



TEIKOKU OIL (BONAPARTE GULF) CO., LTD.

KINGFISHER - 1

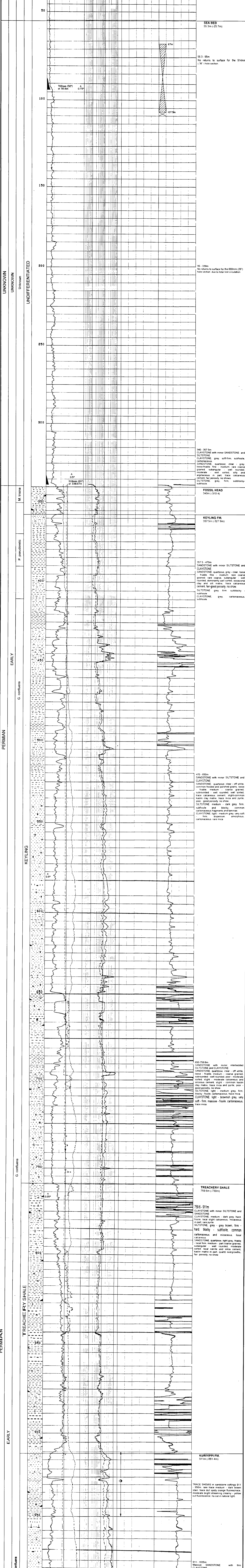
COMPOSITE WELL LOG

Scale 1:500

PERMIT: EP 57 ELEVATION: RT (Datum) 29.6m WD 25.7m SPUD DATE: 20 May 94 SENIOR GEOLOGIST: Yoshi Watanabe DRILLING: Reading & Bates MUD: Baker Inteq MUDLOGGING: Geoservices SUITE 1 LOGS (30 May 94) HOLE SIZE: 445mm (17 1/2") LOGGED INTERVAL: 1084-338m LOGS: DLL-SLS-GR-SP-CAL SHDT-GR	LOCATION: Southern Bonaparte Basin (Joseph Bonaparte Gulf, Northern Territory, Australia) STATUS: P & A TD: 3257m (-3227.4m) TD DATE: 2 Aug 94 OPERATION GEOLOGIST: Tom Gordon RIG: Jack-up 'Ron Tappmeyer' CEMENTING: Dowell Schlumberger WIRELINE LOGGING: Schlumberger SUITE 2 LOGS (17-18 Jun 94) HOLE SIZE: 311mm (12 1/4") LOGGED INTERVAL: 1814-1083m LOGS: DLL-MSFL-GR-AS-AMS-SP-CAL LDLCN-NGS-AMS-CAL SHDT-GR-AMS RFT-GR-AMS CST-GR-AMS	COORDINATES: (UTM: AGD 66, CM 129) Lat: 014° 46' 41.551" S Long: 129° 06' 38.757" E Northing: 8,366,196.3 m Easting: 511,920.4 m P&A DATE: 14 Aug 94 WELLSITE GEOLOGISTS: Mark Adamson Steve Falloon TESTING: Schlumberger SUITE 3 LOGS (3-9 Aug 94) HOLE SIZE: 216mm (8 1/2") LOGGED INTERVAL: 3255-1814m LOGS: DLL-MSFL-GR-AS-AMS-SP-CAL LDLCN-NGS-AMS-CAL SHDT-GR-AMS RFT-GR-AMS CST-GR-AMS SAT-GR-AMS
---	---	---

