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PURSUIT OIL N.L.

HINDHAUGH CREEK NO. 1

P.E.P.68 - VICTORIA

FINAL WELL REPORT

Copy 7

Well Completion Report
Hindhaugh Creek-1
(W562)

PURSUIT OIL N.L.

HINDHAUGH CREEK NO. 1

OTWAY BASIN, VICTORIA

WELL COMPLETION REPORT

by

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and

K. Millheim (formerly Pursuit Oil N.L.)

Melbourne
February, 1970

CONTENTS

APPENDICES

I. SUMMARY

1) Drilling

Pursuit Oil N.L. Hindhaugh Creek No. 1,situated approximately nine miles north of Anglesea, Victoria (Fig. 1) drilled to a total depth of 7,781 feet (driller) or 7,798 feet (Schlumberger) with a Brewster N4 rig crewed by Richter Bawden Drilling Pty. Ltd. for the Operator, Pursuit Oil N.L.

Drilling commenced on August 21st, 1969, and was completed on October 31st, 1969, a total of 72 days.

Surface casing was set at 745 feet and intermediate casing was run to 4,262 feet. Three conventional cores were cut and forty one sidewall cores were taken.

A first log run was made to 4,528 feet for the Schlumberger Induction-Electric, Borehole Compensated Sonic with caliper, Compensated Formation Density and High Resolution Continuous Dipmeter. A second run of these logs with the addition of the Cement Bond Log, an Eastman Directional Survey and a Velocity Survey was made to the final total depth.

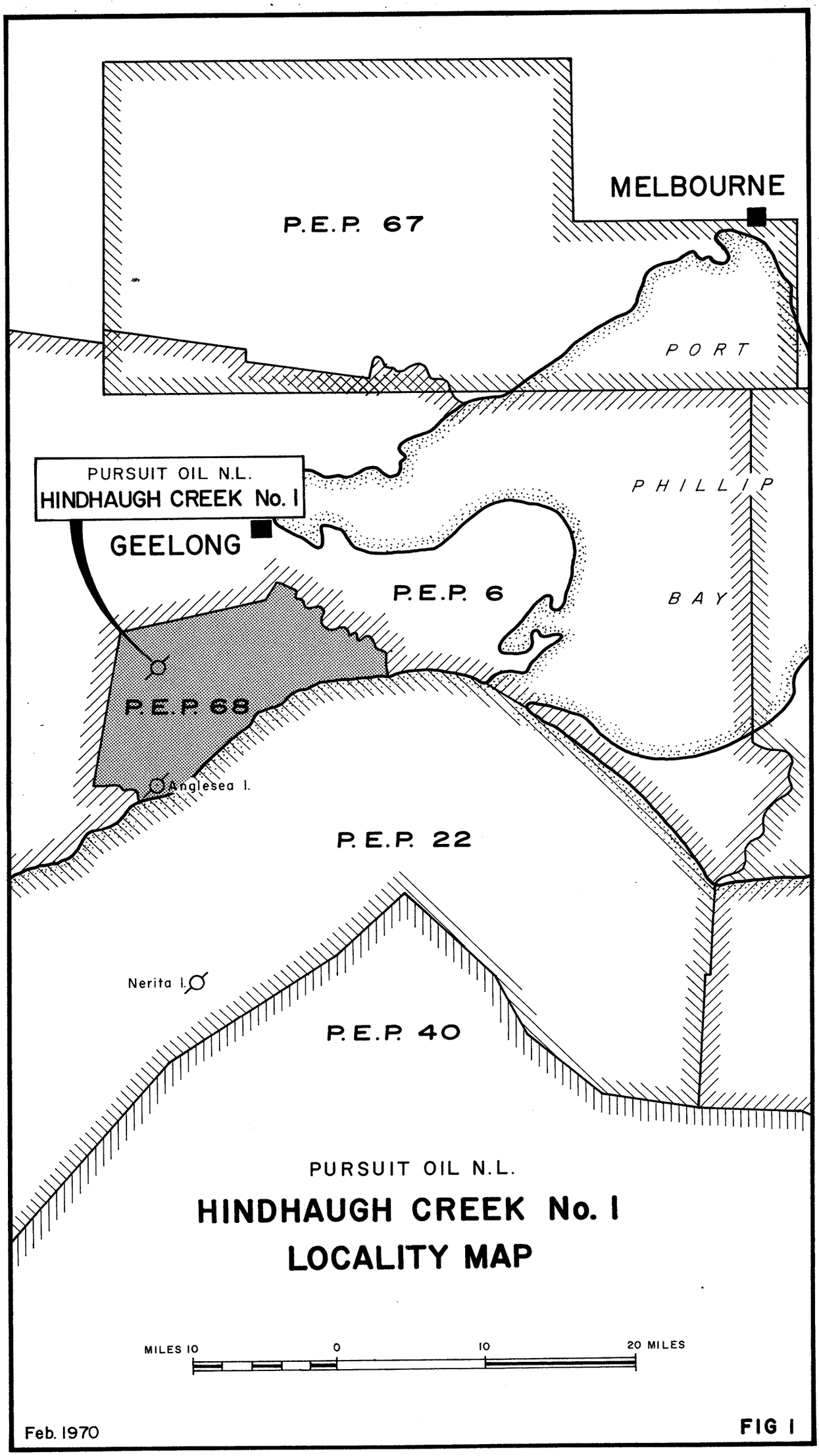
A total of two conventional and eight Halliburton RTTS drill stem tests were run.

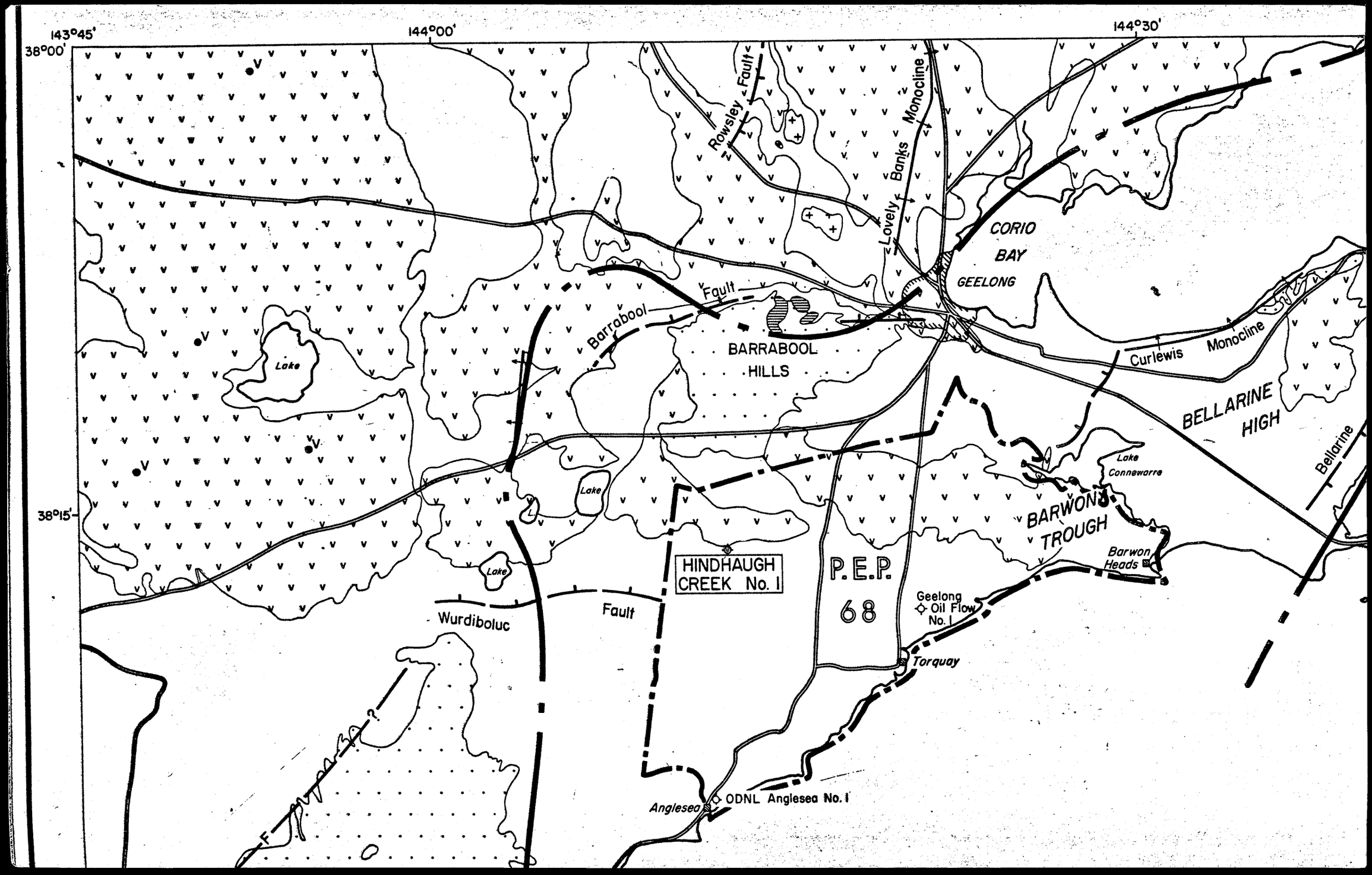
The well was plugged and abandoned as a dry hole on November 10th, 1969.

2) Geological

Pursuit Oil N.L. Hindhaugh Creek No. 1 was located within the northern hinge zone at the north east end of the Otway Basin.

Gravity work in the area had indicated the possibility of a relatively shallow basement overlain by thick low density sediments believed to be equivalent to the porous and permeable Lower Cretaceous Pretty Hill Sandstone of the central part of the onshore Otway Basin.


MELBOURNE
P.E.P. 67
PORT
PHILLIP
BAY
PURSUIT OIL N.L.
HINDHAUGH CREEK No. 1
GEELONG
P.E.P. 6
P.E.P. 68
Anglesea I.
P.E.P. 22
Nerita I.
P.E.P. 40
PURSUIT OIL N.L.
HINDHAUGH CREEK No. 1
LOCALITY MAP
MILES 10
0
10
20 MILES
Feb. 1970
FIG 1


143°45'
144°00'
144°30'
38°00'
38°15'
Rowsley Fault
Lovely Banks Monocline
CORIO BAY
GEELONG
Barrabool Fault
BARRABOOL HILLS
Curlewis Monocline
BELLARINE HIGH
Bellarine
Lake
Lake Connewarre
BARWON TROUGH
Barwon Heads
HINDHAUGH CREEK No. 1
P.E.P. 68
Geelong Oil Flow No. 1
Wurdiboluc Fault
Torquay
Anglesea
ODNL Anglesea No. 1

A relatively thin section of Otway Group and Tertiary sediments were postulated to overlie this potentially prospective zone.

The Hindhaugh Creek No. 1 well penetrated 380 feet of Tertiary clays, lignites, sands ~~and limestones~~ overlying a monotonous sequence of fluviatile mudstones, coals, siltstones and sandstones of the Otway Group. A total section of 7,401 feet of the Otway Group had been penetrated when the well reached the depth capacity of the drilling equipment at 7,781 feet (driller).

Several sand units in the upper part of the Otway Group section proved by minor hydrocarbon shows from drill stem testing and by porosity and permeability determinations from sidewall cores to have good reservoir potential. These units should provide good target zones for subsequent drilling activity in this area.

~~It is~~ evident that the Otway Group was much thicker than anticipated and no equivalent zone to the Pretty Hill Sandstone and no basement was encountered. However, it is felt that the well did achieve its objectives by providing useful stratigraphic and velocity data in a little known part of the Otway Basin.

III. INTRODUCTION

The Pursuit Oil N.L. Hindhaugh Creek No. 1 well was drilled as a stratigraphic test in the north east of the Otway Basin, approximately nine miles north of Anglesea, Victoria.

As outlined in the application for subsidy under the Petroleum Search Subsidy Act 1959 - 1969, the objectives of the well were four-fold:

1. To give stratigraphic control in a poorly known area of the Otway Basin.

2. To determine the presence of a geological formation basal to the Otway Group which may be the Pretty Hill Sand or its equivalent of Lower Cretaceous age.

3. To validate the interpretation of the recent Gravity Survey undertaken in the general Anglesea - Torquay area by Geosurveys of Adelaide, and to gain subsurface density control.

4. To gain velocity control for future seismic work within the area of P.E.P. 68.

Interpretation of results from a gravity survey undertaken by Pursuit Oil N.L. in June, 1969, indicated the presence of a small gravity anomaly in the Hindhaugh Creek area. Rock types having a density of 2.67 or greater were postulated to exist at a depth of between 4,500 and 5,000 feet. This was interpreted to be basement. Cambrian "greenstones" of this density do crop out in the Barrabool Hills some nine miles north of the wellsite. Basement was believed to be overlain by a sequence of some 2,000 feet having a density of 2.37. This was interpreted as a sequence containing the possible equivalent to the porous and permeable Pretty Hill Sandstone encountered in the Pretty Hill No. 1, Garvoc No. 1 and Woolsthorpe No. 1 wells of the general Warrnambool area, some 100 miles to the west in the central part of the onshore Otway Basin. 2,500 feet of Otway Group and Tertiary sediments with densities of 2.50 and 2.30 respectively, were believed to overlie the Pretty Hill Sand equivalent.

Drilling subsequently proved this interpretation to be invalid. A total section of 380 feet of Tertiary and 7,401 feet of Otway Group sediments were penetrated and no Pretty Hill Sand equivalent or basement was encountered. However, a predominantly mudstone section with a density of 2.65 or greater was present below 4,200 feet and several significant sandstone units with densities below 2.40 were encountered between 3,000 and 4,200 feet.

The Hindhaugh Creek No. 1 well was also located in an area where anomalously high propane to methane (C_3-C_1) values had been determined from a geochemical survey. These appeared to be arranged in a "halo" around the gravity anomaly. The mud gas detector operated during drilling operations did determine the presence of methane over a substantial section with interbedded coal seams, and ignitable gas was recovered in quantities too small to measure in a drill stem test over the interval 2,328-2,374'.

