WELL COMPLETION REPORT

FORTESCUE A17A

GIPPSLAND BASIN, VICTORIA

Author: **Andy Zannetos**
Compiler: **Sheryl Sazenis**
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CONTENTS

WELL COMPLETION REPORT FORTESCUE A17A

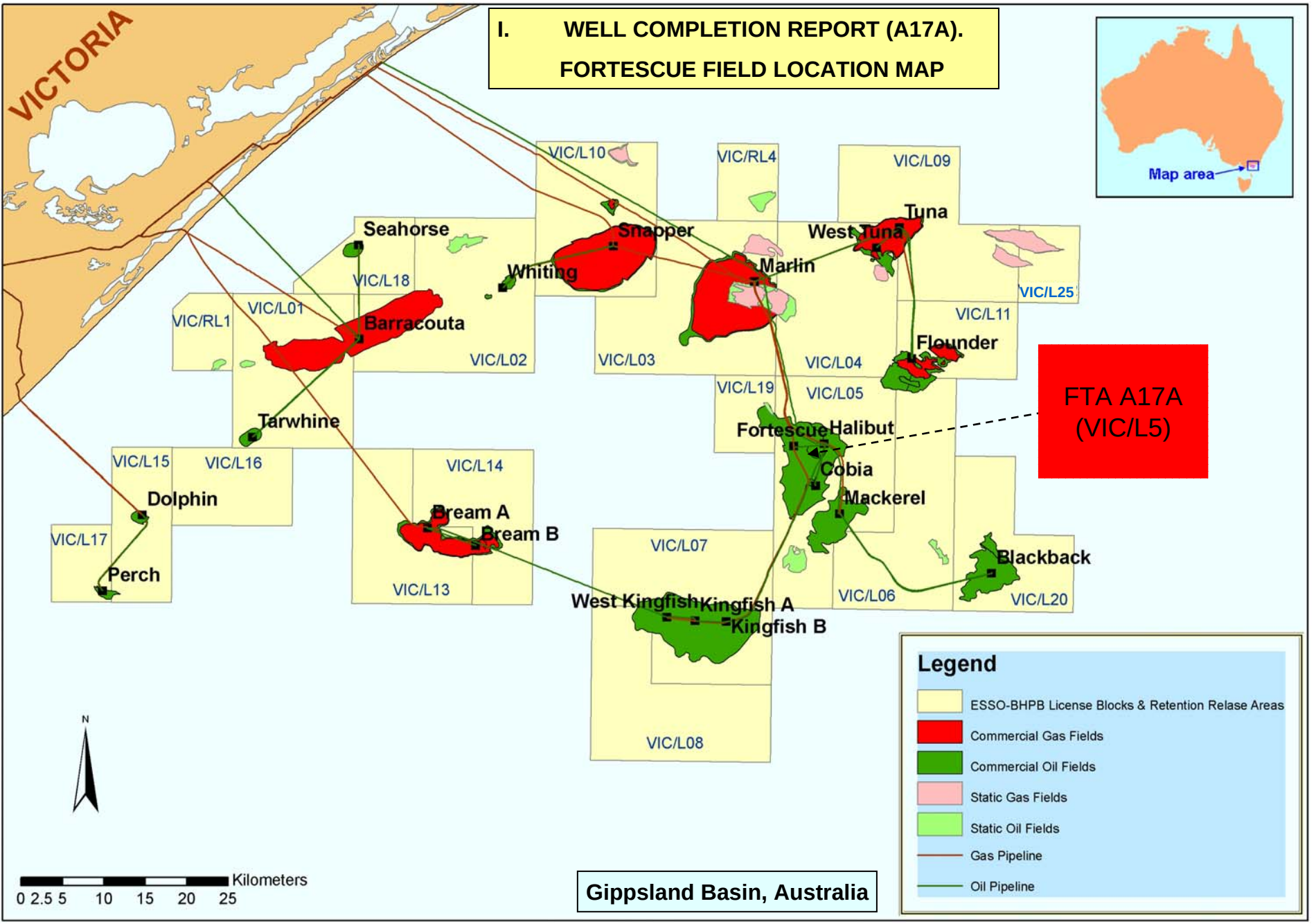

I. WELL COMPLETION REPORT (A17A).
FORTESCUE FIELD LOCATION MAP
VICTORIA
Map area
VIC/L10
VIC/RL4
VIC/L09
Seahorse
Snapper
Tuna
West Tuna
Whiting
Marlin
VIC/L18
VIC/L25
VIC/RL1
VIC/L01
Barracouta
VIC/L11
Flounder
VIC/L02
VIC/L03
VIC/L04
VIC/L19
VIC/L05
Tarwhine
Fortescue
Halibut
FTA A17A
(VIC/L5)
VIC/L15
VIC/L16
VIC/L14
Cobia
Dolphin
Mackerel
Bream A
Bream B
VIC/L17
VIC/L07
Blackback
Perch
VIC/L13
VIC/L06
VIC/L20
West Kingfish
Kingfish A
Kingfish B
VIC/L08
N
Legend
ESSO-BHPB License Blocks & Retention Relase Areas
Commercial Gas Fields
Commercial Oil Fields
Static Gas Fields
Static Oil Fields
Gas Pipeline
Oil Pipeline
Kilometers
0 2.5 5 10 15 20 25
Gippsland Basin, Australia

FIGURE 1

II. WELL DATA RECORD (FTA A17A)
TOP COARSE CLASTICS DEPTH MAP

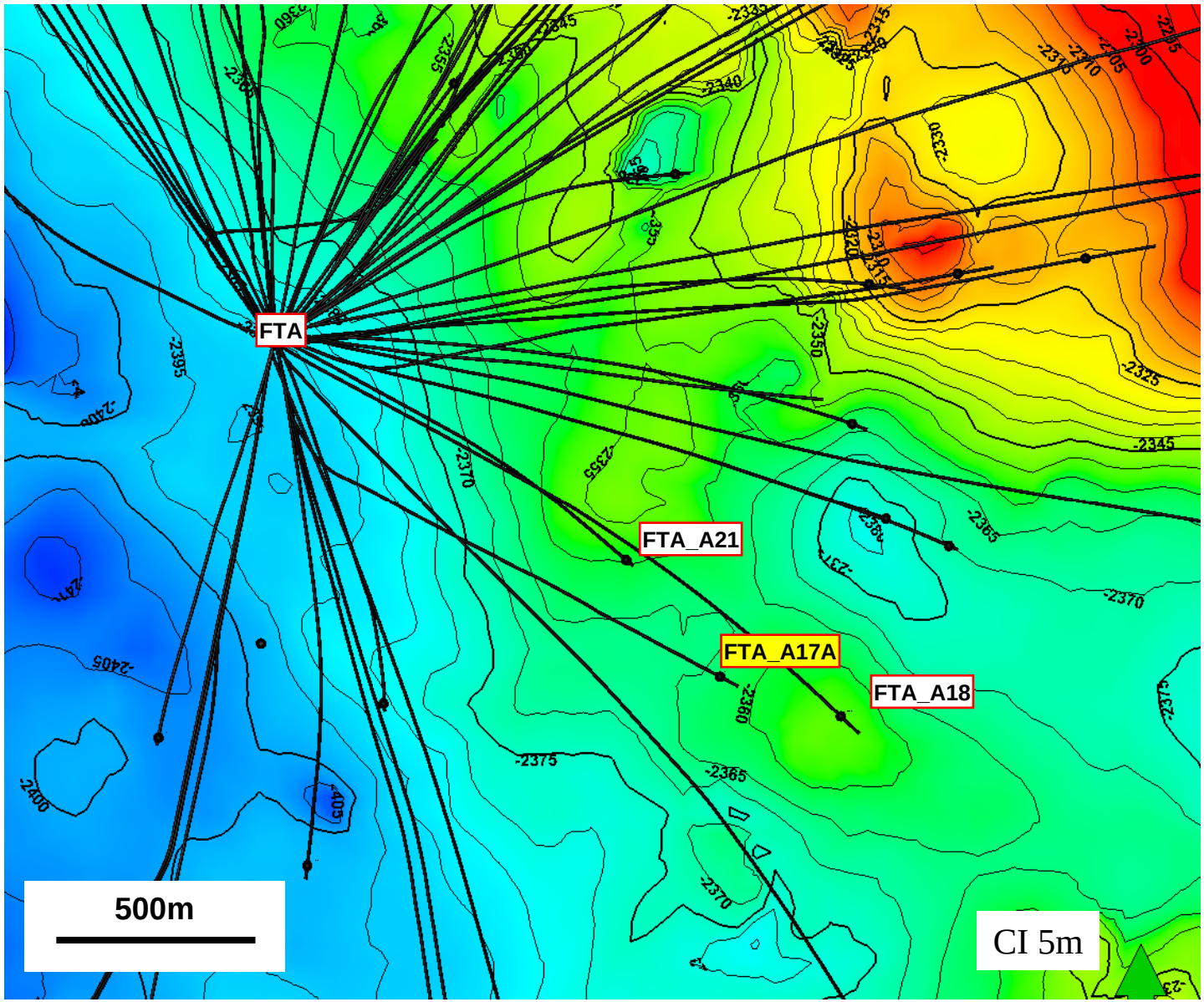


FIGURE 2

II. WELL DATA RECORD (FTA A17A)
CROSS-SECTION

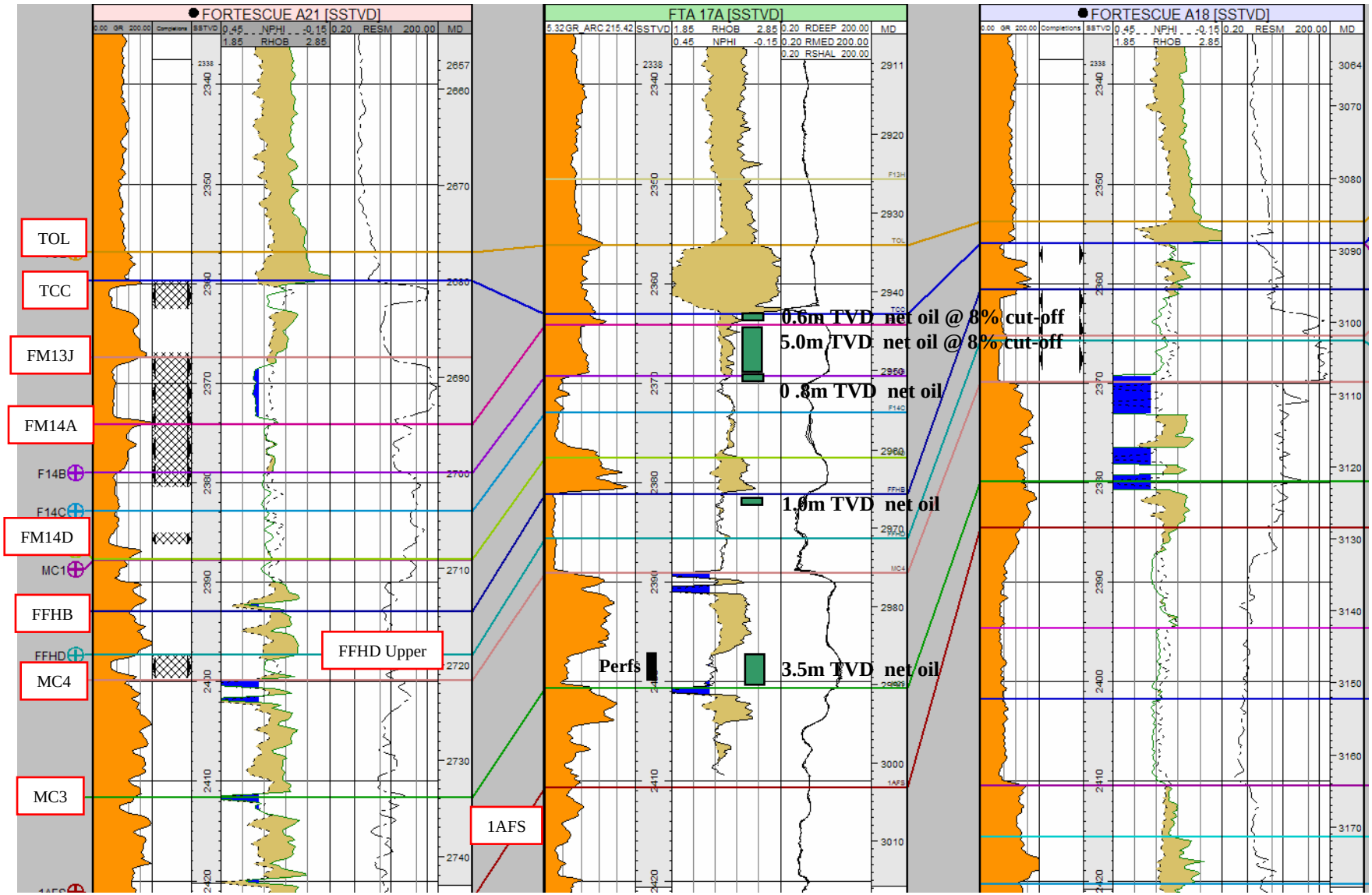


FIGURE 3

II. WELL DATA RECORD –FTA A17A (cont'd)

LOCATION

Field	**Fortescue**		
Well Name	**FTA A17A** (Predrill Loc B)	**Conductor #17 Surface Coordinates**	
Conductor Number	Slot 17	(MGA94) X	611592.600 mE
State	Victoria	(MGA94) Y	5748240.310 mN
Permit/Licence	Vic/L5	Latitude	38° 24' 25.599" S
Geological Basin	Gippsland	Longitude	148° 16' 41.155" E
Top of Latrobe	2934.1m MDRT 2398.7m TVDRT -2356.2m TVDSS	**Perforations** (driller)	2984.5 – 2987.0m MDRT 2438.5– 2440.5m TVDRT (2396.0 – 2398.0m TVDSS)
(MGA94) X	612795.32 mE		
(MGA94) Y	5747329.01 mN	**Datum**	GDA94(Geocentric Datum of Australia)
Latitude	38º 24' 54.614" S		
Longitude	148º 17' 31.260" E	**Spheroid**	GRS80(Geodetic Ref. System 1980)
		Projection	UTM (Universal Transverse Mercator)
		Map Grid / Zone	MGA Zone 55
		Central Meridian	147 deg E

ELEVATIONS & DEPTHS

Water Depth	69.0m
Main Deck Rel to MSL	25.88m
RT Relative to MSL	42.49m
Average Well Angle	37.6 deg in Latrobe
Total Depth	3036.0m MDRT 2478.8m TVDRT -2436.3mTVDSS
Plug Back Depth	3002.0m MDRT

DATES

Skid Rig	02/09/2007
Spudded Well	05/09/2007
Development Rig Days	27.5
NPT Days	5.75
Rig Released	29/09/2007
I.P. Established	06/10/2007

MISCELLANEOUS

Operator	Esso Australia Pty Ltd		
Esso Interest	50%	**Contractor**	International Sea Drilling Ltd
Licensee	Esso / BHP Billiton	**Rig Name**	Nabors Rig 175
Other JV Interest	50% (BHPB)	**Equipment Type**	Platform
Overriding Royalty	2.5% (Weeks)	**Completion Type**	Selective Single oil
Drilling AFE No.	L0501H009	**Completion Size**	2 7/8"

WELL CLASSIFICATION

Before Drilling	Oil Development	**After Drilling**	Cased & Completed - Oil well

CASING RECORD

Type	**Size** (inches)	**Weight** (lb/ft)	**Grade**	**Thread**	**Depth** (m MDRT)
Surface	$10^{3}/_{4}$"	40.5	K55	BTC	656.0
Production	7"	26.0	L80	VAM TOP HC	3030.5
Liner	$2^{7}/_{8}$"	6.4	CR-80	VAM TOP	2908.8

CEMENTING RECORD

Casing details	**Cement Type**	**Dry Cement Volume** (sacks)	**Cement Additives**	**Mix Water** (bbls)	**Slurry Volume** (bbls)	**Slurry Density** (ppg)	**Cement to/from** (mMDRT)	**Casing Pressure Test** (psi)
7" 26 lb/ft	CLASS G (TAIL)	162.7	Gascon 469 15 gal / 10 bbl HALAD 413L 30 gal / 10 bbl NF-6 0.5 gal / 10 bbl CFR-3L 3 gal / 10 bbl SCR-100L 3.5 gal / 10 bbl	20.2	33.9	15.8	3030.5 to 2690.0	3000

II. WELL DATA RECORD (cont.)

FORTESCUE A17A FINAL WELL REPORT

GENERAL

Platform:	Fortescue	**Rig:**	175	**Reservoir:**	FM13J, FM14A & FM14B/C
Well:	A17a	**Well Slot:**	17	**RT-MSL (Rig175)**	42.49
Drilling Complexity Index	3.7	**Wellwork Complexity Index**	1.9		

DEPTH		**PERFORMANCE**		**MUD**	
m MDRT	3,036	**20" Cond. Hole**	N/A	**Max Wt (ppg)**	11.00 (1.32 gm/cc)
m TVDRT	2,478.8	**12 1/4" Inter. Hole**	N/A	**Type (Surf. Hole)**	N/A
Vert. Section (m)	1,571.2	**8 1/2" Prod. Hole**	264.4 m/day **	**Type (Inter. Hole)**	N/A
INCLINATION		**6" Liner Hole**	N/A	**Type (Prod. Hole)**	Accolade
Max (deg) / Ave (deg)	42.5 (tangent) / 37.6 avg in Latrobe	** time to drill new hole interval from spud to TD, incl connections & NPT.	(excl. completion)	**Type (Liner Hole)**	N/A

**Comments: 656 to TD 3,036 mMDRT = 2,380 mMDRT 8 1/2" new hole drilled, in 9.0 days.

TIME ANALYSIS

Start Drillwell Opns Date:	02/09/07 0600	**Finish Date (Rig Release):**	29/09/07 1800	Kick Off (spud) Reach TD	05/09/07, 1715 14/09/07, 1745
Target Days (P10):	19.60	**Total Days:**	27.50	**% Under Target:**	40% (Over)
AFE Days (P50):	23.41	**NPT Days:**	5.75	**% of Total Days:**	21%
Supplementary AFE Days (P50):	-				

COSTS *(based on projected)*

AFE No.:	L0501H009	**Revisions:**	0	**$ per m:**	A$ 3.7 k/metre (new hole)
$ per day:	A$ 316 k/day				A$ 2.86 k/metre* * based on TD **not** new hole

	Equipment	**Materials**	**Contracts**	**Allocations**	**Contingency**	**Total**
AFE (Original)	1,000,000	921,441	4,740,783	2,132,812	1,102,724	A$8,795,036
AFE (Supplement)	-	-	-	-	-	-
Projected (estim)	1,005,446	506,880	5,503,944	1,671,708	-	A$8,687,978

CASING *(all depths herein are based on Rig 175 elevations: RT-MSL= 42.49m)*

	Size / Weight / Grade / Thread	**m MDRT**	**m TVDRT**	**PIT (ppg)**
Surface Casing *	10 ¾", 40.5 ppf, K-55, BTC	656	611	13.1 (PIT)
Prod Casing	7", 26 ppf, L-80, Vam Top HC	3,031	2,475	N/A

Comments: * Pre-existing casing strings.

COMPLETION

	Size / Weight / Grade / Thread	**EOT mMDRT**	**mTVDRT**	**Type**
Completion	2⅞", 6.40 ppf, 13Cr80, Vam Top	2,916.8	2,385.6	Selective Single oil

	Upper Interval [m MDRT]	**Upper Interval [m TVDRT]**	**Middle Interval [m MDRT]**	**Middle Interval [m TVDRT]**	**Lower Interval [mMDRT]**	**Lower Interval [mTVDRT]**	**Gun Type**
Perforation Interval	2984.5- 2987.0	2438.5- 2440.5	-	-		-	Max-R

Comments: Completion was 2⅞" 13Cr80 with TR-SSSV and 3 SPMs for gas lift, and one packer.

ADDITIONAL

		Top of Interval [m MDRT]	**Base of Interval [m MDRT]**
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	656	3,036

Comments: 8 1/2" hole interval was logged using Schlumberger D&M LWD tools from 656 m to 3,036 mMDRT

Hole Section	**Cuttings Volume (m^3)**	**WBM Volume (bbl)**	**NAF (bbl)**
8 1/2"	87	-	2,380

II. WELL DATA RECORD (cont.)

DRILLING OPERATIONS SUMMARY- FORTESCUE A17A

1. Skidded rig over Slot# 17. Removed grating & well head cap. Installed ST-80 Iron Roughneck. M/U piggyback spool & riser. N/U riser, BOP, Bell nipple & flow lines. Secured BOP & installed deludge system. Performed Accumulator volume & pump system capacity tests. M/U 5½" BOP test assembly. RIH & seated test plug. R/U Howco & HP Hoses to test csg. Tested Howco lines to 300/3,000 psi 5 mins – Ok. Conducted full BOP, choke manifold & standpipe pressure test to 300/3,000 for 5 mins each – Ok. Conducted full choke manifold, standpipe & BOP pressure test to 300/3,000 psi for 5 mins each – Ok. POOH w/- test assembly & lay out. M/U Combo tool, ran & set wear bushing. Pressure tested csg w/- Howco to 1,000 psi for 10 mins. P/U & M/U 8½" bit & Xceed rotary steerable BHA & RIH to 31 m. While RIH & checking clearance through BOP stack, observed annular element protruding into bore of BOP. POOH & rack back BHA.
2. Removed flow lines, bell nipple& bell nipple work platform from above Shaffer spherical annular. Erected scaffold landing. N/D annular cap & removed annular element. Inspected element. Bottom of inside diameter of element peeling away. Cleaned, inspected & greased annular cavity. Installed new annular element & N/U annular cap. Replaced bell nipple landing, R/U bell nipple & flow lines. M/U 5½" test string & RIH & pulled wear bushing. M/U & RIH w/- test plug. Seated test plug in wellhead. R/U to pressure test annular element. Line tested to 300/5,000 psi for 5 mins. Closed annular on 5½" test assembly. Pressure tested newly installed annular element to rated working pressure - 300/5,000 psi for 5 mins – Ok. Pulled test plug. P/U & installed wear bushing. Broke down test assembly.
3. RIH w/- BHA in derrick to 31 m. Initialized tools, loaded radioactive source & continued to RIH to 143 m while M/U remainder of BHA. Shallow tested MWD tools. Continued RIH from 143 to 164 m. Anadrill calibrated depth sensors on draw works. Continued RIH w/- BHA from 164 to 533 m. Washed & reamed from 533 to tag TOC @ 608 m. Conducted power choke drill – Ok. Drilled out cement in 10¾" csg from 608 to 659 m w/- seawater. Pumped 20 bbl Hi-Vis sweeps as required. Circulated hole clean. Displaced well w/- 10.5 ppg NAF. Circulated & conditioned mud. Down linked to w/- Anadrill tools. Drilled 8½" production hole from 659 to 671 m. Circulated & conditioned mud. Added barite to mud system to achieve 10.5 ppg before PIT. Completed PIT to 13.1 ppg MWE w/- 10.5 ppg & 275 psi pump pressure. R/D Howco. Continued to drill 8½" production hole from 671 to 720 m. Stopped & reviewed cuttings samples & directional surveys. Determined that still in original wellbore. Decided to POOH & set kick-off plug. Circulated & conditioned wellbore prior to POOH. POOH from 720 to 645 m. Washed & reamed back to bottom, then pumped OOH from 720 to 645 m. Circulated 2 x's bottoms-up. Pumped slug & POOH on elevators from 645 to 37 m. Removed radioactive source & POOH from 37 m to surface.
4. Prepared 4" handling gear & M/U cement stinger. RIH on 4" DP from surface to 266 m. Prepared 5" handling gear & RIH on 5½" DP from 266 to 720 m. Circulated bottoms-up while mixing 13.0 ppg tuned spacer. R/U Howco & pumped 20 bbls of spacer. Pressure tested Howco lines to 300/3,000 psi for 5 mins – Ok. Pumped 10 bbls of spacer followed by 40 bbls of 16.5 ppg cement slurry. Displaced cement w/- 4 bbls of spacer & 33 bbls of drilling fluid. POOH from 720 to 521 m. Circulated bottoms-up @ 521 m until shakers were clean. Dropped DP wiper ball & circulated 2 x bottoms-up until shakers were clean. POOH from 521 to 266 m. R/U 4" DP handling gear & POOH on 4" DP to surface. Broke down & laid out cement stinger. R/U lump pump & drained riser back to mud pits. M/U jetting tool assembly & jetted BOP stack. Function tested BOP rams. Laid out jetting tool assembly. Drain stack & filled w/- drilling fluid.
5. M/U 8½" steerable kick-off BHA & RIH to 24 m. Shallow tested tools - Ok. RIH on 5½" DP from 24 to 520 m, filling DP every 10 stands. Washed & reamed from 520 m to tag TOC @ 635 m. Circulated bottoms-up & conditioned hole. Drilled out cement from 635 to 660 m. Circulated 1 x's bottoms-up before kick-off. Started kicking-off from cement plug @ 660 m. Drilled 8½" production hole from 660 to 667 m. Circulated & conditioned mud prior to PIT. R/U Howco & performed PIT to 13.6 ppg EMW. Drilled w/- steerable BHA 8½" production hole from 660 to 763 m. Circulated & conditioned wellbore until shakers were clean before POOH. Pumped OOH from 763 to 650 m. Circulated & conditioned wellbore @ shoe until shakers were clean. POOH on elevators from 650 m to surface. Function tested BOP rams.
6. M/U 8½" rotary steerable BHA & RIH to 38 m. Powered up & tested MWD tools – Ok. Loaded radioactive source. RIH on 5½" DP from 38 to 656 m filling pipe every 10 stands. Washed & reamed from 656 to 763 m. Drilled, steered & surveyed from 763 to 812 m. Circulated & conditioned wellbore, pressure fluctuations observed @ surface. Checked all surface equipment. Decided to pull BHA. POOH from 812 m to surface. RIH w/- 8 stands on 5½" DP & randomly broke & inspected connections. POOH & racked back in mast. M/U 8½" rotary steerable BHA & RIH to 37 m. Shallow tested tools & loaded radioactive source. Continued to RIH from 37 to 812 m, filling pipe every 10 stands. Drilled, steered & surveyed from 812 to 2,893 m. Circulated hole clean above TOL w/- 3 x BU prior to drilling into pay zone. Added Baracarb to mud system as required for controlling losses in Latrobe Formation. LCM pill mixed in slug pit. Racked back 1 stand from 2,893 to 2,809 m. Circulated bottom-up & washed back to bottom. Continued to drill, steer & survey from 2,893 m to TD @ 3,036 m. Back reamed OOH from TD to 2,809 m & circulated bottom-up until hole was clean. Pumped OOH from 2,809 to 648 m. Circulated the hole clean. Flow checked well – Ok. Continued to POOH from 648 to 37 m. Recovered radioactive source. Continued to POOH laying down BHA & retrieving logs.
7. M/U dumb-iron wiper trip BHA w/- 8½" hole opener. RIH to 648 m, breaking circulation every 10 stands. Circulated hole clean. Continued to RIH w/- wiper BHA from 648 to 3036 m, breaking circulation every 10 stands. Hole in good condition. Circulated hole clean at TD. Pumped OOH from 3,036 to 648 m. Circulated hole clean. Pumped slug &

POOH to surface. M/U combo tool. RIH & retrieved wear bushing. Laid out combo tool. M/U jetting tool. RIH & jetted wellhead & BOP's clean. Laid out jetting tool. Dressed rig floor for csg run.

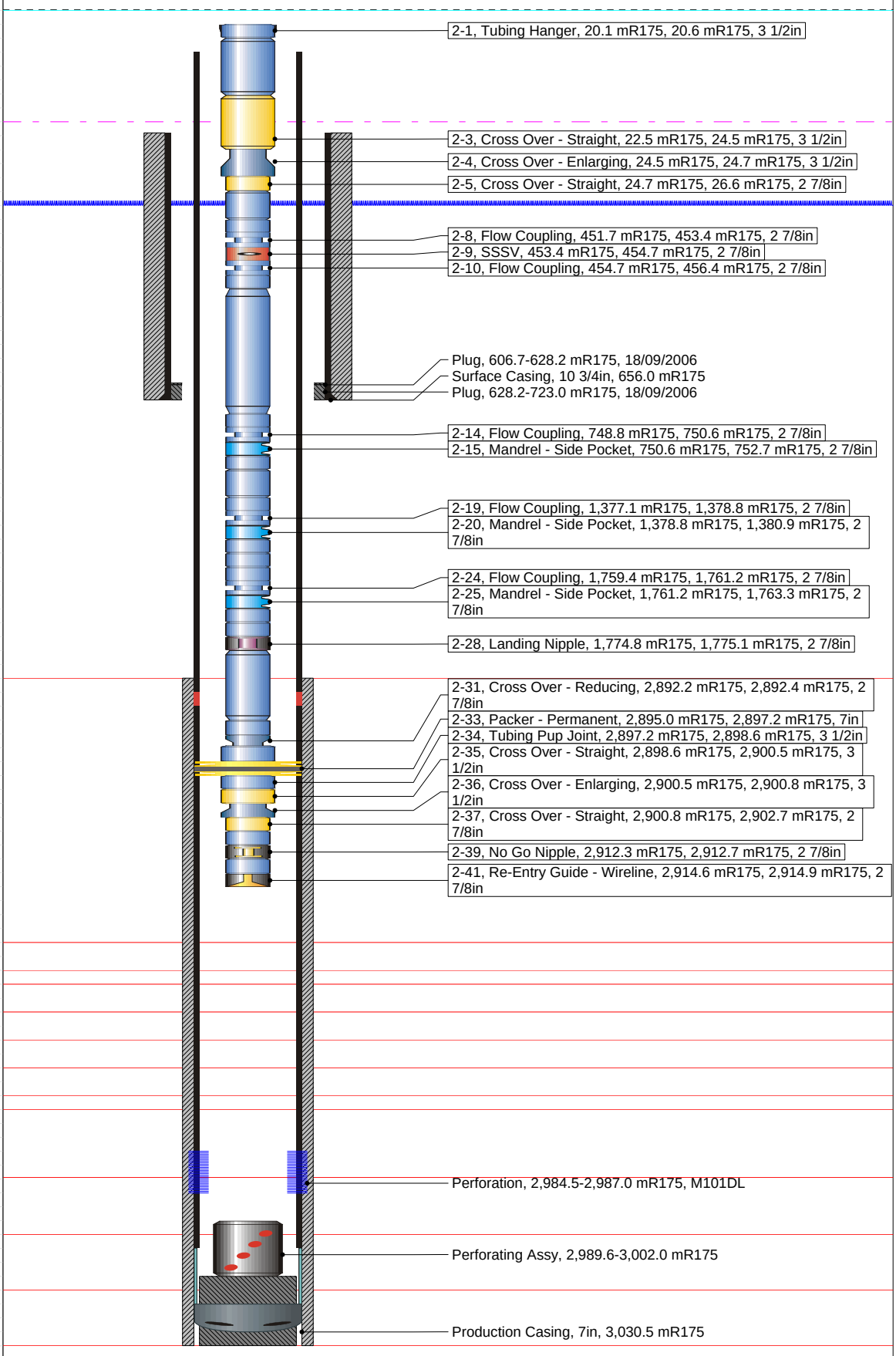
8. R/U Weatherford to run 7" casing. P/U & M/U shoetrack joints. Bakerlok all shoe track joints. Checked floats – Ok. Ran and cemented 7" production casing string at 3,030.5 m. WOC. Removed cement head, installed & set 7" csg slips & seal assembly. Rough cut casing, laid out landing joints & cut joint. N/D flowline, bell nipple, BOP's & HP riser. Set back BOP from well centre. Removed riser & DSA. Cut & dressed stub ready for wellhead installation. N/U new tubing head spool & energized P-seals. Removed companion flange from A-section & installed blind flange. Installed companion flange on tubing head spool. Void tested P-seals to 3,000 psi for 15 mins – Ok. Changed out LPR's to 2⅞" solids ready to run completion. N/U HP riser, BOP's, bell nipple, flowline & service lines. Energised bell nipple seal assembly. Reinstated wellhead area & main deck grating. R/D Weatherford. M/U 2⅞" test plug assembly. RIH & seated test plug. Conducted 14 day BOP test. Pressure tested choke, standpipe & cement manifolds, BOP's, choke & kill lines, TDS, mud pump & safety valves to 300/3,000 psi. Changed out washed choke manifold valve. Laid out 2⅞" test plug assembly. Pressure tested blind rams to 300/3,000 psi against production csg to 300/3,000 psi. Held 3,000 psi on csg – Ok. M/U combo running tool. Ran & test wear bushing. Laid out combo tool.
9. R/U Schlumberger unit & equipment to run gauge ring & junk basket – No go, can't get past 22.5 m. R/D Schlumberger. P/U & M/U 7" csg scraper BHA & RIH to 20 m. M/U circulating swedge & HP lines. Reverse circulate hole clean w/- 40 bbls Hi-Vis pill followed by S/Water. Laid out circulating swedge & lines. Continued to RIH from 20 to 311 m. M/U circulating swedge & HP lines. Reverse circulate hole clean w/- 30 bbls Hi-Vis pill followed by Inhibited S/Water. Laid out circulating swedge & lines. POOH w/- 7" csg scraper BHA from 311 to 23 m. M/U circulating swedge & HP lines. Circulate hole clean w/- S/Water. R/U Schlumberger unit & equipment to run gauge ring & junk basket. RIH to 672 m. Unable to pass 672 m. POOH & laid down gauge ring & junk basket. R/D Schlumberger. P/U 7" csg scraper BHA & RIH to 2,992 m. Rotated through cement stringers from 2,992 to 3,002 m. Firm cement @ 3,002m. POOH from 3,002 m to surface.
10. R/U Schlumberger unit & equipment to run gauge ring & junk basket. RIH w/- gauge ring & junk basket to 2,985 m. Unable to work tools past HUD after multiple attempts. POOH & laid down tools. P/U & M/U 7" Scraper BHA. RIH open ended & w/- out a float to ensure reverse circulation. RIH to HUD @ 2,985 m. Worked scraper from 2,985 to 3,002 m. Reverse circulated well clean. POOH from 3,002 m to surface. R/U Schlumberger. P/U guage ring, junk basket & RIH to 3,003 m. POOH & laid out guage ring, junk basket & GR-CCL. P/U, M/U & armed MAXR guns, gun hanger & setting tools. R/U & RIH w/- 4 ½" HSD, 12 SPF Omega guns w/ GR/CCL for correlation. Correlated gun to perforate interval from 2,984.5 – 2,987 m. POOH w/- wireline. R/D Schlumberger.
11. M/U combo running tool. RIH & retrieved wear bushing. Laid out wear bushing & combo tool. R/U Weatherford equipment to run 2⅞" tubing. M/U tail pipe assembly & run 2⅞" 6.40 ppf 13Cr-80 Vam-Top completion tubing. Land out tubing hanger. Applied 4 turns counter clockwise & set tubing hanger. Void test hanger seals to 5,000 psi for 15 mins - Ok. R/U FOBV, SES & HP lines ready to pressure test. R/U slicklines & lubricator. Line test Howco HP lines. Pressured up tubing & PA to 500 psi w/- TRSSSV open. Closed TRSSSV – holding 500 psi. Bleed down PAP & open TRSSSV. Function test TRSSSV – Ok. Pressure tested slickline lubricator against the FOBV to 300/4,800 psi – Ok. RIH with N-test tool & set packers. Unable to pass obstruction @ 2,774 m. POOH. C/Out tools to 2" tubing drift. RIH to 2,911 m – clear access to XN Nipple. Observed some weight loss while running past HUD. POOH. C/out tools to 2.25" tubing drift. RIH. Unable to pass HUD @ 2,774 m. POOH. RIH w/- 2.25" LIB. Take impression at 2,774 m. POOH. LIB indicated full circumference obstruction, reducing diameter by approximately 1 - 1.5 mm.
12. Reviewed operational plan w/- Office. Decided to pull tubing. Released tubing hanger. R/U Weatherford. Pulled & laid out tubing. Located damaged tubing at 2,770 m. Pin down end of connection was flared inwards towards centre of tubing bore. Pin up connection had seal face turned over, extruding into the wellbore. Bundled & offloaded damaged tubulars & equipment. Prepare to run new 2⅞" completion. R/U Weatherford. M/U & run tail pipe assembly & run 2⅞" 6.40 ppf 13Cr-80 VAM-Top completion tubing to 2,456 m. R/U crossover. FOBV, side-entry sub, lubricator & Halliburton slick line for guage unit run w/- N test tool. Pressure test lubricator against FOBV to 300/3,000 psi for 5 mins – Ok. RIH w/- N test tool to 2,456 m. R/D Halliburton wireline. M/U TRSSSV assembly. Flushed & connected control line to TRSSSV. Pressure tested control line to 5,000 psi for 15 mins – Ok. Continued to RIH w/- 2⅞" completion tubing. EOT @ 2,916.79 m. Land out tubing hanger. Applied 4 turns counter clockwise & set tubing hanger. Void test hanger seals to 5,000 psi for 15 mins - Ok. R/U Halliburton slick line & HP lines. Test HP lines – Ok. Pressure tested tubing & PA to 500 psi w/- TRSSV open. Closed TRSSSV – held 500 psi. Bled down pressure & opened TRSSSV. Function tested TRSSSV – Ok. Pressure tested lubricator against FOBV to 300/4,800 psi – Ok.
13. RIH w/- N-test tool to set packer. Pressured up to 2,000/6,000 psi to set top & bottom packer – Ok. POOH w/- N-test tool. Test upper & lower packer seals to 2,000 psi & hold for 15 mins – Ok. R/D Halliburton wireline & lubricator. Backed out THRT & POOH w/- landing joints. R/D Weatherford. N/D flowline, Bell nipple, BOP's & HP riser. Cameron tech terminated control line at tubing head & prepared tubing head for Xmas tree. N/U Xmas tree into wellhead. Pressure tested Xmas tree – Ok. Handed well over to production operations.