ROCK TYPE	LITHOLOGY LEGEND		OTHER CONSTITUENTS		SHOW LEGEND		ENGINEERING LEGEND	
	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CONGLOMERATE	[Symbol]	LIMESTONE (soft/fractions)	[Symbol]	SILICA	[Symbol]	Minor gas show	[Symbol]	Casing seat
SANDSTONE	[Symbol]	LIMESTONE (hard/yellowed)	[Symbol]	CALCITE	[Symbol]	Minor oil show	[Symbol]	Cement plugs / Bridge plug
SILTSTONE	[Symbol]	HALITE	[Symbol]	DOLomite	[Symbol]	Minor oil and gas shows	[Symbol]	Drill stem test
CLAYSTONE	[Symbol]	ANHYDRITE	[Symbol]	SIDERITE	[Symbol]	Gas show	[Symbol]	Perforated interval
SHALE	[Symbol]	GYPSUM	[Symbol]	PYRITE	[Symbol]	Oil show	[Symbol]	RFI - Some losses
COAL (thin)	[Symbol]	VOLCANICS	[Symbol]	LITHIC SPOREY FRAGMENTS	[Symbol]	Oil and gas shows	[Symbol]	RFI - Tight
GREENSLAND	[Symbol]	IGNEOUS BASEMENT	[Symbol]	FORAMINIFERA	[Symbol]	GAS PRODUCTION	[Symbol]	RFI - Lost
		METAMORPHIC BASEMENT	[Symbol]	GLAUCONITE	[Symbol]	GAS AND OIL PRODUCTION	[Symbol]	Core - Recovered

SERIES	STAGE	ZONE	FORMATION	SP/GR CAL/BS		RESISTIVITY		DENSITY		SONIC	LITHOLOGY DESCRIPTION AND REMARKS
				SP (MV)	GR (MV)	LLS (OHMM)	LLD (OHMM)	NEUTRON	SONIC		
PERMIAN	EARLY	G. confluens	KEYLING	180.00	200.00	200.00	200.00	2.600	1.800		SEA BED 55.3m (-25.7m) 55.3-95m No returns to surface for the 914mm 1.36" hole section
				200.00	200.00	200.00	200.00	2.600	1.800		
PERMIAN	EARLY	G. confluens	KEYLING	200.00	200.00	200.00	200.00	2.600	1.800		FOSSIL HEAD 340m (-310.4)
				200.00	200.00	200.00	200.00	2.600	1.800		
PERMIAN	EARLY	G. confluens	KEYLING	200.00	200.00	200.00	200.00	2.600	1.800		KEYLING FM. 357.5m (-327.9m)
				200.00	200.00	200.00	200.00	2.600	1.800		
PERMIAN	EARLY	G. confluens	KEYLING	200.00	200.00	200.00	200.00	2.600	1.800		TREACHERY SHALE 759.6m (-730m)
				200.00	200.00	200.00	200.00	2.600	1.800		
PERMIAN	EARLY	G. confluens	KEYLING	200.00	200.00	200.00	200.00	2.600	1.800		KURIYIPPI FM. 911m (-881.4m)
				200.00	200.00	200.00	200.00	2.600	1.800		



95-339m
No returns to surface for the 650mm (26") hole section due to total lost circulation

340-357.5m
CLAYSTONE with minor SANDSTONE and SILTSTONE
SANDSTONE quartzose clear - grey loose friable fine - medium rare coarse granular - subangular well rounded moderate - well sorted silty and argillaceous cement - trace calcareous clay matrix trace mica and pyrite poor - good porosity no show
SILTSTONE grey firm subblocky subfissile grey carbonaceous

357.5-470m
SANDSTONE with minor SILTSTONE and CLAYSTONE
SANDSTONE quartzose grey clear loose friable fine - medium rare coarse granular - subangular well rounded moderate - well sorted occasional clay and silt matrix trace calcareous cement fair good porosity no show
SILTSTONE grey firm subblocky subfissile grey carbonaceous

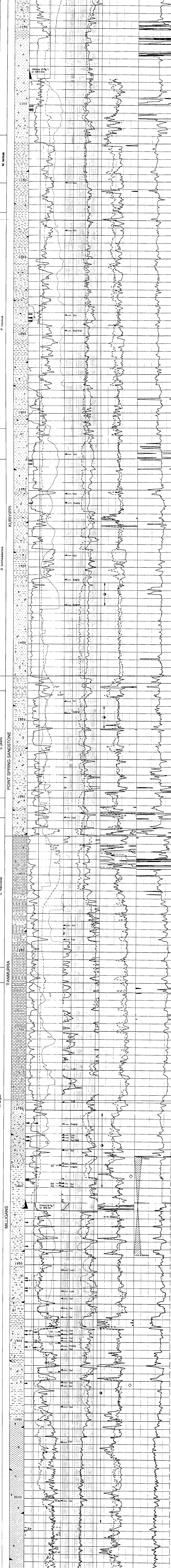
470-650m
SANDSTONE with minor SILTSTONE and CLAYSTONE
SANDSTONE quartzose clear - off white common frosted and polished grains loose friable medium - coarse granular - subangular well rounded moderate - well sorted silty and argillaceous cement - slight common kaolin clay matrix trace mica and pyrite poor - good porosity no show
SILTSTONE light - medium grey firm blocky fissile carbonaceous trace mica CLAYSTONE light - brownish grey very soft firm massive - fissile carbonaceous trace mica