Seismic work was not attempted prior to drilling due to the proximity and availability of drilling equipment and a lack of reliable velocity data in the area. It was felt that a relatively shallow stratigraphic test to investigate presence of the potential Pretty Hill Sand would provide valuable velocity data and determine the validity of running a costly seismic survey in the area. A velocity survey was run in the well and results are enclosed with this report (Enclosure 4).

take departure cost 36000

Hudbell cost 35.000

III. WELL HISTORY

1) General Data

(i) Well name and number:

Pursuit Oil N.L. Hindhaugh Creek No. 1

(ii) Name and address of Operator:

Pursuit Oil N.L.,
343 Little Collins Street,
Melbourne, Victoria. 3000.

(iii) Name and address of Joint Tenement Holder:

Mr. James Say,
1274 Malvern Road,
Malvern, Victoria. 3144.

Hindhaugh Creek No. 1 was drilled as a sole risk venture by Pursuit Oil N.L. under a farmout agreement with Mr. Say. Under this agreement Pursuit Oil N.L. earned 100% of P.E.P. 68, subject to a 10% carried interest to Mr. Say, for drilling to a total depth of 8,000 feet (or 6,000 feet in the event of encountering hydrocarbons).

(iv) Petroleum tenement:

Petroleum Exploration Permit 68

(v) District: Queenscliff (1:250,000 J 55 - 9)

(vi) Location: Latitude: 38° 16' ~~43~~ 41.1" S
Longitude: 144° ~~12' 05~~ 11' 58" E

(vii) Elevation:
Ground 232 ft. A.S.L. 70.71m
K.B. 244½ ft. A.S.L. 74.52m
245 ft. A.S.L. → 74.68m (datum for depth measurements)
D.F. 243½ ft. A.S.L.

(viii) Total depth: 7,798 ft. (Schlumberger) 2376.83
7,781 ft. (Driller) 2371.65

(ix) Date drilling commenced: August 21st, 1969.

(x) Date total depth reached: October 31st, 1969.

(xi) Date well abandoned: November 10th, 1969.

(xii) Date rig released: November 10th, 1969.

(xiii) Drilling time in days to T.D.: 72 days

1) General Data (cont'd)

(xiv) Status: Plugged and abandoned.

Plugs: BAKER Model K Permanent plug 4,230' (KB)
BAKER Model K Permanent plug 3,845' (KB)
BAKER Model K Permanent plug 2,414' (KB)
BAKER Model K Permanent plug 2,280' (KB)

Cement plugs: 1,190'-1,070' 50 sks
200'-surface 70 sks

(xv) Total cost: Approximately $335,000.

2) Drilling Data

(i) Name and address of Drilling Contractor:

Richter Bawden Drilling Pty. Ltd.,
East Tower,
Princes Gate Building,
151 Flinders Street,
Melbourne, Victoria. 3000.

(ii) Drilling Plant:

Make:	Brewster
Type:	N4
Rated Capacity:	6,000' with $4\frac{1}{2}$" DP
	8,000' with $3\frac{1}{2}$" DP

Motors:

Make:	General Motors
Type:	Twin 6-71 Model 12107
BHP :	356

(iii) Mast:

Make:	Lee & Moore
Type:	126' cantilever
Rated Capacity:	386,000 lbs.

(iv) Pumps:

Make:	Oilwell
Type:	214P(2)
Size:	$7\frac{1}{4}$" x 14"

Pump Motors:

Make:	General Motors
Type:	Twin 6-71 Model 12107
BHP :	356

2) Drilling Data (cont'd)

(v) Blowout Preventer Equipment:

Make:	(1) Regan	(1) Cameron
Size:	10"	12"
Type:	Type K	Type SS
Series:	900	900
Operating Unit:	Payne accumulator, Model NSSUA-80-3	

(vi) Hole Sizes: $17\frac{1}{2}$" Surface to 750'
$8\frac{3}{4}$" 750 - 4,606'
Reamed to $12\frac{1}{4}$" 750 -4,280'
$8\frac{1}{2}$" 4,606 - T.D.

(vii) Casing and Cementing Details:

Size:	13-3/8"	9-5/8"
Weight:	48 lbs/ft.	36 lbs/ft.
Grade:	H-40	J-55
Range:	2	2
Setting Depth:	745'	4,262'

Both strings of casing had a Halliburton guide shoe at the bottom of the string with a float collar one joint above the guide shoe. Three centralizers were used on each string. The location of the centralizers on the 13-3/8" string was 650, 450 and 200 feet. The centralizers on the second string were located at 4,100, 3,900 and 3,700 feet. No scratchers were run on either string. Top and bottom Halliburton plugs were run for both strings of casing.

Cementing Treatment on 13-3/8" casing:

Amount: 403 sks Class 'A' cement
110 sks Class 'A' cement with 2% $Cacl_2$

Cement returns were obtained minutes prior to bumping plug. The casing was pressured to 1100 psi after 8 hours W.O.C.

Cementing Treatment on 9-5/8" casing:

Amount: 230 sks Class 'A' cement with 2% $CaCl_2$
50 sks Class 'A' cement

The cement top was found from the bond log at 3,290 ft. (K.B.).

2) Drilling Data (cont'd)

(viii) Drilling Fluid:

Type: Fresh water - Bentonite
Average weight: 10.2 lbs/gal.

Treatment:

Mud weight was maintained by continuously dumping the mud tanks and adding water. Fluid loss was controlled by adding cellulol and Ligcon. Viscosity of the mud was controlled by adding Uni-cal. The pH was maintained at 9.0 - 10.0 by using caustic. After drilling out the cement, sodium bi-carbonate was used and then the mud was discarded.

Average Weekly Analysis:

Week Ending	Weight lbs/gal.	Funnel Viscosity (Sec)	Fluid loss cc/ 30 min	Filter loss (inches)	Sand %	pH
Aug.27,'69	0.8	43	8.1	2/32	1¼%	9.2
Sept.3,'69	9.5	40	10.0	2/32	1%	9.5
" 10,'69.	10.4	42	10.2	2/32	1%	8.5
" 17,'69	10.4	42	10.6	2/32	¾%	9.2
" 24,'69	10.4	42	9.6	2/32	1%	9.6
Oct. 1,'69	10.2	44	9.6	2/32	1%	9.5
" 8,'69	10.3	43	8.8	2/32	1%	8.8
" 15,'69	10.0	43	10.5	2/32	1%	10.5
" 22,'69	10.1	45	8.8	2/32	1%	10.5
" 28,'69	10.1	47	8.8	2/32	1%	10.2

Total Mud Materials Consumed:

Gel	692 sks.
Super-Col	809 sks.
Uni-cal	248 sks.
Caustic	2,160 lbs.
Ligcon	116 sks.
Cellofas	36 sks.
$NaHCO_3$	7 sks
Cellulol	2,100 lbs.

(ix) Water Supply:

Water was hauled from a standpipe at Moriac, a distance of four miles.

(x) Perforating and Shooting Record:

A series of 7 D.S.T. tests were run inside the 9-5/8" casing after reaching T.D. Also, a series of cement jobs were run which entailed perforating.

2) Drilling Data (cont'd)

(x) Perforating & Shooting Record (cont'd):

Perforating Record:

Casing Size	Interval	Type	Shots/ ft.	Hole Size	Method
9-5/8"	4144-4175	Jet	4	3/8"	Electrical
"	3770-3800	"	"	"	"
"	2414	"	"	"	"
"	2327-2374	"	"	"	"
"	2414	"	"	"	"
"	2328-2374	"	"	"	"
"	2239-2259	"	"	"	"
"	1167-1192	"	"	"	"

(xi) Plugging Back and Squeeze Cementation Jobs:

A 200' cement plug at 5,900' (67 sks. Class 'A' cement) was run in order to sidetrack the well bore from a fish left in the hole. The sidetrack could not be started, therefore the entire cement plug was drilled out. A cement job was run behind the 9-5/8" casing in order to test intervals that were not initially cemented. The first cement job was 2,410' and was cemented with 200 sks. of Class 'A' cement with 2% CaCl. Bond log cement top was 2,000'. Re-cemented same interval with 700 sks. Class 'A' cement to 800'. Pressure tested annulus during D.S.T. at 1162 - 1192 and found no communication.

(xii) Fishing Operations:

A series of fishing operations resulted from twist offs in the collars or the first stand of drill pipe.

Fishing Job No. 1: 2,668'

Twisted off pin above stabilizer. Ran in with overshot and recovered fish on first attempt.

Fishing Job No. 2: 2,828'

Twisted off in collars. Recovered fish on first attempt with overshot.

Fishing Job No. 3: 3,151'

Twisted off on drill pipe. Recovered fish on first attempt with overshot.

Fishing Job No. 4: 4,446'

Twisted off on drill pipe. Recovered fish on first attempt with overshot.

2) Drilling Data (cont'd)

(xii) Fishing Operations (cont'd):

Fishing Job No. 5: 5,966'

Twisted off at pin leaving 2 collars in hole. Driller dropped TOTCO down hole not realising he had lost the collars; this resulted in the TOTCO lodging between the collars and well bore. An overshot was run but the fish could not be pulled loose. Ran cement plug above fish and tried to sidetrack with dyna-drill. This attempt failed. Two whip-stocks were attemped with no success. A mill and wash-over pipe was then used to mill up the TOTCO. The TOTCO was milled and the collars were retrieved with an overshot.

No other fishing jobs occurred throughout the remainder of the well.

(xiii) Side-tracked Holes: Nil

3) Formation Sampling

(i) Ditch Cuttings:

Drill cuttings were collected from the shale shaker; and washed over a coarse and fine sieves. Each sample was then dried and packaged for distribution. 30 feet samples were obtained to 750' and 10 feet samples were obtained from 750' to T.D. The cuttings are stored at the following locations:

(a) Bureau of Mineral Resources,
Core and Cutting Laboratory,
Collie Street,
Fyshwick, Canberra. A.C.T.

(b) Department of Mines,
Core Laboratories,
Cook Street,
Port Melbourne, Victoria.

(c) Pursuit Oil N.L.,
343 Little Collins Street,
Melbourne, Victoria.

(ii) Coring:

Core No.	Interval Cored	Feet Cored	Recovery (ft.)	% Recovery
1	1257-1264	7	7	100
2	3659-3673	14	12.5	89
3	7776-7781	5	.5	10

3) Formation Sampling (cont'd)

(ii) Coring (cont'd):

Portions of each core were divided and distributed as follows:

4 inches of every 2 feet were sent to (a) and the remainder were sent to (b).

(iii) Side-wall Sampling:

60 sidewall cores were attempted using a Schlumberger sidewall core gun with hard formation core heads. 41 sidewall cores were obtained and are tabulated below:

Depth	Recovery	Depth	Recovery
917	2"	3,809	1¼"
1,098	1¾"	3,821	1"
1,191	1¾"	4,147	1¾"
1,303	1¾"	4,159	¾"
1,461	¾"	4,172	¾"
1,500	1"	4,440	½"
1,759	¾"	4,502	½"
2,234	¾"	4,510	¼"
2,329	¾"	4,941	¾"
2,346	1½"	5,086	¾"
2,350	½"	5,155	½"
2,700	¾"	5,175	¼"
3,000	¾"	5,237	1½"
3,565	¾"	5,270	¾"
3,569	1¼"	5,539	1¼"
3,571	1¼"	5,547	1½"
3,607	¾"	5,829	1"
3,782	1½"	5,833	1½"
3,790	½"	6,091	¾"
3,793	¾"	7,097	1"
3,795	1"		

The lithology of each plug was described, and cores of arenaceous material were sent to Core Laboratories for permeability, porosity, and water saturation determination. Samples were also sent to the B.M.R. for palynological examination and some selected cores were sent to the C.S.I.R.O. in Sydney for determination of hydrocarbon generating potential (from the coals).

4) Logging and Surveys

(i) Electrical and other logging - Schlumberger:

Induction Electrical Log (2 runs)	745-4,529'
	4,240-7,798'
BHC Sonic with caliper (2 runs)	745-4,529'
	4,240-7,798'
Gamma Ray (2 runs)	745-4,529'
	4,240-7,798'
Formation Density - caliper (2 runs)	745-4,529'
	4,240-7,798'
Continuous Dipmeter (2 runs)	745-4,529'
	4,240-7,798'
Cement Bond Log	3,150-4,200'

(ii) Geolograph:

a) Penetration Rate:

A Geolograph Drilling Time Log was run from surface to F.T.D.

b) Gas Log:

50' to F.T.D. A hot wire and catalytic heater type gas detector was used continuously throughout the well. Results are presented in the composite log in units of gas (as recorded by this type of detector).

(iii) Deviation Survey:

Deviation Surveys were run periodically with a TOTCO 8° double recorder. Results are tabulated below. A multishot direction survey was also run by Eastman. Results are presented in Enclosure 4. Also consult the continuous dipmeter for deviations and directions.

Depth	Deviation	Depth	Deviation
220	¾°	2,670	2½°
280	½°	2,920	2¾°
335	¼°	3,090	2¼°
395	1°	3,180	2¼°
473	⅛°	3,360	2½°
520	¼°	3,516	4°
580	¾°	3,656	4¾°
634	1°	3,790	4¾°
664	¾°	4,030	5½°
997	1½°	4,375	6¼°
1,150	¾°	4,700	5½°
1,400	1¼°	5,000	5°
1,500	¾°	5,308	4¾°
1,746	2½°	5,600	5°
1,870	2¼°	6,081	4°
1,964	2¼°	6,290	2¾°
2,036	2°	6,620	2°
2,130	2½°	6,831	2°
2,213	2½°	7,042	1¾°
2,314	2½°	7,340	2¾°
2,400	2½°	7,489	3°
2,558	2½°	7,767	2½°

4) Logging and Surveys (cont'd)

(iv) Temperature Surveys:

Four temperatures were obtained with maximum reading thermometers either from logging, D.S.T., or by running the thermometers in the TOTCO cas. These are as follows:-

4,528'	150°F
5,100'	186°F
6,100'	226°F
7,798'	234°F

(v) Other Well Surveys: None

5) Testing

(i) Formation Testing:

Ten drill stem tests were run.

