounded, moderately hard to hard, moderately to poorly sorted, moderately strong cement, minor very light grey to very light brownish grey argillaceous matrix, trace lithics, poor to fair visible porosity, trace speckled dull yellow fluorescence.
2864.00	Good	SANDSTONE: very light grey to light brownish grey, very fine to very coarse grained, rare granule, sub angular to sub rounded, moderately hard, moderately to poorly sorted, moderately strong cement, minor very light grey to very light brownish grey argillaceous matrix, trace lithics, poor to fair visible porosity, trace speckled very dull yellow fluorescence.
2816.60	Good	SANDSTONE: light grey to light brownish grey, very fine to medium grained, sub angular to sub rounded, moderately hard, moderately to well sorted, moderately strong cement, trace light grey argillaceous matrix, trace lithics, poor to fair visible porosity, minor speckled dull yellow fluorescence. SILTSTONE: medium grey to medium dark grey, slightly arenaceous grading to very fine SANDSTONE, moderately hard to hard.
2808.20	Good	SILTSTONE: medium grey to medium dark grey, arenaceous, minor dark grey argillaceous clasts, moderately hard.
2801.30	Good	SANDSTONE: light grey to light brownish grey, very fine to medium grained, sub angular to sub rounded, moderately hard, moderately to well sorted, moderately strong cement, trace light grey argillaceous matrix, trace lithics, poor to fair visible porosity, no fluorescence.
2800.20	Good	SANDSTONE: light grey to light brownish grey, very fine to medium grained, sub angular to sub rounded, moderately hard, moderately to well sorted, moderately strong cement, minor light brownish grey argillaceous matrix, trace lithics, poor to fair visible porosity, no fluorescence.
2794.10	Good	SANDSTONE: very light grey to very light brownish grey, very fine to medium grained, sub angular to sub rounded, moderately hard, well sorted, moderately strong cement, minor very light brownish grey argillaceous matrix, trace lithics, poor to fair visible porosity, no fluorescence.
2792.70	Good	SILTSTONE: medium grey to medium dark grey, arenaceous in parts, common calcareous fragments, fossiliferous, moderately hard to hard.
2790.80	Good	SILTSTONE: medium grey to medium dark grey, arenaceous, common calcareous fragments, fossiliferous, moderately hard to hard.
2748.00	Good	SILTSTONE: light grey, light brownish grey, siliceous, lutaceous in parts, laminated, carbonaceous fracture infill, trace carbonaceous specks, hard.
2740.40	None	Not recovered
2734.60	Good	SANDSTONE: light grey to light brownish grey, very fine to medium grained, sub angular to sub rounded, moderately hard to hard, moderately to well sorted, moderately strong cement, trace very light grey argillaceous matrix, trace pyrite, laminated in parts, poor to fair visible porosity, no fluorescence.
2733.70	None	Not recovered
2732.80	None	Not recovered