650-759.6m
SANDSTONE with minor interbedded SILTSTONE and CLAYSTONE
SANDSTONE quartzose light grey friable loose friable medium - occasional coarse granular - well rounded - occasional subangular in part trace silica cement in part common quartz overgrowths good porosity trace show
CLAYSTONE grey - dark grey hard - occasional firm subfissile - silty slight carbonaceous and micaceous slight calcareous in part

759.6-911m
CLAYSTONE with minor SILTSTONE and SANDSTONE
CLAYSTONE medium - dark grey hard fissile local slight calcareous micaceous in part pyrite
SILTSTONE grey grey brown firm - hard blocky - subfissile common carbonaceous and micaceous local calcareous
SANDSTONE quartzose light grey friable loose friable medium - occasional coarse granular - well rounded - occasional subangular in part calcite and silica cement kaolin matrix in part quartz overgrowths fair porosity no show

911-1025m
Massive SANDSTONE with thin CLAYSTONE
SANDSTONE quartzose clear translucent loose friable medium - occasional coarse granular - well rounded - occasional subangular in part trace silica cement in part common quartz overgrowths good porosity trace show
CLAYSTONE grey - dark grey hard - occasional firm subfissile - silty slight carbonaceous and micaceous slight calcareous in part

CARBONIFEROUS
STEPHANIAN - WESTPHALIAN
KURUYIPPI
POINT SPRING SANDSTONE
TANMURRA
MILLIGANS



911 - 1035m
Massive SANDSTONE with thin
CLAYSTONE
SANDSTONE quartzose clear-translucent
loose - friable medium - occasional coarse
grained - well rounded - occasional
subangular well sorted trace kaolin matrix
matrix moderate siliceous cement part rare
quartz overgrowths, good porosity, trace
show
SILTSTONE grey - dark grey, hard -
occasional firm, subfissile - fissile, slight
carbonaceous and micaceous, slight
calcareous in part

1035 - 1124m
CLAYSTONE and SANDSTONE with minor
SILTSTONE
CLAYSTONE medium - dark grey, hard
fissile
SANDSTONE quartzose clear - translucent
firm-hard, fine-medium grained, angular
subrounded well rounded and floated in
part moderate well sorted trace kaolin
matrix moderate siliceous cement part rare
calcareous cement fair porosity no show
SILTSTONE light-medium grey firm -
fine blocky - subfissile micaceous sandy
in part

1124-1285m
CLAYSTONE with minor SANDSTONE and
SILTSTONE
CLAYSTONE light - dark grey light greyish
brown, very soft - amorphous -
subblocky massive, local carbonaceous
silty trace mica
SANDSTONE quartzose light grey, clear -
translucent, loose - firm fine - coarse
grained, local very fine - fine grained,
subangular-subrounded, local angular and
flattened, poor-moderate sorted, trace calcite
cement common quartz overgrowths, rare
pyrite nodules, local abundant kaolinite
matrix moderate siliceous cement, trace
SILTSTONE grey-greyish brown, soft -
fissile - subfissile, local very
argillaceous, local carbonaceous, laminae
coaly micaceous

1285 - 1470.5m
SANDSTONE with interbeds of
CLAYSTONE and SILTSTONE
SANDSTONE quartzose clear -
translucent light grey loose local firm -
hard fine - dominantly medium grained,
subangular - local subrounded moderate -
well sorted, occasional lithics, trace kaolin
matrix in part, slight siliceous cement, abundant
quartz overgrowths, rare pyrite cement,
moderate siliceous cement, trace mica
CLAYSTONE, off white, soft - firm,
silty sandy - amorphous - subfissile
matrix moderate siliceous cement, trace
micaceous
SILTSTONE light - medium grey - brown
firm, hard fissile, carbonaceous in part
very micaceous local laminated with
claystone