D.S.T. No.	Interval Tested	Type of Test	Results
1	1,481 - 1,511	Conventional D.S.T. with dual packers.	Very weak blow throughout test, slightly increasing. Recovered 30' of mud.
2	5,071 - 5,131	Conventional D.S.T. with dual packers.	Very weak blow initial flow. After first few minutes, blow died. Recovered 30' of mud.
3	4,144 - 4,175	Halliburton RTTS D.S.T. Tool, single packer, done behind casing.	Fair blow decreasing to weak blow at end of test. Recovered 60' of drilling mud.
4	4,144 - 4,175	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Acidized interval with 600 gallons of 15% HCL and retested. Moderate blow decreasing to weak blow at end of test. Recovered 170' of slightly oil cut mud and 160' of muddy spent acid water.
5	3,770 - 3,800	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Strong blow decreasing to weak blow at end of test. Recovered 1170' of heavily gas cut water and 760' of gas cut muddy water.

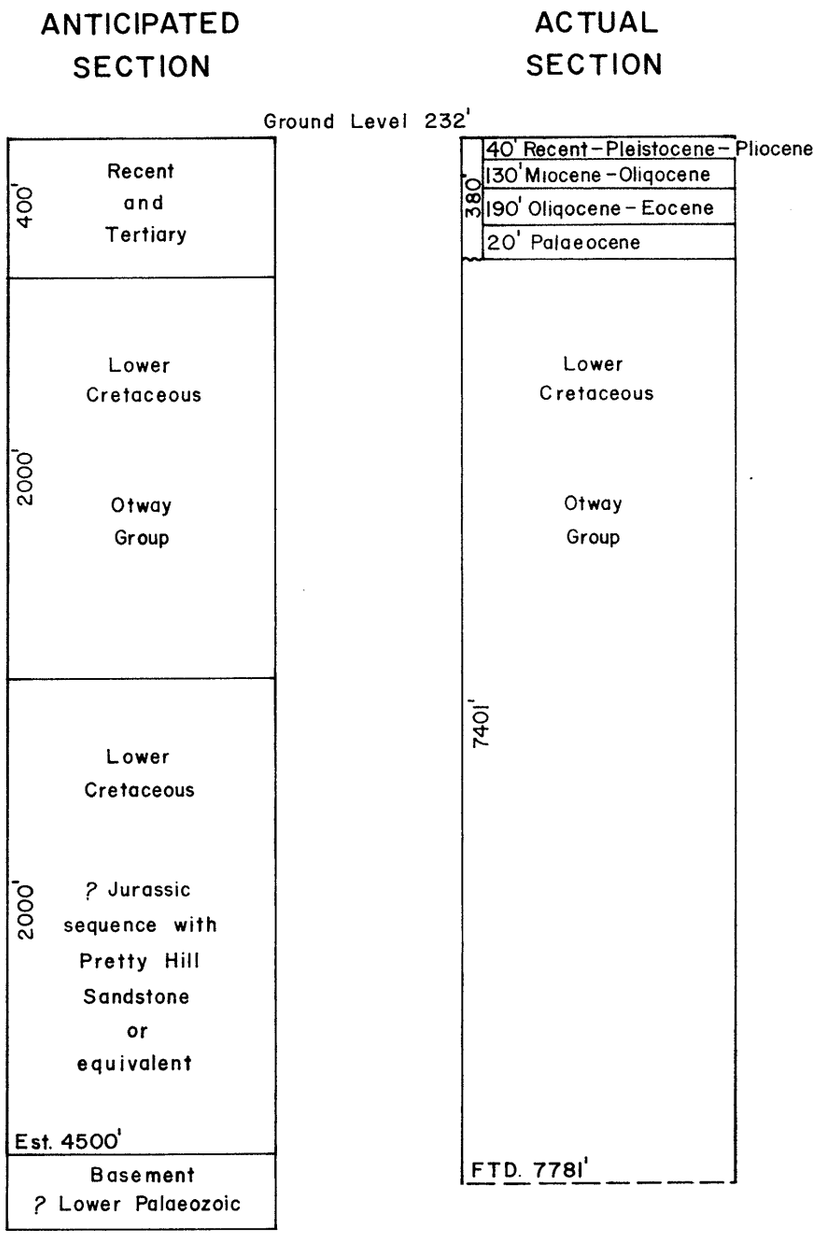
5) Testing (cont'd)

(i) Formation Testing (cont'd):

D.S.T. No.	Interval Tested	Type of Test	Results
6	2,327 - 2,374	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Misrun.
7	2,328 - 2,374	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Good initial blow decreasing to weak blow at end of test. Gas to surface in 2½ hours (not measureable). Gas was ignitable. Recovered 1100' of heavily gas cut salt water and 1110' of gas cut muddy salt water.
8	2,239 - 2,259	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Misrun.
9	2,239 - 2,259	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Good initial blow decreasing to weak blow at end of test. Recovered 2170' of slightly brackish water.
10	1,167 - 1,192	Halliburton RTTS D.S.T. Tool, single packer, behind casing.	Good initial blow decreasing to weak blow at end of test. Recovered 580' of muddy fresh water.

For further details see Appendix VI.

(ii) Production Testing: None.

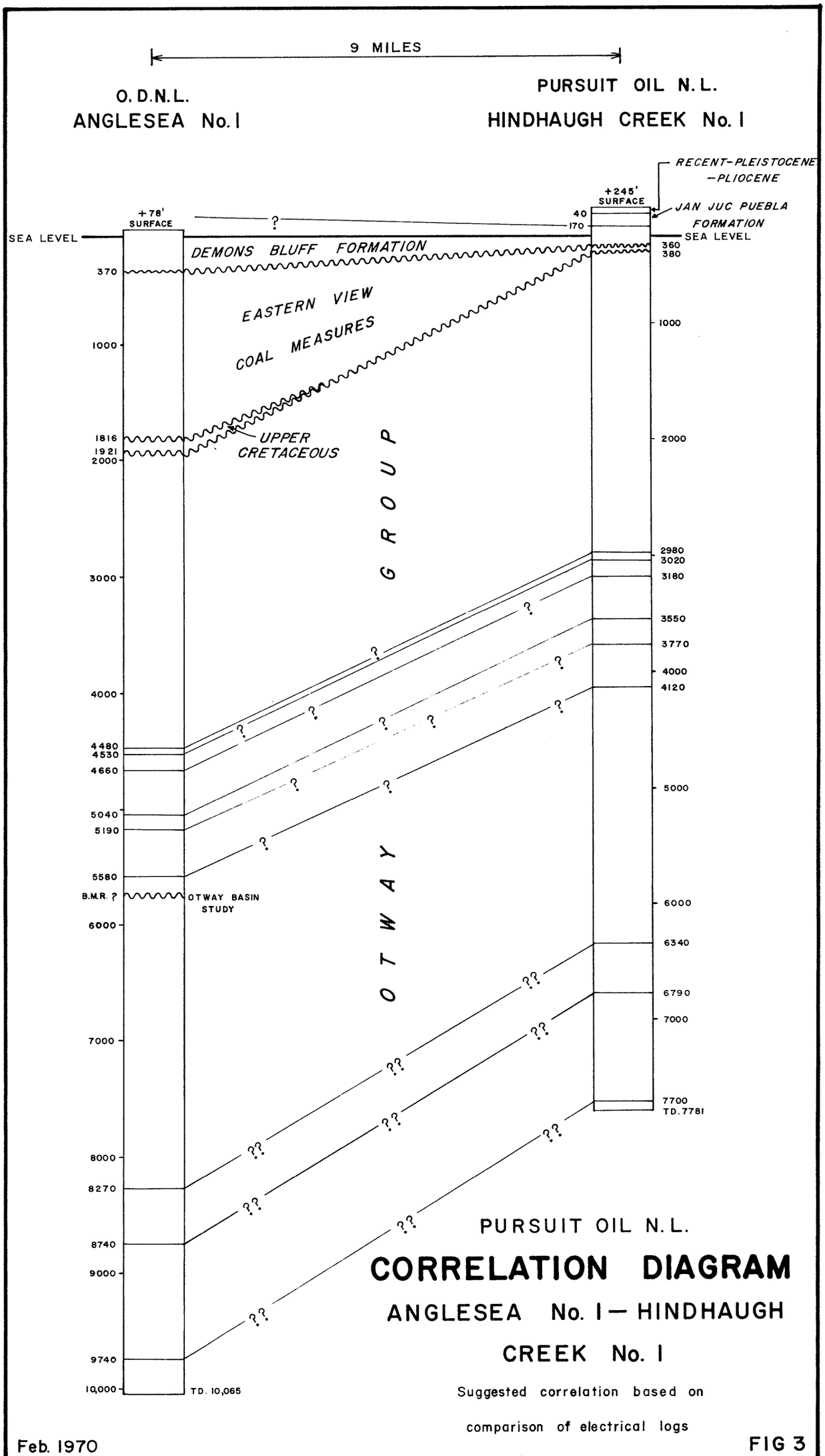


PURSUIT OIL N.L.

STRATIGRAPHIC SECTIONS
HINDHAUGH CREEK No. 1

Feb. 1970

FIG 2



PURSUIT OIL N. L.

CORRELATION DIAGRAM

ANGLESEA No. 1 — HINDHAUGH CREEK No. 1

Suggested correlation based on comparison of electrical logs

Feb. 1970

FIG 3

IV. GEOLOGY

1) Summary of Previous Work

a) Geological:

The surface Geology of this area has been mapped in detail by the Geological Survey of Victoria and is covered by the Geelong (1963) and Anglesea (1968) one inch to one mile geological map sheets. The area is also covered by the 1:250,000 scale provisional geological sheet of Queenscliff.

The subsurface geology of the area has been included in the recent Otway Basin studies undertaken by the B.M.R. and the Geological Survey of Victoria. The B.M.R. review contains a very useful and extensive bibliography covering the geology of the Otway Basin, and White (1968) reviews more recent exploration activities.

b) Geophysical:

Only a limited amount of geophysical work has been attempted in this area. A reconnaissance gravity survey and some reflection work was undertaken in the vicinity of Torquay and Anglesea (Torquay Seismic Survey) in the early 1960's.

During 1966 the B.M.R. carried out some reconnaissance reflection and refraction surveys in the Bellarine area to the south east of Geelong but results appear to have been inconclusive and have not been made available in report form.

In June, 1969, Mr. James Say and Pursuit Oil N.L. completed a detailed gravity survey covering P.E.P. 68 and, between July and October 1969, a detailed geochemical survey was made over much of the same area by Pursuit Oil N.L. Both these surveys suggested anomalies in the Hindhaugh Creek area which warranted further investigation by drilling.

A P P E N D I X I

PALAEONTOLOGICAL & PALYNOLOGICAL REPORT

PALYNOLOGICAL EXAMINATION OF BORE SAMPLE

Samples from the Pursuit Oil N.L. Hindhaugh Creek Bore No. 1 were treated by the hydrofluoric acid - Schulze's solution method, and the residues examined under the microscope for acid insoluble microfossils.

Sample Details:

Bore No.	Core No.	Depth	Microfossils
1	1	1,258-1,274'	Speciosus Assemblage (Dettmann 1963)
	2	3,660-3,671'	few microfossils isolated
	3	7,780'	

Remarks:

Core No. 1 was of Lower Cretaceous age. A poorly preserved microflora indicated the presence of the Speciosus Assemblage of Dettmann (1963), of Albian-Aptian age.

This Assemblage is foudn in much of the outcrop and sub-surface beds so far examined in the Otway Basin, with the exception of outcrop material in the Casterton area, on the Western flanks of the Otways, and in a subsurface zone between the Merino and Otway areas where the younger Paradoxa Zone is found.

Cores 2 and 3 probably were also deposited in an older phase of this Speciosus Zone, although there is no direct palaeontological evidence to support this.

J. DOUGLAS

Senior Geologist,

Department of Mines, Victoria.

REFERENCE: Dettmann, May 1963, Upper Mesozoic Microfloras from South-Eastern Australia. Proc. Roy. Soc. Vict., 77 (1), pp. 1 - 148.

PRELIMINARY PALYNOLOGICAL EXAMINATION OF SAMPLES FROM HINDHAUGH CREEK NO. 1

Core	Depth	MFP	Remarks
1	1,261	5263	Carbonaceous matter only.
1	1,263	5282	Same.
2	3,663	5,262	No recognisable microfossils.
2	3,669	5,261	Same.
3	7,780	5,281	Carbonaceous matter only.

Sidewall	Depth	MFP	Remarks
11	3,790	5292	Barren.
14	6,091	5,296	Carbonaceous matter only.

D. BURGER

Bureau of Mineral Resources,
Geology and Geophysics.

1) Summary of Previous Work (cont'd)

c) Drilling:

Previous drilling in this area has been limited to one deep test, the Anglesea No. 1, a test of the upper Otway Group (Geelong Oil Flow No. 1), numerous water bores and some coal bores.

The O.D.N.L. Anglesea No. 1 well was drilled in 1962 as a stratigraphic test to a depth of 10,065 feet, bottoming in beds believed to be in the lower Otway Group. No significant indications of hydrocarbons were encountered.

The Geelong Oil Flow No. 1 well penetrated the upper 850 feet of the Otway Group and slight shows of gas were reported.

Boring for coal has taken place in the Anglesea area and in the Bellarine area. Water bores are common throughout the area but most of these are quite shallow and penetrate only Tertiary section or into the top few feet of the Otway Group.

Close control on the top of the Otway in the Hindhaugh Creek area was provided by the Gherang Gherang No. 8 bore, located some 200 yards to the west of the Hindhaugh Creek No. 1 wellsite.