Fortescue A17A: Existing Schematic

Original KB = 34.50 m
Working KB = 42.49 m
Current KB selected = 42.49 m

Incl	mR175 (TVD)
0.0	8
0.1	21
0.1	22
0.1	22
0.1	23
0.1	24
0.1	25
0.1	37
26.5	442
26.7	444
26.9	448
27.3	462
27.4	464
27.4	467
43.6	610
38.5	678
38.5	681
37.8	957
36.4	1,175
36.5	1,178
40.0	1,474
40.0	1,476
40.0	1,480
40.1	1,487
39.1	2,205
38.2	2,336
38.1	2,366
38.0	2,368
38.0	2,371
38.0	2,372
37.7	2,381
37.6	2,383
37.4	2,392
37.3	2,398
37.4	2,403
37.6	2,407
37.7	2,412
38.0	2,420
38.0	2,424
38.0	2,428
38.1	2,435
38.1	2,438
38.1	2,439
38.1	2,441
38.2	2,443
38.3	2,451
38.4	2,453
38.7	2,470
38.8	2,479

Schematic - Actual



III. SAMPLES –FTA A17A

The cuttings sampling programme for FORTESCUE A17Aare detailed in the following table:

CUTTINGS SAMPLES

Interval	Formation	Sampling Details
KOP to 150 m above Top of Latrobe (prognosed at 2925.7 mMDRT) 656– 2760. mMDRT	Gippsland Limestone & Lakes Entrance	Cuttings samples for description only at 30 m intervals.
150 m above Top of Latrobe to Top of Latrobe 2770.0 – 2920.0 mMDRT	Lakes Entrance	Three sets of washed and oven dried cuttings at 10 m intervals.
Top of Latrobe to **Total Depth (TD)** 2925.0 – 3036.0 mMDRT	Latrobe Group / Coarse Clastics	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 2760.0 to 3036.0 mMDRT (TD) are contained in Appendix 3a.

CONVENTIONAL CORING

No conventional cores were cut in FORTESCUE A17A.

SIDEWALL CORING

No sidewall core samples were shot in FORTESCUE A17A.

IV. LOGS AND SURVEYS –FTA A17A

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
LWD Run 1, TeleScope-ARC-ADN-sonicVISION	Schlumberger/Anadrill	573.0	709.6
MWD Run 2, TeleScope	Schlumberger/Anadrill	635.0	738.9
LWD Run 3, TeleScope-ARC-ADN-sonicVISION	Schlumberger/Anadrill	776.6	801.6
LWD Run 4, TeleScope-ARC-ADN-sonicVISION	Schlumberger/Anadrill	812.0	3026.9

V. RESERVOIR & FORMATION TOPS - FORTESCUE A17A

Horizon	m TVDSS			m MDRT	mTVT HC Column	
	Predicted Tops	ACTUAL	Diff. (m)	ACTUAL	Predicted.	ACTUAL
Top of Latrobe (TOL)	**-2350.3**	-2356.2	5.9	2934.1		
Top of Coarse Clastics (TCC)/FM13J	**-2354.0**	-2363.1	9.1	2942.8	2.2	0.6
FM14A	**-2356.4**	-2364.2	7.8	2944.2	4.0	5.0
FM14B	**-2360.9**	-2369.3	8.4	2950.7	3.0	0.8
FM14D	**-2369.9**	-2377.6	7.7	2961.1	Swept	Swept
FFHB	**-2374.7**	-2380.7	6.0	2965.1	Swept	1.0
FFHD “Top M101D upper reservoir”	**-2379.1**	-2385.7	6.6	2971.4	1.5	0
MC4 “Top M101D lower reservoir”	**-2382.6**	-2388.6	6.0	2975.1	0.6	3.5
MC3 “Top M101E “	**-2392.8**	-2400.7	7.9	2990.4	1.3	0
Halibut Original Oil Water Contact	**-2397.0**	Not observed				
1AFS	**-2399.6**	-2403.9	4.3	3036.0		
Total Depth	**-2428.5**	-2436.3		2985.5		

VI. GEOLOGICAL ANALYSIS – FORTESCUE A17A

Objectives

The FTA-A17A well was designed to test a truncation attic trap between FTA-A21 and FTA-A18 to develop remaining FM13J, FM14A and FM14B/C oil within the area and intersect potential remaining oil within the M101D and M101E reservoirs.

Results

The FTA-A17A spudded on the 5th of September 2007. An 8 ½" production hole was drilled to a total depth of 3036mMDRT (2478.8mTVDRT). The well was logged with Sclumberger's MWD and LWD from 573mMDRT to 3026.9mMDRT. After running 7" casing, the well was completed with 2 7/8" tubing and perforated over the interval (2984.5-2987.0mMDRT). Production was established on the 6th of October 2007 from the M101Lower reservoir objective. Initial flow rate was 2760 bopd at a watercut of 37%.

The Top Latrobe was intersected at 2934.1mMDRT (-2356.2mTVDSS), 5.9m deep to prediction, while the Top of Coarse Clastics was intersected at 2942.8mMDRT (-2363.1mTVDss), 9.1m deep to prediction. The depth difference between actual and predicted tops varied from 4.3m to 8.4m deep to prediction TVD within the Latrobe Group.

Specific zones where definitive or possible hydrocarbons were intersected include (Figure 3):

The FM13J section, a primary objective, contains 0.6m TVD of net possible oil at an 8% porosity cut-off, no net pay is observed above a 12% cut-off. The net section is 1.6m thinner than predicted. The unit has almost been completely eroded and replaced with a thin Gurnard section.

The FM14A section, a primary objective, contains 5.0m TVD of net oil at an 8% porosity cut-off with an average porosity of 11.7%. The net oil section is 1.0m thicker than predicted.

The FM14B section, a primary objective, contains 0.8m TVD of net oil. The net oil section is 2.2m thinner than expected.

The M101D lower section, a secondary objective contains 3.5m TVD of net oil. The net oil section is 2.7m thicker than predicted.

The M101B section, pre-drill expected to be swept, contains 1.0m of net oil and is interpreted to be a thin lagging column.

APPENDIX 1a

FORTESCUE A17A

Survey Data

FTA A-17A Final Geodetic Survey True North

Report Date:	September 14, 2007	Survey / DLS Computation Method:	Minimum Curvature / Lubinski
Client:	Esso Australia Pty Ltd	Vertical Section Azimuth:	126.840°
Field:	Fortescue GDA 94	Vertical Section Origin:	S 4.050 m, E 4.490 m
Structure / Slot:	Fortescue Rig 95 / 17	TVD Reference Datum:	RKB
Well:	17	TVD Reference Elevation:	42.49 m relative to MSL
Borehole:	FTA A-17A	Sea Bed / Ground Level Elevation:	-69.000 m relative to MSL
UWI/API#:		Magnetic Declination:	13.208°
Survey Name / Date:	FTA A-17A Final / September 10, 2007	Total Field Strength:	59971.222 nT
Tort / AHD / DDI / ERD ratio:	149.460° / 1649.58 m / 5.996 / 0.665	Magnetic Dip:	-68.860°
Grid Coordinate System:	GDA94/MGA94 Zone 55	Declination Date:	September 10, 2007
Location Lat/Long:	S 38 24 25.599, E 148 16 41.155	Magnetic Declination Model:	BGGM 2007
Location Grid N/E Y/X:	N 5748240.310 m, E 611592.600 m	North Reference:	Grid North
Grid Convergence Angle:	-0.79409433°	Total Corr Mag North -> Grid North:	+14.002°
Grid Scale Factor:	0.99975336	Local Coordinates Referenced To:	Structure Reference Point

Positions are calculated based on Grid North

Comments	Measured Depth (m)	Inclination (deg)	Grid North Azimuth (deg)	True North Azimuth (deg)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Projected-Up	0.00	0.00	0.00	-0.79	0.00	0.00	-4.05	4.49	0.00	5748240.31	611592.60	S 38 24 25.599	E 148 16 41.155
Tie-In	7.99	0.00	0.00	-0.79	7.99	0.00	-4.05	4.49	0.00	5748240.31	611592.60	S 38 24 25.599	E 148 16 41.155
	127.99	0.50	94.29	93.50	127.99	0.44	-4.09	5.01	0.12	5748240.27	611593.12	S 38 24 25.600	E 148 16 41.177
	157.99	0.64	89.89	89.10	157.99	0.69	-4.10	5.31	0.15	5748240.26	611593.42	S 38 24 25.600	E 148 16 41.189
	187.99	0.83	116.81	116.02	187.98	1.03	-4.20	5.67	0.39	5748240.16	611593.78	S 38 24 25.603	E 148 16 41.204
	217.99	3.05	146.75	145.96	217.97	2.00	-4.96	6.30	2.37	5748239.40	611594.41	S 38 24 25.628	E 148 16 41.230
	247.99	6.76	161.54	160.75	247.85	4.20	-7.31	7.30	3.89	5748237.06	611595.41	S 38 24 25.703	E 148 16 41.273
	277.99	8.57	167.64	166.85	277.58	7.35	-11.16	8.34	1.98	5748233.20	611596.45	S 38 24 25.828	E 148 16 41.318
	307.99	11.42	168.52	167.73	307.12	11.26	-16.26	9.41	2.85	5748228.10	611597.52	S 38 24 25.993	E 148 16 41.365
	337.99	16.38	170.63	169.84	336.24	16.53	-23.35	10.69	4.99	5748221.02	611598.80	S 38 24 26.222	E 148 16 41.422
	367.99	19.40	169.65	168.86	364.78	23.24	-32.43	12.27	3.03	5748211.94	611600.38	S 38 24 26.516	E 148 16 41.492
	397.99	22.49	169.26	168.47	392.80	31.14	-42.97	14.24	3.09	5748201.40	611602.35	S 38 24 26.857	E 148 16 41.579
	427.99	25.05	168.63	167.84	420.25	40.11	-54.83	16.56	2.57	5748189.54	611604.67	S 38 24 27.240	E 148 16 41.682
	457.99	26.87	169.20	168.41	447.22	49.85	-67.72	19.08	1.84	5748176.66	611607.19	S 38 24 27.657	E 148 16 41.793
	487.99	27.63	169.43	168.64	473.89	59.99	-81.22	21.63	0.77	5748163.16	611609.73	S 38 24 28.094	E 148 16 41.906
	517.99	29.95	168.32	167.53	500.18	70.72	-95.39	24.42	2.38	5748148.99	611612.53	S 38 24 28.552	E 148 16 42.029
	547.99	33.00	168.98	168.19	525.77	82.39	-110.75	27.50	3.07	5748133.64	611615.60	S 38 24 29.049	E 148 16 42.164
	577.99	36.32	169.69	168.90	550.44	94.96	-127.51	30.65	3.34	5748116.88	611618.76	S 38 24 29.591	E 148 16 42.304
	607.99	39.66	169.65	168.86	574.08	108.51	-145.68	33.96	3.34	5748098.72	611622.07	S 38 24 30.178	E 148 16 42.451
	637.99	42.89	171.30	170.51	596.62	122.82	-165.19	37.23	3.41	5748079.21	611625.33	S 38 24 30.810	E 148 16 42.596
Tie-In	660.00	43.73	170.72	169.92	612.64	133.65	-180.10	39.59	1.27	5748064.30	611627.69	S 38 24 31.292	E 148 16 42.702
	687.00	45.37	160.65	159.86	631.90	148.38	-198.40	44.28	8.05	5748046.01	611632.38	S 38 24 31.884	E 148 16 42.906
	715.14	41.29	153.00	152.21	652.38	165.05	-216.14	51.83	7.08	5748028.27	611639.92	S 38 24 32.456	E 148 16 43.227
	743.13	38.36	149.47	148.68	673.88	181.36	-231.86	60.43	3.97	5748012.56	611648.53	S 38 24 32.961	E 148 16 43.591
	771.30	38.83	149.67	148.88	695.90	197.57	-247.01	69.33	0.52	5747997.41	611657.43	S 38 24 33.449	E 148 16 43.966
	799.42	39.10	149.36	148.57	717.76	213.89	-262.25	78.30	0.36	5747982.18	611666.39	S 38 24 33.939	E 148 16 44.345
	827.52	39.46	149.08	148.29	739.51	230.34	-277.53	87.41	0.43	5747966.90	611675.50	S 38 24 34.430	E 148 16 44.729
	856.31	40.00	148.79	148.00	761.65	247.39	-293.29	96.90	0.59	5747951.14	611684.99	S 38 24 34.937	E 148 16 45.129
	884.72	40.15	144.57	143.78	783.40	264.58	-308.57	106.95	2.87	5747935.87	611695.03	S 38 24 35.428	E 148 16 45.552
	913.55	39.38	139.55	138.76	805.56	282.36	-323.11	118.27	3.44	5747921.33	611706.35	S 38 24 35.894	E 148 16 46.027
	941.59	37.91	135.61	134.82	827.47	299.56	-336.03	130.07	3.07	5747908.41	611718.15	S 38 24 36.308	E 148 16 46.520
	969.73	35.92	129.16	128.37	849.97	316.36	-347.43	142.53	4.64	5747897.02	611730.60	S 38 24 36.672	E 148 16 47.040
	998.09	35.46	124.47	123.68	873.01	332.89	-357.34	155.76	2.93	5747887.11	611743.83	S 38 24 36.988	E 148 16 47.591
	1026.34	35.73	120.07	119.28	895.99	349.27	-366.11	169.66	2.73	5747878.34	611757.72	S 38 24 37.266	E 148 16 48.169
	1055.05	36.17	115.56	114.77	919.23	365.91	-373.97	184.56	2.80	5747870.48	611772.62	S 38 24 37.514	E 148 16 48.788
	1083.06	37.35	113.45	112.66	941.67	382.28	-380.92	199.81	1.85	5747863.54	611787.87	S 38 24 37.732	E 148 16 49.420
	1111.75	38.03	114.28	113.49	964.37	399.37	-388.02	215.85	0.89	5747856.44	611803.91	S 38 24 37.955	E 148 16 50.085
	1139.82	38.02	116.07	115.28	986.49	416.31	-395.37	231.50	1.18	5747849.09	611819.55	S 38 24 38.187	E 148 16 50.734
	1168.37	38.15	117.86	117.07	1008.96	433.65	-403.36	247.19	1.17	5747841.10	611835.24	S 38 24 38.439	E 148 16 51.386
	1196.91	38.43	118.41	117.62	1031.36	451.13	-411.70	262.79	0.46	5747832.77	611850.83	S 38 24 38.702	E 148 16 52.033
	1225.68	38.08	118.17	117.38	1053.95	468.75	-420.14	278.47	0.40	5747824.33	611866.51	S 38 24 38.969	E 148 16 52.685
	1254.40	37.78	118.21	117.42	1076.61	486.20	-428.48	294.03	0.31	5747815.99	611882.07	S 38 24 39.232	E 148 16 53.331
	1282.15	37.10	118.92	118.13	1098.64	502.90	-436.54	308.85	0.87	5747807.92	611896.88	S 38 24 39.487	E 148 16 53.946
	1310.69	35.83	119.76	118.97	1121.59	519.71	-444.85	323.63	1.43	5747799.62	611911.66	S 38 24 39.750	E 148 16 54.560
	1338.31	36.07	119.61	118.82	1143.95	535.80	-452.88	337.72	0.28	5747791.59	611925.75	S 38 24 40.004	E 148 16 55.145
	1367.80	36.15	119.73	118.94	1167.77	553.05	-461.49	352.82	0.11	5747782.99	611940.85	S 38 24 40.276	E 148 16 55.773
	1396.39	36.99	119.10	118.31	1190.74	569.94	-469.85	367.66	0.97	5747774.63	611955.68	S 38 24 40.541	E 148 16 56.389
	1424.23	38.52	117.23	116.44	1212.75	586.78	-477.89	382.69	2.06	5747766.59	611970.70	S 38 24 40.795	E 148 16 57.013
	1452.46	38.59	117.40	116.61	1234.82	604.14	-485.97	398.32	0.13	5747758.51	611986.33	S 38 24 41.049	E 148 16 57.662
	1481.68	37.43	117.54	116.75	1257.85	621.89	-494.26	414.29	1.19	5747750.22	612002.29	S 38 24 41.311	E 148 16 58.325
	1510.46	37.27	117.52	116.73	1280.72	639.12	-502.34	429.77	0.17	5747742.15	612017.77	S 38 24 41.566	E 148 16 58.967
	1538.73	37.53	117.80	117.01	1303.18	656.07	-510.31	444.98	0.33	5747734.18	612032.98	S 38 24 41.818	E 148 16 59.599
	1566.81	38.82	118.34	117.55	1325.26	673.22	-518.47	460.29	1.42	5747726.01	612048.29	S 38 24 42.076	E 148 17 0.235

	1595.00	39.21	118.81	118.02	1347.16	690.78	-526.96	475.88	0.52	5747717.53	612063.87	S 38 24 42.344	E 148 17 0.882
	1623.56	38.55	118.75	117.96	1369.39	708.53	-535.59	491.59	0.69	5747708.90	612079.58	S 38 24 42.617	E 148 17 1.534
	1651.81	38.21	117.82	117.03	1391.54	725.88	-543.90	507.03	0.71	5747700.59	612095.02	S 38 24 42.879	E 148 17 2.176
	1680.22	38.26	117.49	116.70	1413.85	743.24	-552.07	522.61	0.22	5747692.43	612110.59	S 38 24 43.137	E 148 17 2.822
	1708.96	38.99	116.80	116.01	1436.31	760.92	-560.25	538.57	0.88	5747684.25	612126.55	S 38 24 43.395	E 148 17 3.485
	1737.21	39.94	115.58	114.79	1458.12	778.56	-568.17	554.68	1.30	5747676.33	612142.66	S 38 24 43.645	E 148 17 4.153
	1765.70	39.99	116.13	115.34	1479.95	796.53	-576.15	571.15	0.38	5747668.35	612159.12	S 38 24 43.896	E 148 17 4.837
	1793.80	40.23	117.14	116.35	1501.44	814.35	-584.27	587.33	0.74	5747660.24	612175.30	S 38 24 44.152	E 148 17 5.508
	1822.48	40.84	117.86	117.07	1523.24	832.74	-592.88	603.87	0.80	5747651.63	612191.83	S 38 24 44.423	E 148 17 6.195
	1851.42	40.26	118.35	117.56	1545.23	851.33	-601.74	620.46	0.69	5747642.77	612208.42	S 38 24 44.703	E 148 17 6.884
	1880.34	41.14	118.01	117.22	1567.15	869.98	-610.64	637.08	0.94	5747633.87	612225.04	S 38 24 44.985	E 148 17 7.574
	1907.88	41.63	117.36	116.57	1587.82	887.95	-619.10	653.21	0.71	5747625.41	612241.16	S 38 24 45.252	E 148 17 8.243
	1935.98	42.48	116.31	115.52	1608.68	906.49	-627.60	670.00	1.18	5747616.92	612257.95	S 38 24 45.519	E 148 17 8.941
	1965.09	39.30	113.83	113.04	1630.69	925.14	-635.68	687.25	3.68	5747608.84	612275.19	S 38 24 45.774	E 148 17 9.656
	1993.68	35.90	114.81	114.02	1653.34	942.16	-642.86	703.15	3.62	5747601.66	612291.08	S 38 24 45.999	E 148 17 10.315
	2022.04	34.84	117.69	116.90	1676.46	958.30	-650.11	717.87	2.09	5747594.41	612305.80	S 38 24 46.228	E 148 17 10.926
	2050.17	36.50	119.08	118.29	1699.31	974.52	-657.91	732.30	1.97	5747586.61	612320.23	S 38 24 46.474	E 148 17 11.525
	2079.41	37.84	119.35	118.56	1722.61	992.03	-666.54	747.72	1.38	5747577.99	612335.64	S 38 24 46.747	E 148 17 12.166
	2107.37	38.50	118.68	117.89	1744.60	1009.15	-674.92	762.83	0.84	5747569.61	612350.75	S 38 24 47.012	E 148 17 12.794
	2136.33	38.59	118.46	117.67	1767.25	1027.01	-683.55	778.68	0.17	5747560.98	612366.59	S 38 24 47.285	E 148 17 13.452
	2164.51	37.93	118.78	117.99	1789.37	1044.28	-691.91	793.99	0.73	5747552.63	612381.91	S 38 24 47.549	E 148 17 14.088
	2192.55	37.27	118.25	117.46	1811.59	1061.20	-700.07	809.03	0.79	5747544.46	612396.94	S 38 24 47.807	E 148 17 14.712
	2220.97	36.42	118.58	117.79	1834.33	1078.06	-708.18	824.01	0.92	5747536.35	612411.92	S 38 24 48.063	E 148 17 15.335
	2249.50	36.44	119.32	118.53	1857.29	1094.84	-716.38	838.84	0.46	5747528.15	612426.74	S 38 24 48.322	E 148 17 15.950
	2277.75	36.84	121.02	120.23	1879.95	1111.59	-724.86	853.41	1.16	5747519.68	612441.31	S 38 24 48.590	E 148 17 16.556
	2305.75	37.44	122.32	121.53	1902.28	1128.42	-733.73	867.80	1.06	5747510.81	612455.70	S 38 24 48.872	E 148 17 17.154
	2334.40	37.22	121.22	120.43	1925.06	1145.73	-742.88	882.57	0.74	5747501.66	612470.46	S 38 24 49.162	E 148 17 17.768
	2362.79	36.69	117.35	116.56	1947.75	1162.64	-751.23	897.45	2.52	5747493.32	612485.34	S 38 24 49.426	E 148 17 18.386
	2389.95	36.62	116.10	115.31	1969.54	1178.60	-758.52	911.93	0.83	5747486.03	612499.81	S 38 24 49.655	E 148 17 18.987
	2417.94	37.08	116.97	116.18	1991.93	1195.12	-766.02	926.95	0.75	5747478.53	612514.83	S 38 24 49.892	E 148 17 19.610
	2446.07	36.80	117.57	116.78	2014.42	1211.79	-773.76	941.97	0.49	5747470.79	612529.85	S 38 24 50.136	E 148 17 20.234
	2474.11	36.23	117.97	117.18	2036.95	1228.26	-781.54	956.74	0.66	5747463.01	612544.61	S 38 24 50.382	E 148 17 20.847
	2502.44	38.25	117.50	116.71	2059.51	1245.19	-789.51	971.91	2.16	5747455.04	612559.78	S 38 24 50.633	E 148 17 21.477
	2531.37	39.64	117.87	117.08	2082.01	1263.14	-797.96	988.01	1.46	5747446.59	612575.88	S 38 24 50.900	E 148 17 22.146
	2559.98	39.78	118.54	117.75	2104.01	1281.21	-806.60	1004.12	0.47	5747437.96	612591.98	S 38 24 51.173	E 148 17 22.814
	2588.17	38.68	118.97	118.18	2125.85	1298.86	-815.18	1019.75	1.21	5747429.38	612607.61	S 38 24 51.444	E 148 17 23.464
	2617.01	38.16	118.71	117.92	2148.45	1316.61	-823.82	1035.45	0.57	5747420.74	612623.30	S 38 24 51.717	E 148 17 24.116
	2645.27	38.52	118.20	117.41	2170.61	1333.96	-832.18	1050.86	0.51	5747412.39	612638.71	S 38 24 51.981	E 148 17 24.756
	2674.42	39.10	118.05	117.26	2193.33	1352.01	-840.79	1066.97	0.60	5747403.78	612654.82	S 38 24 52.253	E 148 17 25.425
	2702.52	39.10	117.27	116.48	2215.13	1369.51	-849.02	1082.67	0.53	5747395.55	612670.51	S 38 24 52.513	E 148 17 26.076
	2731.28	37.85	117.19	116.40	2237.65	1387.15	-857.20	1098.58	1.30	5747387.37	612686.42	S 38 24 52.771	E 148 17 26.737
	2760.06	36.63	118.45	117.66	2260.56	1404.35	-865.33	1113.98	1.50	5747379.25	612701.82	S 38 24 53.027	E 148 17 27.376
	2788.47	36.29	120.03	119.24	2283.41	1421.08	-873.57	1128.72	1.05	5747371.00	612716.55	S 38 24 53.288	E 148 17 27.988
	2817.01	37.24	118.98	118.19	2306.27	1438.02	-881.98	1143.58	1.20	5747362.59	612731.41	S 38 24 53.554	E 148 17 28.606
	2845.58	38.07	117.86	117.07	2328.89	1455.29	-890.29	1158.93	1.13	5747354.29	612746.76	S 38 24 53.816	E 148 17 29.243
	2871.86	38.33	117.10	116.31	2349.55	1471.32	-897.79	1173.35	0.61	5747346.79	612761.17	S 38 24 54.053	E 148 17 29.842
	2902.30	37.94	116.95	116.16	2373.49	1489.85	-906.33	1190.10	0.40	5747338.25	612777.91	S 38 24 54.322	E 148 17 30.537
	2931.13	37.24	118.15	117.36	2396.33	1507.20	-914.46	1205.69	1.05	5747330.12	612793.50	S 38 24 54.579	E 148 17 31.184
	2960.01	37.98	118.12	117.33	2419.21	1524.62	-922.77	1221.23	0.77	5747321.81	612809.04	S 38 24 54.841	E 148 17 31.830
	2988.74	38.14	118.12	117.33	2441.83	1542.13	-931.12	1236.85	0.17	5747313.47	612824.66	S 38 24 55.105	E 148 17 32.479
	3014.84	38.56	117.68	116.89	2462.30	1558.13	-938.70	1251.16	0.58	5747305.89	612838.96	S 38 24 55.344	E 148 17 33.073
Projected to TD	3036.00	38.85	117.38	116.59	2478.81	1571.18	-944.81	1262.90	0.49	5747299.78	612850.69	S 38 24 55.537	E 148 17 33.560

Survey Type: Definitive Survey

Survey Error Model: **SLB ISCWSA version 24 *** 3-D 95.00% Confidence 2.7955 sigma**

Surveying Prog:

MD From (m)	MD To (m)	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	111.49	Act-Stns	SLB_NSG+MSHOT-Depth Only	FTA A-17 -> A-17 Final
111.49	660.00	Act-Stns	SLB_NSG+MSHOT	FTA A-17 -> A-17 Final
660.00	3036.00	Act-Stns	SLB_MWD+SAG	FTA A-17A -> FTA A-17A Final

APPENDIX 1b

FORTESCUE A17A

Survey Data Listing

Report Date:	21 Febuary 2008
Well:	Fortescue A17A
Structure / Slot:	NABORS Rig 175/ 17
TVD Reference Datum:	Drillsite Elevation
TVD Reference Elevation:	42.5 m relative to MSL
Sea Bed / Ground Level Elevation:	111.5 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S 38 24' 25.599", E 148 16' 41.155"
Location Grid N/E:	N 5748240.310 m, E 611592.600 m
Survey Azimuth Reference:	Grid North

*Dnorth and Deast are with respect to top of conductor 17, whereas NS and EW offsets on Anadrill/Schlumberger survey data are with respect to No. 1 conductor. Northings and Eastings are absolute grid coordinates.