TRACE - POOR SHOWS in sandstone
cuttings 1410 - 1425m, trace - 50% of
sample with dull to moderate bright yellow
patchy to uniform fluorescence, moderate
bright, milky white - yellow, streaming
fluorescent cut

POINT SPRING SANDSTONE
1470.5m - (1440.9m)

TRACE - POOR SHOWS in sandstone
cuttings 1410 - 1425m, trace - 50% of
sample with dull to moderate bright yellow
patchy to uniform fluorescence, moderate
bright, milky white - yellow, streaming
fluorescent cut

1470.5 - 1575m
SANDSTONE with thin interbedded
CLAYSTONE and SILTSTONE
SANDSTONE quartzose clear -
translucent light grey loose local firm -
hard fine - dominantly medium grained,
subangular - round moderate - well sorted,
occasional lithics and nodular light -
moderate clay matrix (bedded in part),
light - moderate siliceous cement, abundant
quartz overgrowths, rare pyrite cement,
poor - fair porosity trace - poor show
CLAYSTONE grey off white, soft - firm,
silty sandy - amorphous - subfissile,
common kaolin carbonaceous, micaceous
SILTSTONE grey - brown firm - hard,
fissile carbonaceous in part, micaceous
local laminated with claystone

TRACE - POOR SHOWS in sandstone
cuttings 1410 - 1425m, trace - 50% of
sample with dull to moderate bright yellow
patchy to uniform fluorescence, moderate
bright, milky white - yellow, streaming
fluorescent cut

1575 - 1743.5m
LIMESTONE with minor SANDSTONE and
SILTSTONE
LIMESTONE recrystallised white - light
greyish brown firm - hard relic collies and
fossil fragments, common quartz, trace
carbonaceous matter and pyrite light, no
SANDSTONE quartzose clear -
translucent light grey loose, hard fine -
coarse grained, subangular moderate, trace
pyrite local trace glauconite, poor
porosity no show
CLAYSTONE light - medium grey, light -
local, firm, amorphous, subblocky,
subfissile local angular common mica
trace carbonaceous matter and grit
CLAYSTONE brown firm -
micaceous silty sandy massive

TANMURRA FM
1575m - (1545.5m)

Total lost circulation at 1580m at the top of
the Tanmurrá FM. Attempt to stop losses
by both LCM and cement plugs without
success in interval 1560-1630m. Drilled
from 1633m to 1817m with partial returns
(to 60%) using seawater with gel slugs

1743.5 - 1950m
SANDSTONE with minor interbeds of
CLAYSTONE and SILTSTONE
SANDSTONE quartzose clear -
translucent light grey loose local firm -
hard fine - dominantly medium grained,
subangular - rounded, poorly
sorted, occasional lithics and nodular
light - moderate siliceous cement, abundant
quartz overgrowths, rare pyrite cement,
poor - fair porosity trace - poor show
CLAYSTONE grey - brown firm - hard,
fissile carbonaceous in part, micaceous
local laminated with claystone

MILLIGANS FM.
1743.5m - (1713.9m)

TRACE - FAIR SHOWS in sandstone
sidewall cores 1767.5 - 1795.5m, no stain
or odour, dull moderate bright pinpoint -
patchy yellow fluorescence, dull -
fluorescent yellow - yellow, streaming
fluorescent cut

GAS PEAK in sandstone 1787 - 1795m
TG 1.67% (C1 82% C2 7% C3 4%,
C4 2%)

1743.5 - 1950m
SANDSTONE with minor interbeds of
CLAYSTONE and SILTSTONE
SANDSTONE quartzose clear -
translucent light grey loose local firm -
hard fine - dominantly medium grained,
subangular - rounded, poorly
sorted, occasional lithics and nodular
light - moderate siliceous cement, abundant
quartz overgrowths, rare pyrite cement,
poor - fair porosity trace - poor show
CLAYSTONE grey - brown firm - hard,
fissile carbonaceous in part, micaceous
local laminated with claystone