2) Summary of Regional Geology

(See Enclosure 1)

The Hindhaugh Creek No. 1 well was drilled towards the northern margin of the Anglesea Embayment at the eastern end of the Otway Basin. This Mesozoic-Tertiary Basin trends generally east-west across the north-south grain of the underlying Paleozoic basement.

The Paleozoic basement is not known in the subsurface in the Anglesea Embayment but greenstones believed to be of Cambrian age do crop out in the Barrabool Hills some nine miles north of the Hindhaugh Creek area. Devonian granites occur four miles to the north of the Barrabool Hills.

2) Summary of Regional Geology (cont'd)

As yet, the full thickness of the Lower Cretaceous Otway Group has not been penetrated in this are but 8,145 feet are present in the Anglesea No. 1 well and 7,405 feet were encountered in the Hindhaugh Creek No. 1 well. It is likely that there is some repetition of section in both wells by faulting. Arenaceous sediments with a basal conglomerate recognised as Lower Cretaceous in age crop out in the Barrabool Hills.

The presence of a prospective porous and permeable sequence below the Otway Group similar to the Pretty Hill Sandstone of the Warrnambool Area (of Pretty Hill No. 1, Garvoc No. 1, Woolsthorpe No. 1), some 100 miles to the east, is postulated but remains to be proved by future drilling.

Upper Cretaceous rocks are known to be present in the subsurface in the southern part of the area (105' in Anglesea No. 1) and presumably wedge out rapidly towards the north. They did not occur in the Hindhaugh Creek No. 1 well.

Tertiary to Quaternary sediments and Quaternary volcanics outcrop over most of the area. The thickest Tertiary section probably occurs in the 'gravity low' south of Lake Connewarre (19 miles north-east of Anglesea) and 1,816 feet of section was penetrated in the Anglesea No. 1 well. The Tertiary apparently thins northwards, only 380 feet being encountered in the Hindhaugh Creek No. 1 well.

The regional dip of the Mesozoic -Tertiary has general south to south-east component and that of the underlying Paleozoic is assumed to be to the east.

Due to the extensive Quaternary-Tertiary cover and lack of subsurface control, the structure of this area is little known. It is assumed that major structural features will be associated with normal faulting probably trending east-west parallel to the basin margins. An east-west fault with a down throw to the north has been mapped south of Wurdiboloc Reservoir, nine miles west south-west of Hindhaugh Creek and probably extends into P.E.P. 68.

3) Stratigraphic Table - Hindhaugh Creek No. 1

Age	Rock Unit	Top (feet below K.B. 245')	Thickness (feet)
Recent-Pleistocene-Pliocene	Port Campbell Limestone	Surface	40
	Unconformity		
Miocene-Oligocene	Jan Juc - Puebla Formation (Torquay Group)	40 (+205')	130
Oligocene-Eocene	Demons Bluff Formation	170 (+ 75')	190
Palaeocene (Maastrichtian)	? Eastern View Formation	360 (-115')	20
	Unconformity		
Lower Cretaceous	Otway Group	380 (-135')	7,401

Final Total Depth -

Driller: 7,781' (-7,536')

Schlumberger: 7,798' (-7,553')

4) Stratigraphy

Full descriptions of ditch cuttings are included in Appendix III and descriptions of conventional cores and sidewall cores are included in Appendix IV. General descriptions of the lithology are as follows:

Surface to 40 feet : Recent to Pleistocene and Pliocene

Clayey quartz sand and brown sandy clay.

40 - 170 feet : Jan Juc - Puebla Formation (Torquay Group)

Limestones, sandy limestones, calcareous clays and siltstones. Pyritic aggregates and glauconitic beds are common. The limestones are richly fossiliferous with bryozoans, pelecypods, gastropods, echinoids and foraminifera.

4) Stratigraphy (cont'd)

170 - 360 feet : Demons Bluff Formation

Brown carbonaceous clays and clayey siltstones, with fine grained quartzose sandstones. Rare arenaceous foraminifera.

360 - 380 feet : ? Eastern View Formation

Carbonaceous clay and dark brown lignitic coal.

380 - 7,781 feet : Otway Group

Argillaceous siltstones and silty mudstones interbedded with fine calcareous sandstones and coals. Siltstones are grey, quartzose, argillaceous, generally carbonaceous; hard, well cemented with calcareous and occasionally siliceous cement. Mudstones are dark grey, grey, generally hard, blocky, arenaceous, carbonaceous in part, occasionally calcareous and micaceous. Sandstones are light to medium grey, very fine to fine grained, poor to fair sorting, quartzose, feldspathic, with lithics in part, micaceous in part, carbonaceous, frequently argillaceous, with calcareous cement. Only traces of porosity in drill cuttings; soft, friable with good porosity in sidewall core samples. Coal, black, sub-bituminous in upper part of section grading to anthracitic with depth.

380 feet of Tertiary to Recent sediments were encountered in the Hindhaugh Creek No. 1 well. Due to the poor quality of drill cuttings, the indicated stratigraphic divisions are tentative suggestions and are largely made by correlation with nearby water bore sections (Abele, 1968-69).

Lack of good palaeontological and palynological data makes the correlation between the section of Otway Group penetrated in this well and other known sections quite difficult. Some evidence is provided by palynological examination of samples from Core No. 1 - 1,257-1,264' (see Appendix I, J.G. Douglas). A Dictyotosporites speciosus assemblage is recognised at this interval which would suggest the section in Hindhaugh Creek No. 1 correlates with the lower part of the Otway Group (Lower Cretaceous to ? Jurassic in age).

5) Structure

A marked unconformity is recognised between the Eastern View Formation of Palaeocene Age and the Otway Group of Lower Cretaceous age. There is no evidence at this time from the well data to suggest that unconformities exist within the Otway Group but these would certainly be expected to be present.

It is assumed that regional dip of the Mesozoic-Tertiary sediments in the Anglesea Embayment is to the south or south-east with local variations resulting from minor faulting and folding.

The dipmeter run in the Hindhaugh Creek No. 1 well demonstrates a fairly regular dip of between 5^{o} and 15^{o} to the west, suggesting that the well is in fact located on the western flank of a minor local structure. (Seismic results obtained subsequent to drilling confirm this observation; a small anticlinal feature with a north-south axis is recognised one mile to the east of the wellsite)

The dipmeter also shows high dips of up to 50^{o} in random directions to be present over several sections; such dips are most commonly attributed to strong current or fore-set bedding but in some cases may be associated with faulting.

Interpretation of the dipmeter suggests several fault zones were penetrated by the well and drill cuttings and cores demonstrate the frequent occurrence of vein calcite. Dipmeter interpretation further suggests that the faulting is of a normal type, trending north-west - south-east with a down throw to the north-east. Additional drilling and good quality seismic work will be required to substantiate this interpretation.

6) Relevance to Occurrence of Petroleum

Minor indications of hydrocarbons were recorded by mud gas detection equipment during much of the drilling of Hindhaugh Creek No. 1. For the most part, these shows were of methane associated with carbonaceous mudstones and coal seams, (see composite well log). However, some increase in mud gas readings were recorded while penetrating some of the thicker sandstone units above 4,200' and small quantities of ignitable gas were recovered from D.S.T. No. 7 over the interval 2,328-2,374'.

6) Relevance to Occurrence of Petroleum (cont'd)

Very slightly oil cut mud was recovered from D.S.T. No. 4 - 4,144-41,75' - and heavily gas cut salt water from D.S.T. No. 5 - 3,770-3,800'. Analysis of fluid samples from D.S.T. No. 4 by the C.S.I.R.O. determined a very small percentage (0.1%) of paraffinic crude oil (see Appendix II).

Careful examination of drill cuttings, cores and sidewall core samples failed to detect any live oil staining but scattered hydrocarbon fluorescence was observed in sidewall cores from 3,821, 4,941 and 7,097 feet.

Interpretation of electrical and other logs run in the well together with the results of drill stem tests indicate all porous and permeable intervals largley contain fresh to brackish meteroic or connate water.

7) Porosity and Permeability of Sediments Penetrated

Qualitative estimates of porosity and permeability were made at the wellsite from cuttings and cores. Quantitative results were obtained from core analyses and log analysis. Good porosities and permeabilities were observed in drill cuttings of the Tertiary limestones and sandstones. In contrast, only minor indications of porosity were determined in drill cuttings of the Otway Group. Most of the section comprises tight mudstones and siltstones but good porosity should have been recorded through some of the sandstone units, particularly in the upper part of the section.

The lack of observed porosity was due to the washing out of the fine grained porous sandstone beds resulting in a non-appearance in drill cuttings. Subsequent sampling by sidewall coring and analysis of these samples indicated porosities as high as 27.8% and permeabilities as high as 1160 md. As these were sidewall core samples, the results may be erroneously high but, coupled with the evidence of good fluid recoveries from drill stem tests and log interpretation, it is obvious that the upper part of the Otway Group in this well does in fact contain several interesting reservoir sands which could prove potential in a favourable structural situation.

8) Conclusion

The drilling of Hindhaugh Creek No. 1 well is considered to have met its chief objective which was to provide additional stratigraphic information in part of the Otway Basin that has little subsurface control. A much thicker section of Otway Group sediments was encountered than had been anticipated. A lack of rig capacity did not allow full penetration of the Otway Group and the presence of a prospective sand sequence basal to the Otway was not determined. However, several sandstone units in the upper part of the Otway section above 4,200 feet were found to have much better porosity and permeability than anticipated and should prove interesting targets for future exploration in the area. Sandstones which can be broadly correlated with these are present in the Anglesea No. 1 well (Fig. 3) but were generally tight and considered to be non-prospective.

Temperatures recorded in the Hindhaugh Creek No. 1 (see Well History) were considerably higher than anticipated. The steep geothermal gradient may be a local feature resulting from the well penetrating one or more fault zones. Samples of coal from the well are being examined by the C.S.I.R.O. for hydrocarbon generation potential and preliminary results indicate a considerable degree of heat alteration with analyses of over 90% carbon. Final results of this work should be available in March 1970.

The results of the velocity survey indicate a velocity of between 14,000 ft./sec. and 14,800 ft./sec. for most of the Otway Group (Enclosure 4). This information should prove useful for future seismic work in the area.

V. REFERENCES

ABELE, C.	1968	Geological Notes on the Anglesea 1 - Mile Sheet Geological Survey of Victoria. Report No. 68/1.
ABELE, C.	1968-69	Water bore records. Unpublished information, Geological Survey of Victoria.
BAIN, J.S.	1962	"Pretty Hill No. 1 South-west Victoria, Well Completion Report".
BAIN, J.S.	1964	"Fergusons Hill No. 1 Southwest Victoria, Well Completion Report".
BOLLEN, P.W. and STACH, L.W.	1963	"Anglesea No. 1, Victoria, Well Completion Report".
BUREAU OF MINERAL RESOURCES	1969	"A Review of the Otway Basin" Report No. 134.
DATA ANALYSIS PTY. LTD.	1969	Geochemical Survey, Anglesea Area. Unpublished report for Pursuit Oil N.L.
DETTMAN, M.E.	1963	Upper Mesozoic Microflora from South-eastern Australia. Proc. Roy. Soc. Vic., 77 (1), 1-148.
EVANS, P.R.	1966-69	"Mesozoic Stratigraphic Palynology of the Otway Basin". Bureau of Mineral Resources.
GEOSURVEYS OF AUSTRALIA PTY. LTD.	1969	"Torquay Gravity Survey P.E.P. 68 Victoria". Unpublished report for James Say and Pursuit Oil N.L.

LESLIE, R.B.	1965	"Petroleum Exploration in the Otway Basin" Proc. VIII Com. Min. Congr. 1965, V5.
LESLIE, R.B. and SELL, B.H.	1968	"Woolsthrope No. 1 Well, Otway Basin" Well Completion Report.
LESLIE, R.B. and SELL, B.H.	1968	"Garvoc No. 1 Well, Otway Basin" Well Completion Report.
MEDWELL, G.J.	1968	"Structures of the Otway Ranges" Geological Survey of Victoria.
RAY GEOPHYSICS (AUSTRALIA) PTY.LTD.	1970	Geograph Survey, Anglesea-Torquay Area, Victoria. Unpublished report for Pursuit Oil N.L.
WHITE, A.H.	1968	"Exploration in the Otway Basin" A.P.E.A. Papers 1968, pp 78-87.

A P P E N D I X II

WATER ANALYSES

APPENDIX II

WATER ANALYSES

(Analysis by C.S.I.R.O., Division of Mineral Chemistry, Chatsworth. N.S.W.)
Rwf. C7/10/9.

The following yields of extracts and hydrocarbons were obtained by extracting 500 ml. samples of water from the Hindhaugh Creek No. 1 drill stem tests with solvents:-

D.S.T.	Total extract %	Saturated hydrocarbon %
3	0.11	0.02
4	0.06	0.02
5	None	-
7	0.014	0.001
9	0.01	0.001

The composition of the n-paraffins was very similar in each case, with maximum concentrations of the C_{17} and C_{18} hydrocarbons determined by gas chromatography.

J.D. Brooks,
Leader,
Organic Chemistry Group.

PURSUIT OIL N.L. HINDHAUGH CREEK NO. 1

FLUID ANALYSIS

by

Bureau of Mineral Resources, Geology and Geophysics

	D.S.T. No. 3	D.S.T. No. 4	D.S.T. No. 5	D.S.T. No. 7	D.S.T. No. 9
Depth Interval (Feet)	4,144-4,175	4,144-4,175	3,770-3,800	2,328-2,373	2,239-2,259
pH	7.5	6.0	6.5	12.0	12.0
Resistivity (Ohm Meters @ 68°F)	2.45	0.23	0.48	0.82	0.76
Salinity (ppm NaCl)	1,500	36,300	12,200	6,600	8,200

EXAMINATION OF SIDE-WALL SAMPLES

The attached report, ETB-19, gives results of laboratory tests on the four side-wall samples submitted from Pursuit Oil N.L.'s Hindhaugh Creek No.1, Torquay Area, Geelong, Australia.