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	0	0	42.49	0	0	5748240.31	611592.60
5	0	0	5	37.49	0	0	5748240.31	611592.60
10	0.01	1.58	10	32.49	0	0	5748240.31	611592.60
15	0.03	5.51	15	27.49	0	0	5748240.31	611592.60
20	0.05	9.44	20.00	22.49	0.00	0.01	5748240.31	611592.61
25	0.07	13.37	25.00	17.49	0.00	0.01	5748240.31	611592.61
30	0.09	17.29	30.00	12.49	0.00	0.02	5748240.31	611592.62
35	0.11	21.22	35.00	7.49	0.00	0.03	5748240.31	611592.63
40	0.13	25.15	40.00	2.49	0.00	0.04	5748240.31	611592.64
45	0.15	29.08	45.00	-2.51	0.00	0.05	5748240.31	611592.65
50	0.18	33.01	50.00	-7.51	-0.01	0.06	5748240.31	611592.67
55	0.20	36.94	55.00	-12.51	-0.01	0.08	5748240.31	611592.68
60	0.22	40.87	60.00	-17.51	-0.01	0.10	5748240.31	611592.70
65	0.24	44.80	65.00	-22.51	-0.01	0.12	5748240.31	611592.72
70	0.26	48.72	70.00	-27.51	-0.01	0.14	5748240.30	611592.74
75	0.28	52.65	75.00	-32.51	-0.01	0.16	5748240.30	611592.77
80	0.30	56.58	80.00	-37.51	-0.01	0.19	5748240.30	611592.79
85	0.32	60.51	85.00	-42.51	-0.02	0.21	5748240.30	611592.82
90	0.34	64.44	90.00	-47.51	-0.02	0.24	5748240.30	611592.85
95	0.36	68.37	95.00	-52.51	-0.02	0.27	5748240.29	611592.88
100	0.38	72.30	100.00	-57.51	-0.02	0.31	5748240.29	611592.91
105	0.40	76.23	105.00	-62.51	-0.03	0.34	5748240.29	611592.94
110	0.43	80.15	110.00	-67.51	-0.03	0.38	5748240.29	611592.98
115	0.45	84.08	115.00	-72.51	-0.03	0.42	5748240.28	611593.02
120	0.47	88.01	120.00	-77.51	-0.03	0.45	5748240.28	611593.06
125	0.49	91.94	125.00	-82.51	-0.04	0.50	5748240.28	611593.10
130	0.51	94.00	130.00	-87.51	-0.04	0.54	5748240.27	611593.14
135	0.53	93.26	135.00	-92.51	-0.04	0.59	5748240.27	611593.19
140	0.56	92.53	140.00	-97.51	-0.05	0.63	5748240.27	611593.24
145	0.58	91.80	145.00	-102.51	-0.05	0.68	5748240.27	611593.29
150	0.60	91.06	150.00	-107.51	-0.05	0.73	5748240.27	611593.34
155	0.63	90.33	155.00	-112.51	-0.05	0.79	5748240.27	611593.39
160	0.65	91.69	160.00	-117.51	-0.05	0.84	5748240.27	611593.44
165	0.68	96.18	165.00	-122.51	-0.05	0.90	5748240.26	611593.50
170	0.72	100.67	170.00	-127.51	-0.06	0.96	5748240.25	611593.56
175	0.75	105.15	175.00	-132.51	-0.08	1.02	5748240.24	611593.62
180	0.78	109.64	180.00	-137.51	-0.10	1.08	5748240.21	611593.68
185	0.81	114.13	185.00	-142.51	-0.13	1.14	5748240.19	611593.75
190	0.98	118.82	189.99	-147.50	-0.16	1.21	5748240.15	611593.81
195	1.35	123.81	194.99	-152.50	-0.22	1.29	5748240.09	611593.89
200	1.72	128.80	199.99	-157.50	-0.32	1.38	5748240.00	611593.98
205	2.09	133.79	204.99	-162.50	-0.44	1.48	5748239.87	611594.08
210	2.46	138.78	209.99	-167.50	-0.60	1.60	5748239.72	611594.20
215	2.83	143.77	214.98	-172.49	-0.78	1.73	5748239.53	611594.33
220	3.30	147.74	219.97	-177.48	-1.01	1.87	5748239.31	611594.47
225	3.92	150.21	224.96	-182.47	-1.28	2.02	5748239.04	611594.63
230	4.54	152.67	229.95	-187.46	-1.61	2.18	5748238.71	611594.79

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
235	5.15	155.14	234.93	-192.44	-1.99	2.35	5748238.32	611594.95
240	5.77	157.60	239.91	-197.42	-2.43	2.52	5748237.88	611595.12
245	6.39	160.07	244.88	-202.39	-2.93	2.70	5748237.38	611595.30
250	6.88	161.95	249.85	-207.36	-3.48	2.88	5748236.83	611595.49
255	7.18	162.97	254.81	-212.32	-4.06	3.07	5748236.25	611595.67
260	7.48	163.98	259.77	-217.28	-4.68	3.25	5748235.64	611595.85
265	7.79	165.00	264.73	-222.24	-5.32	3.42	5748235.00	611596.02
270	8.09	166.02	269.68	-227.19	-5.99	3.59	5748234.33	611596.19
275	8.39	167.03	274.63	-232.14	-6.68	3.75	5748233.63	611596.35
280	8.76	167.70	279.57	-237.08	-7.41	3.91	5748232.91	611596.51
285	9.24	167.85	284.51	-242.02	-8.17	4.08	5748232.14	611596.68
290	9.71	167.99	289.44	-246.95	-8.98	4.25	5748231.34	611596.85
295	10.19	168.14	294.37	-251.88	-9.82	4.43	5748230.49	611597.03
300	10.66	168.29	299.28	-256.79	-10.71	4.61	5748229.61	611597.21
305	11.14	168.43	304.19	-261.70	-11.63	4.80	5748228.68	611597.40
310	11.75	168.66	309.09	-266.60	-12.60	5.00	5748227.71	611597.60
315	12.58	169.01	313.98	-271.49	-13.64	5.20	5748226.68	611597.80
320	13.41	169.36	318.85	-276.36	-14.74	5.41	5748225.57	611598.01
325	14.23	169.72	323.71	-281.22	-15.91	5.62	5748224.40	611598.22
330	15.06	170.07	328.55	-286.06	-17.16	5.84	5748223.16	611598.44
335	15.89	170.42	333.37	-290.88	-18.47	6.06	5748221.84	611598.66
340	16.58	170.56	338.17	-295.68	-19.86	6.29	5748220.46	611598.89
345	17.09	170.40	342.95	-300.46	-21.28	6.53	5748219.03	611599.13
350	17.59	170.24	347.72	-305.23	-22.75	6.78	5748217.56	611599.39
355	18.09	170.07	352.48	-309.99	-24.26	7.04	5748216.05	611599.65
360	18.60	169.91	357.23	-314.74	-25.81	7.32	5748214.51	611599.92
365	19.10	169.75	361.96	-319.47	-27.40	7.60	5748212.92	611600.21
370	19.61	169.62	366.68	-324.19	-29.03	7.90	5748211.29	611600.50
375	20.12	169.56	371.38	-328.89	-30.70	8.21	5748209.61	611600.81
380	20.64	169.49	376.07	-333.58	-32.41	8.53	5748207.90	611601.13
385	21.15	169.43	380.74	-338.25	-34.16	8.85	5748206.15	611601.46
390	21.67	169.36	385.39	-342.90	-35.96	9.19	5748204.36	611601.79
395	22.18	169.30	390.03	-347.54	-37.79	9.53	5748202.52	611602.14
400	22.66	169.22	394.65	-352.16	-39.67	9.89	5748200.65	611602.49
405	23.09	169.11	399.26	-356.77	-41.57	10.26	5748198.74	611602.86
410	23.51	169.01	403.85	-361.36	-43.52	10.63	5748196.80	611603.23
415	23.94	168.90	408.43	-365.94	-45.49	11.02	5748194.82	611603.62
420	24.37	168.80	412.99	-370.50	-47.50	11.41	5748192.82	611604.02
425	24.79	168.69	417.54	-375.05	-49.54	11.82	5748190.78	611604.42
430	25.17	168.67	422.07	-379.58	-51.61	12.23	5748188.71	611604.84
435	25.48	168.76	426.59	-384.10	-53.70	12.65	5748186.61	611605.26
440	25.78	168.86	431.10	-388.61	-55.83	13.07	5748184.49	611605.67
445	26.08	168.95	435.60	-393.11	-57.97	13.49	5748182.34	611606.09
450	26.39	169.05	440.08	-397.59	-60.14	13.91	5748180.18	611606.52
455	26.69	169.14	444.55	-402.06	-62.33	14.34	5748177.98	611606.94
460	26.92	169.22	449.01	-406.52	-64.55	14.76	5748175.77	611607.36
465	27.05	169.25	453.47	-410.98	-66.78	15.18	5748173.54	611607.79
470	27.17	169.29	457.92	-415.43	-69.02	15.61	5748171.30	611608.21
475	27.30	169.33	462.37	-419.88	-71.26	16.03	5748169.05	611608.63
480	27.43	169.37	466.81	-424.32	-73.52	16.46	5748166.79	611609.06
485	27.55	169.41	471.24	-428.75	-75.79	16.88	5748164.52	611609.48
490	27.79	169.36	475.67	-433.18	-78.07	17.31	5748162.24	611609.91
495	28.17	169.17	480.09	-437.60	-80.37	17.74	5748159.94	611610.35
500	28.56	168.99	484.49	-442.00	-82.71	18.19	5748157.61	611610.80
505	28.95	168.80	488.87	-446.38	-85.07	18.66	5748155.25	611611.26
510	29.33	168.62	493.24	-450.75	-87.45	19.14	5748152.86	611611.74
515	29.72	168.43	497.59	-455.10	-89.87	19.63	5748150.45	611612.23
520	30.15	168.36	501.92	-459.43	-92.31	20.13	5748148.00	611612.73
525	30.66	168.47	506.24	-463.75	-94.79	20.64	5748145.53	611613.24

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
530	31.17	168.58	510.52	-468.04	-97.31	21.15	5748143.01	611613.75
535	31.68	168.69	514.79	-472.30	-99.86	21.66	5748140.45	611614.26
540	32.19	168.80	519.03	-476.55	-102.45	22.18	5748137.86	611614.78
545	32.70	168.91	523.25	-480.76	-105.09	22.69	5748135.23	611615.30
550	33.22	169.03	527.45	-484.96	-107.76	23.21	5748132.56	611615.82
555	33.78	169.15	531.62	-489.13	-110.46	23.74	5748129.85	611616.34
560	34.33	169.26	535.76	-493.27	-113.21	24.26	5748127.10	611616.86
565	34.88	169.38	539.88	-497.39	-116.00	24.78	5748124.31	611617.39
570	35.44	169.50	543.97	-501.48	-118.83	25.31	5748121.48	611617.91
575	35.99	169.62	548.02	-505.54	-121.70	25.84	5748118.61	611618.44
580	36.54	169.69	552.06	-509.57	-124.61	26.37	5748115.70	611618.97
585	37.10	169.68	556.06	-513.57	-127.56	26.91	5748112.75	611619.51
590	37.66	169.67	560.03	-517.54	-130.55	27.45	5748109.77	611620.05
595	38.21	169.67	563.98	-521.49	-133.57	28.00	5748106.74	611620.60
600	38.77	169.66	567.89	-525.40	-136.63	28.56	5748103.68	611621.16
605	39.33	169.65	571.77	-529.28	-139.73	29.12	5748100.59	611621.73
610	39.88	169.76	575.62	-533.13	-142.86	29.70	5748097.45	611622.30
615	40.41	170.04	579.45	-536.96	-146.04	30.26	5748094.28	611622.86
620	40.95	170.31	583.24	-540.75	-149.25	30.82	5748091.07	611623.42
625	41.49	170.59	587.00	-544.51	-152.50	31.36	5748087.82	611623.96
630	42.03	170.86	590.73	-548.24	-155.78	31.90	5748084.53	611624.50
635	42.57	171.14	594.43	-551.94	-159.11	32.42	5748081.21	611625.03
640	42.97	171.25	598.10	-555.61	-162.46	32.94	5748077.85	611625.54
645	43.16	171.11	601.75	-559.26	-165.84	33.46	5748074.48	611626.07
650	43.35	170.98	605.39	-562.90	-169.22	34.00	5748071.09	611626.60
655	43.54	170.85	609.02	-566.53	-172.62	34.54	5748067.70	611627.14
660	43.73	170.72	612.64	-570.15	-176.02	35.09	5748064.29	611627.69
665	44.04	168.85	616.25	-573.76	-179.43	35.71	5748060.88	611628.31
670	44.34	166.99	619.84	-577.35	-182.83	36.44	5748057.48	611629.04
675	44.64	165.12	623.41	-580.92	-186.22	37.28	5748054.09	611629.89
680	44.95	163.26	626.96	-584.47	-189.60	38.25	5748050.71	611630.85
685	45.25	161.40	630.50	-588.01	-192.97	39.32	5748047.34	611631.93
690	44.94	159.83	634.02	-591.53	-196.32	40.50	5748044.00	611633.11
695	44.21	158.48	637.58	-595.09	-199.60	41.75	5748040.72	611634.35
700	43.49	157.12	641.19	-598.70	-202.80	43.04	5748037.51	611635.65
705	42.76	155.76	644.85	-602.36	-205.94	44.40	5748034.38	611637.01
710	42.04	154.40	648.54	-606.05	-208.99	45.81	5748031.32	611638.42
715	41.31	153.04	652.28	-609.79	-211.97	47.28	5748028.34	611639.89
720	40.78	152.39	656.05	-613.56	-214.89	48.79	5748025.42	611641.39
725	40.26	151.76	659.85	-617.36	-217.76	50.31	5748022.55	611642.91
730	39.73	151.13	663.68	-621.19	-220.58	51.84	5748019.73	611644.44
735	39.21	150.50	667.54	-625.05	-223.36	53.39	5748016.96	611645.99
740	38.69	149.86	671.43	-628.94	-226.09	54.95	5748014.23	611647.55
745	38.39	149.48	675.35	-632.86	-228.77	56.52	5748011.55	611649.12
750	38.47	149.52	679.26	-636.77	-231.45	58.10	5748008.87	611650.70
755	38.56	149.55	683.17	-640.68	-234.13	59.68	5748006.19	611652.28
760	38.64	149.59	687.08	-644.59	-236.82	61.26	5748003.50	611653.86
765	38.72	149.63	690.99	-648.50	-239.51	62.84	5748000.80	611655.44
770	38.81	149.66	694.88	-652.39	-242.21	64.42	5747998.10	611657.02
775	38.87	149.63	698.78	-656.29	-244.92	66.00	5747995.39	611658.61
780	38.91	149.57	702.67	-660.18	-247.63	67.59	5747992.69	611660.19
785	38.96	149.52	706.56	-664.07	-250.34	69.18	5747989.98	611661.79
790	39.01	149.46	710.45	-667.96	-253.05	70.78	5747987.27	611663.38
795	39.06	149.41	714.33	-671.84	-255.76	72.38	5747984.56	611664.98
800	39.11	149.35	718.21	-675.72	-258.47	73.99	5747981.85	611666.59
805	39.17	149.30	722.09	-679.60	-261.18	75.60	5747979.13	611668.20
810	39.24	149.25	725.96	-683.47	-263.90	77.21	5747976.41	611669.81
815	39.30	149.20	729.83	-687.34	-266.62	78.83	5747973.70	611671.43
820	39.36	149.15	733.70	-691.21	-269.34	80.45	5747970.97	611673.06

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
825	39.43	149.11	737.57	-695.08	-272.06	82.08	5747968.25	611674.68
830	39.51	149.06	741.43	-698.94	-274.79	83.71	5747965.53	611676.32
835	39.60	149.00	745.28	-702.79	-277.52	85.35	5747962.80	611677.95
840	39.69	148.95	749.13	-706.64	-280.25	86.99	5747960.06	611679.60
845	39.79	148.90	752.98	-710.49	-282.99	88.64	5747957.32	611681.25
850	39.88	148.85	756.82	-714.33	-285.73	90.30	5747954.58	611682.90
855	39.98	148.80	760.65	-718.16	-288.48	91.96	5747951.84	611684.56
860	40.02	148.24	764.48	-721.99	-291.22	93.63	5747949.09	611686.24
865	40.05	147.50	768.31	-725.82	-293.94	95.35	5747946.37	611687.95
870	40.07	146.76	772.14	-729.65	-296.64	97.09	5747943.67	611689.69
875	40.10	146.01	775.96	-733.47	-299.32	98.87	5747940.99	611691.48
880	40.13	145.27	779.79	-737.30	-301.98	100.69	5747938.33	611693.29
885	40.14	144.52	783.61	-741.12	-304.62	102.54	5747935.70	611695.15
890	40.01	143.65	787.44	-744.95	-307.22	104.43	5747933.09	611697.03
895	39.88	142.78	791.27	-748.78	-309.79	106.35	5747930.52	611698.95
900	39.74	141.91	795.11	-752.62	-312.33	108.30	5747927.99	611700.91
905	39.61	141.04	798.96	-756.47	-314.82	110.29	5747925.49	611702.89
910	39.47	140.17	802.82	-760.33	-317.28	112.31	5747923.03	611704.91
915	39.30	139.35	806.68	-764.19	-319.70	114.36	5747920.61	611706.96
920	39.04	138.64	810.56	-768.07	-322.09	116.43	5747918.23	611709.03
925	38.78	137.94	814.45	-771.96	-324.43	118.52	5747915.88	611711.12
930	38.52	137.24	818.36	-775.87	-326.74	120.62	5747913.58	611713.22
935	38.26	136.54	822.28	-779.79	-329.00	122.74	5747911.31	611715.34
940	37.99	135.83	826.21	-783.72	-331.23	124.88	5747909.08	611717.48
945	37.67	134.83	830.16	-787.67	-333.41	127.03	5747906.90	611719.63
950	37.32	133.68	834.13	-791.64	-335.54	129.21	5747904.78	611721.81
955	36.96	132.54	838.12	-795.63	-337.60	131.40	5747902.71	611724.01
960	36.61	131.39	842.12	-799.63	-339.61	133.63	5747900.71	611726.23
965	36.25	130.24	846.15	-803.66	-341.55	135.87	5747898.77	611728.47
970	35.92	129.12	850.19	-807.70	-343.43	138.13	5747896.89	611730.74
975	35.83	128.29	854.24	-811.75	-345.26	140.42	5747895.06	611733.02
980	35.75	127.46	858.30	-815.81	-347.05	142.73	5747893.26	611735.33
985	35.67	126.63	862.36	-819.87	-348.81	145.05	5747891.50	611737.66
990	35.59	125.81	866.42	-823.93	-350.53	147.40	5747889.78	611740.00
995	35.51	124.98	870.49	-828.00	-352.22	149.77	5747888.10	611742.37
1000	35.48	124.17	874.57	-832.08	-353.86	152.16	5747886.45	611744.76
1005	35.53	123.39	878.64	-836.15	-355.48	154.57	5747884.84	611747.17
1010	35.57	122.61	882.71	-840.22	-357.06	157.01	5747883.26	611749.61
1015	35.62	121.84	886.77	-844.28	-358.61	159.47	5747881.71	611752.07
1020	35.67	121.06	890.84	-848.35	-360.13	161.95	5747880.19	611754.56
1025	35.72	120.28	894.90	-852.41	-361.61	164.46	5747878.70	611757.07
1030	35.79	119.50	898.96	-856.47	-363.07	166.99	5747877.24	611759.60
1035	35.86	118.71	903.01	-860.52	-364.49	169.55	5747875.82	611762.15
1040	35.94	117.92	907.06	-864.57	-365.88	172.13	5747874.43	611764.73
1045	36.02	117.14	911.11	-868.62	-367.24	174.73	5747873.08	611767.34
1050	36.09	116.35	915.15	-872.66	-368.56	177.36	5747871.75	611769.96
1055	36.17	115.57	919.19	-876.70	-369.85	180.01	5747870.46	611772.61
1060	36.38	115.19	923.22	-880.73	-371.12	182.68	5747869.20	611775.29
1065	36.59	114.81	927.24	-884.75	-372.38	185.38	5747867.94	611777.98
1070	36.80	114.43	931.25	-888.76	-373.62	188.09	5747866.70	611780.69
1075	37.01	114.06	935.25	-892.76	-374.85	190.83	5747865.46	611783.43
1080	37.22	113.68	939.24	-896.75	-376.07	193.59	5747864.24	611786.19
1085	37.40	113.51	943.21	-900.72	-377.28	196.37	5747863.03	611788.97
1090	37.51	113.65	947.18	-904.69	-378.50	199.15	5747861.82	611791.76
1095	37.63	113.80	951.14	-908.65	-379.73	201.94	5747860.59	611794.55
1100	37.75	113.94	955.10	-912.61	-380.96	204.74	5747859.35	611797.34
1105	37.87	114.08	959.05	-916.56	-382.21	207.54	5747858.11	611800.14
1110	37.99	114.23	963.00	-920.51	-383.47	210.34	5747856.85	611802.95
1115	38.03	114.49	966.93	-924.45	-384.74	213.15	5747855.58	611805.75

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1120	38.03	114.81	970.87	-928.38	-386.02	215.95	5747854.29	611808.55
1125	38.03	115.12	974.81	-932.32	-387.32	218.74	5747852.99	611811.34
1130	38.02	115.44	978.75	-936.26	-388.64	221.52	5747851.68	611814.13
1135	38.02	115.76	982.69	-940.20	-389.97	224.30	5747850.35	611816.91
1140	38.02	116.08	986.63	-944.14	-391.31	227.07	5747849.00	611819.67
1145	38.04	116.39	990.57	-948.08	-392.67	229.83	5747847.64	611822.44
1150	38.07	116.71	994.51	-952.01	-394.05	232.59	5747846.26	611825.19
1155	38.09	117.02	998.44	-955.95	-395.45	235.34	5747844.87	611827.94
1160	38.11	117.34	1002.38	-959.89	-396.86	238.08	5747843.46	611830.69
1165	38.13	117.65	1006.31	-963.82	-398.28	240.82	5747842.03	611833.43
1170	38.17	117.89	1010.24	-967.75	-399.72	243.55	5747840.59	611836.16
1175	38.22	117.99	1014.17	-971.68	-401.17	246.29	5747839.15	611838.89
1180	38.26	118.08	1018.10	-975.61	-402.62	249.02	5747837.69	611841.62
1185	38.31	118.18	1022.02	-979.53	-404.08	251.75	5747836.23	611844.35
1190	38.36	118.28	1025.94	-983.46	-405.55	254.48	5747834.76	611847.08
1195	38.41	118.37	1029.86	-987.37	-407.02	257.21	5747833.29	611849.82
1200	38.39	118.38	1033.78	-991.29	-408.50	259.95	5747831.81	611852.55
1205	38.33	118.34	1037.70	-995.21	-409.98	262.68	5747830.34	611855.28
1210	38.27	118.30	1041.63	-999.14	-411.45	265.40	5747828.87	611858.01
1215	38.21	118.26	1045.55	-1003.06	-412.91	268.13	5747827.40	611860.73
1220	38.15	118.22	1049.48	-1006.99	-414.37	270.85	5747825.94	611863.45
1225	38.09	118.18	1053.42	-1010.93	-415.83	273.57	5747824.48	611866.17
1230	38.03	118.18	1057.35	-1014.86	-417.29	276.29	5747823.03	611868.89
1235	37.98	118.18	1061.29	-1018.80	-418.74	279.00	5747821.57	611871.60
1240	37.93	118.19	1065.24	-1022.75	-420.19	281.71	5747820.12	611874.32
1245	37.88	118.20	1069.18	-1026.69	-421.64	284.42	5747818.67	611877.02
1250	37.83	118.20	1073.13	-1030.64	-423.10	287.12	5747817.22	611879.73
1255	37.77	118.23	1077.08	-1034.59	-424.54	289.82	5747815.77	611882.43
1260	37.64	118.35	1081.04	-1038.55	-425.99	292.52	5747814.32	611885.12
1265	37.52	118.48	1085.00	-1042.51	-427.44	295.20	5747812.87	611887.80
1270	37.40	118.61	1088.97	-1046.48	-428.90	297.87	5747811.42	611890.47
1275	37.28	118.74	1092.94	-1050.45	-430.35	300.53	5747809.96	611893.13
1280	37.15	118.86	1096.93	-1054.43	-431.81	303.18	5747808.51	611895.78
1285	36.97	119.00	1100.91	-1058.42	-433.27	305.82	5747807.05	611898.42
1290	36.75	119.15	1104.91	-1062.42	-434.72	308.44	5747805.59	611901.04
1295	36.53	119.30	1108.93	-1066.44	-436.18	311.04	5747804.13	611903.64
1300	36.31	119.45	1112.95	-1070.46	-437.64	313.63	5747802.68	611906.23
1305	36.08	119.59	1116.98	-1074.49	-439.09	316.20	5747801.22	611908.80
1310	35.86	119.74	1121.03	-1078.54	-440.54	318.75	5747799.77	611911.35
1315	35.87	119.74	1125.08	-1082.59	-442.00	321.29	5747798.32	611913.89
1320	35.91	119.71	1129.14	-1086.65	-443.45	323.84	5747796.86	611916.44
1325	35.95	119.68	1133.18	-1090.69	-444.90	326.38	5747795.41	611918.99
1330	36.00	119.66	1137.23	-1094.74	-446.36	328.94	5747793.96	611921.54
1335	36.04	119.63	1141.27	-1098.78	-447.81	331.49	5747792.50	611924.10
1340	36.07	119.62	1145.32	-1102.83	-449.27	334.05	5747791.05	611926.65
1345	36.09	119.64	1149.36	-1106.87	-450.72	336.61	5747789.59	611929.21
1350	36.10	119.66	1153.40	-1110.91	-452.18	339.17	5747788.14	611931.77
1355	36.12	119.68	1157.44	-1114.95	-453.64	341.73	5747786.68	611934.33
1360	36.13	119.70	1161.48	-1118.99	-455.10	344.29	5747785.22	611936.89
1365	36.14	119.72	1165.51	-1123.02	-456.56	346.85	5747783.75	611939.45
1370	36.21	119.68	1169.55	-1127.06	-458.02	349.41	5747782.29	611942.02
1375	36.36	119.57	1173.58	-1131.09	-459.48	351.98	5747780.83	611944.59
1380	36.51	119.46	1177.60	-1135.11	-460.95	354.57	5747779.37	611947.17
1385	36.66	119.35	1181.62	-1139.13	-462.41	357.17	5747777.90	611949.77
1390	36.80	119.24	1185.63	-1143.14	-463.87	359.77	5747776.44	611952.38
1395	36.95	119.13	1189.63	-1147.14	-465.34	362.39	5747774.98	611955.00
1400	37.19	118.86	1193.62	-1151.13	-466.80	365.03	5747773.52	611957.63
1405	37.46	118.52	1197.59	-1155.10	-468.25	367.69	5747772.06	611960.29
1410	37.74	118.19	1201.55	-1159.06	-469.70	370.37	5747770.61	611962.97

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1415	38.01	117.85	1205.50	-1163.01	-471.14	373.08	5747769.17	611965.68
1420	38.29	117.51	1209.43	-1166.94	-472.58	375.82	5747767.74	611968.42
1425	38.52	117.23	1213.35	-1170.86	-474.00	378.57	5747766.31	611971.18
1430	38.53	117.26	1217.26	-1174.77	-475.43	381.34	5747764.88	611973.95
1435	38.55	117.29	1221.17	-1178.68	-476.86	384.11	5747763.46	611976.72
1440	38.56	117.32	1225.08	-1182.59	-478.29	386.88	5747762.03	611979.48
1445	38.57	117.36	1228.99	-1186.50	-479.72	389.65	5747760.60	611982.25
1450	38.58	117.39	1232.90	-1190.41	-481.15	392.42	5747759.16	611985.02
1455	38.49	117.41	1236.81	-1194.32	-482.59	395.19	5747757.73	611987.79
1460	38.29	117.44	1240.73	-1198.24	-484.02	397.94	5747756.30	611990.54
1465	38.09	117.46	1244.66	-1202.17	-485.44	400.68	5747754.87	611993.29
1470	37.89	117.48	1248.60	-1206.11	-486.86	403.41	5747753.45	611996.02
1475	37.70	117.51	1252.55	-1210.06	-488.28	406.13	5747752.04	611998.73
1480	37.50	117.53	1256.51	-1214.02	-489.69	408.84	5747750.63	612001.44
1485	37.41	117.54	1260.48	-1217.99	-491.09	411.53	5747749.22	612004.14
1490	37.38	117.53	1264.45	-1221.96	-492.50	414.23	5747747.82	612006.83
1495	37.36	117.53	1268.43	-1225.94	-493.90	416.92	5747746.42	612009.52
1500	37.33	117.53	1272.40	-1229.91	-495.30	419.60	5747745.01	612012.21
1505	37.30	117.52	1276.38	-1233.89	-496.70	422.29	5747743.61	612014.90
1510	37.27	117.52	1280.36	-1237.87	-498.10	424.98	5747742.21	612017.58
1515	37.31	117.56	1284.34	-1241.85	-499.50	427.66	5747740.81	612020.27
1520	37.36	117.61	1288.31	-1245.82	-500.91	430.35	5747739.41	612022.95
1525	37.40	117.66	1292.29	-1249.80	-502.31	433.04	5747738.00	612025.64
1530	37.45	117.71	1296.26	-1253.77	-503.73	435.73	5747736.59	612028.33
1535	37.50	117.76	1300.22	-1257.73	-505.14	438.42	5747735.17	612031.03
1540	37.59	117.82	1304.19	-1261.70	-506.56	441.12	5747733.75	612033.72
1545	37.82	117.92	1308.15	-1265.66	-507.99	443.82	5747732.32	612036.42
1550	38.05	118.02	1312.09	-1269.60	-509.43	446.53	5747730.88	612039.14
1555	38.28	118.11	1316.02	-1273.53	-510.89	449.26	5747729.43	612041.86
1560	38.51	118.21	1319.94	-1277.45	-512.35	452.00	5747727.96	612044.60
1565	38.74	118.31	1323.85	-1281.36	-513.83	454.75	5747726.48	612047.35
1570	38.86	118.39	1327.74	-1285.25	-515.32	457.50	5747725.00	612050.11
1575	38.93	118.48	1331.63	-1289.14	-516.82	460.27	5747723.50	612052.87
1580	39.00	118.56	1335.52	-1293.03	-518.32	463.03	5747722.00	612055.63
1585	39.07	118.64	1339.40	-1296.91	-519.82	465.79	5747720.49	612058.40
1590	39.14	118.73	1343.28	-1300.79	-521.34	468.56	5747718.98	612061.16
1595	39.21	118.81	1347.16	-1304.67	-522.86	471.33	5747717.46	612063.93
1600	39.09	118.80	1351.04	-1308.55	-524.38	474.09	5747715.93	612066.70
1605	38.98	118.79	1354.92	-1312.43	-525.90	476.85	5747714.42	612069.46
1610	38.86	118.78	1358.81	-1316.32	-527.41	479.61	5747712.91	612072.21
1615	38.75	118.77	1362.71	-1320.22	-528.92	482.35	5747711.40	612074.96
1620	38.63	118.76	1366.61	-1324.12	-530.42	485.09	5747709.89	612077.69
1625	38.53	118.70	1370.52	-1328.03	-531.92	487.83	5747708.39	612080.43
1630	38.47	118.54	1374.43	-1331.94	-533.41	490.56	5747706.90	612083.16
1635	38.41	118.37	1378.35	-1335.86	-534.89	493.29	5747705.42	612085.89
1640	38.35	118.21	1382.27	-1339.78	-536.37	496.02	5747703.95	612088.63
1645	38.29	118.04	1386.19	-1343.70	-537.83	498.76	5747702.49	612091.36
1650	38.23	117.88	1390.12	-1347.63	-539.28	501.49	5747701.04	612094.10
1655	38.22	117.78	1394.04	-1351.55	-540.72	504.23	5747699.59	612096.83
1660	38.22	117.72	1397.97	-1355.48	-542.16	506.96	5747698.15	612099.57
1665	38.23	117.67	1401.90	-1359.41	-543.60	509.70	5747696.71	612102.31
1670	38.24	117.61	1405.83	-1363.34	-545.04	512.45	5747695.28	612105.05
1675	38.25	117.55	1409.75	-1367.26	-546.47	515.19	5747693.84	612107.79
1680	38.26	117.49	1413.68	-1371.19	-547.90	517.93	5747692.41	612110.54
1685	38.38	117.38	1417.60	-1375.11	-549.33	520.69	5747690.99	612113.29
1690	38.51	117.26	1421.52	-1379.03	-550.76	523.45	5747689.56	612116.05
1695	38.64	117.14	1425.43	-1382.94	-552.18	526.22	5747688.13	612118.82
1700	38.76	117.02	1429.33	-1386.84	-553.60	529.00	5747686.71	612121.61
1705	38.89	116.90	1433.23	-1390.74	-555.02	531.80	5747685.29	612124.40

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1710	39.02	116.76	1437.11	-1394.62	-556.44	534.60	5747683.87	612127.21
1715	39.19	116.54	1440.99	-1398.50	-557.86	537.42	5747682.46	612130.02
1720	39.36	116.32	1444.87	-1402.38	-559.27	540.26	5747681.05	612132.86
1725	39.53	116.11	1448.73	-1406.24	-560.67	543.11	5747679.64	612135.71
1730	39.70	115.89	1452.58	-1410.09	-562.07	545.97	5747678.25	612138.57
1735	39.87	115.68	1456.42	-1413.93	-563.46	548.85	5747676.86	612141.45
1740	39.94	115.63	1460.26	-1417.77	-564.85	551.74	5747675.47	612144.35
1745	39.95	115.73	1464.09	-1421.60	-566.24	554.64	5747674.08	612147.24
1750	39.96	115.83	1467.92	-1425.43	-567.63	557.53	5747672.68	612150.13
1755	39.97	115.92	1471.75	-1429.26	-569.04	560.42	5747671.28	612153.02
1760	39.98	116.02	1475.58	-1433.09	-570.44	563.31	5747669.87	612155.91
1765	39.99	116.12	1479.42	-1436.93	-571.86	566.19	5747668.46	612158.80
1770	40.03	116.28	1483.24	-1440.76	-573.27	569.08	5747667.04	612161.68
1775	40.07	116.46	1487.07	-1444.58	-574.70	571.96	5747665.61	612164.56
1780	40.11	116.64	1490.90	-1448.41	-576.14	574.84	5747664.17	612167.44
1785	40.15	116.82	1494.72	-1452.23	-577.59	577.72	5747662.72	612170.32
1790	40.20	117.00	1498.54	-1456.05	-579.05	580.59	5747661.26	612173.20
1795	40.26	117.17	1502.36	-1459.87	-580.52	583.47	5747659.79	612176.07
1800	40.36	117.30	1506.17	-1463.68	-582.01	586.34	5747658.31	612178.95
1805	40.47	117.42	1509.98	-1467.49	-583.49	589.22	5747656.82	612181.82
1810	40.57	117.55	1513.78	-1471.29	-585.00	592.10	5747655.32	612184.71
1815	40.68	117.67	1517.57	-1475.08	-586.50	594.99	5747653.81	612187.59
1820	40.79	117.80	1521.36	-1478.87	-588.02	597.88	5747652.29	612190.48
1825	40.79	117.90	1525.15	-1482.66	-589.55	600.77	5747650.77	612193.37
1830	40.69	117.99	1528.94	-1486.45	-591.08	603.65	5747649.24	612196.25
1835	40.59	118.07	1532.73	-1490.24	-592.61	606.52	5747647.71	612199.13
1840	40.49	118.16	1536.53	-1494.04	-594.14	609.39	5747646.17	612201.99
1845	40.39	118.24	1540.34	-1497.85	-595.67	612.25	5747644.64	612204.85
1850	40.29	118.33	1544.15	-1501.66	-597.21	615.10	5747643.11	612207.70
1855	40.37	118.31	1547.96	-1505.47	-598.74	617.94	5747641.57	612210.55
1860	40.52	118.25	1551.77	-1509.28	-600.28	620.80	5747640.04	612213.40
1865	40.67	118.19	1555.56	-1513.07	-601.82	623.67	5747638.50	612216.27
1870	40.83	118.13	1559.35	-1516.86	-603.36	626.54	5747636.96	612219.15
1875	40.98	118.07	1563.13	-1520.64	-604.90	629.43	5747635.41	612222.03
1880	41.13	118.01	1566.90	-1524.41	-606.44	632.33	5747633.87	612224.93
1885	41.22	117.90	1570.66	-1528.17	-607.99	635.24	5747632.33	612227.84
1890	41.31	117.78	1574.42	-1531.93	-609.53	638.15	5747630.79	612230.76
1895	41.40	117.66	1578.17	-1535.68	-611.07	641.08	5747629.25	612233.68
1900	41.49	117.55	1581.92	-1539.43	-612.60	644.01	5747627.72	612236.61
1905	41.58	117.43	1585.66	-1543.17	-614.13	646.95	5747626.18	612239.55
1910	41.69	117.28	1589.40	-1546.91	-615.66	649.90	5747624.66	612242.50
1915	41.85	117.09	1593.13	-1550.64	-617.18	652.86	5747623.14	612245.47
1920	42.00	116.91	1596.85	-1554.36	-618.70	655.84	5747621.62	612248.44
1925	42.15	116.72	1600.56	-1558.07	-620.21	658.83	5747620.11	612251.43
1930	42.30	116.53	1604.27	-1561.78	-621.71	661.83	5747618.60	612254.44
1935	42.45	116.35	1607.96	-1565.47	-623.21	664.85	5747617.10	612257.45
1940	42.04	115.97	1611.66	-1569.17	-624.70	667.87	5747615.62	612260.47
1945	41.49	115.54	1615.39	-1572.90	-626.15	670.87	5747614.17	612263.47
1950	40.95	115.12	1619.15	-1576.66	-627.56	673.85	5747612.76	612266.45
1955	40.40	114.69	1622.94	-1580.45	-628.93	676.80	5747611.38	612269.40
1960	39.86	114.26	1626.76	-1584.27	-630.27	679.73	5747610.04	612272.33
1965	39.31	113.84	1630.62	-1588.13	-631.57	682.64	5747608.75	612275.24
1970	38.72	114.00	1634.50	-1592.01	-632.85	685.52	5747607.47	612278.12
1975	38.12	114.17	1638.42	-1595.93	-634.11	688.35	5747606.20	612280.96
1980	37.53	114.34	1642.37	-1599.88	-635.37	691.15	5747604.94	612283.75
1985	36.93	114.51	1646.35	-1603.86	-636.62	693.91	5747603.69	612286.51
1990	36.34	114.68	1650.36	-1607.87	-637.86	696.62	5747602.45	612289.22
1995	35.85	114.94	1654.41	-1611.92	-639.10	699.29	5747601.22	612291.89
2000	35.66	115.45	1658.46	-1615.97	-640.34	701.93	5747599.97	612294.54