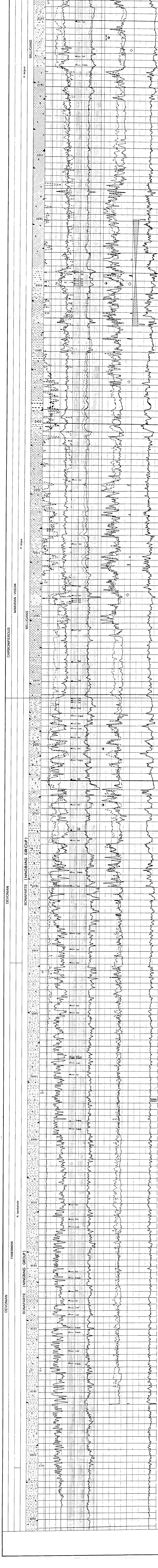
TRACE - POOR SHOWS in sandstone
cuttings 1890 - 2015m, trace - 50% of
sample with dull to moderate bright yellow
patchy to uniform fluorescence, moderate
bright, milky white - yellow, streaming
fluorescent cut

TRACE - FAIR SHOWS in sandstone
sidewall cores 1872 - 1929m, no stain
or odour, trace - 70% dull - moderate bright
pinpoint - patchy yellow fluorescence, dull -
yellow/green fluorescence, very dull -
moderate bright diffuse yellow fluorescent
cut

GAS PEAK in sandstone 1927 - 1930m
TG 2.2% (C1 95% C2 3% C3 1.5%,
C4 0.3%)

1950 - 2091m
SANDSTONE with trace SILTSTONE and
CLAYSTONE
CLAYSTONE light-medium grey very soft -
local, firm, amorphous, subblocky,
subfissile, sticky, trace mica and
carbonaceous matter
SILTSTONE grey firm subfissile platy
local splintery argillaceous trace mica and
carbonaceous matter
SANDSTONE quartzose light grey firm -
hard, very fine - fine grained, angular
subrounded, local rounded, well sorted
common siliceous cement, trace-moderate
calcareous matter, common quartz
overgrowths, trace-common kaolin clay
matrix, trace mica, rare lithics and pyrite
poor porosity, trace show

2091 - 2135m
SANDSTONE with minor CLAYSTONE and
SILTSTONE
SANDSTONE quartzose brown - grey,
friable, hard, very fine-grained, angular



2091 - 2135m
SANDSTONE with minor CLAYSTONE and SILTSTONE
CLAYSTONE quartzose brown - grey
fractured well sorted lithics in part
argillaceous and silty kaolin clay in part
common - abundant calcite and mica
cement common quartz overgrowths trace
pyrite and mica poor porosity no show
CLAYSTONE off white grey soft
silty and sandy in part also dark grey firm
subblocky - amorphous - argillaceous in part
subfissile micaceous carbonaceous
SILTSTONE brownish grey firm blocky -
subfissile argillaceous calcareous in part
local carbonaceous sandy in part

TRACE SHOWS in sandstone cuttings 2110
- 2115m no stain trace very dull yellow -
orange pigment fluorescence very dull
yellow crush fluorescent cut

GAS PEAK in sandstone 2122 - 2125m
TG 1.05% (C1 1.02% C2 0.6% C3 2%
C4 Trace)

At 2120m the well flowed on a flow check
after a drill break 100 psi SICPP and 75
psi SICPP were caused with a 1.1 slug mud
density. The mud density was increased to
1.7sg

2135 - 2250m
CLAYSTONE with minor SILTSTONE and
SANDSTONE
CLAYSTONE grey - local dark grey very
soft subblocky - amorphous trace
calcareous dispersive dark grey fraction
hard fissile common spirally micaceous
carbonaceous trace calcareous in part
SILTSTONE grey - brownish grey firm -
trace blocky - subfissile argillaceous slight
micaceous trace carbonaceous
SANDSTONE quartzose off white - hard
local friable very fine - fine grained angular
subrounded well sorted local clay matrix
common silica and slight calcareous
cement poor porosity no show