The tests showed the presence in all samples of small amounts of water-sensitive clay. The clay fraction was not isolated from the bulk sample. The fact that the clay content was 5% or less does not throw any light on the significance of the clay in its effect on relative permeability or formation damage. Nor does the methylene blue capacity as measured on the bulk sample establish any conclusions about the reactivity of the clay fraction. As an example, if sample 12 contains 5% clay that is responsible for all of the methylene blue capacity, the clay fraction would be as reactive as Wyoming bentonite. If, on the other hand, the sample is uniform in composition, reactivity is low.

From these limited tests, I can conclude only that in planning the mud programme consideration should be given to the presence of clay in the potentially productive section. If later observations on a known productive section show evidence of damage by water from the drilling fluid, the mud programme should be altered to minimize the damage.

G. R. Gray,

Assistant General Sales Manager

BAROID

Houston, Texas. U.S.A.

Test No. ETB-19

Sheet No. 1

Laboratory OIL FIELD PRODUCTS

BAROID DIVISION
NATIONAL LEAD COMPANY

REPORT OF TEST

Date of Test January 8, 1970

4-Bobo
1-Gray
1-Hicks
1-Souther
1-Wallace

EXAMINATION OF SIDE-WALL SAMPLES RECOVERED FROM PURSUIT OIL N.L. WELL IN TORQUAY AREA, GEELONG, AUSTRALIA

Four side-wall samples recovered from Pursuit Oil N.L.'s Hindhaugh No. 1 well were submitted by Roy A. Bobo to Baroid's Oil Field Products Laboratories for analysis.

RESULTS

The submitted samples exhibited the following characteristics:

Sample Identification	Clay Content*	Calcite*	Methylene Blue Capacity
1	≤ 5%	10-15%	3.00 me/100 g
4	≤ 5%	≤ 2%	2.75 me/100 g
12	≤ 5%	≤ 2%	4.20 me/100 g
13	≤ 5%	≤ 2%	3.25 me/100 g

X-ray diffraction indicates all four samples contain quartz, calcite, feldspar, a chlorite mineral, and a mixed layer (montmorillonite-illite) type clay.*

*Reference: Analytical Services Laboratory Report No. IR-2288.

Test Made By Ron Foreman Approved by L. J. Remont

BR-1990-1 3M 3-69 PPCO.

A P P E N D I X III

DETAILED LITHOLOGICAL DESCRIPTIONS

of

DRILL CUTTING SAMPLES

(By Data Analysis Pty. Ltd., Sydney)

PURSUIT OIL N.L.

HINDHAUGH CREEK No.1

CONDUCTOR PIPE SET AT 35 FEET

WITH 35 SACKS OF CEMENT.

40-75	60%	Sandstone - light brown, hard, brittle, very fine-grained and silty, consisting of subangular quartz plus fossil detritis (about 20%) with matrix calcite and silica. Tight. Very calcareous. Pyritic in part.
	25	Fossiliferous Limestone - forams, bryzoa, sponge, shell fragments. Light brown to white. Some pyritized.
	15	Pyritic Aggregates - silty textured, medium grey, fine pyrite crystals.
		Abundant grey clay washes out of samples.
75-106	60	Clay - soft, medium to dark grey, slightly carbonaceous washes out of samples.
	30	Sandstone - light grey, very fine-grained, fossiliferous, as above, slightly carbonaceous, micaceous, pyritic, calcareous.
	10	Fossiliferous Limestone - as above.
	Comm.	
	Trace	Pyritic aggregates - as above.
	Rare	
	Trace	Coarse, loose, clear quartz sand grains.
106-141	60	Clay - soft, medium to dark grey, washes out of samples.
	25	Fossils - contain epigene glauconite (Foram)
	10	Sandstone - as above.
	5	Glauconite.
	Comm.	
	Trace	Pyrite aggregates.
	Trace	Phosphatic fossils.
141-164	60	Clay - soft, medium to dark grey, washes out of samples.
	25	Fossiliferous Limestone.
	10	Sandstone - as above.
	5	Glauconite.
	Trace	Pyritic aggregates, as above.
164-193	60	Clay - grey, soft, slightly sandy. Washes out of samples.
	40	Fossil Limestone - light brown, consisting of bryzoa, sponges, forams, shell fragments, etc. Some glauconite and pyrite.
193-222	40	Clay - medium grey, soft, slightly sandy, as above.
	20	Sandstone - medium to very coarse-grained quartz, mostly rounded and subrounded, clear and polished. Some very coarse-grained subangular. Some white. Chips have light grey calcite and silty/clayey matrix. Trace to fair porosity. No shows.
	20	Fossil Limestone - as above.
	20	Siltstone - light to medium grey, some dark green firm, blocky, glauconitic and calcareous, pyritic and sandy.

222-250	30	Clay - dark brown and grey, soft, silty and sandy.
	30	Sandstone - dark brown, consisting of very fine-grained and silty, clear, subangular quartz, soft dark brown clay matrix.
	30	Fossil Limestone - as above.
	10	Siltstone - dark brown, soft clayey, sandy.
250-282	30	Clay.
	20	Sandstone - dark brown, as above, and siltstone.
	40	Fossil Limestone - as above.
	5	Quartz - rounded, clear and polished.
	5	Pyritic aggregates.
	Trace	Glauconite. No shows.
282-313	50	Clay - dark brown and chocolate.
	10	Sandstone - as above.
	20	Fossil Limestone - as above.
	10	Quartz - rounded, clear and polished.
	5	Pyrite.
	5	Glauconite.
313-345	50	Clay - dark brown and chocolate and trace of grey, glauconitic.
	20	Sandstone - as above, and siltstone.
	20	Fossil Limestone - fluorescence (calcite).
	5	Pyritic aggregates.
	5	Glauconite - pellets, and in clay. No shows.
345-375	30	Clay - dark brown, soft, sandy and silty, as above, and trace of grey, glauconitic.
	40	Lignite - dark brown, soft, dull, earthy.
	10	Sand - coarse, clear, subrounded quartz, some very fine-grained and silty quartz. Matrix clays.
	15	Limestone - Fossil fragments, as above.
	5	Pyrite - as above.
375-400	70	Clay - Mudstone - pale grey and greenish grey, moderately soft, blocky, slightly silty, glauconitic, sandy, pyritic.
	10	Sand - very fine-grained, clear subrounded quartz, some medium to coarse-grained quartz, as above. Pyrite and calcite cement, some clays. No shows.
	15	Fossil Limestone - light brown, calcite, shell fragments, forams, etc., as above. Fragments commonly have dull gold fluorescence.
	5	Pyrite - aggregates, as above.
400-410	40	Mudstone - light to medium green-grey and grey, some brown, moderately soft, silty, glauconitic, carbonaceous.
	20	Siltstone - light to medium grey, moderately soft, friable, consisting of quartz, clays, carbonaceous specks and trace of mica. Calcareous clay matrix.
	10	Sandstone - light to medium grey, very fine-grained and silty and grades to siltstone, as above. No shows.
	25	Coal - black and dark brown, black variety moderately hard and brittle, sub bituminous to high lignitic; brown variety soft, earthy, lignitic.
	5	Fossils - as above.

410-420	50	Mudstone - light to medium grey, moderately soft to moderately hard, brittle, blocky, calcareous, slightly pyritic.
	20	Siltstone - light to medium grey, slightly carbonaceous, calcareous, moderately soft to firm, slightly micaceous and pyritic.
	20	Sandstone - light grey, very fine to fine-grained and silty, consisting of quartz, trace of micas, carbonaceous specks and clays, cement, calcite and pyrite. Trace to fair porosity.
	10	Limestone - as above, glauconitic.
420-430	60	Mudstone - medium grey, as above.
	30	Siltstone - as above, light to medium grey, carbonaceous.
	10	Sandstone - light grey, very fine to fine-grained, speckled, slightly carbonaceous and feldspathic, as above. Tight to trace of poor porosity. No shows. Trace of coal and carbonaceous specks.
430-440	30	Mudstone - medium grey, carbonaceous, silty, calcareous, as above.
	55	Siltstone - light to medium grey, slightly carbonaceous, sandy and grading to very fine-grained sandstone. Calcareous, slightly pyritic and micaceous.
	15	Sandstone - light grey very fine to fine-grained, moderately hard, speckled, slightly calcareous, carbonaceous, as above. Tight to trace of poor porosity. No shows.
440-450	50	Mudstone - medium and light grey, moderately firm, blcoky, silty, calcareous, carbonaceous, slightly pyritic.
	50	Siltstone - medium grey, sandy, carbonaceous, calcareous, as above.
450-460	30	Mudstone - medium and light grey, as above.
	60	Siltstone - medium and light grey, carbonaceous, calcareous, as above.
	10	Sandstone - as above, very fine to fine-grained, trace of medium to coarse-grained.
460-470	40	Mudstone - medium grey, as above, trace of dark grey, moderately firm, blocky.
	50	Siltstone - light and medium grey, carbonaceous, calcareous, sandy, as above.
	10	Sandstone - light grey, speckled, as above. Trace of pyrite and fossils, as above (?cavings).
470-480	30	Mudstone - medium to dark grey, moderately firm, blocky, silty, carbonaceous.
	50	Siltstone - light to medium grey, sandy, carbonaceous, trace of pyrite and mica.
	20	Sandstone - light grey, speckled, fine-grained, carbonaceous, micaceous, as above.

480-490	70	Mudstone - light to medium to dark grey, as above, moderately firm to hard, blocky, carbonaceous and calcareous.
	25	Siltstone - light to medium grey, speckled, as above.
	5	Sandstone - light grey, speckled, silty, carbonaceous, as above.
490-502	30	Mudstone - light to medium grey, as above, blocky, silty.
	40	Siltstone - medium grey, sandy, pyritic.
	25	Sandstone - calcareous, light grey, slightly dolomitic.
	5	Pyrite - aggregates.
	Trace	Coal
	"	Quartz - pebbles, subangular, clear and white.
	"	Forams
		No shows.
502-510	15	Mudstone - light to medium grey, as above.
	85	Siltstone - sandy grading to very fine sandstone, light to medium grey, calcareous and dolomitic, contains some coal, slightly pyritic.
	Trace	Quartz - pebbles, rounded, clear.
510-520	10	Mudstone - light to medium grey, as above.
	35	Siltstone - light to medium grey, sandy, pyritic, coaly.
	50	Sandstone - light grey, carbonaceous, slightly dolomitic, contains some coal.
	5	Pyrite - aggregates.
		No shows.
520-530	10	Mudstone - light to medium grey, as above.
	10	Siltstone - as above.
	40	Sandstone - light grey, carbonaceous and dolomitic, coaly.
	40	Sandstone - medium brown, carbonaceous, dolomitic and coaly.
	Trace	Coal and shells.
530-540	10	Mudstone - light grey.
	30	Sandstone - light grey, calcareous and dolomitic, as above.
	60	Siltstone - medium grey and brownish, slightly pyritic and micaceous.
	Trace	Pyrite - aggregates and shells and coal
540-550	10	Mudstone - light grey, as above.
	20	Sandstone - light grey, calcareous and dolomitic, as above.
	30	Sandstone - medium grey-brownish, calcareous, pyritic, coaly.
	40	Siltstone - medium grey, slightly pyritic.
550-560	30	Siltstone - light grey to medium grey, moderately hard, blocky, carbonaceous, calcareous.
	30	Mudstone - medium and dark grey, as above.
	40	Sandstone - light and medium grey, moderately hard, brittle, calcareous, carbonaceous, slightly micaceous.

560-570	30	Mudstone - medium and some dark grey, as above, carbonaceous and coally.
	60	Siltstone - light and medium grey, moderately hard and brittle, blocky, slightly calcareous, coally, sandy.
	10	Sandstone - light to medium grey, very fine-grained and silty, calcareous, coally and slightly micaceous, as above.
570-580	10	Mudstone - medium grey, as above.
	20	Siltstone - light and medium grey, moderately hard, brittle, blocky, sandy, calcareous and carbonaceous.
	70	Sandstone - light grey and medium grey speckled, fine to medium-grained, consisting of subangular to subrounded quartz, trace of grey lithic grains (rare green) black micas, white feldspars (clay replacement) and black coally specks. Matrix white calcareous clays. Tight. No fluorescence.
580-590	10	Mudstone - medium grey, as above.
	30	Siltstone - medium grey, slightly pyritic and coally.
	60	Sandstone - light grey, fine-grained, carbonaceous, flakes of black mica, white feldspar, as above. No fluorescence.
590-600	20	Mudstone - medium to dark grey, moderately hard, brittle, carbonaceous, slightly calcareous, silty.
	40	Siltstone - medium grey, moderately hard, blocky, brittle, carbonaceous, sandy, calcareous, slightly micaceous.
	40	Sandstone - light to medium grey speckled, lithic Sandstone, as above, moderately hard, fine to medium-grained, tight. No fluorescence.
600-610	20	Mudstone - medium to dark grey, moderately hard, brittle, carbonaceous, silty, as above.
	50	Siltstone - medium grey, moderately hard, carobonaceous and silty to very fine-grained sandy gradational. Calcareous.
	30	Sandstone - light to medium grey speckled, as above. No fluorescence.
610-620	20	Mudstone - medium to dark grey carbonaceous, silty, moderately hard, as above.
	50	Siltstone - medium grey, as above.
	30	Sandstone - light grey speckled, fine to medium-grained, moderately hard, as above.
620-630	20	Coal - black, moderately hard and brittle, sub-bituminous breaks into blocks.
	20	Mudstone - dark grey, moderately hard and brittle, silty and carbonaceous, as above.
	50	Siltstone - medium grey, moderately hard, brittle, blocky, calcareous and carbonaceous.
	10	Sandstone - light to medium grey speckled, as above.
630-640	15	Mudstone - medium to dark grey, silty, moderately hard, blocky, carbonaceous.
	70	Siltstone - medium grey, moderately hard, brittle, blocky, carbonaceous and coally, calcareous, sandy and grades to very fine-grained sandstone.
	15	Sandstone - light grey speckled, very fine to fine-grained and trace of medium-grained, as above, tight with no shows.