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2005	35.48	115.96	1662.53	-1620.04	-641.60	704.55	5747598.71	612297.16
2010	35.29	116.47	1666.61	-1624.12	-642.88	707.15	5747597.44	612299.75
2015	35.10	116.98	1670.69	-1628.20	-644.17	709.72	5747596.14	612302.33
2020	34.92	117.48	1674.79	-1632.30	-645.49	712.28	5747594.83	612304.88
2025	35.01	117.84	1678.89	-1636.40	-646.82	714.81	5747593.50	612307.41
2030	35.31	118.08	1682.98	-1640.49	-648.17	717.35	5747592.15	612309.95
2035	35.60	118.33	1687.05	-1644.56	-649.54	719.91	5747590.78	612312.51
2040	35.90	118.58	1691.11	-1648.62	-650.93	722.48	5747589.38	612315.08
2045	36.19	118.82	1695.15	-1652.66	-652.34	725.05	5747587.97	612317.66
2050	36.49	119.07	1699.18	-1656.69	-653.78	727.65	5747586.53	612320.25
2055	36.72	119.12	1703.19	-1660.70	-655.23	730.25	5747585.08	612322.86
2060	36.95	119.17	1707.19	-1664.70	-656.69	732.87	5747583.62	612325.47
2065	37.18	119.22	1711.18	-1668.69	-658.16	735.50	5747582.15	612328.11
2070	37.41	119.26	1715.16	-1672.67	-659.64	738.15	5747580.67	612330.75
2075	37.64	119.31	1719.13	-1676.64	-661.13	740.80	5747579.18	612333.40
2080	37.85	119.34	1723.08	-1680.59	-662.63	743.47	5747577.68	612336.07
2085	37.97	119.22	1727.02	-1684.53	-664.13	746.15	5747576.18	612338.75
2090	38.09	119.10	1730.96	-1688.47	-665.64	748.84	5747574.68	612341.44
2095	38.21	118.98	1734.90	-1692.41	-667.13	751.54	5747573.18	612344.14
2100	38.33	118.86	1738.82	-1696.33	-668.63	754.25	5747571.68	612346.85
2105	38.44	118.74	1742.74	-1700.25	-670.13	756.97	5747570.19	612349.57
2110	38.51	118.66	1746.65	-1704.16	-671.62	759.70	5747568.69	612352.30
2115	38.52	118.62	1750.57	-1708.08	-673.11	762.43	5747567.20	612355.04
2120	38.54	118.58	1754.48	-1711.99	-674.60	765.17	5747565.71	612357.77
2125	38.55	118.55	1758.39	-1715.90	-676.10	767.90	5747564.22	612360.51
2130	38.57	118.51	1762.30	-1719.81	-677.58	770.64	5747562.73	612363.25
2135	38.59	118.47	1766.21	-1723.72	-679.07	773.38	5747561.24	612365.99
2140	38.50	118.50	1770.12	-1727.63	-680.56	776.12	5747559.76	612368.73
2145	38.39	118.56	1774.03	-1731.54	-682.04	778.85	5747558.27	612371.46
2150	38.27	118.62	1777.95	-1735.46	-683.53	781.58	5747556.79	612374.18
2155	38.15	118.67	1781.88	-1739.39	-685.01	784.29	5747555.30	612376.89
2160	38.04	118.73	1785.82	-1743.33	-686.49	787.00	5747553.82	612379.60
2165	37.92	118.77	1789.76	-1747.27	-687.97	789.69	5747552.34	612382.30
2170	37.80	118.68	1793.71	-1751.22	-689.45	792.38	5747550.87	612384.99
2175	37.68	118.58	1797.66	-1755.17	-690.91	795.07	5747549.40	612387.67
2180	37.57	118.49	1801.62	-1759.13	-692.37	797.75	5747547.94	612390.35
2185	37.45	118.39	1805.59	-1763.10	-693.82	800.43	5747546.49	612393.03
2190	37.33	118.30	1809.56	-1767.07	-695.27	803.10	5747545.05	612395.70
2195	37.20	118.28	1813.54	-1771.05	-696.70	805.77	5747543.62	612398.37
2200	37.05	118.34	1817.53	-1775.04	-698.13	808.42	5747542.18	612401.03
2205	36.90	118.39	1821.52	-1779.03	-699.56	811.07	5747540.76	612403.67
2210	36.75	118.45	1825.52	-1783.03	-700.99	813.71	5747539.33	612406.31
2215	36.60	118.51	1829.53	-1787.04	-702.41	816.33	5747537.90	612408.93
2220	36.45	118.57	1833.55	-1791.06	-703.83	818.95	5747536.48	612411.55
2225	36.42	118.68	1837.57	-1795.08	-705.26	821.55	5747535.06	612414.15
2230	36.43	118.81	1841.60	-1799.11	-706.68	824.15	5747533.63	612416.76
2235	36.43	118.94	1845.62	-1803.13	-708.12	826.75	5747532.20	612419.36
2240	36.43	119.07	1849.64	-1807.15	-709.56	829.35	5747530.76	612421.95
2245	36.44	119.20	1853.67	-1811.18	-711.00	831.94	5747529.31	612424.55
2250	36.45	119.35	1857.69	-1815.20	-712.46	834.53	5747527.86	612427.14
2255	36.52	119.65	1861.71	-1819.22	-713.92	837.12	5747526.39	612429.72
2260	36.59	119.95	1865.72	-1823.23	-715.40	839.71	5747524.91	612432.31
2265	36.66	120.25	1869.74	-1827.25	-716.90	842.29	5747523.42	612434.89
2270	36.73	120.55	1873.75	-1831.26	-718.41	844.86	5747521.91	612437.47
2275	36.80	120.85	1877.75	-1835.26	-719.94	847.44	5747520.38	612440.04
2280	36.89	121.12	1881.76	-1839.27	-721.48	850.00	5747518.83	612442.61
2285	37.00	121.36	1885.75	-1843.26	-723.04	852.57	5747517.27	612445.18
2290	37.10	121.59	1889.74	-1847.25	-724.62	855.14	5747515.70	612447.75
2295	37.21	121.82	1893.73	-1851.24	-726.20	857.71	5747514.11	612450.32

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2300	37.32	122.05	1897.71	-1855.22	-727.80	860.28	5747512.51	612452.88
2305	37.42	122.29	1901.68	-1859.19	-729.42	862.85	5747510.89	612455.45
2310	37.41	122.16	1905.65	-1863.16	-731.04	865.42	5747509.27	612458.02
2315	37.37	121.96	1909.62	-1867.13	-732.65	867.99	5747507.66	612460.60
2320	37.33	121.77	1913.60	-1871.11	-734.26	870.57	5747506.06	612463.17
2325	37.29	121.58	1917.58	-1875.09	-735.85	873.15	5747504.47	612465.75
2330	37.25	121.39	1921.55	-1879.06	-737.43	875.73	5747502.88	612468.33
2335	37.21	121.14	1925.54	-1883.05	-739.00	878.31	5747501.31	612470.92
2340	37.12	120.46	1929.52	-1887.03	-740.55	880.91	5747499.77	612473.51
2345	37.02	119.78	1933.51	-1891.02	-742.06	883.51	5747498.25	612476.12
2350	36.93	119.09	1937.51	-1895.02	-743.54	886.13	5747496.78	612478.74
2355	36.84	118.41	1941.51	-1899.02	-744.98	888.76	5747495.33	612481.37
2360	36.74	117.73	1945.51	-1903.02	-746.39	891.40	5747493.92	612484.01
2365	36.68	117.25	1949.52	-1907.03	-747.77	894.06	5747492.54	612486.66
2370	36.67	117.02	1953.53	-1911.04	-749.13	896.71	5747491.18	612489.32
2375	36.66	116.79	1957.54	-1915.05	-750.48	899.38	5747489.83	612491.98
2380	36.65	116.56	1961.55	-1919.06	-751.82	902.04	5747488.49	612494.65
2385	36.63	116.33	1965.56	-1923.07	-753.15	904.72	5747487.16	612497.32
2390	36.62	116.10	1969.58	-1927.09	-754.47	907.39	5747485.84	612499.99
2395	36.70	116.26	1973.59	-1931.10	-755.79	910.07	5747484.53	612502.67
2400	36.79	116.41	1977.59	-1935.10	-757.12	912.75	5747483.20	612505.35
2405	36.87	116.57	1981.60	-1939.11	-758.45	915.43	5747481.86	612508.04
2410	36.95	116.72	1985.59	-1943.10	-759.80	918.12	5747480.51	612510.72
2415	37.03	116.88	1989.59	-1947.10	-761.16	920.80	5747479.16	612513.40
2420	37.06	117.01	1993.58	-1951.09	-762.52	923.49	5747477.79	612516.09
2425	37.01	117.12	1997.57	-1955.08	-763.89	926.17	5747476.42	612518.77
2430	36.96	117.23	2001.56	-1959.07	-765.27	928.85	5747475.05	612521.45
2435	36.91	117.33	2005.56	-1963.07	-766.65	931.52	5747473.67	612524.12
2440	36.86	117.44	2009.56	-1967.07	-768.03	934.18	5747472.29	612526.78
2445	36.81	117.55	2013.56	-1971.07	-769.41	936.84	5747470.90	612529.44
2450	36.72	117.63	2017.57	-1975.08	-770.80	939.49	5747469.52	612532.09
2455	36.62	117.70	2021.58	-1979.09	-772.18	942.14	5747468.13	612534.74
2460	36.52	117.77	2025.59	-1983.10	-773.57	944.77	5747466.74	612537.38
2465	36.42	117.84	2029.61	-1987.12	-774.96	947.40	5747465.36	612540.00
2470	36.31	117.91	2033.64	-1991.15	-776.34	950.02	5747463.97	612542.63
2475	36.29	117.96	2037.67	-1995.18	-777.73	952.64	5747462.58	612545.24
2480	36.65	117.87	2041.69	-1999.20	-779.12	955.26	5747461.19	612547.86
2485	37.01	117.79	2045.69	-2003.20	-780.52	957.91	5747459.79	612550.52
2490	37.36	117.71	2049.68	-2007.19	-781.93	960.59	5747458.39	612553.19
2495	37.72	117.62	2053.64	-2011.15	-783.34	963.29	5747456.97	612555.89
2500	38.08	117.54	2057.59	-2015.10	-784.77	966.01	5747455.55	612558.61
2505	38.37	117.53	2061.51	-2019.02	-786.20	968.75	5747454.12	612561.36
2510	38.61	117.60	2065.43	-2022.94	-787.64	971.51	5747452.68	612564.11
2515	38.85	117.66	2069.33	-2026.84	-789.09	974.28	5747451.23	612566.89
2520	39.09	117.72	2073.22	-2030.72	-790.55	977.07	5747449.77	612569.67
2525	39.33	117.79	2077.09	-2034.60	-792.02	979.86	5747448.29	612572.47
2530	39.57	117.85	2080.95	-2038.46	-793.51	982.68	5747446.81	612575.28
2535	39.66	117.96	2084.80	-2042.31	-795.00	985.49	5747445.32	612578.10
2540	39.68	118.07	2088.65	-2046.16	-796.50	988.31	5747443.82	612580.91
2545	39.71	118.19	2092.50	-2050.01	-798.00	991.13	5747442.31	612583.73
2550	39.73	118.31	2096.34	-2053.85	-799.52	993.94	5747440.80	612586.55
2555	39.76	118.42	2100.19	-2057.70	-801.04	996.76	5747439.28	612589.36
2560	39.78	118.54	2104.03	-2061.54	-802.56	999.57	5747437.75	612592.17
2565	39.58	118.62	2107.88	-2065.39	-804.09	1002.37	5747436.22	612594.97
2570	39.39	118.69	2111.74	-2069.25	-805.61	1005.16	5747434.70	612597.76
2575	39.19	118.77	2115.61	-2073.12	-807.14	1007.94	5747433.18	612600.54
2580	39.00	118.85	2119.49	-2077.00	-808.66	1010.70	5747431.66	612603.30
2585	38.80	118.92	2123.38	-2080.89	-810.17	1013.45	5747430.14	612606.05

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2590	38.65	118.95	2127.28	-2084.79	-811.69	1016.19	5747428.63	612608.79
2595	38.56	118.91	2131.19	-2088.70	-813.20	1018.92	5747427.12	612611.52
2600	38.47	118.86	2135.10	-2092.61	-814.70	1021.64	5747425.61	612614.24
2605	38.38	118.82	2139.02	-2096.53	-816.20	1024.36	5747424.11	612616.97
2610	38.29	118.77	2142.94	-2100.45	-817.70	1027.08	5747422.62	612619.68
2615	38.20	118.73	2146.87	-2104.38	-819.18	1029.80	5747421.13	612622.40
2620	38.20	118.66	2150.80	-2108.31	-820.67	1032.51	5747419.64	612625.11
2625	38.26	118.57	2154.72	-2112.23	-822.15	1035.22	5747418.16	612627.83
2630	38.33	118.48	2158.65	-2116.16	-823.63	1037.94	5747416.68	612630.55
2635	38.39	118.39	2162.57	-2120.08	-825.11	1040.67	5747415.21	612633.28
2640	38.45	118.30	2166.49	-2124.00	-826.58	1043.41	5747413.73	612636.01
2645	38.52	118.20	2170.40	-2127.91	-828.06	1046.15	5747412.26	612638.75
2650	38.61	118.18	2174.31	-2131.82	-829.53	1048.90	5747410.78	612641.50
2655	38.71	118.15	2178.21	-2135.72	-831.01	1051.65	5747409.31	612644.25
2660	38.81	118.12	2182.11	-2139.62	-832.48	1054.41	5747407.83	612647.01
2665	38.91	118.10	2186.01	-2143.52	-833.96	1057.18	5747406.35	612649.78
2670	39.01	118.07	2189.89	-2147.40	-835.44	1059.95	5747404.87	612652.55
2675	39.10	118.03	2193.78	-2151.29	-836.92	1062.73	5747403.39	612655.34
2680	39.10	117.90	2197.66	-2155.17	-838.40	1065.52	5747401.91	612658.12
2685	39.10	117.76	2201.54	-2159.05	-839.88	1068.31	5747400.44	612660.91
2690	39.10	117.62	2205.42	-2162.93	-841.34	1071.10	5747398.97	612663.70
2695	39.10	117.48	2209.30	-2166.81	-842.80	1073.89	5747397.51	612666.50
2700	39.10	117.34	2213.18	-2170.69	-844.25	1076.69	5747396.06	612669.30
2705	38.99	117.26	2217.06	-2174.57	-845.70	1079.50	5747394.62	612672.10
2710	38.77	117.25	2220.95	-2178.46	-847.14	1082.29	5747393.18	612674.89
2715	38.56	117.24	2224.86	-2182.36	-848.57	1085.06	5747391.75	612677.67
2720	38.34	117.22	2228.77	-2186.28	-849.99	1087.83	5747390.32	612680.43
2725	38.12	117.21	2232.70	-2190.21	-851.41	1090.58	5747388.91	612683.18
2730	37.91	117.19	2236.64	-2194.15	-852.81	1093.32	5747387.50	612685.92
2735	37.69	117.35	2240.59	-2198.10	-854.22	1096.04	5747386.10	612688.65
2740	37.48	117.57	2244.55	-2202.06	-855.62	1098.75	5747384.69	612691.35
2745	37.27	117.79	2248.53	-2206.03	-857.03	1101.44	5747383.28	612694.04
2750	37.06	118.01	2252.51	-2210.02	-858.45	1104.11	5747381.87	612696.71
2755	36.84	118.23	2256.51	-2214.01	-859.86	1106.76	5747380.45	612699.36
2760	36.63	118.45	2260.51	-2218.02	-861.28	1109.39	5747379.03	612701.99
2765	36.57	118.72	2264.53	-2222.04	-862.71	1112.01	5747377.60	612704.61
2770	36.51	119.00	2268.54	-2226.05	-864.15	1114.61	5747376.17	612707.22
2775	36.45	119.28	2272.56	-2230.07	-865.60	1117.21	5747374.72	612709.81
2780	36.39	119.56	2276.59	-2234.10	-867.06	1119.80	5747373.26	612712.40
2785	36.33	119.84	2280.61	-2238.12	-868.52	1122.37	5747371.79	612714.98
2790	36.34	119.97	2284.64	-2242.15	-870.00	1124.94	5747370.31	612717.54
2795	36.51	119.79	2288.67	-2246.18	-871.48	1127.51	5747368.83	612720.11
2800	36.67	119.61	2292.68	-2250.19	-872.96	1130.10	5747367.35	612722.70
2805	36.84	119.42	2296.69	-2254.20	-874.43	1132.70	5747365.88	612725.31
2810	37.01	119.24	2300.68	-2258.19	-875.91	1135.32	5747364.41	612727.93
2815	37.17	119.05	2304.67	-2262.18	-877.37	1137.96	5747362.94	612730.56
2820	37.33	118.86	2308.65	-2266.16	-878.84	1140.61	5747361.47	612733.21
2825	37.47	118.67	2312.63	-2270.14	-880.30	1143.27	5747360.01	612735.87
2830	37.62	118.47	2316.59	-2274.10	-881.76	1145.94	5747358.55	612738.55
2835	37.76	118.27	2320.55	-2278.06	-883.21	1148.63	5747357.10	612741.24
2840	37.91	118.08	2324.49	-2282.01	-884.66	1151.34	5747355.65	612743.94
2845	38.05	117.88	2328.44	-2285.95	-886.11	1154.05	5747354.21	612746.66
2850	38.11	117.73	2332.37	-2289.88	-887.54	1156.78	5747352.77	612749.39
2855	38.16	117.59	2336.30	-2293.81	-888.98	1159.52	5747351.34	612752.12
2860	38.21	117.44	2340.23	-2297.74	-890.41	1162.26	5747349.91	612754.86
2865	38.26	117.30	2344.16	-2301.67	-891.83	1165.01	5747348.49	612757.61
2870	38.31	117.15	2348.09	-2305.60	-893.25	1167.76	5747347.07	612760.37
2875	38.29	117.08	2352.01	-2309.52	-894.66	1170.52	5747345.65	612763.13
2880	38.23	117.06	2355.93	-2313.45	-896.07	1173.28	5747344.24	612765.88

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2885	38.16	117.04	2359.86	-2317.38	-897.48	1176.03	5747342.84	612768.64
2890	38.10	117.01	2363.80	-2321.31	-898.88	1178.78	5747341.43	612771.39
2895	38.03	116.99	2367.73	-2325.24	-900.28	1181.53	5747340.04	612774.13
2900	37.97	116.96	2371.67	-2329.18	-901.68	1184.27	5747338.64	612776.88
2905	37.87	117.06	2375.62	-2333.13	-903.07	1187.01	5747337.24	612779.62
2910	37.75	117.27	2379.57	-2337.08	-904.47	1189.74	5747335.84	612782.34
2915	37.63	117.48	2383.53	-2341.03	-905.88	1192.46	5747334.44	612785.06
2920	37.51	117.69	2387.49	-2345.00	-907.29	1195.16	5747333.02	612787.76
2925	37.39	117.89	2391.46	-2348.97	-908.71	1197.85	5747331.61	612790.45
2930	37.27	118.10	2395.43	-2352.94	-910.13	1200.52	5747330.18	612793.13
2934	37.31	118.15	2398.62	-2356.13	-911.27	1202.66	5747329.04	612795.26
2935	37.34	118.15	2399.41	-2356.92	-911.56	1203.20	5747328.75	612795.80
2936	37.36	118.14	2400.21	-2357.72	-911.85	1203.73	5747328.47	612796.33
2937	37.39	118.14	2401.00	-2358.51	-912.13	1204.27	5747328.18	612796.87
2938	37.42	118.14	2401.80	-2359.31	-912.42	1204.80	5747327.89	612797.40
2939	37.44	118.14	2402.59	-2360.10	-912.71	1205.34	5747327.61	612797.94
2940	37.47	118.14	2403.38	-2360.89	-912.99	1205.87	5747327.32	612798.48
2941	37.49	118.14	2404.18	-2361.69	-913.28	1206.41	5747327.03	612799.01
2942	37.52	118.14	2404.97	-2362.48	-913.57	1206.95	5747326.75	612799.55
2943	37.54	118.14	2405.76	-2363.27	-913.86	1207.48	5747326.46	612800.09
2944	37.57	118.14	2406.56	-2364.07	-914.14	1208.02	5747326.17	612800.62
2945	37.60	118.14	2407.35	-2364.86	-914.43	1208.56	5747325.88	612801.16
2946	37.62	118.13	2408.14	-2365.65	-914.72	1209.10	5747325.60	612801.70
2947	37.65	118.13	2408.93	-2366.44	-915.01	1209.64	5747325.31	612802.24
2948	37.67	118.13	2409.72	-2367.23	-915.30	1210.17	5747325.02	612802.78
2949	37.70	118.13	2410.52	-2368.03	-915.58	1210.71	5747324.73	612803.32
2950	37.72	118.13	2411.31	-2368.82	-915.87	1211.25	5747324.44	612803.86
2951	37.75	118.13	2412.10	-2369.61	-916.16	1211.79	5747324.15	612804.40
2952	37.77	118.13	2412.89	-2370.40	-916.45	1212.33	5747323.86	612804.94
2953	37.80	118.13	2413.68	-2371.19	-916.74	1212.87	5747323.58	612805.48
2954	37.83	118.13	2414.47	-2371.98	-917.03	1213.41	5747323.29	612806.02
2955	37.85	118.13	2415.26	-2372.77	-917.32	1213.96	5747323.00	612806.56
2956	37.88	118.12	2416.05	-2373.56	-917.61	1214.50	5747322.71	612807.10
2957	37.90	118.12	2416.84	-2374.35	-917.90	1215.04	5747322.42	612807.64
2958	37.93	118.12	2417.63	-2375.14	-918.19	1215.58	5747322.13	612808.18
2959	37.95	118.12	2418.42	-2375.93	-918.48	1216.12	5747321.84	612808.73
2960	37.98	118.12	2419.20	-2376.71	-918.77	1216.67	5747321.55	612809.27
2961	37.99	118.12	2419.99	-2377.50	-919.06	1217.21	5747321.26	612809.81
2962	37.99	118.12	2420.78	-2378.29	-919.35	1217.75	5747320.97	612810.35
2963	38.00	118.12	2421.57	-2379.08	-919.64	1218.29	5747320.68	612810.90
2964	38.00	118.12	2422.36	-2379.86	-919.93	1218.84	5747320.39	612811.44
2965	38.01	118.12	2423.14	-2380.65	-920.22	1219.38	5747320.10	612811.98
2966	38.01	118.12	2423.93	-2381.44	-920.51	1219.92	5747319.81	612812.53
2967	38.02	118.12	2424.72	-2382.23	-920.80	1220.47	5747319.52	612813.07
2968	38.02	118.12	2425.51	-2383.02	-921.09	1221.01	5747319.23	612813.61
2969	38.03	118.12	2426.29	-2383.80	-921.38	1221.55	5747318.93	612814.16
2970	38.04	118.12	2427.08	-2384.59	-921.67	1222.10	5747318.64	612814.70
2971	38.04	118.12	2427.87	-2385.38	-921.96	1222.64	5747318.35	612815.24
2972	38.05	118.12	2428.66	-2386.17	-922.25	1223.18	5747318.06	612815.79
2973	38.05	118.12	2429.45	-2386.95	-922.54	1223.73	5747317.77	612816.33
2974	38.06	118.12	2430.23	-2387.74	-922.83	1224.27	5747317.48	612816.87
2975	38.06	118.12	2431.02	-2388.53	-923.12	1224.81	5747317.19	612817.42
2976	38.07	118.12	2431.81	-2389.32	-923.41	1225.36	5747316.90	612817.96
2977	38.07	118.12	2432.59	-2390.10	-923.70	1225.90	5747316.61	612818.51
2978	38.08	118.12	2433.38	-2390.89	-923.99	1226.45	5747316.32	612819.05
2979	38.09	118.12	2434.17	-2391.68	-924.29	1226.99	5747316.03	612819.59
2980	38.09	118.12	2434.95	-2392.47	-924.58	1227.53	5747315.74	612820.14
2981	38.10	118.12	2435.74	-2393.25	-924.87	1228.08	5747315.45	612820.68
2982	38.10	118.12	2436.53	-2394.04	-925.16	1228.62	5747315.16	612821.23
2983	38.11	118.12	2437.32	-2394.83	-925.45	1229.17	5747314.87	612821.77
2984	38.11	118.12	2438.10	-2395.61	-925.74	1229.71	5747314.57	612822.31

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2985	38.12	118.12	2438.89	-2396.40	-926.03	1230.26	5747314.28	612822.86
2986	38.12	118.12	2439.68	-2397.19	-926.32	1230.80	5747313.99	612823.40
2987	38.13	118.12	2440.46	-2397.97	-926.61	1231.35	5747313.70	612823.95
2988	38.14	118.12	2441.25	-2398.76	-926.90	1231.89	5747313.41	612824.49
2989	38.14	118.12	2442.04	-2399.55	-927.20	1232.44	5747313.12	612825.04
2990	38.16	118.10	2442.82	-2400.33	-927.49	1232.98	5747312.83	612825.58
2991	38.18	118.08	2443.61	-2401.12	-927.78	1233.52	5747312.54	612826.13
2992	38.19	118.07	2444.40	-2401.91	-928.07	1234.07	5747312.25	612826.67
2993	38.21	118.05	2445.18	-2402.69	-928.36	1234.62	5747311.95	612827.22
2994	38.22	118.03	2445.97	-2403.48	-928.65	1235.16	5747311.66	612827.76
2995	38.24	118.01	2446.75	-2404.26	-928.94	1235.71	5747311.37	612828.31
2996	38.26	118.00	2447.54	-2405.05	-929.23	1236.25	5747311.08	612828.86
2997	38.27	117.98	2448.32	-2405.83	-929.52	1236.80	5747310.79	612829.40
2998	38.29	117.96	2449.11	-2406.62	-929.81	1237.35	5747310.50	612829.95
2999	38.31	117.95	2449.89	-2407.40	-930.11	1237.90	5747310.21	612830.50
3000	38.32	117.93	2450.68	-2408.19	-930.40	1238.44	5747309.92	612831.05
3001	38.34	117.91	2451.46	-2408.97	-930.69	1238.99	5747309.63	612831.59
3002	38.35	117.90	2452.25	-2409.76	-930.98	1239.54	5747309.34	612832.14
3003	38.37	117.88	2453.03	-2410.54	-931.27	1240.09	5747309.05	612832.69
3004	38.39	117.86	2453.81	-2411.32	-931.56	1240.64	5747308.76	612833.24
3005	38.40	117.85	2454.60	-2412.11	-931.85	1241.19	5747308.47	612833.79
3006	38.42	117.83	2455.38	-2412.89	-932.14	1241.74	5747308.18	612834.34
3007	38.43	117.81	2456.16	-2413.67	-932.43	1242.29	5747307.89	612834.89
3008	38.45	117.80	2456.95	-2414.46	-932.72	1242.84	5747307.60	612835.44
3009	38.47	117.78	2457.73	-2415.24	-933.01	1243.39	5747307.31	612835.99
3010	38.48	117.76	2458.51	-2416.02	-933.30	1243.94	5747307.02	612836.54
3011	38.50	117.74	2459.30	-2416.81	-933.59	1244.49	5747306.73	612837.09
3012	38.51	117.73	2460.08	-2417.59	-933.88	1245.04	5747306.44	612837.64
3013	38.53	117.71	2460.86	-2418.37	-934.17	1245.59	5747306.15	612838.19
3014	38.55	117.69	2461.64	-2419.15	-934.46	1246.14	5747305.86	612838.75
3015	38.56	117.68	2462.43	-2419.93	-934.75	1246.69	5747305.57	612839.30
3016	38.58	117.66	2463.21	-2420.72	-935.04	1247.25	5747305.28	612839.85
3017	38.59	117.65	2463.99	-2421.50	-935.33	1247.80	5747304.99	612840.40
3018	38.60	117.64	2464.77	-2422.28	-935.62	1248.35	5747304.70	612840.95
3019	38.62	117.62	2465.55	-2423.06	-935.91	1248.90	5747304.41	612841.51
3020	38.63	117.61	2466.33	-2423.84	-936.20	1249.46	5747304.12	612842.06
3021	38.64	117.59	2467.11	-2424.62	-936.48	1250.01	5747303.83	612842.61
3022	38.66	117.58	2467.90	-2425.41	-936.77	1250.56	5747303.54	612843.17
3023	38.67	117.56	2468.68	-2426.19	-937.06	1251.12	5747303.25	612843.72
3024	38.69	117.55	2469.46	-2426.97	-937.35	1251.67	5747302.96	612844.28
3025	38.70	117.54	2470.24	-2427.75	-937.64	1252.23	5747302.67	612844.83
3026	38.71	117.52	2471.02	-2428.53	-937.93	1252.78	5747302.38	612845.38
3027	38.73	117.51	2471.80	-2429.31	-938.22	1253.34	5747302.10	612845.94
3028	38.74	117.49	2472.58	-2430.09	-938.51	1253.89	5747301.81	612846.49
3029	38.75	117.48	2473.36	-2430.87	-938.80	1254.45	5747301.52	612847.05
3030	38.77	117.47	2474.14	-2431.65	-939.09	1255.00	5747301.23	612847.60
3031	38.78	117.45	2474.92	-2432.43	-939.38	1255.56	5747300.94	612848.16
3032	38.80	117.44	2475.70	-2433.21	-939.66	1256.11	5747300.65	612848.72
3033	38.81	117.42	2476.48	-2433.99	-939.95	1256.67	5747300.36	612849.27
3034	38.82	117.41	2477.26	-2434.76	-940.24	1257.23	5747300.07	612849.83
3035	38.84	117.39	2478.03	-2435.54	-940.53	1257.78	5747299.78	612850.39
3036	38.85	117.38	2478.81	-2436.32	-940.82	1258.34	5747299.50	612850.94

APPENDIX 2a

FORTESCUE A17A

Petrophysics Evaluation Summary

Esso Australia Pty Ltd.

Exploration Department

Fortescue A17A
Formation Evaluation Report

Scott Dyksterhuis

March 08

INTRODUCTION

The objective of the FTA-A17A well was to target a truncation attic trap between FTA-A21 and FTA-A18 to develop remaining FM13J and FM14B/C oil within the area. A secondary target also intersected was the remaining oil within the M101D and M101E reservoirs. The FTA-A17 well was plugged and abandoned in 2001 with an RN plug set in the tubing and a balanced cement plug set above the tubing stub. In September 2006, Rig 22 cut and pulled the 75/8" casing from 728.0 mMDRT prior to setting a kick off plug at 614.0 mMDRT.

The FTA-A17A well commenced on 05th September 2007. However, a 2nd kick off plug was set after the initial attempt to kick off was unsuccessful. An 8½" Reed Hycalog HP21G Tri-cone bit, with 3 x 20 jets, in conjunction with a motorised steerable assembly was run in hole to 635.0 mMDRT where the top of cement was tagged. As the hole had been displaced to mud during the previous attempt to kick off the cement was drilled with 10.5 ppg Accolade NAF (Non Aqueous Fluid) mud to 660.0 mMDRT. Kick off was successfully established on 08th September 2007 through time drilling from 660.0 mMDRT to 667.0 mMDRT where 80% formation was seen in samples.