2250 - 2350m
CLAYSTONE with minor SILTSTONE and
SANDSTONE
CLAYSTONE trace calcareous in part
firm amorphous - subblocky dispersive
kaolin silty and sandy in part also dark
grey hard subfissile - fissile micaceous
SILTSTONE brown - grey firm - hard
blocky - fissile argillaceous very
argillaceous carbonaceous
SANDSTONE quartzose off white -
brownish grey hard - local friable very fine
fine grained angular - subrounded well
sorted kaolin clay matrix common silica
trace calcite cement poor porosity no
shows in cuttings

TRACE SHOW in sandstone sidewall core
2294 - 2297.5 no stain or odour dull
pigment - patchy yellow/green - orange
fluorescence no fluorescent cut dull yellow
residual fluorescent cut

GAS PEAK in sandstone 2290 - 2300m
TG 10.4% (C1 7.9% C2 1.9% C3 0.6%
C4 2%)

At 2294.5m the well flowed on a gas peak
from 1.3sg to 1.38sg following a gas peak
of 38.9%

2350 - 2612.5
CLAYSTONE with minor SILTSTONE and
SANDSTONE
CLAYSTONE dominantly light grey soft
firm amorphous - subblocky dispersive
silty carbonaceous also dark grey firm -
hard blocky - subfissile silty very
micaceous trace calcareous
SILTSTONE grey dark grey firm - hard
local silty argillaceous micaceous
trace calcareous
SANDSTONE quartzose off white - light
grey firm - hard very fine - fine grained
medium - moderate angular - subrounded
moderate - well sorted trace lithics silty
abundant kaolin clay matrix common silica
and trace calcite cement common quartz
overgrowths micaceous and carbonaceous
in part poor porosity no show

GAS PEAK in sandstone 2550 - 2550m
TG 10.4% (C1 9.5% C2 4% C3 1%
C4 Trace)

BONAPARTE FM.
2612.5m (C162.9m)

2612.5 - 2760m
SANDSTONE with interbedded
CLAYSTONE and minor SILTSTONE
CLAYSTONE quartzose off white - light
grey pale brown firm - poor porosity loose
grains very fine - fine grained local
angular - moderate sorted
subrounded - poor - moderate sorted
micaceous trace carbonaceous
SANDSTONE quartzose grey - brownish
grey loose broken grains and friable hard
aggregates very fine - coarse grained
mainly very fine - medium angular - well
sorted poorly sorted - silty and
micaceous nil - common kaolin matrix
abundant silica cement nil - trace calcite
cement common quartz overgrowths trace
lithics trace glauconite bituminous matter
very poor porosity no show
SILTSTONE grey minor brownish grey
soft hard blocky common - abundant
argillaceous silty and sandy in part
trace - common mica trace carbonaceous
matter

TRACE SHOW in sandstone sidewall core
at 2651m no stain or odour very dull
yellow pigment fluorescence very dull
yellow crush fluorescent cut

TRACE SHOW in sandstone sidewall core
at 2670m no stain or odour dull yellow
pigment fluorescence very dull yellow
residual fluorescent cut

2760 - 3022m
CLAYSTONE and
SANDSTONE with minor SILTSTONE
CLAYSTONE grey - greenish brown soft -
firm amorphous - subfissile dispersive
in part sticky local silty kaolin in
part slight calcareous - micaceous and
carbonaceous rare dark grey fissile
fraction firm carbonaceous grading to coal
in part trace mica
SANDSTONE quartzose trace lithics grey
greyish brown hard - very hard local
friable very fine - fine grained angular -
subangular rare subrounded well sorted
trace - common kaolin and local grey clay
matrix abundant mica cement quartz
overgrowths slight - common calcite and
trace calcite cement rare carbonaceous
matter and glauconite very poor porosity
no show
SILTSTONE greyish brown - off white firm
hard blocky subfissile very argillaceous
local slight calcareous very micaceous in
part common carbonaceous grades to
claystone

TOTAL DEPTH
3261m (C229.4m)