640-650	20	Mudstone - light and medium grey, trace of dark grey, some greenish-grey, silty, blocky, moderately hard, calcareous and carbonaceous.
	70	Siltstone - medium grey, slightly sandy, carbonaceous and calcareous, as above.
	10	Sandstone - light grey speckled, very fine-grained and fine-grained, calcareous, tight.
650-660	10	Mudstone - medium and dark grey, moderately hard, blocky, brittle, silty, calcareous, slightly micaceous, carbonaceous and trace of pyrite.
	70	Siltstone - medium grey, moderately hard, brittle, blocky, sandy, calcareous, carbonaceous and coally, slightly micaceous.
	20	Sandstone - light to medium grey speckled, very fine to fine-grained and some medium grained, moderately hard, friable, consisting of subrounded and sub-angular clear and white quartz, grey and trace of green lithic grains, carbonaceous and coally flecks and trace of feldspars (kaolinized) and micas. Matrix is white clacareous clay. Tight. No shows.
660-670	10	Coal - black, moderately hard, brittle, blocky, sub-bituminous.
	40	Mudstone - dark grey, moderately hard, fissile, silty, carbonaceous.
	30	Siltstone - medium to dark grey, as above.
	20	Sandstone - silty and medium grey, as above. Tight. No shows.
670-680	20	Mudstone - carbonaceous, coally, dark grey, as above.
	20	Siltstone - medium to dark grey, sandy, carbonaceous, as above.
	60	Sandstone - light grey speckled, as above, tight. No fluorescence.
680-690	90	Siltstone - medium to dark grey, blocky, moderately hard and brittle, carbonaceous and sandy, slightly calcareous.
	10	Sandstone - light grey, very fine-grained, as above.
690-700	40	Mudstone - dark grey, trace of green and dark brown, moderately hard, brittle, blocky, as above.
	40	Siltstone - as above.
	20	Sandstone - light grey speckled, as above.
700-710	20	Mudstone - dark grey, trace of dark brown, as above.
	60	Siltstone - medium to dark grey, carbonaceous, as above.
	20	Sandstone - light to medium grey speckled, as above. No fluorescence. Tight.
710-720	10	Mudstone - dark grey, trace of dark brown, moderately hard, as above.
	10	Siltstone - medium to dark grey, as above.
	80	Sandstone - light grey, very fine to fine-grained, speckled, calcareous and carbonaceous. Tight. No fluorescence.

720-730	10	Mudstone - dark grey to balck , moderately hard, brittle and blocky, carbonaceous and coally.
	40	Siltstone - medium grey, moderately hard, brittle, blocky, calcareous and carbonaceous, sandy.
	50	Sandstone - light grey, speckled, moderately hard, consisting of quartz, lithics, mica, feldspars and coally material with a clacareous, clayey matrix. Tight. No fluorescence.
	Trace	Coal - black, as above.
730-740	30	Mudstone - medium and dark grey, as above.
	40	Siltstone - medium grey, sandy, carbonaceous, calcareous.
	30	Sandstone - light grey speckled, feldspathic and lithic, as above. Tight. Trace of dull gold fluorescence (calcite) no cut.
740-750	40	Mudstone - dark grey and trace of dark brown, as above.
	45	Siltstone - medium to dark grey, moderately hard, as above.
	15	Sandstone - medium brown-grey and light grey speckled, calcareous and silty, carbonaceous and micaceous, as above. Tight. Trace of calcite fluorescence, no cut.
		SURFACE CASING $13\frac{3}{8}$" AT 745 FEET.
750-760	30	Mudstone - dark to medium grey, as above.
	70	Sandstone - light grey and brown-grey speckled, fine to medium-grained, friable, calcareous, as above. Tight. No fluorescence. (Sample is very badly contaminated by cement from $13\frac{3}{8}$" surface casing job.)
760-770	10	Coal - black, dull, earthy, moderately firm.
	20	Mudstone - dark grey, as above.
	30	Siltstone - medium to dark grey, sandy, carbonaceous, calcareous.
	40	Sandstone - medium brown-grey, speckled, moderately hard, calcareous, carbonaceous, as above. (Sample badly cement contaminated)
770-780	20	Coal - black, moderately hard, brittle, dull.
	20	Mudstone - medium to dark grey, moderately hard, brittle, as above, carbonaceous.
	30	Siltstone - medium to dark grey, moderately hard, sandy, carbonaceous.
	30	Sandstone - medium brown-grey, speckled, as above. (Sample badly cement contaminated)
780-790	40	Coal - black, as above.
	30	Mudstone - grey, moderately hard, as above.
	10	Siltstone - grey, as above, carbonaceous.
	20	Sandstone - speckled, medium brown-grey, as above, calcareous and feldspathic, carbonaceous and coally. Tight. No fluorescence.

790-800	10	Coal - as above.
	20	Mudstone - as above.
	50	Siltstone - as above.
	20	Sandstone - as above.
		All samples are still grossly contaminated.
800-810	40	Coal - black, moderately hard, brittle, bright.
	10	Mudstone - grey, moderately hard, blocky, carbonaceous, as above.
	40	Siltstone - as above.
	10	Sandstone - as above, tight.
810-820	60	Coal - black, bright, brittle, as above.
	20	Mudstone - medium to dark grey, blocky, moderately hard, carbonaceous.
	20	Siltstone - dark and medium grey, moderately hard, calcareous, carbonaceous, coally, sandy.
	Trace	Sandstone - light to medium brown-grey speckled, fine to medium-grained, moderately hard, calcareous, as above, carbonaceous.
820-830	20	Coal - black, brittle, bright, as above.
	50	Mudstone - medium to dark grey, blocky, moderately hard, slightly carbonaceous, silty.
	10	Siltstone - sandy, medium grey, carbonaceous, as above.
	20	Sandstone - light to medium brown-grey, speckled, calcareous, carbonaceous, silty, micaceous, as above. Tight. No shows.
830-840	30	Coal - black, moderately hard, brittle, bituminous.
	30	Mudstone - medium grey, moderately hard, blocky, carbonaceous, silty, slightly calcareous and micaceous.
	20	Siltstone - medium grey, moderately hard, blocky, brittle, sandy, calcareous, carbonaceous, micaceous.
	20	Sandstone - light brown-grey, speckled arkosic, fine to medium-grained, moderately hard, consisting of subangular quartz, carbonaceous specks, mica and white feldspars, rare green and grey lithics in a calcareous clay matrix. Tight. No shows.
840-850	10	Coal - black, as above.
	10	Mudstone - medium grey, moderately hard, blocky, as above.
	60	Siltstone - medium grey and brown-grey, carbonaceous, sandy, as above.
	20	Sandstone - light to medium speckled brown-grey, as above.
850-860	Trace	Coal - black, bright, as above.
	30	Mudstone - medium grey, blocky, moderately hard, carbonaceous, as above.
	60	Siltstone - medium brown-grey, moderately hard, blocky, carbonaceous, sandy, slightly calcareous.
	10	Sandstone - as above, silty and dirty. Tight. No shows.

860-870	30	Coal - black, moderately hard, bright, as above.
	20	Mudstone - medium to dark grey, moderately hard, carbonaceous. Plant remains common.
	35	Siltstone - light to medium brown-grey, moderately hard, friable, feldspathic, calcareous, lithic, as above. Tight. No shows.
870-880	20	Mudstone - dark grey-black, fissile, carbonaceous and coally, and medium grey, silty, as above.
	75	Siltstone - medium and light grey, moderately hard, as above. Feldspathic, calcareous, carbonaceous.
	5	Sandstone - as above.
880-890	20	Mudstone - medium grey, silty, moderately hard, blocky, carbonaceous and coally, as above.
	75	Siltstone - medium grey, moderately hard, feldspathic, as above.
	5	Sandstone - light and medium grey lithic, calcareous, moderately hard and friable, tight, no shows.
890-900	15	Mudstone - dark and medium grey, moderately hard, blocky to moderately fissile, carbonaceous and coally.
	25	Siltstone - medium grey, moderately hard, blocky, sandy, feldspathic, carbonaceous, slightly calcareous.
	60	Sandstone - light grey-brown, very fine to fine-grained and some medium-grained, consisting of subangular quartz, minor grey and trace of green lithics, dark mica, feldspars, carbonaceous specks. Matrix white calcareous clays. Tight. No shows.
900-910	20	Mudstone - medium and dark grey, as above.
	70	Siltstone - medium grey, sandy, moderately hard, as above.
	10	Sandstone - light grey-brown, very fine to fine-grained feldspathic and lithic, as above. Tight. No shows.
910-920	10	Coal - black, bituminous, as above (cavings due trip at 916 feet ?)
	20	Mudstone - dark grey, carbonaceous, fissile, as above.
	50	Siltstone - medium grey, sandy, carbonaceous, as above.
	20	Sandstone - light brown-grey lithic, as above.
920-930	20	Mudstone - dark and medium grey, silty, carbonaceous.
	60	Siltstone - medium grey, sandy, carbonaceous, as above.
	20	Sandstone - light to medium brown-grey speckled, as above.
930-940	10	Coal - black, as above.
	30	Mudstone - medium to dark grey, as above.
	50	Siltstone - as above.
	10	Sandstone - as above.

940-950	10	Coal - black, as above.
	20	Mudstone - medium to dark grey, as above.
	30	Siltstone - medium grey, as above.
	40	Sandstone - light grey, very fine to fine and some medium-grained, as above, lithic feldspathic, tight. No fluorescence.
950-960	20	Coal - black, brittle, bright, sub-bituminous.
	20	Mudstone - medium to dark grey, blocky, carbonaceous, silty.
	20	Siltstone - medium grey, sandy, carbonaceous, calcareous, feldspathic.
	40	Sandstone - light grey, speckled, feldspathic and lithic, as above. Tight. No shows.
960-970	Comm.	
	Trace	Coal - black, dull, shaly, and bright, as above.
	10	Mudstone - dark grey, moderately hard, brittle, carbonaceous and coally, silty.
	70	Siltstone - medium grey, moderately hard, brittle, blocky, carbonaceous, slightly micaceous, calcareous, feldspathic, sandy.
	20	Sandstone - light to medium grey speckled, very fine-grained to fine and some medium-grained, as above. Tight. No shows.
970-980	30	Coal - black, bright, sub-bituminous, brittle.
	30	Mudstone - dark grey, moderately hard, slightly fissile, carbonaceous, coally.
	30	Siltstone - medium grey, blocky, sandy, as above.
	10	Sandstone - light grey speckled, fine-grained, tight, as above.
980-990	10	Coal - black
	10	Mudstone - dark grey, slightly silty.
	50	Siltstone - light grey, blocky, sandy.
	30	Sandstone - light grey, compact, subangular to subrounded quartz, white feldspar, argillaceous. No porosity. No shows.
990-1000	5	Coal - black.
	25	Mudstone - dark grey, slightly silty.
	40	Siltstone - as above.
	30	Sandstone - light grey, compact, subangular to subrounded quartz, white feldspar, slightly carbonaceous.
1000-010	10	Mudstone - light grey, slightly silty.
	60	Siltstone - medium grey, moderately hard.
	30	Sandstone - light grey, slightly carbonaceous, micaceous with white feldspars.
1010-020	5	Mudstone - light grey, slightly silty.
	10	Siltstone - light grey, moderately hard.
	85	Sandstone - fine, subangular and subrounded quartz. No fluorescence. No visible porosity.
	Trace	Coal.
	"	Pyrite aggregates.
1020-030	5	Mudstone - Light grey, as above.
	30	Siltstone - as above.
	65	Sandstone - light grey, micaceous, carbonaceous, clayey matrix. Tight, as above.
	Trace	Pyrite aggregates.

1030-040	10	Mudstone - light grey, as above.
	60	Siltstone - grey to brownish-grey with white feldspars and fine lamination of coal.
	25	Sandstone - light grey, as above.
	5	Coal.
1040-050		Sample missed.
1050-060	10	Mudstone - medium grey, blocky.
	30	Siltstone - medium grey to dark grey.
	60	Sandstone - light grey, carbonaceous and clayey matrix.
1060-070	15	Mudstone - light grey to medium grey, as above.
	20	Siltstone - moderately hard, compact, light grey, trace of greenish-grey.
	65	Sandstone - very fine-grained, subangular quartz with rare feldspar. Clayey matrix. Tight. No shows.
1070-080	10	Mudstone - medium grey, as above.
	80	Siltstone - medium grey to dark grey, micaceous.
	10	Sandstone - as above. No fluorescence.
1080-090	10	Mudstone - medium grey, as above.
	40	Siltstone - as above.
	50	Sandstone - as above. Tight. No fluorescence.
1090-100	5	Mudstone - medium grey, as above.
	25	Siltstone - medium to dark grey, micaceous with laminations of coal..
	65	Sandstone - as above.
	5	Coal.
1100-110	10	Mudstone - medium grey, as above.
	40	Siltstone - medium grey to grey-brownish, micaceous and coally.
	45	Sandstone - medium grey, fine-grained with white feldspars and black mica.
	5	Coal.
1110-120	5	Mudstone - as above.
	30	Siltstone - as above.
	55	Sandstone - as above.
	10	Coal.
1120-130	5	Mudstone - as above.
	30	Siltstone - as above.
	50	Sandstone - as above. No fluorescence, gas kick probably methane from coal.
	15	Coal - as above.
1130-140	20	Mudstone - medium grey, blocky.
	55	Siltstone - medium grey with fine laminations of coal.
	25	Sandstone - fine-grained, contains some coal and black micas.
1140-150	10	Mudstone - dark grey, as above.
	10	Siltstone - dark grey, as above.
	80	Sandstone - light grey, as above.
	Trace	Coal.