A Reed Hycalog RSX616M-D2 bit, with 6 x 18 jets, was made up with a rotary steerable assembly and LWD and run in the hole to 656.0 mMDRT where the bit was washed to bottom. The 8½" production hole was drilled from 763.0 mMDRT to 811.0 mMDRT where, due to erratic pressure fluctuations the hole was circulated clean whilst trouble shooting prior to drilling ahead. However after drilling 1.0 m to 812.0 mMDRT with erratic pressure readings again it was decided to pull the bit out of the hole. Whilst backreaming, tight hole was encountered and the hole started to pack off. The string was reciprocated while rotating until freed, then pumped out of hole to 621.0 mMDRT and pulled out of hole on elevators. Once at surface the ARC-6 and the PD Xceed were found to have cement rubble through out and so were laid out. The bit drilled 49.0 m in 0.8 on bottom hours with an average ROP of 61.25 m/hr and was graded 1-1-WT-A-X-IN-PN-PP.

A new RSS Powerdrive Xceed BHA was run in hole to 648.0 mMDRT with the re-run Reed Hycalog RSX616M-D2 bit and then washed to 812.0 mMDRT, reaming as required. The 8½" production hole was drilled, steered and surveyed from 812.0 mMDRT to 1102.0 mMDRT where a loss in real time communication between the ARC-6 and Telescope was encountered. The hole was circulated from 1102.0 mMDRT to 1073.0 mMDRT whilst trouble shooting the problem. However down linking to the Xceed and steering was still possible and drilling was resumed without real time communication between the ARC-6 and the Telescope. The 8½" production hole was drilled from 1102.0 mMDRT to 2893.0 mMDRT where bottoms up was circulated 3 times whilst adding Baracarb prior to drilling pay zone. The bit was washed back to bottom and drilling, steering and surveying 8½" production hole resumed from 2893.0 mMDRT. FTA-A17A was TD'd with a Total Depth of 3036.0 mMDRT on 14 September 2007 at 17:45 hours.

The bit was back reamed out of the hole from 3036.0 mMDRT to 2807.0 mMDRT and then pumped out of the hole from 2807.0 mMDRT. Tight hole was encountered from 957.0 mMDRT to 932.0 mMDRT and so the bit was run back in hole to 979.0 mMDRT. The string was rotated whilst reciprocating until the hole was clean, pumped out of hole to 648.0 mMDRT and then pulled out of hole to surface on elevators. This bit drilled 2224.0 mMDRT in 37.9 on bottom hours with an average ROP of 58.7 m/hr and was graded 2-2-WT/CT-A-X-IN-PN-TD. A wiper trip was conducted prior to running the 7" production Casing.

A total of 242 joints of 7" production casing, casing shoe track were run to a depth of 3031.0 mMDRT and cemented as per the program. A 27/8" completion tubing string was run however due to an obstruction at 2774.0 mMDRT whilst running CCL wireline tools the 27/8" completion tubing had to be laid out to 2045.0 mMDRT and new 27/8" tubing was run in hole from 2045.0 mMDRT to 2908.8 mMDRT. The casing slip / seal assembly was run and the Xmas tree was installed. The completion of FTA-A17A finished at 18.00 hours on the 29th September and the well was handed over to production.

The Schlumberger LWD logs were analysed for porosity, water saturation and net pay over the interval 2935 – 3000 mMDRT.

Note that all depths quoted in this report are logged mMDRT unless otherwise specified.

DATA

Data from the following logging surveys were used in the interpretation:

Survey/Log	Suite	Company	Top (m MDRT)	Bottom (m MDRT)
arcVISION Gamma Ray, Resistivity (phase shift), Bulk Density (ROBB) and Compensated Neutron (TNPH)	1	Schlumberger	2935	3000

Deviation
The well deviation over the reservoir interval was approximately 38° towards an average azimuth of 118°.

Mud Data

Depth:	763m to 812m MDRT	812m to 3036m MDRT
Mud Type:	Accolade SBM	Accolade SBM
Mud Weight:	10.60 ppg	10.65 ppg
Chlorides:	44,673 mg/L	43,918 mg/L
Rm:	N/A	N/A
Rmf:	N/A	N/A
Rmc:	N/A	N/A
KCL	N/A	N/A

Depth (m MDRT)	Temperature (°C)
3036	90

Hole Size
763 - 3036 mMDRT 8 ½ inches

Data Quality and Processing
Data quality was generally good. Oil based mud filtrate invasion was interpreted between 2970 - 2974mMD based on the inverse resistivity profile and elevated Pe measurements related to baryte concentration. The data in this region were edited by the analyst to enable calculation of results more consistent with formation properties. See below for further discussion.

INTERPRETATION

Logs Used
The primary logs used in the interpretation were the gamma ray curve (GR_ARC), deep phase shifted resistivity curve (P40H), ROBB (bulk density) and TNPH (thermal neutron porosity). The photoelectric density curve (PEB) was not used as it was deemed overly affected by the borehole conditions and drilling fluid. A coal flag (Flag_coal) was calculated, but no hydrocarbon flag (Flag_rhoh) was required as oil is the only hydrocarbon present, and has a density similar to water. A temperature log was created using the following data:

Depth (mMDRT)	Temperature (deg. C)
111.5	10
3036	100

The temperature at depth 111.5 mMDRT represents the temperature of the sea-bed and the temperature at 3036 mMDRT is the estimated formation temperature equal to BHT + 10 degC.

Formation Water Salinity
R_{wa} analysis was run using a = 1, m = 1.8 and n = 2 with an apparent salinity of 50kppm NaCleq to provide mean resultant Sor values of about 10-20s.u. Residual oil intervals were chosen for this calibration in the absence of any 100% water saturated intervals. Intervals were interpreted to be either oil bearing, or only partially swept once Sor > 20 s.u.

Hydrocarbon Type Identification

A combination of resistivity invasion profiles, calculated water saturation, and resistivity / porosity / clay volume relationships were used to determine fluid types present in the reservoirs.

	Depth		
	Top	Bottom	
Zone	MD (m)	MD (m)	Comments
TOL	2934.09	2942.8	-
TCC	2942.8	2944.2	Possible Oil
F14A	2944.2	2950.7	Oil Pay
F14B_OIL	2950.7	2951.7	Oil Pay
F14B_RES	2951.7	2955.3	Residual
F14C	2955.3	2961.1	Residual
F14D	2961.1	2965.1	Siltstone
FFHB_OIL	2965.1	2966.5	Oil Pay
FFHB_RES	2966.5	2971.4	Residual
FFHD	2971.4	2975.1	Residual
MC4	2975.1	2985.5	-
MC4_OIL	2985.5	2990.4	Oil Pay
MC3	2990.4	2994.5	Siltstone
MC3_RES	2994.5	3003.2	Residual

Table 1 Zones and interpreted fluid types

Clay Volume, Porosity and Water Saturation
Schlumberger's Geoframe ELAN+ module was used to determine mineral volumes, total porosity, effective porosity as well as total and effective water saturation. The details of the models are illustrated in the figures and tables below.

ELAN+ MODEL

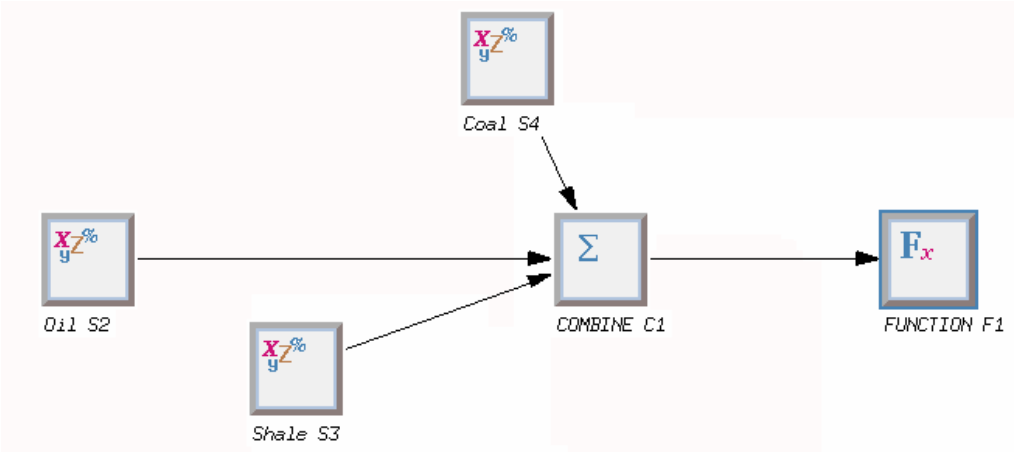


Figure 1 ELAN+ model and module configuration

	Compound Name Spec	FORTESCUE A17A
TEMP_CH	TEMP;*	TEMP.WE TEMP@WELLEDIT;1 .WE [A2578898]
RHOB_IFAC_CH	IFRH;*	
NPHI_IFAC_CH	INPH;*	
RHOB_CH	ROBB;*	ROBB ROBB@Memory;1 [A2578707]
NPHI_CH	TNPH;*	TNPH TNPH@Memory;1 [A2578705]
PHIT_CH	TNPH;*	TNPH TNPH@Memory;1 [A2578705]
CUDC_CH/RT_CH	P40H;*	P40H.WELLEDIT P40H@Memory;2 .WELLEDIT [A2
GR_CH	GR_ARC;*	GR_ARC GR_ARC@Memory;1 [A2578679]
M_CH	MXP;*	
N_CH	SXP;*	
PRB2_CH	PRB2;*	
PRB3_CH	PRB3;*	
PRB4_CH	FLAG_COAL;*	FLAG_COAL.WELLEDIT FLAG_COAL@WELLEDIT;4

Figure 2 ELAN+ input channels

ELAN Global Parameters

Reference Index	MD
Processing Interval	3870m To 4160 m
Sampling Rate	0.1m
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

ELAN Process Definition

```
process Solve 2 {
        label "Oil" ;
        saveOutput ON ;
        equations RHOB NPHI CUDC_DWA GR CT2 ;
        volumes QUAR ORTH ILLI XWAT UWAT XOIL UOIL ;
        constraintZoning {
                ( "UNDEFINED"  9959.646484 -999.250000 ) };
        constraints {       ("UNDEFINED" OilBaseMud_SXO_lt_SW )};
        constraints {       ("UNDEFINED" IrreducibleXWater )};
        constraints {       ("UNDEFINED" IrreducibleUWater )};
       {pyrcut=if((PRB2_CH>2490),PYRI,0)
constraint(pyrlim,PYRI<pyrcut)};
```

```
process Solve 3 {
        label "Shale" ;
```

```
        equations RHOB NPHI CUDC_DWA GR ;
        volumes QUAR PYRI ILLI XWAT UWAT ;
        constraintZoning {
                ( "UNDEFINED"  9959.646484 -999.250000 ) };
       {pyrcut=if((PRB2_CH>2490),PYRI,0)
constraint(pyrlim,PYRI<pyrcut)};
```

```
process Solve 4 {
        label "Coal" ;
        equations RHOB ;
        volumes COAL ;
        constraintZoning {
                ( "UNDEFINED"  9959.646484 -999.250000 ) };
```

```
process Combine 1 {
        combineMethod {
                ( "C_Clastics" 9959.646484 INT_AVE ) };
        combineOrder SOL_2 SOL_3 SOL_4  ;
       {probability(SOL.4, PRB4_CH)

prob3 = linear(ILLI_VOL.SOL.3, 0.3, 0, 0.7, 1)
probability(SOL.3, prob3)
```

```
process Function 1 {
        outputs (
                VCL
                SXWI
                SWT
                SUWI
                PIGN
                PHIT );
       {swt_cmp=if((PRB4_CH > 0),1,(UWAT_VOL + XBWA_VOL)/(UWAT_VOL + XBWA_VOL +
UOIL_VOL))
output(SWT, swt_cmp)
```

RESULTS AND DISCUSSION

Elevated resistivity response in the middle of a sand unit at roughly 2972mMD (Figure 3) is interpreted here to be caused by invasion of oil based mud filtrate based on low resistivity values in the same sand immediately above and below the interval along with a “reverse invasion profile” throughout the interval.

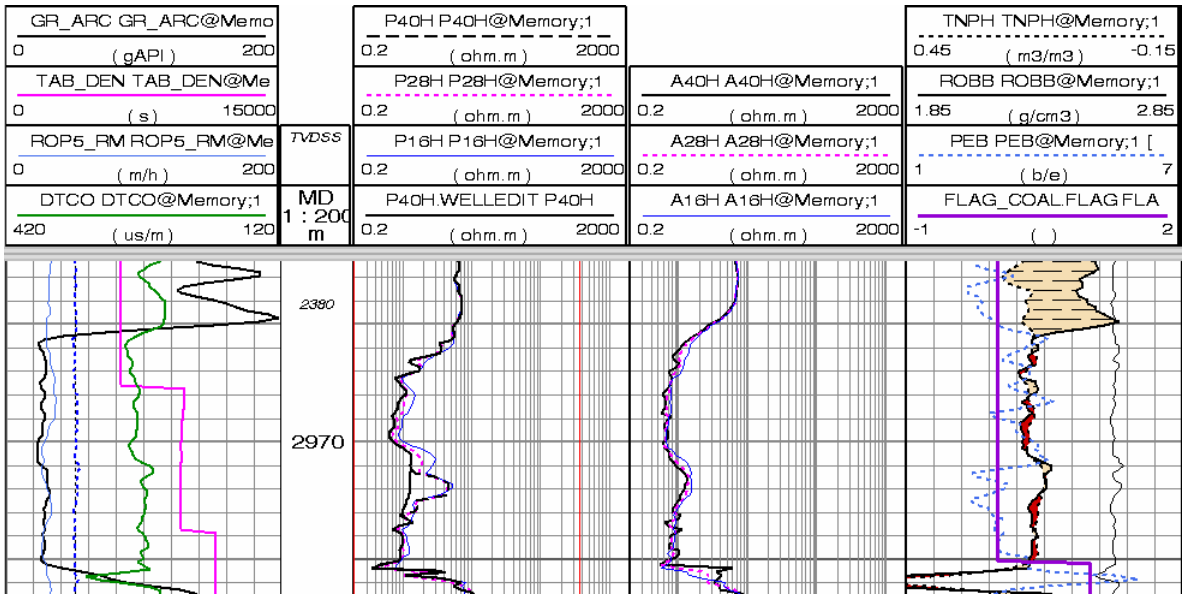


Figure 3 This figure shows the location of the zone where oil based mud filtrate invasion was removed from the deep resistivity curve. The original deep resistivity shown by dashed black line and edited deep resistivity curve shown by solid black line. The final curve is more consistent with the deep reading attenuation curve.

The interval TCC (2942.5-2943.7m MD) does not calculate any reservoir pay at the 12pu Phie cut-off, however, does calculate some reservoir pay at the 8 pu Phie cut-off. It is recommended that this interval be perforated in order to capture this possible reservoir.

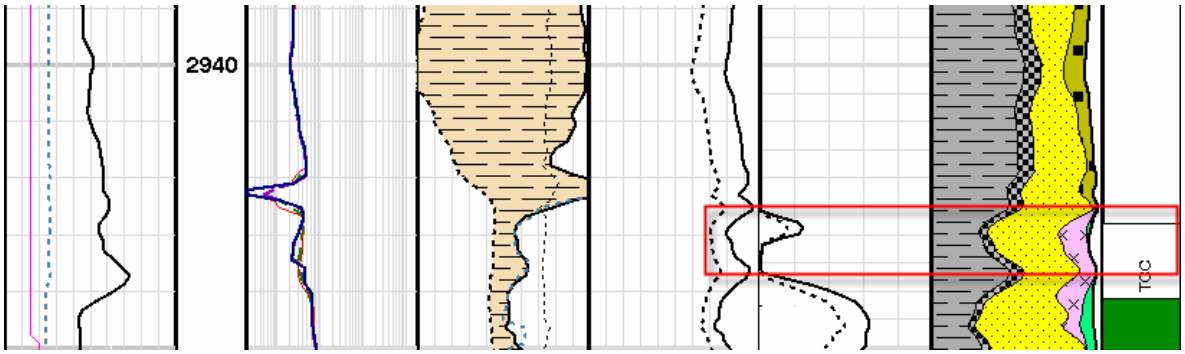


Figure 4 This figure highlights the potential reservoir in the TCC interval. This interval only calculates net pay using the lower 8pu Phie cut-off.

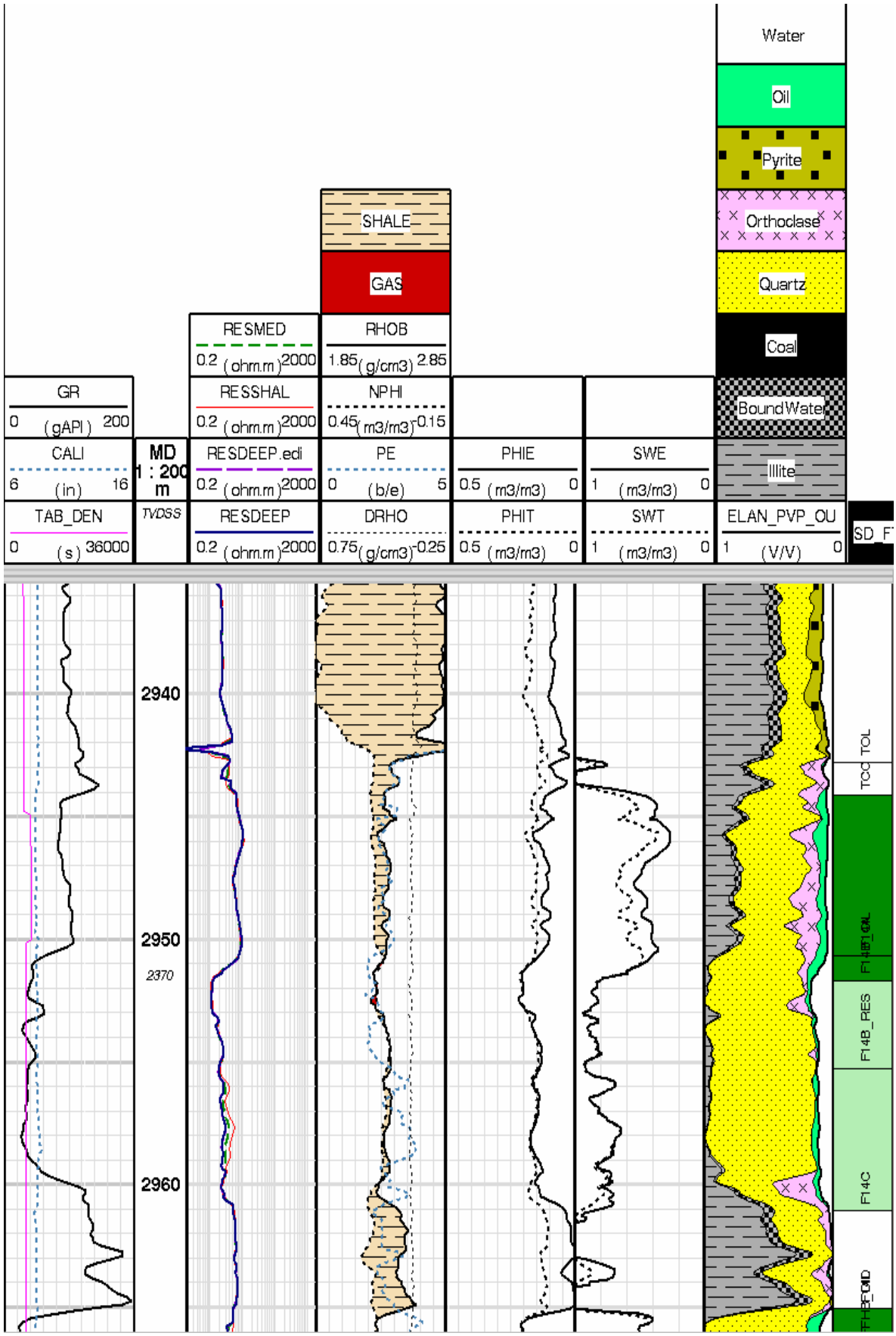


Figure 5 Fortescue A17A summary plot of formation evaluation between 2937 – 2966m MDRT

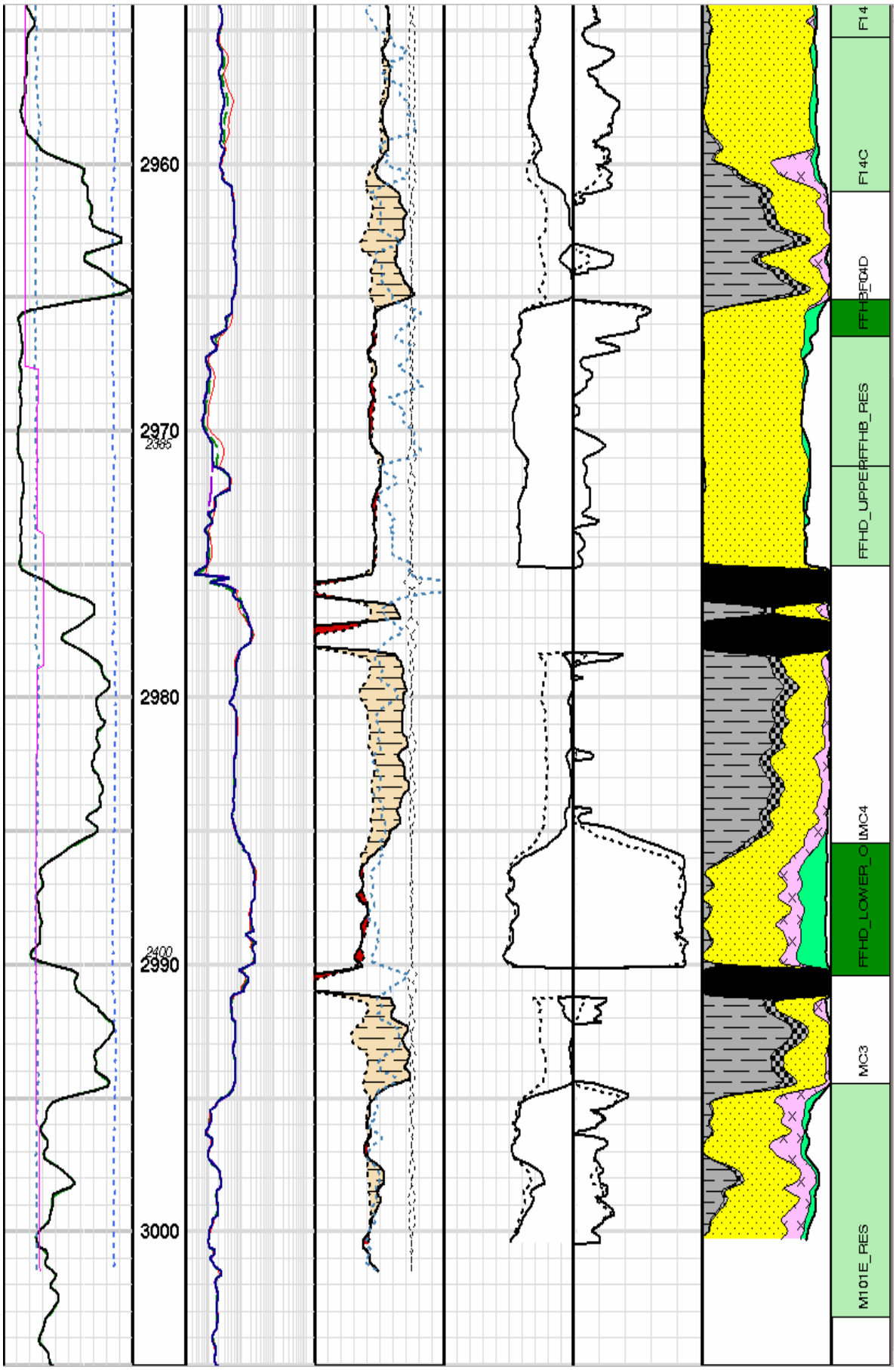


Figure 6 Fortescue A17A summary plot of formation evaluation between 2955 – 3005m MDRT

FORTESCUE A17A

Petrophysical summary 2935 - 3000 mMD

Depth reference: MDKB

Average Vcl, Phie, Swe based on Phie cutoff
Phie => 0.12

	Depth		Thickness						N/G	Average Parameters Net Pay			
	Top	Bottom	Gross		Net Reservoir		Net Pay						
Zone	MD (m)	MD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	Ratio	Clay Volume (m3/m3)	Porosity (m3/m3)	Water Saturation (m3/m3)	Comments
TOL	2934.1	2942.8	8.7	6.9	0.0	0.0	0.0	0.0	0.00				-
TCC	2942.8	2944.2	1.4	1.1	0.0	0.0	0.0	0.0	0.00				-
F14A	2944.2	2950.7	6.5	5.2	2.3	1.8	2.3	1.8	0.35	0.222	0.134	0.346	Oil Pay
F14B_OIL	2950.7	2951.7	1.0	0.8	1.0	0.8	1.0	0.8	1.00	0.056	0.180	0.574	Oil Pay
F14B_RES	2951.7	2955.3	3.6	2.9	3.6	2.9	-	-	1.00	0.049	0.164	0.855	Residual
F14C	2955.3	2961.1	5.9	4.6	5.3	4.2	-	-	0.90	0.081	0.148	0.747	Residual
F14D	2961.1	2965.1	4.0	3.2	0.0	0.0	-	-	0.00				Siltstone
FFHB_OIL	2965.1	2966.5	1.4	1.1	1.2	1.0	1.2	1.0	0.87	0.042	0.192	0.492	Oil Pay
FFHB_RES	2966.5	2971.4	4.9	3.8	4.9	3.8	-	-	1.00	0.007	0.216	0.886	Residual
FFHD_UPPER	2971.4	2975.1	3.8	3.0	3.8	3.0	-	-	1.00	0.010	0.200	0.906	Residual
MC4	2975.1	2985.5	10.4	8.2	0.1	0.1	-	-	0.01	0.000	0.151	0.982	-
FFHD_LOWER_OIL	2985.5	2990.4	4.9	3.9	4.4	3.5	4.4	3.5	0.90	0.071	0.231	0.149	Oil Pay
MC3	2990.4	2994.5	4.1	3.2	0.0	0.0	-	-	0.00				Siltstone
M101E_RES	2994.5	3003.2	8.7	6.8	5.3	4.2	-	-	0.89	0.109	0.194	0.778	Residual

Table 2 Fortescue A17A statistics using a 12 pu PHIE cut-off for net pay.

FORTESCUE A17A

Petrophysical summary 2935 - 3000 mMD

Depth reference: MDKB

Average Vcl, Phie, Swe based on Phie cutoff
Phie => 0.08

	Depth		Thickness						N/G	Average Parameters Net Pay			
	Top	Bottom	Gross		Net Reservoir		Net Pay						
Zone	MD (m)	MD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	Ratio	Clay Volume (m3/m3)	Porosity (m3/m3)	Water Saturation (m3/m3)	Comments
TOL	2934.1	2942.8	8.7	6.9	0.0	0.0	0.0	0.0	0.00				-
TCC	2942.8	2944.2	1.4	1.1	0.7	0.6	0.7	0.6	0.51	0.364	0.090	0.755	Possible Oil Pay
F14A	2944.2	2950.7	6.5	5.2	6.4	5.0	6.4	5.0	0.98	0.261	0.117	0.395	Oil Pay
F14B_OIL	2950.7	2951.7	1.0	0.8	1.0	0.8	1.0	0.8	1.00	0.056	0.180	0.574	Oil Pay
F14B_RES	2951.7	2955.3	3.6	2.9	3.6	2.9	-	-	1.00	0.049	0.164	0.855	Residual
F14C	2955.3	2961.1	5.9	4.6	5.4	4.3	-	-	0.92	0.089	0.147	0.746	Residual
F14D	2961.1	2965.1	4.0	3.2	0.0	0.0	-	-	0.00				Siltstone
FFHB_OIL	2965.1	2966.5	1.4	1.1	1.2	1.0	1.2	1.0	0.87	0.042	0.192	0.492	Oil Pay
FFHB_RES	2966.5	2971.4	4.9	3.8	4.9	3.8	-	-	1.00	0.007	0.216	0.886	Residual
FFHD_UPPER	2971.4	2975.1	3.8	3.0	3.8	3.0	-	-	1.00	0.010	0.200	0.906	Residual
MC4	2975.1	2985.5	10.4	8.2	0.2	0.1	-	-	0.02	0.196	0.120	0.771	-
FFHD_LOWER_OIL	2985.5	2990.4	4.9	3.9	4.6	3.6	4.6	3.6	0.94	0.085	0.225	0.153	Oil Pay
MC3	2990.4	2994.5	4.1	3.2	0.0	0.0	-	-	0.00				Siltstone
M101E_RES	2994.5	3003.2	8.7	6.8	5.8	4.5	-	-	0.97	0.129	0.187	0.776	Residual

Table 3 Fortescue A17A statistics using an 8 pu PHIE cut-off for net pay.