1150-160	10	Mudstone - medium to dark grey.
	15	Siltstone - medium grey, contains some coal.
	70	Sandstone - light grey with black micas.
	5	Coal.
1160-170	5	Mudstone - medium to dark grey.
	40	Siltstone - medium grey with laminations of coal.
	50	Sandstone - as above.
	5	Coal - black.
1170-180	25	Mudstone - as above.
	50	Siltstone - dark grey, containing some coal.
	25	Sandstone - as above. No fluorescence.
	Trace	Coal.
1180-190	5	Mudstone - as above.
	40	Siltstone - as above.
	45	Sandstone - light grey, fine-grained. No fluorescence.
	10	Coal
	Trace	Pyrite.
1190-200	20	Mudstone - medium to dark grey, moderately hard, blocky, carbonaceous and silty.
	50	Siltstone - medium grey, blocky, slightly calcareous, slightly carbonaceous, as above.
	30	Sandstone - light grey, speckled, very fine to fine-grained, some medium-grained. Tight with no fluorescence.
1200-210	20	Mudstone - medium and dark grey, as above.
	60	Siltstone - medium grey, as above.
	20	Sandstone - light and medium grey speckled, as above. Tight with no fluorescence.
1210-220	10	Mudstone - medium and dark grey, blocky, moderately hard, brittle, silty, carbonaceous and very slightly calcareous.
	50	Siltstone - medium grey, sandy, moderately hard, carbonaceous, slightly calcareous, trace of pyrite, trace of feldspars.
	40	Sandstone - light grey speckled, consisting of very fine to fine-grained and trace of medium-grained subangular quartz, trace of grey and rare green lithics, kaolinized feldspars, mica and carbonaceous specks. Matrix of calcareous white clays. Tight. No shows.
1220-230	10	Mudstone - medium and some dark grey, carbonaceous and coally, as above.
	60	Siltstone - medium grey, as above.
	30	Sandstone - light grey speckled, very fine to fine-grained and some medium-grained, moderately hard and friable, as above, tight. No shows.
1230-240	20	Mudstone - medium and dark grey, as above.
	50	Siltstone - as above, medium grey, sandy.
	30	Sandstone - as above.

1240-250	10	Mudstone - medium grey, moderately hard, as above.
	60	Siltstone - medium grey, sandy, carbonaceous, calcareous, as above.
	30	Sandstone - light to medium grey and brown, very fine to fine-grained, as above, calcareous and dolomitic (brown). Tight in chips. No fluorescence.
1250-257	10	Coal - black, dull, shaly. Some sub-bituminous. (Gas kick 40u above base.)
	25	Mudstone - some light to medium grey, mostly dark brown-grey, moderately fissile, coally, silty.
	45	Siltstone - medium grey, blocky, silty to sandy and grades to very fine-grained sandstone, carbonaceous and slightly calcareous.
	20	Sandstone - light grey-brown speckled, very fine to fine-grained and some medium-grained, as above. Sandstone chips tight. No shows.
		CORE NO.1 CUT ON BIT CHANGE AT 1257 FEET.
1264-270	5	Coal - black, dull, shaly and bright, sub-bituminous.
	20	Mudstone - Medium grey, moderately fissile, Carbonaceous, silty.
	65	Siltstone - medium grey, moderately hard, brittle to friable, sandy, carbonaceous, slightly calcareous, muddy.
	10	Sandstone - light grey speckled, very fine to fine-grained, silty, calcareous, slightly carbonaceous and micaceous, tight. No shows.
1270-280	15	Mudstone - light grey and medium grey, as above.
	80	Siltstone - medium grey, sandy, calcareous, feldspathic.
	5	Sandstone - as above.
1280-290	25	Mudstone - medium and light grey, moderately hard, as above.
	60	Siltstone - medium grey, calcareous and carbonaceous, as above.
	15	Sandstone - medium and light grey, silty, grades to siltstone, as above.
1290-300	5	Coal - black, sub-bituminous.
	25	Mudstone - medium grey, silty, carbonaceous, as above.
	50	Siltstone - medium grey, sandy, moderately hard, as above.
	20	Sandstone - light to medium grey, silty, lithic, calcareous and feldspathic, tight. No shows.
1300-310	10	Mudstone - some dark grey, most medium grey, moderately hard, brittle, carbonaceous, coally.
	70	Siltstone - medium grey, as above, moderately hard and carbonaceous.
	20	Sandstone - some friable, light grey, very fine to fine-grained, firm and some fine-grained to trace of medium-grained, light to tmedium grey, as above. Both calcareous, kaolinitic and tight. No shows.

1310-320	20	Mudstone - light to medium to dark grey, moderately hard, as above.
	60	Siltstone - as above, medium grey, sandy.
	20	Sandstone - light to medium grey speckled, very fine to fine-grained, lithic, feldspathic. Tight with no fluorescence.
1320-330	15	Mudstone - medium grey, blocky, as above.
	50	Siltstone - medium grey, sandy, and coally.
	30	Sandstone - light grey, subangular quartz, micaceous (flakes of black mica), slightly calcareous.
	5	Coal - as above.
1330-340		Sample missed.
1340-350	10	Mudstone - as above.
	50	Siltstone - hard, light grey, coally and with laminations of coal.
	40	Sandstone - medium grey, slightly carbonaceous and coally, white feldspars and black micas. Tight. No fluorescence.
1350-360	10	Mudstone - as above.
	60	Siltstone - medium grey, as above.
	30	Sandstone - light grey, as above.
	Trace	Coal
1360-370	10	Mudstone - medium grey, as above.
		Siltstone - light to medium grey, moderately hard.
		Sandstone - light grey, fine-grained, subangular with white feldspars and flecks of black micas. Tight. No fluorescence.
1370-380	10	Mudstone - medium grey, as above.
		Siltstone - medium to dark grey, moderately hard, micaceous and coally.
		Sandstone - light grey, as above.
1380-390	10	Mudstone - medium grey, as above.
	60	Siltstone - light to medium grey.
	25	Sandstone - light grey, white feldspars, as above.
	5	Coal - as above.
1390-400	10	Mudstone - medium grey, as above.
	65	Siltstone - medium to dark grey, slightly micaceous.
	20	Sandstone - light grey with white feldspar, as above.
	5	Coal - as above.
1400-410	10	Mudstone - medium grey, as above.
	45	Siltstone - medium grey, slightly micaceous.
	40	Sandstone - light grey, white feldspar and black micas.
	5	Coal - black, brittle.
1410-420	5	Mudstone - medium grey, as above.
	30	Siltstone - sandy, moderately hard, coally, medium grey.
	60	Sandstone - light grey, white feldspars, fine-grained, subangular quartz. Tight. No fluorescence.
	5	Coal - as above.

1420-430	75	Siltstone - sandy, moderately hard, coally.
	20	Sandstone - light grey, white feldspar, fine-grained, subangular quartz, clayey matrix.
	5	Coal - as above.
1430-440	40	Siltstone - medium grey, andy, coally, moderately hard.
	60	Sandstone - light grey, white feldspar, flecks of black micas, fine-grained, subangular quartz, tight. No fluorescence.
1440-450	30	Siltstone - as above.
	10	Mudstone - medium grey, blocky.
	60	Sandstone - as above.
	Trace	Coal.
1450-460	60	Siltstone - medium grey, sandy and coally, moderately hard.
	40	Sandstone - light grey with undetermined greenish mineral, otherwise as above; and recrystallized calcite.
1460-470	10	Mudstone - medium grey.
	50	Siltstone - medium grey, as above.
	40	Sandstone - as above, recrystallized calcite. No fluorescence.
1470-480	10	Mudstone - as above.
	50	Siltstone - as above, contains some coal.
	40	Sandstone - as above.
	Trace	Coal.
1480-490	5	Mudstone - medium grey, as above.
	75	Siltstone - medium grey, sandy and coally, moderately hard to hard.
	20	Sandstone - light grey, as above.
	Trace	Coal, and recrystallized calcite.
1490-500	55	Siltstone - as above.
	45	Sandstone - light grey, feldspathic, as above.
	Trace	Coal.
1500-510	25	Mudstone - dark grey, silty, and coally.
	15	Siltstone - medium grey, as above.
	60	Sandstone - light grey, feldspathic, as above.
	Trace	Coal.
1510-520	10	Mudstone - medium and dark grey, moderately hard, fissile, carbonaceous and coally, silty.
	25	Siltstone - medium grey, blocky, carbonaceous, sandy, calcareous, as above.
	65	Sandstone - light to medium grey, very fine-grained and silty, carbonaceous and slightly calcareous, moderately hard, friable, tight. No shows.
1520-530	10	Mudstone - medium and dark grey, moderately hard, fissile and blocky, silty and slightly calcareous, carbonaceous and coally.
	70	Siltstone - medium grey, moderately hard, blocky, slightly sandy, carbonaceous, calcareous, slightly micaceous.
	20	Sandstone - light grey speckled, very fine to fine-grained, firm, consists of subangular quartz, grey lithics, trace of white feldspars and carbonaceous specks, white and dark micas. Matrix calcareous white clays. Tight. No shows.

1530-540	20	Mudstone - medium and dark grey, silty and and carbonaceous, as above.
	60	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, as above.
	20	Sandstone - light grey speckled, very fine to fine-grained and silty, as above. Tight with no shows.
1540-550	30	Mudstone - medium and dark grey, silty, slightly calcareous and carbonaceous, as above.
	60	Siltstone - medium grey, sandy, carbonaceous, calcareous, as above.
	10	Sandstone - light grey, fine to medium-grained, angular and subangular quartz, grey lithics. Tight, calcareous matrix, as above.
1550-560	20	Mudstone - medium to dark grey, silty, slightly calcareous and carbonaceous, as above.
	50	Siltstone - medium grey, sandy, carbonaceous, calcareous, as above.
	30	Sandstone - light grey, very fine to fine-grained, and occasional medium-grained quartz, grey lithic, trace of chlorite. Tight, calcareous matrix, as above.
1560-570	20	Mudstone - medium and dark grey, silty, very slightly calcareous.
	60	Siltstone - light grey to brownish, occasional sandy, carbonaceous, slightly calcareous, as above.
	20	Sandstone - light grey to grey, fine-grained to medium-grained quartz, grey lithic. Tight, calcareous matrix, as above.
1570-580	40	Mudstone - medium to dark grey, silty, slightly calcareous, carbonaceous, as above.
	50	Siltstone - light grey to brown, sandy, carbonaceous, slightly calcareous, as above.
	10	Sandstone - light grey, fine to medium-grained quartz, lithic. Tight, calcareous, clay matrix.
	Trace	Coal - dark brown, moderately hard.
1580-590	10	Mudstone - medium to dark grey, silty, slightly calcareous, carbonaceous, as above.
	40	Siltstone - light grey, sandy, carbonaceous, slightly calcareous, as above.
	50	Sandstone - light grey, fine to medium-grained quartz and lithic chlorite, carbonaceous matter. Calcareous matrix, as above, trace of weathered foraminifera(cavings?).
1590-600	20	Mudstone - dark grey to dark brown, blocky, moderately hard, slightly silty and calcareous.
	60	Siltstone - grey, sandy, slightly calcareous, moderately hard, carbonaceous, slightly micaceous.
	20	Sandstone - light grey, very fine to medium-grained subangular quartz, white feldspars, grey lithics, micaceous, carbonaceous. Tight, calcareous, clayey matrix. No shows.

1600-610	10	Mudstone - dark grey, slightly silty, calcareous, as above.
	30	Siltstone - grey, sandy, slightly calcareous, as above.
	60	Sandstone - light grey, very fine to medium-grained quartz, feldspars, lithics. Tight, calcareous matrix, (30%). Rest is light brown, fine to medium-grained quartz and feldspar, lithic grains, chlorite, micaceous, carbonaceous, tight, very calcareous matrix.
	Trace	Coal - black, brittle.
1610-620	10	Mudstone - dark grey, slightly silty, as above.
	60	Siltstone - grey, sandy, slightly calcareous, as above.
	30	Sandstone - light grey to light brown, very fine to medium-grained quartz, feldspar, lithics. Tight, calcareous matrix.
	Trace	Coal.
1620-630	10	Mudstone - dark grey, slightly silty, calcareous, as above.
	50	Siltstone - grey, sandy, slightly calcareous, as above.
	40	Sandstone - light grey, very fine to medium-grained quartz, feldspar, lithics. Very calcareous matrix. Tight. Trace of carbonaceous matter and chlorite.
	Trace	Coal.
1630-640	10	Mudstone - dark grey, slightly silty, calcareous, as above.
	70	Siltstone - grey, sandy, slightly calcareous, as above.
	20	Sandstone - light grey, very fine to medium-grained quartz, feldspar, lithic grains, calcareous matrix, as above.
	Trace	Coal.
1640-650	20	Mudstone - medium grey, moderately hard, blocky, brittle, carbonaceous and silty, as above.
	60	Siltstone - medium grey, moderately hard, calcareous and sandy, as above.
	20	Sandstone - light grey speckled, very fine to fine-grained and trace of medium-grained, moderately hard, friable, calcareous, slightly carbonaceous, micaceous. Tight. No shows.
1650-660	20	Mudstone - medium grey, moderately hard, blocky, brittle, carbonaceous, silty, slightly micaceous and calcareous.
	40	Siltstone - medium grey, moderately hard, blocky, sandy, carbonaceous, slight to moderately calcareous, as above.
	40	Sandstone - light grey, speckled, very fine to fine-grained and firm, friable and consisting of quartz, lithics, feldspars, mica, carbonaceous specks. Matrix of calcareous clays. Tight. No shows.
1660-670	10	Mudstone - dark grey, carbonaceous, silty, as above.
	20	Siltstone - medium grey, sandy, as above.
	70	Sandstone - light grey speckled, very fine to fine-grained, as above. Tight. No shows.