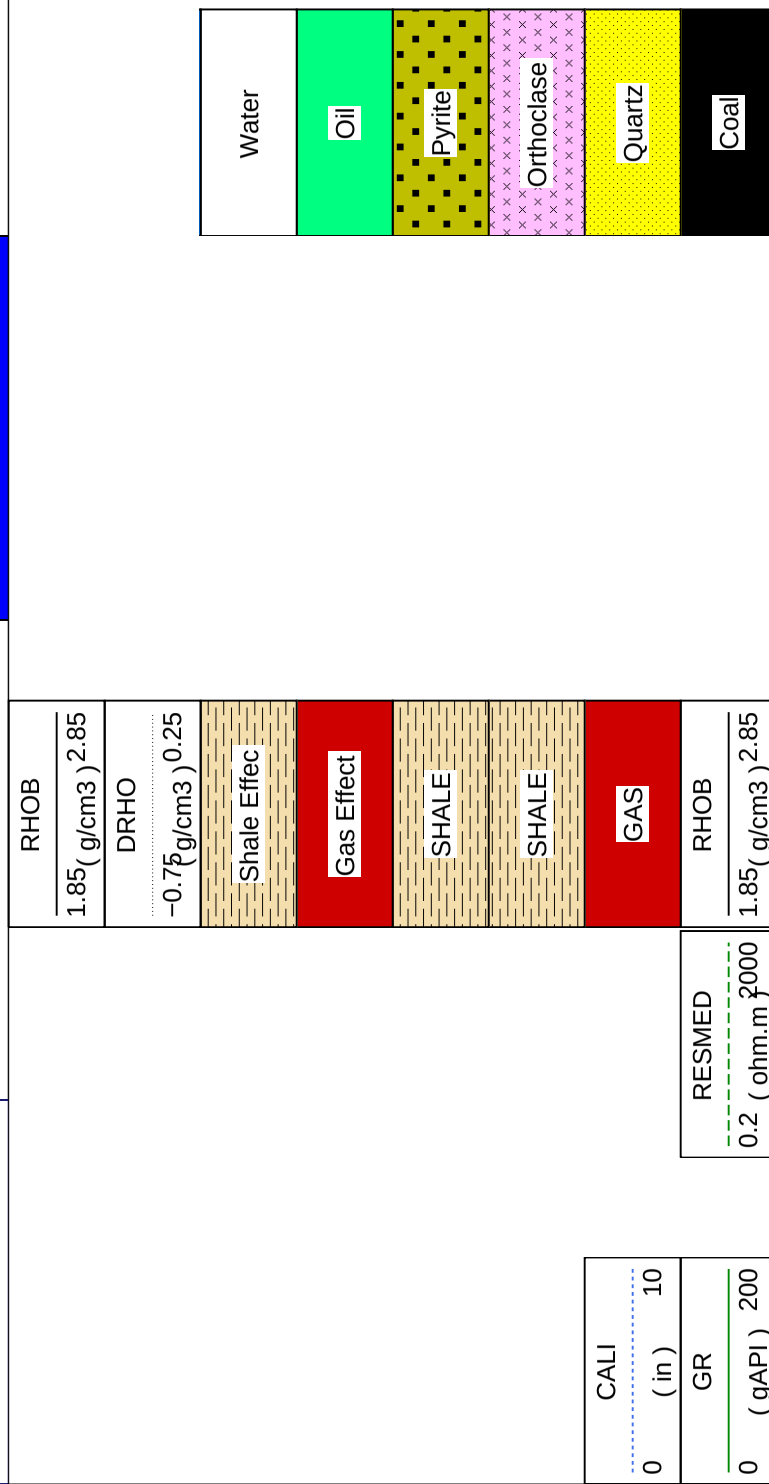
ExxonMobil

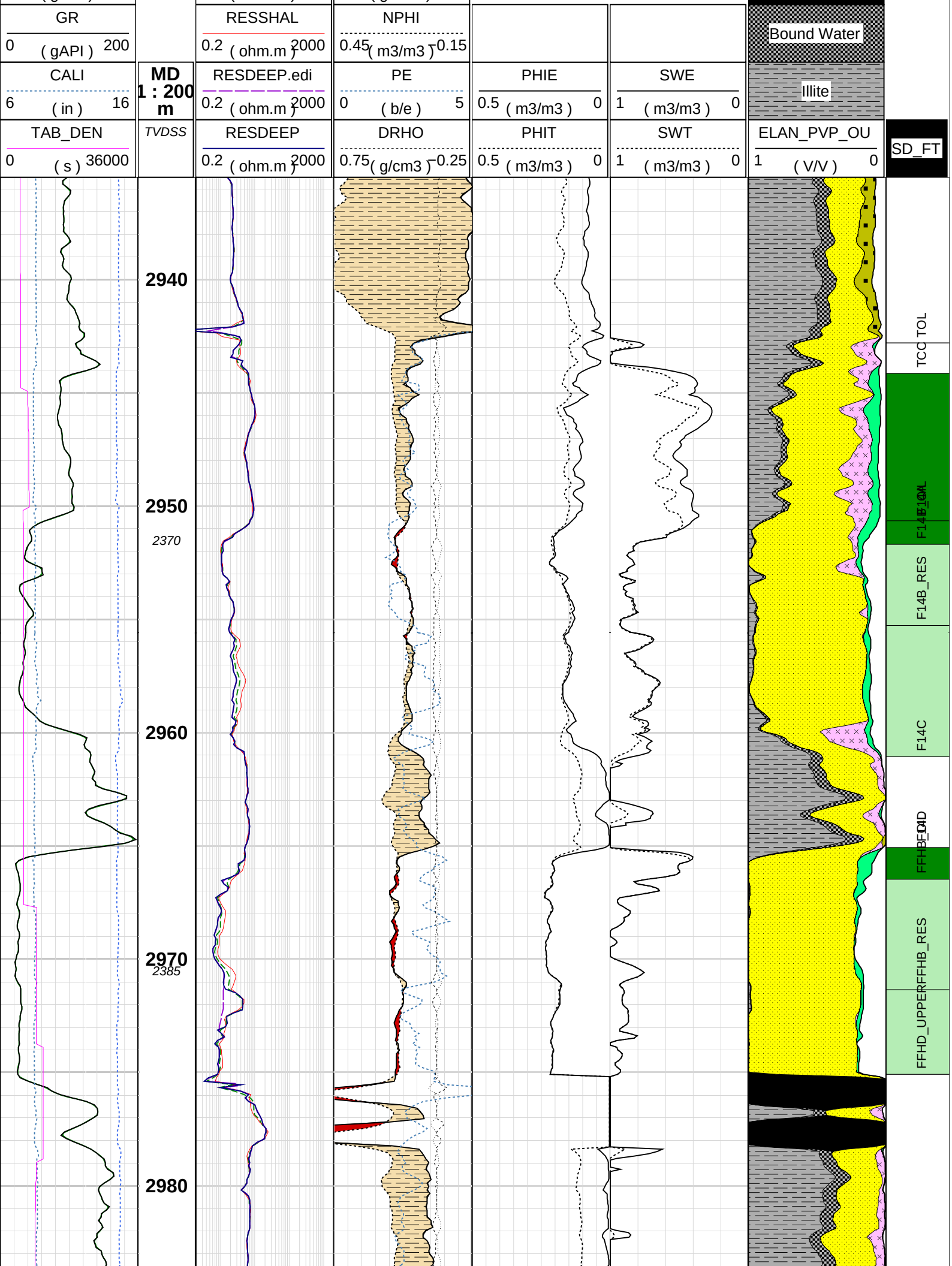
FORTESCUE A17A

Petrophysical Analysis

COMPANY:	Esso Australia Pty. Ltd.
WELL:	FORTESCUE A17A
FIELD:	FORTESCUE
STATE:	VIC
COUNTRY:	Australia
PETROPHYSICIST:	S. Dyksterhuis

Date Logged:	<Date>	Date Processed:
Well Location:	<FL>	<PROCESS_DATE>
Elevations:	K.B. 42.49 m	
Latitude:	<LATI>	D.F. <DF>
Longitude:	<LONG>	G.L. <GL>




GR
0 (gAPI) 200
CALI
6 (in) 16
TAB_DEN
0 (s) 36000
MD
1 : 200
m
TVDSS
RESSHAL
0.2 (ohm.m) 2000
RESDEEP.edi
0.2 (ohm.m) 2000
RESDEEP
0.2 (ohm.m) 2000
NPHI
0.45 (m3/m3) 0.15
PE
0 (b/e) 5
DRHO
0.75 (g/cm3) 0.25
PHIE
0.5 (m3/m3) 0
PHIT
0.5 (m3/m3) 0
SWE
1 (m3/m3) 0
SWT
1 (m3/m3) 0
Bound Water
Illite
ELAN_PVP_OU
1 (V/V) 0
SD_FT
2940
2950
2370
2960
2970
2385
2980
TCC_TOL
F14B_TOP
F14B_RES
F14C
FFHB_TOP
FFHD_UPPER
FFHB_RES

2400
2990
3000
FFHD_LOWER_O
LMC4
MC3
M101E_RES

APPENDIX 3a

FORTESCUE A17A

Lithology/Show Descriptions

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
			Geologist on rig at 1100 hrs, 06 September 2007. Kick off 8½" section at 656 mMDRT / 608.9 mTVDRT / -566.4 mTVDSS at 17:15 hrs, 05 September 2007.
656	662	Tr	CALCILUTITE: light brown, light olive grey, trace lithics, trace carbonaceous specks, soft to rare firm, sub-blocky. 100% Cement
662	663	10	CALCILUTITE: as above. 90% Cement
663	664	30	CALCILUTITE: as above. 70% Cement
664	665	50	CALCILUTITE: as above. 50% Cement
665	666	50	CALCILUTITE: as above. 50% Cement
666	667	60	CALCILUTITE: as above. 40% Cement
667	668	70	CALCILUTITE: light brown to light olive grey, trace lithics, trace carbonaceous specks, soft to rare firm, sub-blocky to amorphous. 30% Cement
668	669	80	CALCILUTITE: as above. 20% Cement
669	670	80	CALCILUTITE: as above. 20% Cement
670	671	90	CALCILUTITE: as above. 10% Cement
671	672	90	CALCILUTITE: as above. 10% Cement
672	674	100	CALCILUTITE: light brown, light olive grey, trace lithics, trace carbonaceous specks, soft to rare firm, sub-blocky.
674	690	98	CALCILUTITE: as above. 2% Cement
690	719.5	1	CALCILUTITE: as above. (Taken at 06:00 hrs) 99% Cement
719.5	720	80	CALCILUTITE: as above. (Taken on circulation at 06:30 hrs). Possible anomaly from changing shaker screens? 20% Cement
720	720	60	CALCILUTITE: as above. (take on circulation at 07:10 hrs). Possible anomaly from changing shaker screens?
			Decision to POOH at 720.0 mMDRT / 656.1 mTVDRT / -613.6 mTVDSS and set a new kick off plug. Re-Kick off 8½" section at 660.0 mMDRT / 612.6 mTVDRT / -570.1 mTVDSS at 23:45 hrs, 07 September 2007.
660	661	Trace	CALCILUTITE: pale grey to medium greyish brown, occasionally medium grey, locally abundant glauconite grains, minor lithics, locally minor carbonaceous fragments, silty in part grading to Calcisiltite, firm to moderately hard, sub-blocky. 100% Cement
661	662	5	CALCILUTITE: as above.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
			95% Cement
662	663	5	CALCILUTITE: as above.
			95% Cement
663	664	20	CALCILUTITE: as above.
			80% Cement
664	665	40	CALCILUTITE: as above.
			60% Cement
665	666	50	CALCILUTITE: as above.
			50% Cement
666	667	80	CALCILUTITE: as above.
			20% Cement.
667	668	40	CALCILUTITE: pale to medium grey, olive grey, minor glauconite grains, minor liths, silty grading to Calcisiltite in part, firm, sub-blocky. Note: This sample was taken after the PIT conducted at 667 mMDRT and the increase in cement seen is most likely due to working the drillpipe and conducting the PIT.
			60% Cement
668	669	50	CALCILUTITE: as above.
			50% Cement
669	670	70	CALCILUTITE: as above.
			30% Cement
670	671	80	CALCILUTITE: as above.
			20% Cement
671	672	80	CALCILUTITE: as above.
			20% Cement
672	673	90	CALCILUTITE: as above.
			10% Cement
673	674	95	CALCILUTITE: pale to medium grey, pale greyish brown, silty grading to Calcisiltite in part, common glauconite grains, minor lithics, trace carbonaceous fragments, firm, sub-blocky.
			5% Cement
674	676	95	CALCILUTITE: as above.
			5% Cement
676	678	100	CALCILUTITE: as above.
			Trace Cement
678	680	100	CALCILUTITE: as above.
			Trace Cement
680	682	90	CALCILUTITE: as above.
			10% Cement
682	686	95	CALCILUTITE: as above.
			5% Cement
686	691	70	CALCILUTITE: as above.
		30	CALCISILTITE: pale to predominantly light brownish grey, minor glauconite grains, minor lithics, trace carbonaceous fragments, firm, sub-blocky.
			Trace Cement
691	695	60	CALCILUTITE: pale to medium grey, pale greyish brown, silty grading to Calcisiltite in part, common glauconite grains, minor lithics, trace carbonaceous fragments, firm, sub-blocky
		40	CALCISILTITE: as above.
			Trace Cement

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
695	700	10	CALCILUTITE: as above.
		90	CALCISILTITE: as above, pale to light grey, brownish grey. Trace Cement
700	705	100	CALCISILTITE: as above. Trace Cement
710	715	100	CALCISILTITE: as above. Trace Cement
715	720	100	CALCISILTITE: pale to light grey, light greyish brown, arenaceous grading to very fine Calcarenite in part, minor glauconite grains, minor lithics, minor carbonaceous specks, firm, sub-blocky.
720	725	100	CALCISILTITE: as above, firm to moderately hard. Trace Cement
725	730	100	CALCISILTITE: as above, comltihs, trace fossil fragments. Trace Cement
730	735	100	CALCISILTITE: pt to light grey, greyish brown, arenaceous grading to very fine Calcarenite in part, minor glauconite grains, common lithics, common carbonaceous specks, firm to rare moderately hard, sub-blocky.
735	740	80	CALCISILTITE: as above.
		20	CALCARENITE: pale brown, pale brownish grey, medium grey in part, silty in part, very fine, well sorted, sub-angular to sub-rounded, minor lithics, trace carbonaceous specks, trace glauconite grains, firm, sub-blocky, poor visual porosity. No Fluorescence.
740	745	30	CALCISILTITE: as above.
		70	CALCARENITE: as above.
745	755	40	CALCISILTITE: as above.
		60	CALCARENITE: as above.
755	760	40	CALCISILTITE: as above.
		60	CALCARENITE: as above.
760	763	40	CALCISILTITE: as above.
		60	CALCISILTITE: as above.
			POOH to change to a RSS BHA at 763.0 mMDRT / 689.4 mTVDRT / -646.9 mTVDSS.
763	780	70	CALCISILTITE: pale to light grey, minor lithics, trace glauconite grains, minor carbonaceous specks, soft to firm, sub-blocky.
		30	CALCARENITE: pale to light grey, very fine, silty in part, sub-angular to sub-rounded, minor lithics, trace carbonaceous specks, trace glauconite, firm, sub-blocky.
780	812	100	CALCISILTITE: as above, arenaceous grading to very fine Calcarenite in part.
			POOH for BHA change due to SPP flucations at 812.0 mMDRT / 727.5 mTVDRT / -685.0 mTVDSS. Cement fragments found through LWD BHA.
812	840	100	CALCISILTITE: very light grey to light grey, olive grey, minor lithics, trace glauconite grains, trace carbonaceous specks and laminations, soft, sub-blocky.
840	870	100	CALCISILTITE: very light grey to medium grey, olive grey, rare glauconite grains, common lithics and carbonaceous specks, soft to mrr md hard, sub-blocky.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
870	900	100	CALCISILTITE: pale to light grey, rare olive grey, minor lithics, minor carbonaceous specks and micro-laminations, soft to firm, sub-blocky.
900	930	100	CALCISILTITE: as above, rare arenaceous grading to very fine Calcarenite.
930	960	100	CALCISILTITE: pale to light grey, light greyish brown, common lithics, minor carbonaceous specks and micro-laminations, soft to firm, sub-blocky.
960	990	100	CALCISILTITE: pale to medium grey, light greyish brown, minor lithics, minor carbonaceous specks and micro-laminations, trace glauconite grains, soft to predominantly firm, sub-blocky.
990	1020	100	CALCISILTITE: as above, trace Calcite fragments.
1020	1050	100	CALCISILTITE: pale to medium grey, light greyish brown, minor lithics, minor carbonaceous specks & micro-laminations, trace glauconite grains, trace Calcite fragments, soft to firm, sub-blocky.
1050	1080	100	CALCISILTITE: as above.
1080	1110	80	CALCILUTITE: pale to light grey, light greyish brown, silty in part, common lithics, common carbonaceous specks, soft, amorphous to sub-blocky.
		20	CALCISILTITE: as above.
1110	1140	100	CALCISILTITE: pale grey, pale olive grey to olive grey, minor lithics, minor carbonaceous specks, rare glauconite specks, firm, sub-blocky.
1140	1170	100	CALCISILTITE: light olive grey to olive grey, trace lithics, rare carbonaceous specks and micro-laminations, trace fossils, soft to firm, sub-blocky.
1170	1200	100	CALCISILTITE: as above.
1200	1230	100	CALCISILTITE: medium brown to light brown, very light grey, common lithics, minor carbonaceous specks, minor glauconite specks, moderately hard, blocky to sub-blocky.
1230	1260	40	CALCILUTITE: pale grey to medium olive grey, minor carbonaceous specks, firm to moderately hard, sub-fissile to sub-blocky.
		60	CALCISILTITE: as above.
1260	1290	20	CALCILUTITE: as above.
		80	CALCISILTITE: as above.
1290	1320	60	CALCILUTITE: light olive grey to olive grey, medium grey in part, rare carbonaceous specks, common carbonaceous specks and laminations, trace lithics, firm to moderately hard, sub-fissile to sub-blocky.
		40	CALCISILTITE: as above.
1320	1350	60	CALCILUTITE: as above.
		40	CALCISILTITE: light to medium brown, very light grey, common lithics, minor carbonaceous specks, minor glauconite specks, moderately hard, blocky to sub-blocky.
1350	1380	30	CALCILUTITE: as above.
		70	CALCISILTITE: medium to medium dark greyish brown, trace lithics, minor carbonaceous specks, grading to Calcilutite in part, firm to moderately hard.
1380	1410	10	CALCILUTITE: as above.
		90	CALCISILTITE: olive grey, light to medium grey, trace lithics, carbonaceous specks, trace carbonaceous laminations, trace calcite fragments, firm t moderately hard, sub-fissile to sub-blocky.
1410	1440	20	CALCILUTITE: as above.
		80	CALCISILTITE: as above.
1440	1470	10	CALCILUTITE: light to medium grey, rare light brownish grey, silty in part, minor lithics, minor carbonaceous specks, soft, amorphous to sub-blocky.
		90	CALCISILTITE: light to medium brownish grey, light to medium grey, minor ltihs, minor carbonaceous specks and laminations, rare grading to Calcilutite, rare arenaceous, trace glauconite, soft to firm, sub-blocky.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
1470	1500	40	CALCILUTITE: as above.
		60	CALCISILTITE: as above.
1500	1530	10	CALCILUTITE: as above, trace lithics.
		90	CALCISILTITE: as above.
1530	1560	90	CALCILUTITE: light to olive grey, medium brownish grey, minor lithics, trace carbonaceous fragments, trace calcite fragments, arenaceous in part, firm to rare moderately hard, sub-blocky.
		10	CALCISILTITE: as above, rare arenaceous.
1560	1590	80	CALCILUTITE: as above.
		20	CALCISILTITE: as above.
1590	1620	90	CALCILUTITE: as above.
		10	CALCISILTITE: as above.
1620	1650	70	CALCILUTITE: as above.
		30	CALCISILTITE: as above.
1650	1680	40	CALCILUTITE: light olive grey, medium grey, light brown, silty in part, trace lithics, trace carbonaceous specks, soft to firm, sub-blocky.
		60	CALCISILTITE: medium grey, light to medium greyish brown, trace carbonaceous specks, minor thn laminations, trace calcite fragments, firm to rare moderately hard, sub-blocky.
1680	1710	10	CALCILUTITE: as above.
		90	CALCISILTITE: light to medium grey, light to medium greyish brown, olive grey, trace carbonaceous specks, minor lithics, minor thin laminations, trace calcite fragments, firm to moderately hard, sub-blocky.
1710	1740	100	CALCISILTITE: as above, arenaceous in part.
1740	1770	100	CALCISILTITE: light to medium grey, light greyish brown, trace carbonaceous specks, trace glauconite grains, minor lithics, minor thin laminations, firm to moderately hard, sub-blocky.
1770	1800	100	CALCISILTITE: as above, rare arenaceous grading to very fine Calcarenite.
1800	1830	100	CALCISILTITE: light to medium grey, light olive grey in part, grnsh brown, rare laminations, rare carbonaceous specks, trace glauconite grains, rare lithics, trace coal, firm to moderately hard, sub-blocky.
1830	1860	100	CALCISILTITE: light olive grey to olive grey, medium light grey in part, trace laminations, trace carbonaceous specks, trace lithics, firm to moderately hard, sub-blocky to sub-fissile.
1860	1890	100	CALCISILTITE: light olive grey, medium light grey to medium grey, light brownish grey, minor carbonaceous specks, rare laminations, rare lithics, trace coal, firm to rare moderately hard, blocky to sub-blocky.
1890	1920	100	CALCISILTITE: as above.
1920	1950	30	CALCILUTITE: pale olive grey to medium grey, trace carbonaceous specks, trace dissem pyr, silty grading to Calcisiltite in part, firm, sub-blocky.
		70	CALCISILTITE as above.
1950	1980	20	CALCILUTITE: as above.
		80	CALCISILTITE: pale olive grey to medium olive grey, minor to comliths, trace carbonaceous specks, firm to rare moderately hard, sub-blocky.
1980	2010	30	CALCILUTITE: as above.
		70	CALCISILTITE: as above.
2010	2040	70	CALCILUTITE: very light to medium grey, light olive grey, trace carbonaceous specks, trace lithics, firm to moderately hard, sub-blocky.
		30	CALCISILTITE: as above.
2040	2070	90	CALCILUTITE: as above.
		10	CALCISILTITE: as above.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
2070	2100	100	CALCISILTITE: as above.
2100	2130	100	CALCISILTITE: very light grey to medium grey, rare olive grey, trace lithics, trace carbonaceous specks, trace calcite fragments, soft to firm, sub-blocky.
2130	2160	100	CALCILUTITE: as above, trace disseminated pyrite.
2160	2190	100	CALCILUTITE: very light grey to medium grey, light brownish grey, trace lithics, trace carbonaceous specks, trace calcite fragments, trace fossils, soft to firm, sub-blocky.
2190	2220	100	CALCILUTITE: very light to medium grey, brownish grey, trace lithics, trace calcite fragments, trace fossils, trace disseminated pyrite, soft, amorphous to sub-blocky.
2220	2250	100	CALCILUTITE: as above, rare firm.
2250	2280	100	CALCILUTITE: light tom medium grey, trace lithics, trace laminations, trace disseminated pyrite, soft to firm, sub-blocky.
2280	2310	100	CALCILUTITE: as above.
2310	2340	100	CALCILUTITE: as above, trace glauconite grains.
2340	2370	100	CALCILUTITE: light to medium grey, brownish grey in part, trace lithics, trace disseminated pyrite, soft to rare firm, sub-blocky, rare amorphous.
2370	2400	90	CALCILUTITE: as above.
		10	CALCISILTITE: medium grey, olive grey, arenaceous in part, trace lithics, firm to moderately hard, sub-blocky.
2400	2430	100	CALCILUTITE: as above.
2430	2460	100	CALCILUTITE: light to medium grey, brownish grey, trace lithics, trace disseminated pyrite, soft, rare firm, sub-blocky.
2460	2490	100	CALCISILTITE: as above, trace calcite fragments.
2490	2520	100	CALCISILTITE: light olive grey to olive grey, light grey, trace lithics, trace disseminated pyrite, trace glauconite grains, trace carbonaceous specks, amorphous to sub-blocky.
2520	2550	90	CALCILUTITE: as above,
		10	CALCISILTITE: medium grey, olive grey, arenaceous in part, trace lithics, trace disseminated pyrite, soft to rare firm, sub-blocky, rare amorphous.
2550	2580	90	CALCILUTITE: very light grey to light grey, very light olive grey to olive grey, minor disseminated & nodular pyrite, minor lithics, soft, sub-blocky.
		10	CALCISILTITE: olive grey, medium grey, minor lithics, soft, sub-blocky.
2580	2610	100	CALCILUTITE: as above.
2610	2640	100	CALCILUTITE: as above.
2640	2670	100	CALCILUTITE: very pale grey brown to pale grey brown, silty in part, minor lithics, slightly micro-micaceous, minor disseminated pyrite, firm, sub-blocky to sub-fissile. Top of Lakes Entrance = 2690.0 mMDRT / 2205.4 mTVDRT / -2162.9 mTVDSS.
2670	2700	20	CALCAREOUS CLAYSTONE: light brownish grey, light olive grey, brownish grey in part, silty in part, trace carbonaceous specks, waxy texture, soft, rare firm, amorphous to sub-blocky.
		80	CALCILUTITE: as above.
2700	2730	60	CALCAREOUS CLAYSTONE: as above.
		40	CALCILUTITE: as above.
2730	2760	80	CALCAREOUS CLAYSTONE: very pale greyish brown, common carbonaceous specks, minor disseminated pyrite, slightly micro-micaceous, firm to soft, sub-fissile to sub-blocky.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		20	CALCILUTITE: very pale grey brown to pale grey brown, silty in part, minor lithics, slightly micro-micaceous, minor disseminated pyrite, firm, sub-blocky to sub-fissile.
			10 metre bagged samples from 2760.0 m to 2920.0 mMDRT.
2760	2770	10	CALCAREOUS CLAYSTONE: greyish brown to medium dark olive grey, silty in part, slightly micro-micaceous, trace carbonaceous specks, firm to moderately hard, sub-fissile to sub-blocky.
2770	2780	100	CALCAREOUS CLAYSTONE: very light to medium grey, olive grey, grey brown, trace disseminated and nodular pyrite, trace carbonaceous specks, soft to firm, trace moderately hard, amorphous to sub-blocky.
2780	2790	100	CALCAREOUS CLAYSTONE: very light to medium grey, pale brown, light to medium brownish grey, rare medium dark grey, as above,
2790	2800	100	CALCAREOUS CLAYSTONE: very light to medium grey, rare dark grey, pale brown, light to medium brownish grey, minor disseminated pyrite, trace carbonaceous specks, soft to firm, trace moderately hard, amorphous to sub-blocky.
2800	2810	100	CALCAREOUS CLAYSTONE: very light grey to light brownish grey, medium dark grey, minor lithics, trace micro-micaceous, trace nodular pyrite, soft to firm, rare moderately hard in medium dark grey grains, sub-blocky.
2810	2820	100	CALCAREOUS CLAYSTONE: light brownish grey, very light grey to medium grey, minor lithics, trace micro-micaceous, trace nodular pyrite, soft to firm, sub-blocky.
2820	2830	100	CALCAREOUS CLAYSTONE: as above, trace nodular pyrite.
2830	2840	100	CALCAREOUS CLAYSTONE: as above.
			Baracarb at a concentration of 5 ppb added to the Mud system at 2850.0 mMDRT (2332.4 mTVDRT / -2289.9 mTVDSS).
			Baracarb seen in samples from 2900.0 mMDRT to 3026.0 mMDRT (TD).
2840	2850	100	CALCAREOUS CLAYSTONE: light brownish grey, pale brown, light to medium grey, minor lithics, trace disseminated and nodular pyrite, soft to firm in part, sub-blocky.
2850	2860	100	CALCAREOUS CLAYSTONE: as above.
2860	2870	100	CALCAREOUS CLAYSTONE: as above.
2870	2880	100	CALCAREOUS CLAYSTONE: light brownish grey, medium grey, silty in part, minor lithics, trace disseminated pyrite, trace carbonaceous specks, trace laminations, soft to rare firm, sub-blocky.
2880	2890	100	CALCAREOUS CLAYSTONE: as above.
2890	2900	100	CALCAREOUS CLAYSTONE: as above.
2900	2910	100	CALCAREOUS CLAYSTONE: light to medium grey, light brownish grey, rare silty, moderately calcareous, rare disseminated pyrite, minor glauconite, trace carbonaceous specks, trace lithics, soft to firm, sub-blocky.
2910	2920	100	CALCAREOUS CLAYSTONE: as above.
			5 metre bagged samples from 2920.0 to 3026.0 mMDRT (TD).
2920	2925	100	CALCAREOUS CLAYSTONE: as above, minor glauconite.
2925	2930	70	CALCAREOUS CLAYSTONE: as above.
		30	SILTSTONE: greenish grey, yellowish brown, minor to locally common micro-micaceous, trace carbonaceous mat, soft to firm, sub-blocky.
			Top of Latrobe Group = 2934.0 mMDRT / 2398.6 mTVDRT / -2356.1 mTVDSS.
2930	2935	80	CALCAREOUS CLAYSTONE: light brownish grey, pale brown, slightly calcareous, minor glauconite grains, minor lithics, soft to firm, sub-blocky.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		20	SILTSTONE: greenish grey, medium to medium dark grey, minor glauconite grains, minor micro-micaceous, firm, soft in part, sub-blocky.
2935	2940	10	CALCAREOUS CLAYSTONE: as above.
		90	SILTSTONE: greenish grey, moderately to medium dark grey, minor glauconite grains, minor micro-micaceous, firm, soft in part, sub-blocky. Top of Coarse Clastics (Top FM13J) = 2943.0 mMDRT / 2405.7mTVDRT / -2363.2 mTVDSS.
2940	2945	10	CALCAREOUS CLAYSTONE: as above.
		50	SILTSTONE: as above.
		40	SANDSTONE: light grey, clear to rnsl, very ff to fine, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace light grey siliceous cement, trace lithics, trace glauconite grains, firm to moderately hard, sub-blocky. **Fluorescence: 5% pale to moderately bright yellow green patchy Fluorescence. Very slow diffusive cut, moderately fast diffusive crush cut, thin dull blue white film residue.**
2945	2950	10	CALCAREOUS CLAYSTONE: as above.
		60	SILTSTONE: yellowish brown, greenish grey, mottled, minor micro-micaceous, trace carbonaceous material, soft, sticky, firm in part, sub-blocky, amorphous in part.
		30	SANDSTONE: light grey, clear to translucent, very fine to fine, rare loose coarse grains, moderately sorted, sub-angular to sub-rounded, rare angular, trace light grey siliceous cement, trace lithics, trace nodular pyrite, firm to moderately hard, loose in part, sub-blocky. **Fluorescence: 2% pale to moderately bright yellow green patchy Fluorescence. Very slow diffusive cut, very slow diffusive crush cut, thick dull blue white ring residue.**
2950	2955	Trace	SILTSTONE: as above.
		100	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately sorted, sub-angular to sub-rounded, rare angular, sub-elongate to sub-spherical, loose clean quartz grains, trace Fe staining. No Fluorescence.
2955	2960	Tr	SILTSTONE: as above.
		100	SANDSTONE: as above, trace nodular pyrite. No Fluorescence.
2960	2965	90	SILTSTONE: medium to dark grey, arenaceous in part, minor micro-micaceous, minor disseminated pyrite, soft to firm, sub-blocky.
		10	SANDSTONE: as above. No Fluorescence.
2965	2970	10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, opaque, medium to coarse, very coarse in part, moderately well sorted, sub-angular to sub-rounded, angular in part, sub-elongate to sub-spherical.
2970	2975	20	COAL: very dark grey to black, rare very dark brown, subvitreous, earthy in part, firm, brittle, sub-fissile to sub-blocky.
		80	SANDSTONE: clear to translucent, opaque, coarse to very coarse, moderately well sorted, sub-angular to sub-rounded, rounded in part, generally loose clean quartz grains. No Fluorescence. Top of MC4 Coal = 2976.0 mMDRT / 2431.8 mTVDRT / -2389.3 mTVDSS.
2975	2980	10	COAL: as above.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		70	SILTSTONE: medium to medium dark brown, medium dark grey, common carbonaceous material grading to Carbonaceous Siltstone in part, arenaceous, minor micro-micaceous, firm, sub-blocky.
		20	SANDSTONE: as above.
			No Fluorescence.
			HLA OOWC = 2985.8 mMDRT / 2439.5 mTVDRT / -2397.0 mTVDSS.
2980	2990	Trace	COAL: as above.
		40	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately sorted, sub-angular to rounded, sub-spherical, trace nodular pyrite, generally loose clean grains.
			No Fluorescence.
			Top of MC3 Coal = 2991.0 mMDRT / 2443.6 mTVDRT / -2401.1 mTVDSS.
2990	3000	20	SILTSTONE: as above.
		80	SANDSTONE: as above, minor nodular pyrite.
			No Fluorescence.
3000	3005	20	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, very light grey, very fine to fine aggs, coarse to very coarse loose grains, sub-angular to sub-rounded, sub-spherical, minor pale grey argillaceous matrix, weak siliceous cement, minor carbonaceous material, minor nodular pyrite, trace lithics, firm, loose in part, sub-blocky aggs.
			No Fluorescence.
3005	3010	Trace	SILTSTONE: medium to medium dark brown, medium dark grey, common carbonaceous material grading to Carbonaceous Siltstone in part, arenaceous, minor micro-micaceous, firm, sub-blocky.
		100	SANDSTONE: clear to translucent, light grey, medium to coarse, very coarse in part, moderately sorted, sub-angular to sub-rounded, sub-spherical, generally loose clean quartz grains, trace nodular pyrite.
			No Fluorescence.
3010	3015	10	SILTSTONE: as above.
		90	SANDSTONE: as above, trace fractured quartz grains.
3015	3020	20	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, light grey, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, loose clean quartz grains, trace nodular pyrite.
			No Fluorescence.
3020	3025	30	SILTSTONE: as above.
		70	SANDSTONE: clear to translucent, light grey, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, loose clean quartz grains, trace nodular pyrite.
			No Fluorescence.
3025	3030	10	SILTSTONE: medium to medium dark brown, medium dark grey, common carbonaceous material grading to Carbonaceous Siltstone in part, arenaceous, minor micro-micaceous, firm, sub-blocky.
		90	SANDSTONE: clear to translucent, light grey, very fine to fine aggs, medium to coarse loose grains, sub-angular to sub-rounded, sub-spherical, trace pale grey argillaceous matrix, trace lithics, trace nodular pyrite, fri to firm aggs, loose medium to coarse grains, sub-blocky.
			No Fluorescence.

Fortescue A17A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
3030	3036 TD	40	SILTSTONE: as above.
		60	SANDSTONE: as above. No Fluorescence.
			FTA A17A reached a TD of 3036.00 mMDRT / 2478.81 mTVDRT / -2436.31 mTVDSS at 1745 hrs on 14 September 2007.

APPENDIX 4a

FORTESCUE A17A

Mud Log

MASTERLOG
FTA-A17A

GENERAL
Country : AUSTRALIA
Permit : VIC L5
Field : Fortescue
Basin : GIPPSLAND
Well Type : DEVELOPMENT
Rig Name : NABORS 175

SURFACE POSITION
Longitude : 148°16'41.155"E
Latitude : 38°24'25.599"S
MGA Co-ord X : 611 592.60 mE
MGA Co-ord Y : 5 748 240.31 mN
RT to MSL : 42.50m
RT to Sea Bed : 111.50m

HOLE / CASING INFO
8-1/2" Hole to 3036.0m MDRT

10-3/4" Csg Shoe at 656.0m MDRT

7" Csg Shoe at 3031.0m MDRT

DATE / DEPTH
Kick off Date: 07-09-2007
Total Depth Date : 14-09-2007
Total Depth : 3036.00m MDRT
True Vertical Depth : 2478.81m TVDRT
Log Scale : 1/ 500

ENGINEERS
Phil Rady
Nick Abolins
Steve Oades

ABBREVIATIONS

MW	Mud Weight	WOB	Weight on Bit (klbs)
FV	Funnel Viscosity	RPM	Rotations Per Min
PV	Plastic Viscosity	FLW	Flow Rate (gpm)
YP	Yield Point	SPP	Pump Pressure (psi)
O/W	Oil/Water Ratio	RR	Re-Run Bit
WPS	Aq. Phase Salinity	TG	Trip Gas
HPHT	Fluid Loss	CG	Connection Gas
Cl	Chlorides	BG	Background Gas
Incl	Inclination	DGP	Drilled Gas Peak
Az	Azimuth	MM	Mud Motor

LITHOLOGY LEGEND
CLAYSTONE, MARL, BRYOZOA, CARB FRAGMENT
SILTSTONE, LIMESTONE, RADIOLARITES, QUARTZITE
SANDSTONE, DOLOMITE, ECHINOIDS, INTRUSIVES
SHALE, CHERT, CORALS, GLAUCONITE
CONGLOMERATE, FORAMINIFERA, PYRITE
COAL, LITHIC FRAGMENT, CEMENT

ENGINEERING LEGEND
CASING SHOE, WIRELINE LOGS
LINER HANGER, MDT POINTS:
BIT CHANGE, PRESSURE ONLY
DEVIA. SURVEY, SAMPLE
SWC UNRECOV, SEAL FAILURE
SIDEWALL CORE, TIGHT
CORE, SLIDING

ROP (m/hr) 500 50 5 .5
WOB (Klbs) 50 25 0
MWD Gamma Ray (api) 0 100 200
SLIDING BAR
DEPTH (m) (TVD)
CUTTINGS LITHOLOGY % 0 100
RESERVAL GAS DATA
C1 C2 C3 iC4 nC4 iC5 nC5 TG
Total Gas in Units
Chromatograph in PPM
.5 5 50 500 5K
100 1K 10K 100K 1000K
CUT FLUOR good fair poor
DIRECT FLR good fair poor
LITHOLOGY DESCRIPTIONS and REMARKS

640
650
660 (612.6)
670
680 (626.9)
690

MW: 10.5ppg
FV: 186
PV: 39
YP: 21
O/W: 72.3/27.7
HTHP: 3.2
WPS: 265K
07-09-2007

WOB: 5-20 Klbs
TDRPM: 0-55
MMRPM: 135-155
SPP: 1400-1850 psi
FLOW: 490-540 gpm

BIT #1RR 8 1/2"
Reed Hycalog RSX616M-D2
Jets: 6 x 18
In : 656.0m MDRT
Out : 720.0m MDRT
Run : 64.0m
Hrs : 11.3
Condition: 1-1-WT-A-X-IN-NO-HP

BIT #2RR 8 1/2"
Reed Hycalog HP21G
Jets: 3 x 20
In : 656.0m MDRT
Out : 763.0m MDRT
Run : 107.0m
Hrs : 14.3
Condition: 2-3-WT-A-E-E-E-IN-NO-BHA
Tie in Survey:660.00mMD (612.64mTVD)
43.73°inc 170.72°az

Mud Motor with Bit 2RR:
K = 0.29 rev/gal

100% C1

Survey:687.00mMD (631.9mTVD)
45.37°inc 160.65°az

WELL STATUS AND HISTORY
FTA-A17 plugged & abandoned in 2001. A 20" conductor is set at 182.0m MDRT, and 10-3/4" surface casing shoe set at 656.0m MDRT 7-5/8" production casing cut and pulled from 728.0m MDRT Initial kick off cement plug set and tagged at 608.5m MDRT.

First kick off attempt failed
A second kick off plug was set and tagged at 635.6m MDRT

Kick off FTA-A17A at 660.0 mMDRT at 23:45 hrs on 7 September 2007.

PIT at 656.0 mMDRT/ 610.0 mTVD
315 psi EMW: 13.5 ppg.

Drill with Accolade
Synthetic based mud system

CALCILUTITE:pl gry-med gry brn, occ med gry,loc abdt glauc grs, mnr liths,loc mnr carb frag,slty i/p gdg to Clcslt,frm-mod hd, sbblky.

700
(641.4)
710
720
(656.1)
730
740
(671.5)
750
760
(687.1)
770
780
(702.7)
790
800
(718.2)
810
820
(733.7)
830
840
(749.1)
850
860
(764.5)
870
880
(779.8)
890
900

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

MW: 10.7ppg
FV: 92
PV: 42
YP: 26
O/W: 69.0/31.0
HTHP: 4.8
WPS: 228K

09-09-2007

MW: 10.7ppg
FV: 95
PV: 46
YP: 20
O/W: 68.0/32.0
HTHP: 5.0
WPS: 221K

10-09-2007

11-09-2007

MW: 10.7ppg
FV: 140
PV: 43
YP: 27
O/W: 68.6/31.4
HTHP: 3.8
WPS: 220K

WOB: 15-30 Klbs
TDRPM: 155
SPP: 2000-2100 psi
FLOW: 600-615 gpm

100% C1

Survey:715.14mMD (652.4mTVD)
41.29°inc 153.00°az

100% C1

Survey:743.13mMD (673.9mTVD)
38.36°inc 149.47°az

BIT #3RR 8 1/2"
Reed Hycalog
RSX616M-D2
Jets: 6 x 18
In : 763.0m MDRT
Out : 812.0m MDRT
Run : 49.0m
Hrs : 0.8
Condition:1-1-WT-A-X-IN-PN-PP

Survey:771.30mMD (695.9mTVD)
38.83°inc 149.67°az

100% C1

Survey:799.42mMD (717.8mTVD)
39.10°inc 149.36°az

BIT #4RR 8 1/2"
Reed Hycalog
RSX616M-D2
Jets: 6 x 18
In : 812.0m MDRT
Out : 3036.0m MDRT
Run : 2224.0m
Hrs : 37.9
Condition: 2-2-WT/CT-A-X-IN-PN-TD

Survey:827.52mMD (739.5mTVD)
39.46°inc 149.08°az

100% C1

Survey:856.31mMD (761.7mTVD)
40.00°inc 148.79°az

100% C1

Survey:884.72mMD (783.4mTVD)
40.15°inc 144.57°az

100% C1

CALCILUTITE:pl-med gry,pl grysh brn,slty gdg to Clcslt i/p,com glauc grs,mnr liths,tr carb frag, frm,sbblky.

CALCISILTITE:pl-med brnsh gry, olv gry,mnr glauc grs,mnr liths, tr carb frags,frm,sbblky.

CALCISILTITE:pl-lt gry,lt grysh brn gdg to vf Clcar i/p,mnr glauc grs,mnr liths,mnr carb spks,frm, sbblky.

CALCISILTITE(80%):pl-lt gry,lt grysh brn,aren gdg to vf Clcar i/p,mnr glauc grs,mnr liths,mnr carb spks,frm, sbblky.
CALCARENITE(20%):pl brn,pl brnsh gry,med gry i/p,slty i/p,vf,wl srt, sbang-sbrnd,mnr liths,tr carb spks,tr glauc grs,frm,sbblky,pr vis por,no fluor.

CALCISILTITE(40%):pl-lt gry,mnr liths,tr glauc grs,mnr carb spks, sft-frm,sbblky.

POOH TO CHANGE BHA

CALCARENITE(60%):pl brn,pl brnsh gry,med gry i/p,slty i/p,vf,wl srt, sbang-sbrnd,mnr liths,tr carb spks,tr glauc grs,frm,sbblky,pr vis por,no fluor.

CALCISILTITE(70%):pl-lt gry,mnr liths,tr glauc grs,mnr carb spks, sft-frm,sbblky.
CALCARENITE(30%):pl-lt gry, vf,slty i/p,vf,wl srt,sbang-sbrnd,mnr liths,tr carb spks, tr glauc grs,frm,sbblky,pr vis por,no fluor.

CALCISILTITE:pl-lt gry,mnr liths, aren gdg to vf Clcar,tr glauc grs, mnr carb spks,sft-frm,sbblky.

POOH DUE TO TOOL FAILURE

CALCISILTITE:v lt gry-lt gry, olv gry,mnr liths,tr glauc,tr carb spks & lams,sft,sbblky.

CALCISILTITE:v lt gry-med gry, olv gry,rr glauc grs,com liths, com carb incl,sft-mod hd,hd i/p, sbblky.

CALCISILTITE:pl-lt gry,rr olv gry,mnr liths,mnr carb spks &

910

920
(810.6)

930

940
(826.2)

950

960
(842.2)

970

980
(858.3)

990

1000
(874.6)

1010

1020
(890.8)

1030

1040
(907)

1050

1060
(923.2)

1070

1080
(939.2)

1090

1100
(955.1)

1110

WOB: 30-35 Klbs
TDRPM: 155-160
SPP: 1950-2050 psi
FLOW: 585-605 gpm

MW: 10.75ppg
FV: 115
PV: 44
YP: 26
O/W: 69.4/30.6
HTHP: 3.8
WPS: 224K

WOB: 30-35 Klbs
TDRPM: 155-160
SPP: 1980-2075 psi
FLOW: 585-605 gpm

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

Survey:913.55mMD (805.6mTVD)
39.38°inc 139.55°az

100% C1

Survey:941.59mMD (827.5mTVD)
37.91°inc 135.61°az

Survey:969.73mMD (850.0mTVD)
35.92°inc 129.16°az

100 / Tr

Survey:998.09mMD (873.0mTVD)
35.46°inc 124.47°az

100 / Tr

Survey:1026.34mMD (896.0mTVD)
35.73°inc 120.07°az

Survey:1055.05mMD (919.2mTVD)
36.17°inc 115.56°az

100 / Tr

Survey:1083.06mMD (941.7mTVD)
37.35°inc 113.45°az

Survey:1111.75mMD (964.4mTVD)

gry,mnr liths,mnr carb spks &
microlams,sft-frm,sbblky.

CALCISILTITE:pl-lt gry,rr olv
gry,rr aren,gdg to vf Clcar,mnr
liths,mnr carb spks & microlams,
sft-frm,sbblky.

CALCISILTITE:pl-lt gry,lt grysh
brn,com liths,mnr carb spks &
microlams,sft-frm,sbblky.

CALCISILTITE:pl-med gry,lt grysh
brn,mnr liths,mnr carb spks &
microlams,tr glauc grs,sft-pred
frm,sbblky.

CALCISILTITE:pl-med gry,lt grysh
brn,mnr liths,mnr carb spks &
microlams,tr glauc grs,tr Calcite
frags,sft-pred frm,sbblky.

CALCISILTITE:pl-med gry,lt grysh
brn,mnr liths,mnr carb spks &
microlams,tr glauc grs,tr Calcite
frags,sft-frm,sbblky.

CALCISILTITE:pl-med gry,lt grysh
brn,mnr liths,mnr carb spks &
microlams,tr glauc grs,tr Calcite
frags,sft-frm,sbblky.

CALCILUTITE(80%):pl-lt gry,lt grysh
brn,slty i/p,com liths,com carb
spks,sft,amorph-sbblky.

MW: 10.75ppg
FV: 115
PV: 44
YP: 26
O/W: 69.4/30.6
HTHP: 3.8
WPS: 224K

WOB: 25-35 Klbs
TDRPM: 155-160
SPP: 2100-2300 psi
FLOW: 585-610 gpm

WOB: 23-36 Klbs
TDRPM: 155-160
SPP: 2000-2100 psi
FLOW: 580-605 gpm

MW: 10.7ppg
FV: 110
PV: 44
YP: 27
O/W: 69.4/30.6
HTHP: 3.0
WPS: 220K

1120 (970.9)
1130
1140 (986.6)
1150
1160 (1002.4)
1170
1180 (1018.1)
1190
1200 (1033.8)
1210
1220 (1049.5)
1230
1240 (1065.2)
1250
1260 (1081.1)
1270
1280 (1096.9)
1290
1300 (1113)
1310
1320

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

38.03°inc 114.28°az

100 / Tr

Survey:1139.82mMD (986.5mTVD)
38.02°inc 116.07°az

Survey:1168.37mMD (1009.0mTVD)
38.15°inc 117.86°az

100 / Tr

Survey:1196.91mMD (1031.4mTVD)
38.43°inc 118.41°az

99 / 1

Survey:1225.68mMD (1054.0mTVD)
38.08°inc 118.17°az

99 / 1

Survey:1254.40mMD (1076.6mTVD)
37.78°inc 118.21°az

99 / 1

Survey:1282.15mMD (1098.6mTVD)
37.10°inc 118.92°az

99 / 1

Survey:1310.69mMD (1121.6mTVD)
35.83°inc 119.76°az

CALCISILTITE(20%):pl-med gry,lt grysh brn,mnr liths,mnr carb spks & microlams,tr glauc grs,tr Calcite frags,sft-frm,sbblky.

CALCISILTITE:pl gry,pl olv gry-mod olv gry,mnr liths,mnr carb spks,rr glauc grs,frm,sbblky-blky.

CALCISILTITE:lt-med olv gry,tr liths, rr carb spks & lams,tr foss,sft-frm, sbblky.

CALCISILTITE:lt-med olv gry,med dk gry i/p,tr liths,tr carb spks,tr carb microlams,tr nod pyr,sft-frm,sbblky-blky.

CALCISILTITE:med brn-lt brn,v lt gry,med olv gry i/p,com liths,mnr carb spks,mnr glauc grs,sft-frm, blky-sbblky.

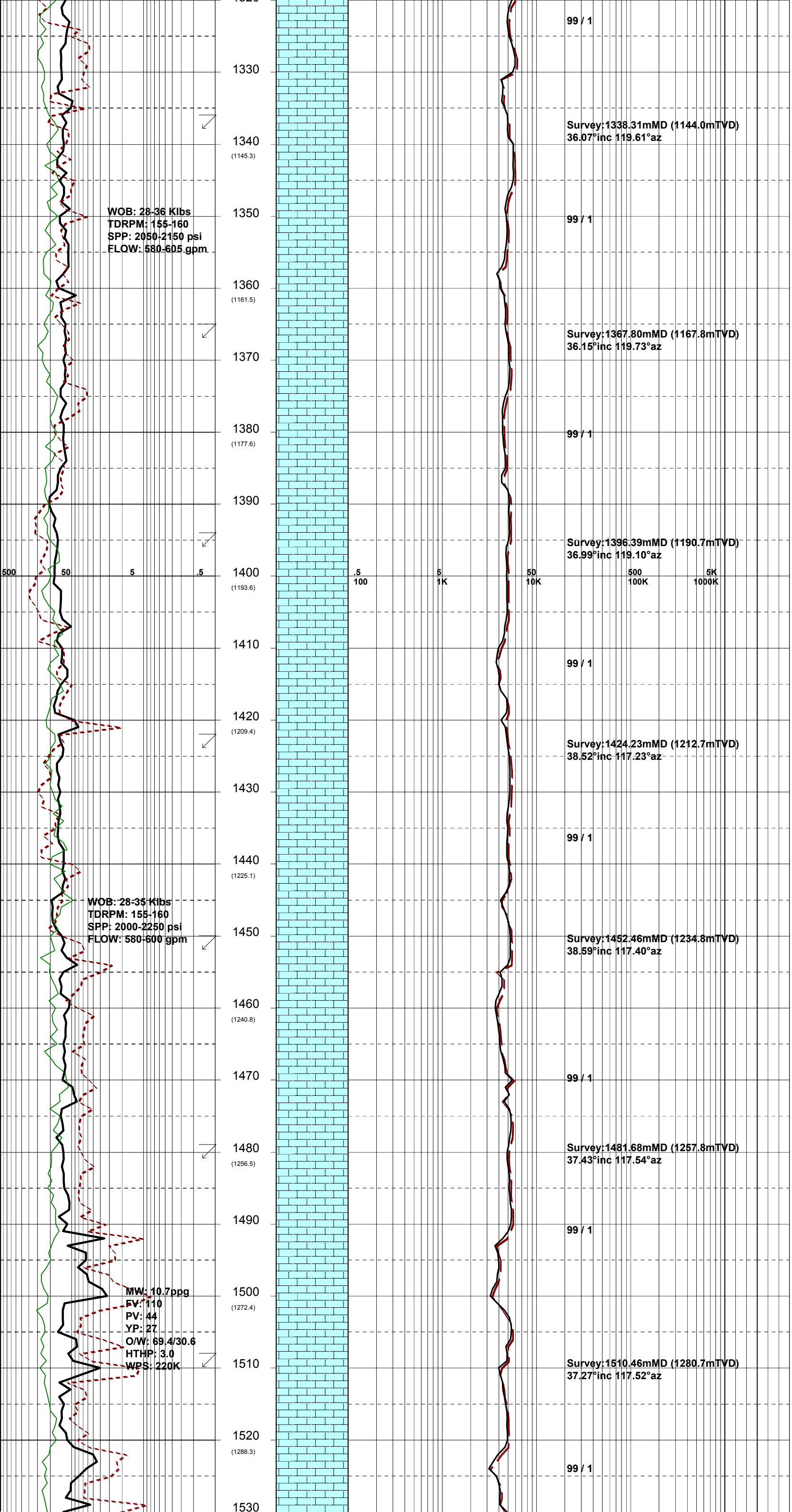
CALCILUTITE(40%):lt olv gry-olv gry,med gry i/p,tr liths,tr carb spks,tr carb lams,tr nod pyr,sft-frm,sbblky-blky.

CALCISILTITE(60%):olv gry-brnsh gry,tr liths,com carb spks,tr carb microlams,tr glauc,sft-frm,blky.

CALCILUTITE(20%):pl gry-med olv gry,olv brn,mnr carb spks,sft-frm, sbfiss-sbblky

CALCISILTITE(80%):olv gry,med brn i/p,tr liths,tr carb microlams,rr carb spks,tr glauc,frm,blky.

CALCILUTITE(60%):lt olv gry-olv gry,med gry i/p,rr carb spks,com com carb lams,tr liths,frm,sbfiss-



sbblky.

CALCSILTITE(40%):lt olv gry-olv gry,med gry i/p,tr liths,tr carb spks & microlams,tr nod pyr,sft-frm, sbblky-blky.

CALCILUTITE(60%):lt olv gry-olv gry,med gry i/p,rr carb spks,com carb microlams,tr liths,sft-frm i/p, sbfiss-sbblky.

CALCSILTITE(40%):lt olv gry-olv gry,med gry i/p,tr liths,tr carb spks & microlams,tr nod pyr,sft-frm, sbblky-blky.

CALCILUTITE(30%):med gry brn, gry brn,v pl brn i/p,mnr liths,rr-mnr carb spks,mnr Calcite frags, rr foss,frm,sbfiss-sbblky.

CALCISILTITE(70%):med grysh brn-med gry,tr liths,mnr carb spks,gdg to Clclut,frm,sbblky-sbfiss.

CALCILUTITE(10%):med gry,grysh brn,olv gry,mnr liths,tr carb spks & lams,frm,rr sft,sbfiss-sbblky.

CALCISILTITE(90%):olv gry,med gry i/p,rr liths,tr carb spks & lams, tr Calcite frags,frm,rr sft,sbfiss-sbblky.

CALCILUTITE(20%):med gry-grysh brn,olv gry,mnr liths,tr carb spks, & lams,frm-rr sft,sbfiss-sbblky.

CALCISILTITE(80%):olv gry,brnsh gry,med gry i/p,tr liths,tr carb spks & lams,tr Calcite,sft-frm,fiss-sbfiss.

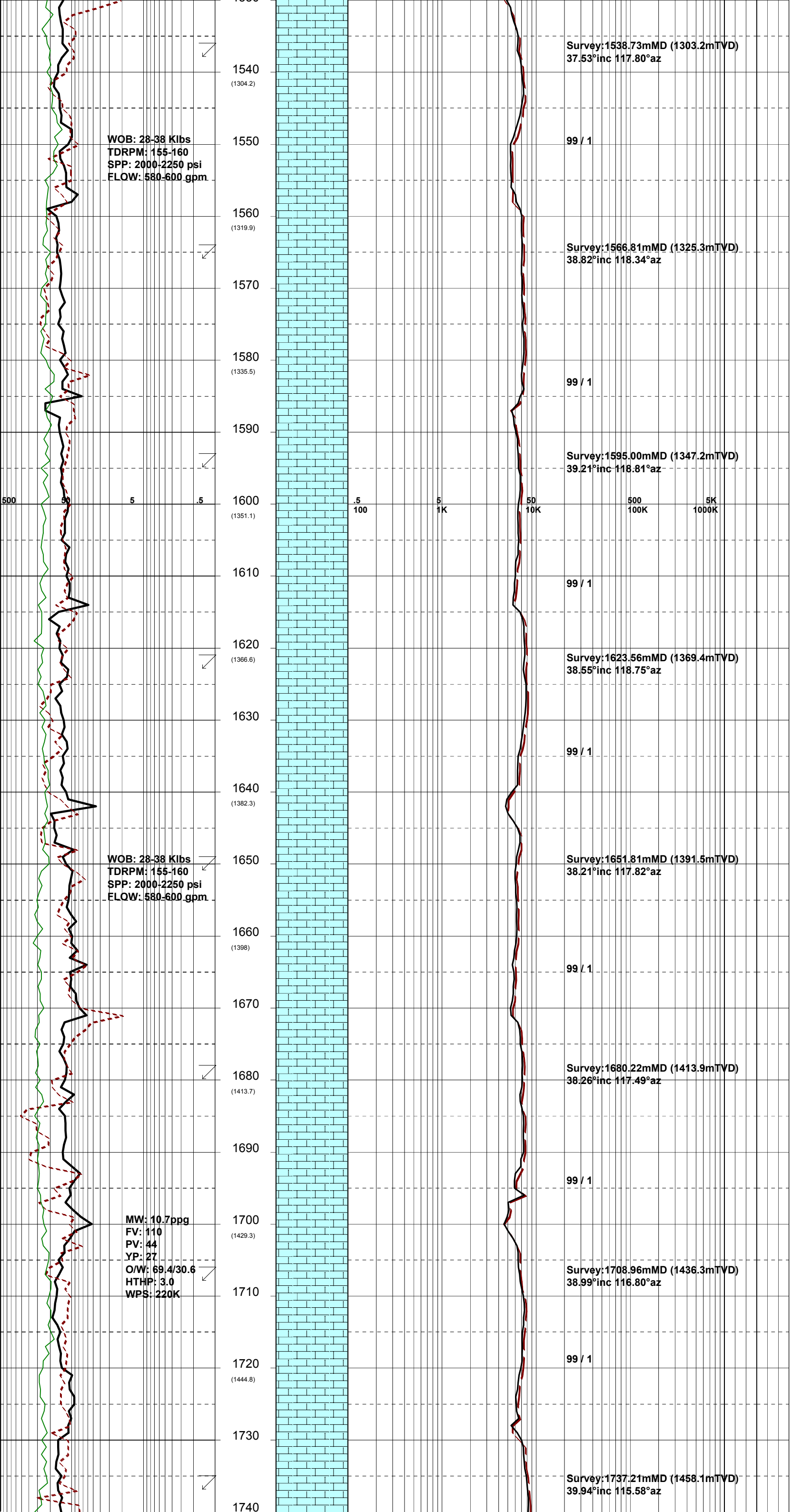
CALCILUTITE(10%):lt-med gry,rr lt grysh brn,slty i/p,mnr liths,mnr carb spks,sft,amorph-sbblky.

CALCISILTITE(90%):lt-med brnish gry,lt-med gry,mnr liths,mnr carb spks & microlams,rr gdg to Clclt, rr aren,tr glauc,sft-frm,sbblky.

CALCILUTITE(40%):lt-med gry,rr lt grysh brn,slty i/p,tr liths, mnr carb spks,sft,amorph-sbblky.

CALCISILTITE(60%):lt-med brnsh gry,lt-med gry,mnr liths,mnr carb spks & microlams,rr gdg to Clclt, rr aren,tr glauc,sft-frm,sbblky.

CALCILUTITE(10%):lt-med brnsh gry, mnr liths,tr carb frags,tr Calcite frags aren i/p frm-rr mod hd sbblky.



CALCISILTITE(90%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,aren i/p,frm-rr mod hd, sbblky.

CALCILUTITE(90%):lt olv gry,med gry,tr carb spks,mnr thn lams, tr liths,sft-rr frm,sbblky.

CALCISILTITE(10%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,rr aren,frm-rr mod hd,sbblky.

CALCILUTITE(80%):lt olv gry,med gry,tr carb spks,mnr thn lams, tr liths,sft-rr frm,sbblky.

CALCISILTITE(20%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,rr aren,frm-rr mod hd,sbblky.

CALCILUTITE(90%):lt olv gry,med gry,tr carb spks,mnr thn lams, tr liths,sft-rr frm,sbblky.

CALCISILTITE(10%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,rr aren,frm-rr mod hd,sbblky.

CALCILUTITE(70%):lt olv gry,med gry,tr carb spks,mnr thn lams, tr liths,sft-rr frm,sbblky.

CALCISILTITE(30%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,rr aren,frm-rr mod hd,sbblky.

CALCILUTITE(40%):lt olv gry,med gry,tr carb spks,mnr thn lams, tr liths,sft-rr frm,sbblky.

CALCISILTITE(60%):med gry,lt-med brnsh gry,mnr liths,tr carb frags,tr Calcite frags,rr aren,frm-rr mod hd,sbblky.

CALCILUTITE(10%):lt olv gry,med gry,lt brn,slty i/p,tr liths,tr carb spks,sft-frm,sbblky.

CALCISILTITE(90%):lt-med gry,lt-med grysh brn,olv gry,tr carb spks,mnr liths,mnr thn lams,tr Calcite frags, frm-mod hd,sbblky.

CALCISILTITE:lt-med gry,lt-med grysh brn,olv gry,tr carb spks,

mnr liths,mnr thn lams,tr Calcite frags,aren i/p,frm-mod hd,sbblky.

WOB: 25-38 Klbs
TDRPM: 155-160
SPP: 2390-2450 psi
FLOW: 595-605 gpm

1750

99 / 1

1760
(1475.6)

Survey:1765.70mMD (1480.0mTVD)
39.99°inc 116.13°az

99 / 1

CALCISILTITE:lt-med gry,lt grysh brn,tr carb spks,tr glauc grs,mnr liths,mnr thn lams,frm -mod hd,sbblky.

1770

1780
(1490.9)

1790

Survey:1793.80mMD (1501.4mTVD)
40.23°inc 117.14°az

CALCISILTITE:lt-med gry,lt grysh brn,tr carb spks,tr glauc grs,mnr liths,mnr thn lams,rr aren gdg to vf Clcar i/p,frm-mod hd,sbblky.

500 50 5 .5 .5 5 50 500 5K
100 1K 10K 100K 1000K

1800
(1506.2)

99 / 1

1810

1820
(1521.4)

Survey:1822.48mMD (1523.2mTVD)
40.84°inc 117.86°az

CALCISILTITE:lt-med gry,
lt olv gry i/p,grysh brn,rr carb lams,rr carb spks,tr glauc grs,
rr liths,tr COAL,frm-mod hd,sbblky.

1830

99 / 1

1840
(1536.6)

WOB: 25-38 Klbs
TDRPM: 155-160
SPP: 2350-2450 psi
FLOW: 595-605 gpm

1850

Survey:1851.42mMD (1545.2mTVD)
40.26°inc 118.35°az

99 / 1

CALCISILTITE:lt olv gry-olv gry,med lt gry i/p,tr carb lams,
tr carb spks,tr liths,frm-mod hd,
sbblky-sbfiss.

1860
(1551.7)

1870

1880
(1566.9)

Survey:1880.34mMD (1567.2mTVD)
41.14°inc 118.01°az

99 / 1

CALCISILTITE:lt olv gry,
med lt gry-med gry,lt brnsh gry i/p,mnr carb spks,rr carb lams,
rr liths,tr COAL,mod hd-hd,
blky-sbblky.

1890

1900
(1581.9)

Survey:1907.88mMD (1587.8mTVD)
41.63°inc 117.36°az

1910

99 / 1

1920
(1596.8)

MW: 10.7ppg
FV: 123
PV: 43
YP: 27
O/W: 70.6/29.4
HTHP: 3.0
WPS: 221K

CALCISILTITE:pl gry-lt gry,
lt olv gry,lt brnsh gry i/p,tr liths,rr carb spks,tr carb lams,
tr glauc,tr aren,frm-mod hd,sbblky.

1930

Survey:1935.98mMD (1608.7mTVD)
42.48°inc 116.31°az

1940
(1611.7)

CALCILUTITE(30%):pl olv gry-mod lt olv gry,tr carb spks,tr dissem pyr,slty i/p gdg to Clcslt,frm,
sbfiss.

WOB: 28-40 Klbs

1950

TDRPM: 55-155
SPP: 2450-2600 psi
FLOW: 590-635 gpm

1960
(1626.8)

1970

1980
(1642.5)

13-09-2007

1990

2000
(1658.5)

500 50 5 .5

2010

2020
(1674.8)

2030

2040
(1691.1)

WOB: 28-38 Klbs
TDRPM: 155-160
SPP: 2450-2520 psi
FLOW: 590-595 gpm

2050

2060
(1707.1)

2070

2080
(1723.1)

2090

MW: 10.7ppg
FV: 123
PV: 43
YP: 27
O/W: 70.6/29.4
HTHP: 3.0
WPS: 221K

2100
(1738.8)

2110

2120
(1754.5)

2130

2140
(1770.1)

WOB: 28-38 Klbs
TDRPM: 155-160
SPP: 2450-2520 psi
FLOW: 590-605 gpm

2150

2160

.5 5 50 500 5K
100 1K 10K 100K 1000K

99 / 1

Survey:1965.09mMD (1630.7mTVD)
39.30°inc 113.83°az

99 / 1

Survey:1993.68mMD (1653.3mTVD)
35.90°inc 114.81°az

99 / 1

Survey:2022.04mMD (1676.5mTVD)
34.84°inc 117.69°az

99 / 1

Survey:2050.17mMD (1699.3mTVD)
36.50°inc 119.08°az

99 / 1

Survey:2079.41mMD (1722.6mTVD)
37.84°inc 119.35°az

99 / 1

Survey:2107.37mMD (1744.6mTVD)
38.50°inc 118.68°az

99 / 1

Survey:2136.33mMD (1767.2mTVD)
38.59°inc 118.46°az

99 / 1

CALCISILTITE(70%):pl med olv gry-med olv gry,mnr dissem pyr, tr carb spks,tr dissem Calcite, frm,sbblky.

CALCILUTITE(20%):v pl olv gry -v pl gry,arg i/p,tr lith spks, gdg to Clcslt.sft.sbblky.

CALCISILTITE(80%):pl olv gry-med olv gry,mnr-com liths,tr carb spks,hd-frm,v hd i/p,blky, sbblky i/p.

CALCILUTITE(30%):lt olv gry-olv gry,med gry i/p,tr lith frags, tr carb spks,com dissem glauc,com glauc frags,rr dissem Calcite,rr Calcite frags,frm-mod hd,blky-sbblky.

CALCISILTITE(70%):pl olv gry -lt olv gry,lt gry,lt brnsh gry i/p,tr lith frags,tr carb spks, tr carb lams,tr foss,com dissem glauc,com glauc frags,rr dissem Calcite,frm,sbblky.

CALCILUTITE(70%):v pl gry-med olv gry,tr glauc grs,tr liths,tr dissem pyr,tr foss,sft, sbblky.

CALCISILTITE(30%):pl olv gry -lt olv gry,lt gry,lt brnsh gry i/p,tr lith frags,tr carb spks, tr carb lams,tr foss,tr dissem glauc,com glauc frags,frm,sbblky.

CALCILUTITE(90%):v pl gry-med gry,lt olv gry i/p,tr liths, tr carb spks,tr foss,mod hd-hd, sft i/p,blky-sbblky.

CALCISILTITE(10%):lt olv gry-olv gry,tr carb spks,tr liths, frm-mod hd,sbblky.

CALCILUTITE:v lt-med gry,lt olv gry,tr liths,tr carb spks,tr Calcite frags,sft-frm,sbblky.

CALCILUTITE:v lt-med gry,lt olv gry,tr liths,tr carb spks,tr Calcite frags,tr dissem pyr,sft-frm,sbblky.

CALCILUTITE:v lt-med gry,lt olv gry,

500 50 5 .5 .5 100 5 1K 50 10K 500 100K 5K 1000K

2170
2180 (1801.6)
2190
2200 (1817.6)
2210
2220 (1833.6)
2230
2240 (1849.6)
2250
2260 (1865.7)
2270
2280 (1881.8)
2290
2300 (1897.7)
2310
2320 (1913.6)
2330
2340 (1929.5)
2350
2360 (1945.5)
2370

MW: 10.7ppg
FV: 117
PV: 44
YP: 26
O/W: 70.6/29.4
HTHP: 3.0
WPS: 225K

WOB: 28-38 Klbs
TDRPM: 155-160
SPP: 2450-2630 psi
FLOW: 575-605 gpm

WOB: 28-38 Klbs
TDRPM: 155-160
SPP: 2450-2630 psi
FLOW: 575-605 gpm

Survey:2164.51mMD (1789.4mTVD)
37.93°inc 118.78°az

99 / 1

Survey:2192.55mMD (1811.6mTVD)
37.27°inc 118.25°az

99 / 1

Survey:2220.97mMD (1834.3mTVD)
36.42°inc 118.58°az

99 / 1

Survey:2249.50mMD (1857.3mTVD)
36.44°inc 119.32°az

99 / 1

Survey:2277.75mMD (1880.0mTVD)
36.84°inc 121.02°az

99 / 1

Survey:2305.75mMD (1902.3mTVD)
37.44°inc 122.32°az

99 / 1

Survey:2334.40mMD (1925.1mTVD)
37.22°inc 121.22°az

99 / 1

Survey:2362.79mMD (1947.7mTVD)
36.69°inc 117.35°az

lt brnsh gry,tr liths,tr carb spks,tr Calcite frags,tr foss,sft-frm,sbblky.

CALCILUTITE:v lt-med gry,lt olv gry, lt brnsh gry,tr liths,tr carb spks,tr Calcite frags,tr foss,sft-frm,sbblky.

CALCILUTITE:v lt-med gry,brnsh gry, tr liths,tr Calcite frags,tr foss, tr dissem pyr,sft,amorph-sbblky.

CALCILUTITE:v lt-med gry,brnsh gry, tr liths,tr Calcite frags,tr foss, tr dissem pyr,sft,rr frm,amorph-sbblky.

CALCILUTITE:lt-med gry,tr liths,tr lams,tr dissem pyr,sft-frm,sbblky.

CALCILUTITE:lt-med gry,tr liths,tr lams,tr dissem pyr,sft-frm,sbblky.

CALCILUTITE:lt-med gry,tr liths,tr lams,tr dissem pyr,tr glauc,sft-frm, sbblky.

CALCILUTITE:lt-med gry,brnsh gry

i/p,tr liths,tr lams,tr dissem pyr,
sft-rr frm,sbblkly,rr amorph.

99 / 1

MW: 10.75ppg
FV: 120
PV: 47
YP: 25
O/W: 71.4/28.6
HTHP: 2.8
WPS: 247K

Survey:2389.95mMD (1969.5mTVD)
36.62°inc 116.10°az

2380
(1961.6)

2390

500 50 5 .5

2400
(1977.6)

.5 5 50 500 5K
100 1K 10K 100K 1000K

CALCILUTITE(90%):lt-med gry,brnsh gry i/p,tr liths,tr lams,tr dissem pyr, sft-rr frm,sbblkly,rr amorph.

CALCISILTITE(10%):med gry,olv gry, aren i/p,tr liths,frm-rr mod hd, sbblky.

99 / 1

2410

Survey:2417.94mMD (1991.9mTVD)
37.08°inc 116.97°az

2420
(1993.6)

2430

CALCILUTITE:lt-med gry,brnsh gry i/p,tr liths,tr lams,tr dissem pyr, sft-rr frm,sbblkly,rr amorph.

99 / 1

2440
(2009.6)

Survey:2446.07mMD (2014.4mTVD)
36.80°inc 117.57°az

WOB: 28-38 Klbs
TDRPM: 155-160
SPP: 2750-2830 psi
FLOW: 575-605 gpm

2450

99 / 1

2460
(2025.6)

CALCILUTITE:lt gry-med gry, brnsh gry,tr liths,tr dissem pyr, sft,rr frm,sbblky.

2470

Survey:2474.11mMD (2037.0mTVD)
36.23°inc 117.97°az

2480
(2041.6)

99 / 1

2490

CALCILUTITE:lt gry-med gry, brnsh gry,tr liths,tr dissem pyr,tr Calcite frags,sft,rr frm, sbblky.

2500
(2057.6)

Survey:2502.44mMD (2059.5mTVD)
38.25°inc 117.50°az

2510

CALCILUTITE:lt olv gry-pl olv gry,pl gry,tr liths,tr dissem pyr,tr glauc grs,tr carb spks,tr Clcslt,sft,amorph.

2520
(2073.2)

2530

Survey:2531.37mMD (2082.0mTVD)
39.64°inc 117.87°az

2540
(2088.6)

99 / 1 / Tr / Tr

CALCILUTITE(90%):lt olv gry-pl olv gry,pl gry,tr liths,tr dissem pyr,tr glauc grs,tr carb spks,tr nod pyr,sft,amorph.

CALCISILTITE(10%):lt olv gry -pl olv gry,pl gry,tr liths, tr dissem pyr,tr glauc grs,sft sbblky.

WOB: 20-30 Klbs
TDRPM: 155-160
SPP: 3090-3150 psi
FLOW: 645-650 gpm

2550

2560
(2104)

Survey:2559.98mMD (2104.0mTVD)
39.78°inc 118.54°az

MW: 10.75ppg
FV: 120
PV: 47
YP: 25
O/W: 71.4/28.6
HTHP: 2.8
WPS: 247K

2570

CALCILUTITE(90%):v lt gry-lt gry,v lt olv gry-med olv gry,mnr dissem & nod pur,mnr liths,loc arg i/p,sft,sbblky.

2580

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

2590

2600
(2135.1)

2610

2620
(2150.8)

2630

2640
(2166.5)

2650

2660
(2182.1)

2670

2680
(2197.7)

2690

2700
(2213.2)

2710

2720
(2228.8)

2730

2740
(2244.6)

2750

2760
(2260.5)

2770

2780
(2276.6)

2790

Survey:2588.17mMD (2125.9mTVD)
38.68°inc 118.97°az

99 / 1 / Tr / Tr

Survey:2617.01mMD (2148.4mTVD)
38.16°inc 118.71°az

Survey:2645.27mMD (2170.6mTVD)
38.52°inc 118.20°az

99 / 1 / Tr / Tr

Survey:2674.42mMD (2193.3mTVD)
39.10°inc 118.05°az

Survey:2702.52mMD (2215.1mTVD)
39.10°inc 117.27°az

99 / 1 / Tr / Tr

Survey:2731.28mMD (2237.7mTVD)
37.85°inc 117.19°az

99 / 1 / Tr / Tr

Survey:2760.06mMD (2260.6mTVD)
36.63°inc 118.45°az

99 / 1 / Tr / Tr

Survey:2788.47mMD (2283.4mTVD)

WOB: 18-30 Klbs
TDRPM: 155-160
SPP: 3100-3200 psi
FLOW: 645 gpm

MW: 10.75ppg
FV: 125
PV: 46
YP: 26
O/W: 71.4/28.6
HTHP: 2.8
WPS: 242K

14-09-2007

WOB: 28-35 Klbs
TDRPM: 155-160
SPP: 3180-3250 psi
FLOW: 638 gpm

MW: 10.75ppg
FV: 140
PV: 47
YP: 27
O/W: 71.4/28.6

CALCISILTITE(10%):olv gry,med gry,mnr liths,sft,sbblky.

CALCILUTITE:v lt olv gry-v pl brn,olv gry,tr dissem glauc, sft,sbblky.

CALCILUTITE:v lt olv gry-v pl brn,olv gry,tr dissem glauc,tr dissem pyr,sft,sbblky.

CALCILUTITE:v pl gry brn-pl gry brn,arg i/p,mnr lith,sli micmic,mnr dissem pyr,frm, sbblky-blky.

Top of Lakes Entrance:
2690.0 mMDRT, (-2205.4 mTVDRT)
(-2162.9 mTVDSS)

CALCAREOUS CLAYSTONE:med brnsh gry-med gry,slty i/p,mnr carb spks,mnr liths,mod calc,sli wxy txt,sli micmic,sft,sbblky-amorph.

CALCILUTITE:v pl gry brn,com carb spks,mnr dissem pyr,sli micmic,frm-sft,sbfiss.

CALCAREOUS CLAYSTONE:gry brn, med,dk olv gry,sli micmic,tr carb spks,mod calc,frm-mod hd,sbfiss-sbblky.

CALCAREOUS CLAYSTONE:v lt-med gry,pl brn,lt-med brnsh gry,rr med dk gry,tr dissem & nod pyr,tr carb spks,mod calc,sft-frm,tr mod hd,amorph-sbblky.

HTHP: 2.6
WPS: 247K

500 50 5 .5

2800
(2292.6)

2810

2820
(2308.6)

2830

2840
(2324.5)

WOB: 28-35 Klbs
TDRPM: 155-160
SPP: 3180-3250 psi
FLOW: 638 gpm

2850

2860
(2340.2)

2870

MW: 10.85ppg
FV: 133
PV: 50
YP: 26
O/W: 72.3/27.7
HTHP: 2.4
WPS: 255K

2880
(2355.9)

2890

2900
(2371.7)

2910

2920
(2387.5)

2930

2940
(2403.4)

2950

WOB: 5-15 Klbs
TDRPM: 155-160
SPP: 2680-2750 psi
FLOW: 590 gpm

2960
(2419.2)

MW: 10.85ppg
FV: 131
PV: 50
YP: 27
O/W: 73.5/26.5
HTHP: 2.4
WPS: 256K

2970

2980
(2435)

2990

3000

.5 5 50 500 5K
100 1K 10K 100K 1000K

36.29 inc 120.03 az

99 / 1 / Tr / Tr

Survey:2817.01mMD (2306.3mTVD)
37.24°inc 118.98°az

99 / 1 / Tr / Tr

Survey:2845.58mMD (2328.9mTVD)
38.07°inc 117.86°az

99 / 1 / Tr / Tr

Survey:2871.86mMD (2349.5mTVD)
38.33°inc 117.10°az

99 / 1 / Tr / Tr

Survey:2902.30mMD (2373.5mTVD)
37.94°inc 116.95°az

95 / 3 / 1 / 1

Survey:2931.13mMD (2396.3mTVD)
37.24°inc 118.15°az

94 / 3 / 2 / 1

60 / 12 / 15 / 10 / 3

Survey:2960.01mMD (2419.2mTVD)
37.98°inc 118.12°az

68 / 12 / 11 / 7 / 2

60 / 13 / 14 / 10 / 3

68 / 12 / 11 / 7 / 2

DATA LOSS DUE TO PLATFORM POWER FAILURE.

Survey:2988.74mMD (2441.8mTVD)
38.14°inc 118.12°az

61 / 14 / 13 / 9 / 3

.5 5 50 500 5K

CALCAREOUS CLAYSTONE:v lt-med gry,olv gry,gry brn,tr dissem & nod pyr,tr carb spks,mod calc,sft-frm,tr mod hd,amorph-sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,v lt gry-med gry,mod calc,mnr liths,tr micmic,tr nod pyr, sft-frm,tr mod hd,amorph-sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,v lt gry-med gry,mod calc,mnr liths,tr micmic,tr nod & dissem pyr,sft-frm,tr mod hd, amorph-sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,v lt gry-med gry,mod calc,mnr liths,tr micmic,tr nod & dissem pyr,sft-frm,tr mod hd, amorph-sbblky.

Baracarb added to mud system at 2850.0m MDRT

CALCAREOUS CLAYSTONE:lt brnsh gry,lt-med gry,mod calc, mnr liths,tr micmic,tr nod & dissem pyr,sft-frm i/p,amorph-sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,lt-med gry,mod calc, mnr liths,tr micmic,tr nod & dissem pyr,tr glauc grs,slty i/p, sft-frm i/p,amorph-sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,mod gry,mnr liths,tr dissem pyr,tr carb spks,tr lams, sft-rr frm,sbblky.

CALCAREOUS CLAYSTONE:pl brn, lt-med gry,slty i/p,mnr liths, tr dissem pyr,tr carb spks,tr lams,sft-frm,sbblky.

CALCAREOUS CLAYSTONE:lt-med gry,lt brnsh gry,rr slty,mod calc,rr dissem pyr,mnr glauc, tr carb spks,tr liths,sft-frm, sbblky.

CALCAREOUS CLAYSTONE:lt brnsh gry,lt-med gry,sli calc tr glauc,tr dissem pyr,mnr liths sft-frm,sbblky.

SILTSTONE:grnsh gry,yelsh brn, mottld,com micmic,tr carb mat, sft-frm,sbblky.

Top of Latrobe Group:
2934.2 mMDRT, (2398.7 mTVDRT)
(-2356.2 mTVDSS)

TCC (FM13J)
2942.8 mMDRT, (2405.6 mTVDRT)
(-2363.1 mTVDSS)

SANDSTONE:lt gry,clr-trnsl,vf-f rr lse crs grs,mod srt,sbang-sbrnd, rr ang,sbelon-sbsph,tr lt gry sil cmt,tr liths,tr nod pyr,fri-mod hd.

FLUOR:2940-2950m,2-5%,pl-mod brt,yel grn ptchy fluor,v slw diff cut,v slw-mod fast diff c/c,thn dll bl wh film res to ring res.

FM14A
2944.2 mMDRT, (2406.6 mTVDRT)
(-2364.1 mTVDSS)

F14B
2950.7 mMDRT, (2411.8 mTVDRT)
(-2369.3 mTVDSS)

F14D
2961.1 mMDRT, (2420.1 mTVDRT)
(-2377.6 mTVDSS)

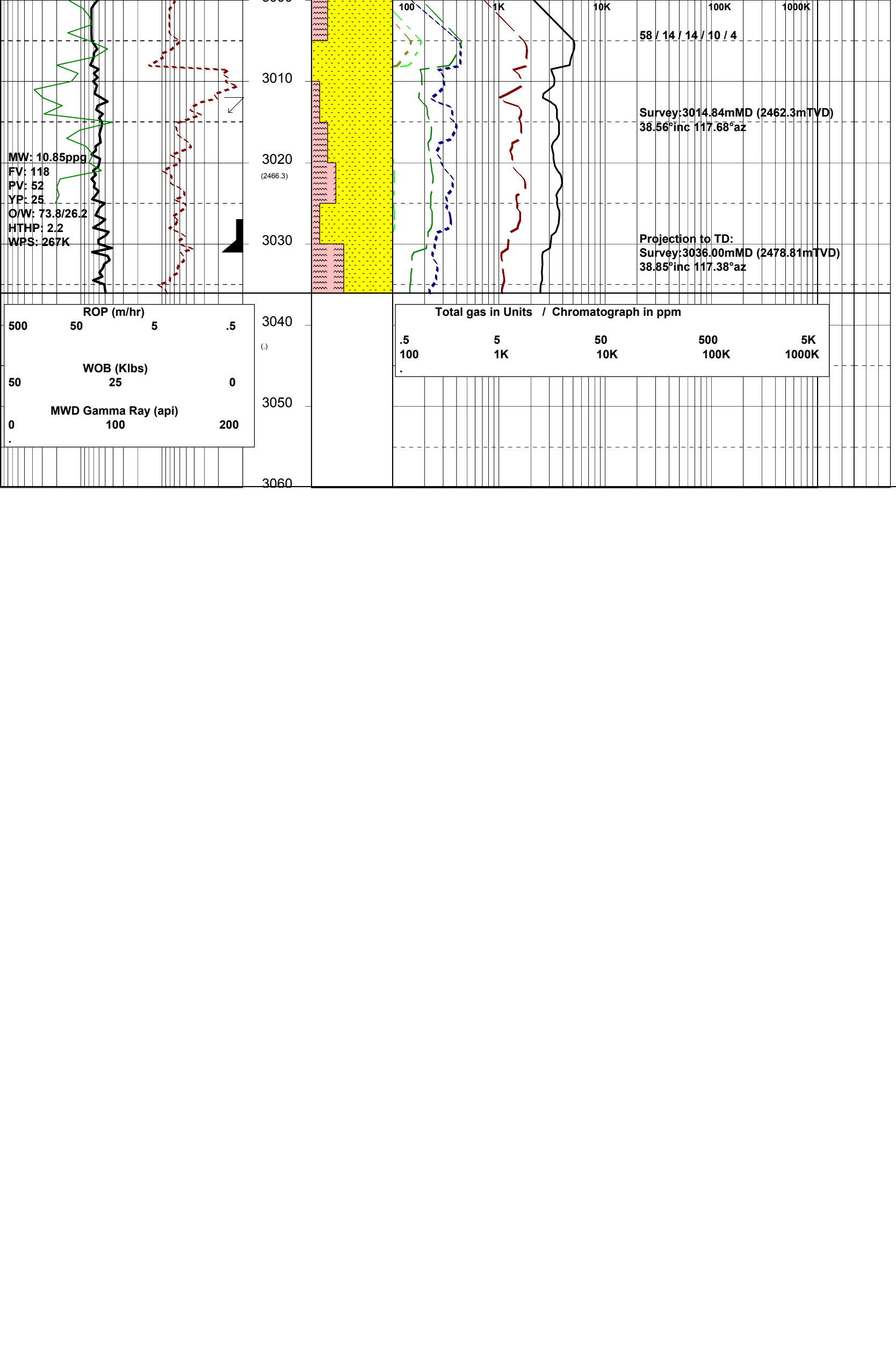
FFHB / M-101B
2965.7 mMDRT, (2423.7 mTVDRT)
(-2381.2 mTVDSS)

FFHD / M-101D
2971.4 mMDRT, (2428.2 mTVDRT)
(-2385.7 mTVDSS)

MC4
2975.8 mMDRT, (2431.6 mTVDRT)
(-2389.1 mTVDSS)

COAL:v dk gry-blk,rr v dk brn, sbvit,ea i/p,frm,brit,sbfiss-sbblky.

SILTSTONE:med-med dk brn,med dk gry,com carb mat,grdg to CARB



SLTST,aren,mnr micmic,frm,sbblky.

MC3
2990.4 mMDRT, (2443.1 mTVDRT)
(-2400.6 mTVDSS)

SANDSTONE:clr-trnsl,opq,med-v crs,mod srt,sbang-rnd,sbsph,tr nod pyr,gen lse cln qtz grs,no fluor.

1AFS
3003.2 mMDRT, (2453.2 mTVDRT)
(-2410.7 mTVDSS)

SANDSTONE:clr-trnsl,lt gry,med-crs,v crs i/p,mod srt,sbang-rnd,sbsph, tr nod pyr,tr fract qtz grs,gen lse cln qtz grs,no fluor.
SILTSTONE:med-med dk brn,med dk gry,com carb mat gdg to CARB SLTST,aren,frm,sbblky.
SANDSTONE:clr-trnsl,lt gry,vf-f aggs, med-crs lse grs,pr srt,sbang-sbrnd, sbsph,tr pl gry arg mtx,tr liths,tr nod pyr,fri-frm aggs,lse med-crs grs, no fluor.

FTA-A17A REACHED TD OF 3036.00 mMDRT 2478.81 mTVDRT (-2436.31 mTVDSS) AT 17:45 HRS ON THE 14th SEPTEMBER 2007

7" Production Casing Shoe at 3031.0 mMDRT

APPENDIX 4b

FORTESCUE A17A

Well Completion Log

ESSO AUSTRALIA RESOURCES PTY LTD.

WELL COMPLETION LOG
Scale – 1:200
FORTESCUE A17A

Gippsland Basin, Victoria
Concession: VIC/L5

POST-DRILL LOCATION: *Top of Latrobe*	Latitude:	38º 24' 54.614" S	**COMPILED BY:**	Sheryl Sazenis
	Longitude:	148º 17' 31.260" E		
	MGA X:	612795.32 mE	**DRAFTED BY:**	Arnaldo Ribeiro
	MGA Y:	5747329.01 mN		
	Depth:	2934.1 mMDRT	**DRILL RIG:**	Nabors Rig 453
		2398.7 mTVDRT		
		(-2356.2 mTVDSS)	**Datum:**	GDA94
ELEVATION:	G.L.:	111.5 m	**Spheroid:**	GRS80
	R.T.:	42.5 m	**Projection:**	UTM
	Water Depth:	69.0 m	**Map Grid/Cent.Meridian**	MGA Zone 55/147 deg E
			TOTAL DEPTH:	3036.00 mMDRT / 2478.81 TVDRT
DATES:	Spudded:	05/09/2007		
	Rig Released:	29/09/2007	**PLUGGED BACK T.D.:**	3002.0m MDRT
	I.P. Established:	06/10/2007		
	(Initial production)		**CLASSIFICATION:**	Oil Development
			STATUS:	Cased and Completed

SERVICE COMPANIES:

DRILLING CONTRACTOR:	International Sea Drilling Limited (Nabors Rig 175)	PRODUCTION TESTING:	n/a
MWD/LWD//DIRECT DRLG:	Schlumberger Anadrill	WELLSITE GEOLOGIST:	AIPC (Australian International Petro-Consultants)
GYRO SURVEYING:	SDI (Scientific Drilling Int.)	MUD LOGGING:	Geoservices Overseas S.A.
CORING:	n/a	PRESSURE RECORDING:	n/a
CEMENTING:	Halliburton	WELL VELOCITY SURVEY:	n/a
CASING:	Weatherford	MUD ENGINEERING:	Halliburton- Baroid
		LINER:	n/a

LEGEND

2.7m NOS
Ø = 17%
Sw = 32%

No Rec.
CORE
Rec.

PERFORATED INTERVAL

PLUG

SST RECOVERED SIDE WALL CORE LITHOLOGY
SST - Sandstone CLST - Claystone
SLST - Siltstone LMST - Limestone
MST - Mudstone ML - Marl
SH - Shale COAL - Coal

SIDE WALL CORE - NO RECOVERY

FIT

P2/11 MDT/RFT PRETEST RUN/SEAT NUMBER

S11/2 MDT/RFT SAMPLE RUN/SAMPLE NUMBER

P2/40 MDT VERTICAL/HORIZONTAL PERMEABILITY TEST

PACKER

BRIDGE PLUG

LOG ANALYSIS DATA
NS - Net Sand
NOS - Net Oil Sand
NGS - Net Gas Sand
Sw - Water Saturation

MUD DATA
Ø - Porosity
Snd - Sand
MW - Mud Weight
FV - Funnel Velocity
PV - Plastic Velocity
YP - Yield Point
Gel - Gel Strength
pH - Acidity/Alkalinity
WL - Water Loss
Cl - Chloride
Ca - Calcium
Sol - Solids
H2O - Water
Oil -Oil

SHOW OR STAIN

HYDROCARBON CUT

FLUORESCENCE

GAS SHOW

OIL PRODUCTIVE

GAS PRODUCTIVE

INTERPRETED OIL PRODUCTION

INTERPRETED GAS PRODUCTION

INTERPRETED WATER PRODUCTION

WATER PRODUCTIVE

CONDENSATE PRODUCTION

INTEPRETED CONDENSATE BEARING

DSTG DST WITH GAS RECOVERED

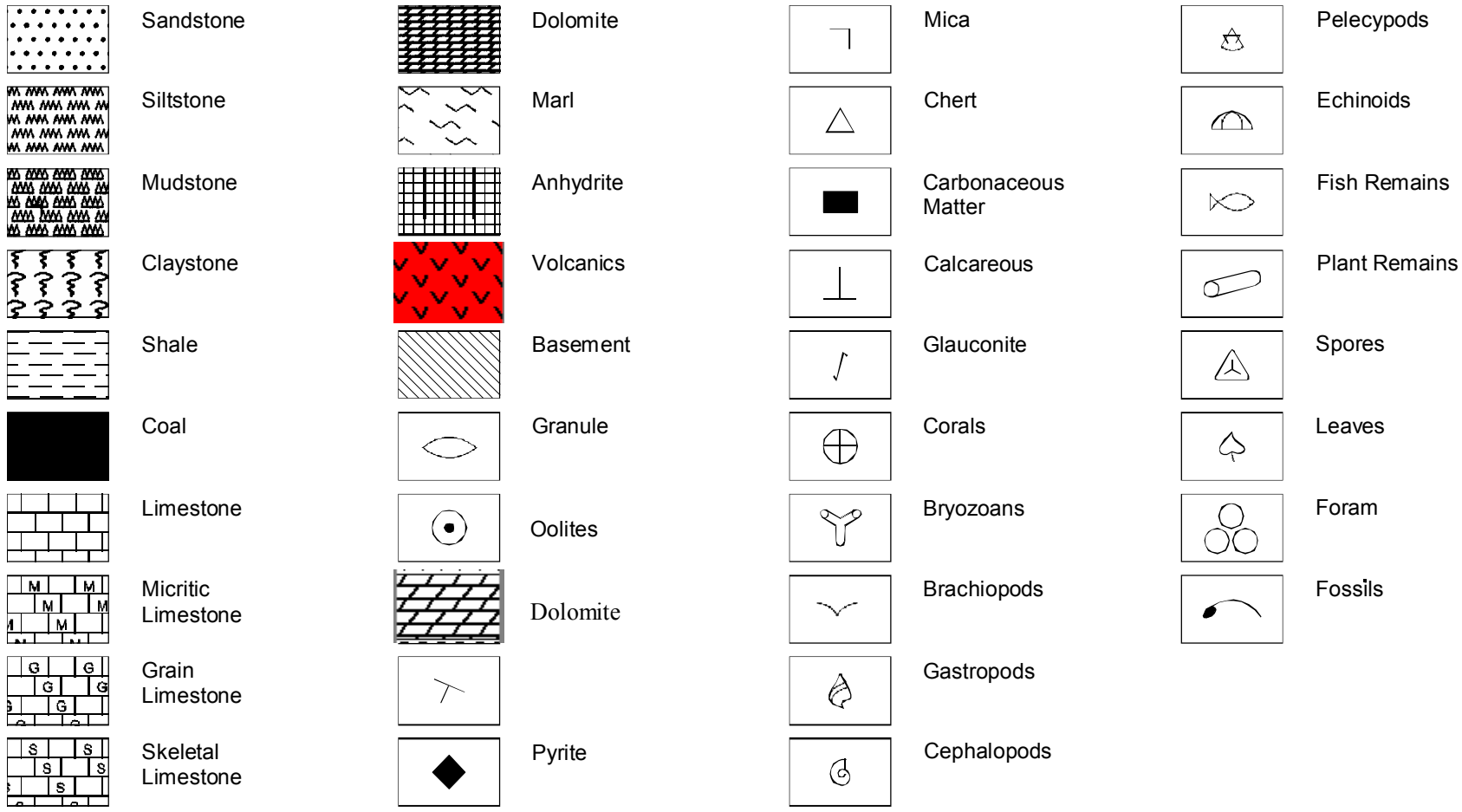
DSTO DST WITH OIL RECOVERED

SURVEY POINT

13-3/8" CASING SHOE

MUD

LITHOLOGICAL SYMBOLS



LOGGING AND SURVEYING

Anadrill Schlumberger	Interval (mMDRT)	Anadrill Schlumberger	Interval (mMDRT)
LWD (TeleScope – ADN – ARC - sonicVISION6) : Run 1	573.0 – 709.6	LWD (TeleScope – ADN – ARC - sonicVISION6) : Run 3	776.6 – 801.6
MWD (TeleScope): Run 2	635.0 – 738.9	LWD (TeleScope – ADN – ARC - sonicVISION6) : Run 4	812.0 – 3026.9

WELL DATA

Date	05 September 2007 - 06 September 2007	07 September 2007 - 09 September 2007	09 September 2007 - 10 September 2007	10 September 2007 - 16 September 2007
Run	LWD # 1	MWD # 2	LWD # 3	LWD # 4
Log	TeleScope-ARC-ADN-sonicVISION	TeleScope	TeleScope-ARC-ADN-sonicVISION	TeleScope-ARC-ADN-sonicVISION
Depth Driller	720.0m MDRT	763.0m MDRT	812.0m MDRT	3036.0m MDRT
Depth Logger	720.0m MDRT	763.0m MDRT	812.0m MDRT	3036.0m MDRT
Bottom Log Interval	709.6m MDRT	738.9m MDRT	801.6m MDRT	3026.9m MDRT
Top Log Interval	573.0m MDRT	635.0m MDRT	776.6m MDRT	812.0m MDRT
Casing Driller	656.0m MDRT	656.0m MDRT	656.0m MDRT	656.0m MDRT
Casing Logger	656.0m MDRT	656.0m MDRT	656.0m MDRT	656.0m MDRT
Casing Size	10 ¾"	10 ¾"	10 ¾"	10 ¾"
Casing Weight	40.5 ppf	40.5 ppf	40.5 ppf	40.5 ppf
Bit Size	8.5"	8.5"	8.5"	8.5"
Type of Fluid in Hole	ACCOLADE NAF	ACCOLADE NAF	ACCOLADE NAF	ACCOLADE NAF
Density	10.6 ppg	10.6 ppg	10.6 ppg	10.7 ppg
Rm @ Measured Temp.	N/A	N/A	N/A	N/A
Rmf @ Measured Temp.	N/A	N/A	N/A	N/A
Rmc @ Measured Temp.	N/A	N/A	N/A	N/A
Max. Recorded Temp.	47°C	-°C	47°C	90°C
Equipment / Location	Sale	Sale	Sale	Sale
Recorded By	M.Tan, M. Amarasena, M. Lu	M.Tan, M. Amarasena, M. Lu	M.Tan, M. Amarasena, M. Lu	M.Tan, M. Amarasena, M. Lu
Witnessed By	D. van der Aa	D. van der Aa	D. van der Aa	D. van der Aa

CORES

From (mMDRT)	To (mMDRT)	Rec %
---	---	

PERFORATIONS

From (mMDRT)	To (mMDRT)	Gun Type
2984.5	2987.0	MAX-R

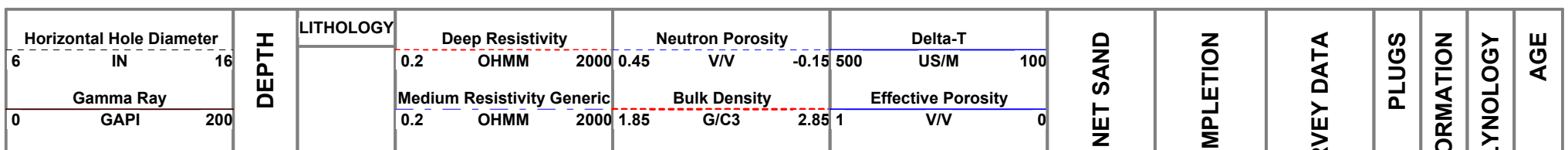
CASING

Size	Set @ (mMDRT)	SX Cmt	Formation
10.75"	656.0	--	Gippsland Limestone
7”	3030.5	162.7	Latrobe Group

PLUGS

From (mMDRT)	To (mMDRT)	SXCmt

3002.0(PBTD)		



2925

2900
(-2329.2)

2875
(-2309.5)

mMDRT
(mTVDSS)
2850

Shallow Resistivity
0.2
OHMM
2000

Bulk Vol Water
1
V/V
0

10 3/4"
656m

CO

2902.30
ANG 37.94
DIR 116.95
(-2331.00)

2873.0
MW 10.85ppg
FV 133sec/qt
PV 50cP
YP 26
pH

MUD / SUR

LAKES ENTRANCE FM

FO

PAL

OLIGOCENE - MIOCENE

(-2349.0)

Top of Latrobe Group (TOL)
2934.1m MDRT
(-2356.2m TVDSS)

2931.13
ANG 37.24
DIR 118.15
(-2353.84)

FLUORESCENCE: 2940-2950m, 2-5%, pl-mod brt, yel grn ptchy fluor, v slw diff cut,v slw-mod fast diff c/c, thn dll bl wh film res to ring res.

Top Coarse Clastics (TCC)/F13J
2942.8m MDRT(-2363.1m TVDSS)

F14A
2944.2m MDRT
(-2364.2m TVDSS)

Possible oil pay (0.6m TVD Net @ 8% cut-off, Por 9%, Sw 75.5%. Pyrite streak could be masking better porosity)
Oil Pay
2.3 mMD Net
1.8 mTVD Net @ 12% cut-off.
Ø 13.4%Sw 34.6%
(5.0m TVD Net @ 8% cut-off, almost all above 10% most likely will flow)

2950
(-2368.8)

F14B OIL
2950.7m MDRT
(-2369.3m TVDSS)

Oil Pay
1.0 mMD Net
0.8 mTVD Net
Ø 18.0%Sw 57.4%
Residual
Ø16.4%Sw 85.5%

F14C
2955.3m MDRT
(-2373m TVDSS)

Residual
Ø14.8%Sw 74.7%

F14D
2961.1m MDRT
(-2377.6m TVDSS)

2960.01
ANG 37.98
DIR 118.12
(-2376.72)

FFHB OIL
2965.1m MDRT
(-2380.7m TVDSS)

Oil Pay
1.2 mMD Net
1.0 mTVD Net
Ø 19.2%Sw 49.2%
Residual
Ø21.6%Sw 88.6%

2965.0
MW 10.85ppg
FV 131sec/qt
PV 50cP
YP 27
pH

FFHD UPPER
2971.4m MDRT
(-2385.7m TVDSS)

Residual
Ø20.0%Sw 90.6%

MC4/FFHD_LOWER
2975.1m MDRT
(-2388.6m TVDSS)

2975
(-2388.5)

2984.5m

Oil Pay
4.4 mMD Net
3.5 mTVD Net
Ø 23.1%Sw 14.9%

2987m

MC3
2990.4m MDRT
(-2400.7m TVDSS)

2988.74
ANG 38.14
DIR 118.12
(-2399.34)

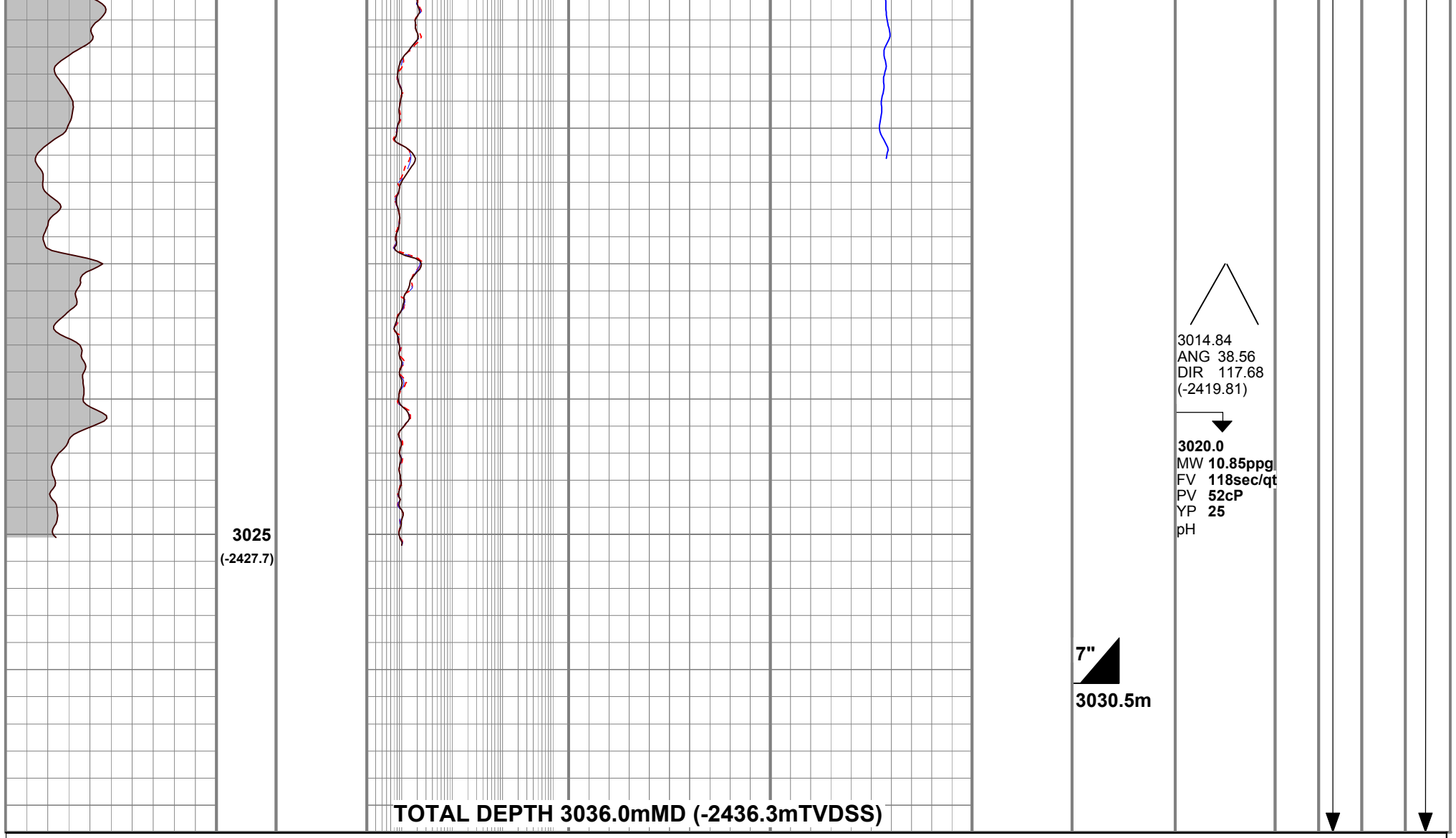
1AFS
2994.5m MDRT
(-2403.9m TVDSS)

Residual
Ø19.4%Sw 77.8%

3000
(-2408.2)

LATROBE GROUP

PALEOCENE - EARLY EOCENE



Fortescue A17A
Initial Production Date: 06/10/2007
Production Zone: M101DL
Initial Total Liquid Rate: .4.39kb/day
Initial water cut: 0%
Initial Oil rate:4.39 kb/day