1670-680	50	Siltstone - medium grey, moderately hard, sandy, slightly carbonaceous, as above.
	50	Sandstone - light to medium grey speckled, very fine to fine-grained, firm and friable, moderately calcareous, tight, as above.
1680-690	20	Mudstone - medium grey, fissile, silty, carbonaceous, as above.
	50	Siltstone - medium grey, as above.
	30	Sandstone - light to medium grey, very fine to fine-grained, firm, calcareous. Tight with no shows.
1690-700	10	Mudstone - medium grey, as above.
	80	Siltstone - medium grey, carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine-grained and silty, calcareous, as above.
1700-710	20	Mudstone - medium grey, dark grey, black, silty, carbonaceous.
	60	Siltstone - medium to dark grey, sandy, carbonaceous.
	20	Sandstone - light and medium grey, carbonaceous and coally, very fine to fine-grained and silty, as above. Tight. No shows.
1710-720	20	Mudstone - medium grey and dark grey, as above.
	80	Siltstone - medium grey, sandy, slightly calcareous, as above, carbonaceous.
	Trace	Sandstone - light grey speckled, as above.
1720-730	10	Mudstone - medium grey, silty, carbonaceous, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey speckled, carbonaceous, as above. Tight. No shows.
1730-740	10	Mudstone - medium grey, silty, moderately hard, blocky, as above.
	80	Siltstone - medium grey, as above, sandy.
	10	Sandstone - medium grey, silty, calcareous, carbonaceous, as above.
1740-750	20	Mudstone - medium grey, silty, as above.
	80	Siltstone - medium grey, as above, moderately hard, slightly carbonaceous and calcareous.
1756		TRIP FOR NEW BIT.
1756-760	20	Mudstone - medium to dark grey, silty, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - medium grey, silty, calcareous, carbonaceous, as above.
1760-770	20	Mudstone - medium grey to grey-brown, silty, as above.
	60	Siltstone - medium grey, sandy, moderately hard, as above.
	20	Sandstone - medium-grained to silty, consists of quartz, feldspars, some chlorite. Carbonaceous and micaceous. Calcareous, clay matrix.
	Trace	Coal.

1770-780	10	Mudstone - medium grey, silty, as above.
	60	Siltstone - medium grey, sandy, slightly calcareous, as above.
	25	Sandstone - fine-grained to silty, calcareous matrix, as above.
	5	Coal - black, brittle, slightly pyritic, calcite bands.
1780-790	10	Mudstone - medium grey, silty, blocky, as above.
	70	Siltstone - medium grey, sandy, slightly calcareous, moderately hard, as above.
	20	Sandstone - medium grey, very fine to medium-grained, consisting of quartz, feldspar, lithics, muscovite, biotite, Carbonaceous. Some loose, pebbly quartz grains.
	Trace	Coal.
1790-1800	20	Mudstone - medium grey-brown, silty, as above.
	65	Siltstone - medium grey, sandy, slightly calcareous.
	10	Sandstone - medium grey, very fine to medium-grained, angular to subangular quartz, feldspars, lithics.
	5	Coal - black, brittle.
1800-810	10	Mudstone - medium grey, silty, moderately hard, blocky, as above.
	80	Siltstone - medium grey, sandy, slightly calcareous, as above.
	10	Sandstone - medium grey to white, silty, calcareous, carbonaceous, micaceous, as above.
	Trace	Coal - black, brittle, vitreous.
1810-820	10	Mudstone - medium grey, silty, as above.
	85	Siltstone - medium grey to grey-brown, sandy, as above.
	5	Sandstone - medium grey, very fine to medium-grained, angular to subangular quartz, feldspar and lithics, calcareous matrix, as above.
	Trace	Coal - pyritic.
1820-830	20	Mudstone - light grey, silty, blocky, moderately hard.
	70	Siltstone - medium grey, sandy.
	10	Sandstone - medium grey, very fine-grained, calcareous, as above.
	Trace	Coal.
1830-840	20	Mudstone - light grey to grey-brown, silty, as above.
	70	Siltstone - medium grey, blocky, very poorly calcareous, as above.
	10	Sandstone - medium grey, very fine-grained, calcareous matrix, as above. Tight.
	Trace	Coal - dull black-brown.
1840-850	20	Mudstone - medium grey, silty, as above.
	60	Siltstone - medium grey, as above.
	20	Sandstone - medium grey, very fine-grained, calcareous matrix, as above, with loose, pebbly quartz grains, trace of foraminifera.
	Trace	Coal.

1850-860	15	Mudstone - medium grey, as above.
	70	Siltstone - medium grey, as above.
	15	Sandstone - medium grey to white, calcareous, as above, with loose, pebbly quartz grains.
	Trace	Coal - black, brittle, vitreous.
1860-870	10	Mudstone - medium grey, silty, blocky, moderately hard.
	80	Siltstone - medium grey, sandy in part, poorly calcareous and carbonaceous.
	10	Sandstone - medium grey, very fine-grained, consisting of quartz, feldspar, lithics, tight calcareous matrix. Micaceous and carbonaceous.
	Trace	Coal.
1870-880	10	Mudstone - medium grey, as above.
	80	Siltstone - medium grey, very sandy, as above.
	10	Sandstone - medium grey, asabove.
	Trace	Coal.
1880-890	10	Mudstone - medium grey, as above.
	70	Siltstone - medium grey, sandy, as above.
	20	Sandstone - medium grey, very fine-grained, angular to subangular, as above.
	Trace	Coal.
1890-1900	20	Mudstone - medium grey, silty, as above.
	70	Siltstone - light grey, sandy, slightly calcareous, as above.
	10	Sandstone - medium grey to white, very fine-grained quartz, feldspar grains, calcareous, micaceous, carbonaceous, as above.
	Trace	Coal - dark brown, silty.
1900-910	10	Mudstone - medium grey, silty, as above.
	40	Siltstone - light grey, sandy, as above.
	50	Sandstone - medium grey, very fine-grained quartz, feldspar and lithic grains, micaceous, carbonaceous, tight calcareous matrix.
	Trace	Coal - black, brittle, vitreous.
1910-920	10	Mudstone - medium and dark grey, silty, moderately fissile, carbonaceous, as above.
	60	Siltstone - light to medium grey, sandy, moderately hard, blocky, carbonaceous and coally, as above.
	30	Sandstone - light grey and medium grey, silty, calcareous, carbonaceous, very fine-grained, moderately hard, feldspathic and lithic, as above. Tight with no shows.
1920-930	10	Mudstone - medium grey, as above.
	80	Siltstone - light to medium grey, carbonaceous, as above.
	10	Sandstone - as above, very fine-grained, light grey speckled.

1930-940	10	Mudstone - medium grey and light grey, moderately hard, brittle and blocky, silty and slightly carbonaceous.
	80	Siltstone - light and medium grey, moderately hard, blocky, slightly calcareous, feldspathic, carbonaceous and sandy.
	10	Sandstone - light grey, very fine-grained, silty, as above. Tight. No shows.
1940-950	10	Mudstone - grey, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light grey, speckled, as above.
1950-960	5	Mudstone - light and medium grey, as above.
	90	Siltstone - medium grey, moderately hard, as above.
	5	Sandstone - light grey speckled, as above.
1960-970	5	Mudstone - medium and trace of dark grey, as above.
	85	Siltstone - medium grey, moderately hard, as above.
	10	Sandstone - light to medium grey, very fine to fine-grained and silty, speckled, as above. Tight. No shows.
1970-980	5	Mudstone - medium and dark grey, as above.
	85	Siltstone - medium grey, sandy, as above.
	10	Sandstone - light to medium grey, speckled, as above.
1980-990	5	Coal - black, brittle, sub-bituminous.
	5	Mudstone - medium and dark grey, as above.
	85	Siltstone - medium grey, sandy, as above.
	5	Sandstone - medium and light grey speckled, as above.
1990-2000	10	Mudstone - dark and medium grey, moderately hard and brittle, silty, slightly calcareous, as above.
	90	Siltstone - light to medium grey, sandy, moderately hard, friable, grades to sandstone.
	Trace	Sandstone - light grey, very fine-grained and silty, as above.
2000-010	Trace	Coal - black and brittle, as above.
	5	Mudstone - medium grey, as above.
	95	Siltstone - medium grey, moderately calcareous, slightly sandy, as above.
2010-020	5	Mudstone - medium and light grey, silty, slightly calcareous and carbonaceous, as above.
	65	Siltstone - medium grey, as above.
	30	Sandstone - light to medium grey speckled, very fine-grained, silty, calcareous, slightly carbonaceous and trace of mica. Feldspathic, trace of lithics. Tight, no shows.
2020-030	5	Coal - black, bright, as above.
	10	Mudstone - medium grey, silty, carbonaceous, as above.
	70	Siltstone - medium grey, moderately hard, friable, blocky, slightly carbonaceous, calcareous.
	15	Sandstone - medium and light grey, silty, calcareous, very fine to fine-grained, moderately hard, friable, consists of sub-rounded to subangular quartz, minor grey lithics, white feldspars, trace of micas, carbonaceous specks. Matrix white calcareous clays. Tight. No shows.

2030-040	10	Mudstone - medium grey, silty, as above.
	80	Siltstone - medium grey, moderately hard, slightly carbonaceous and calcareous, as above.
	10	Sandstone - medium and light grey, silty, very fine, friable, tight, white calcareous matrix, as above.
	Trace	Coal - black, bright.
2040-050	10	Mudstone - medium grey, silty, carbonaceous, as above.
	70	Siltstone - medium grey, blocky, slightly calcareous, friable, as above.
	20	Sandstone - medium and light grey, silty, very fine to fine-grained quartz, lithic and feldspar grains, micaceous, carbonaceous. Matrix of white calcareous clays, as above. Trace of Foraminifera.
	Trace	Coal - as above.
2050-060	40	Mudstone - medium grey, silty, carbonaceous, as above.
	50	Siltstone - medium grey, slightly calcareous, blocky, as above.
	10	Sandstone - light grey, silty, very fine grains of subangular quartz, feldspars and lithics. Carbonaceous and micaceous. Matrix white calcareous clays, as above.
	Trace	Coal - as above.
2060-070	25	Mudstone - medium grey, silty, slightly carbonaceous, as above.
	60	Siltstone - medium grey, slightly calcareous, blocky, friable, as above.
	15	Sandstone - medium and light grey, silty, very fine to fine-grained, moderately hard, friable, consists of quartz, lithics, feldspars, slightly micaceous and carbonaceous. White calcareous matrix, as above.
	Trace	Coal - as above.
2070-080	20	Mudstone - medium grey, silty, slightly carbonaceous, as above.
	70	Siltstone - medium grey, slightly calcareous, as above.
	10	Sandstone - light grey, silty, very fine subangular quartz, lithic, feldspar grains, slightly micaceous and carbonaceous, calcareous matrix, as above.
2080-090	10	Mudstone - medium grey, silty, slightly carbonaceous, as above.
	80	Siltstone - medium grey, moderately hard, blocky, slightly carbonaceous, calcareous in part grading to sandstone.
	10	Sandstone - light grey, friable, very fine to silty, consists of subangular grains of quartz, minor grey lithics and white feldspars, slightly micaceous and carbonaceous. Matrix calcareous clays.
2090-2100	10	Mudstone - medium grey, silty, slightly carbonaceous, as above.
	70	Siltstone - medium grey, slightly carbonaceous, calcareous, as above.
	20	Sandstone - light grey, very fine grains of quartz, lithics, feldspars, calcareous. Tight. White clays matrix, as above.

2100-110	15	Mudstone - medium grey, silty, slightly carbonaceous, as above.
	80	Siltstone - medium grey, slightly carbonaceous and calcareous, as above.
	5	Sandstone - light grey, very fine calcareous matrix, as above. Loos pebbly quartz grains.
2110-120	15	Mudstone - medium grey, silty, as above.
	80	Siltstone - medium grey, slightly carbonaceous and calcareous, sandy.
	5	Sandstone - light grey, very fine subangular quartz, lithic, feldspar grains. Matrix calcareous, tight, white clays.
2120-130	15	Mudstone - medium grey, silty, as above.
	75	Siltstone - medium grey, slightly carbonaceous and calcareous, sandy, as above.
	10	Sandstone - light grey, very fine subangular quartz, lithic and feldspar grains, slightly micaceous, carbonaceous. Matrix calcareous clays. Tight.
	Trace	Coal - black, bright, vitreous.
2130-140	10	Mudstone - medium grey, silty, as above.
	80	Siltstone - medium grey, slightly carbonaceous and calcareous, sandy, as above.
	10	Sandstone - light grey, very fine subangular quartz, lithic and feldspar grains, slightly micaceous, carbonaceous. Matrix calcareous clays. Loose pebbly quartz grains.
	Trace	Coal - as above.
2140-150	10	Mudstone - medium grey, as above. Trace light brown-grey, soft, shaly (weathered?). Otherwise as above.
	80	Siltstone - medium grey, trace light brown, as above.
	10	Sandstone - light grey, speckled, very fine to fine-grained, firm and friable, slightly lithic and feldspathic, as above. Tight. No shows.
2150-160	10	Mudstone - light to medium grey, trace light brown, moderately hard, brittle, blocky, silty, slightly calcareous.
	75	Siltstone - medium and light grey, moderately hard, brittle, blocky, sandy, calcareous, slightly carbonaceous. Trace brown siltstone.
	15	Sandstone - light grey speckled, very fine-grained, calcareous, slightly carbonaceous, consisting of quartz, trace grey lithics, feldspars, matrix of white clays. Tight. No shows.
2160-170	10	Mudstone - medium grey, as above.
	80	Siltstone - grey, sandy, carbonaceous, slightly calcareous, as above.
	10	Sandstone - light grey, very fine-grained, as above.
	Trace	Coal - black, brittle.

2170-180	20	Mudstone - medium and dark grey, silty and carbonaceous, moderately fissile, as above.
	65	Siltstone - medium grey, as above.
	15	Sandstone - light to medium grey and very fine-grained to silty, as above. Tight with no shows.
2180-190	10	Mudstone - light to medium grey, silty and carbonaceous, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light and medium grey, silty and very fine-grained, as above.
2190-2200	10	Mudstone - medium and trace of dark grey, as above.
	70	Siltstone - medium grey and sandy, grading to sandstone, generally as above, carbonaceous.
	20	Sandstone - light and medium grey, very fine-grained and silty, moderately hard and friable, slightly calcareous and carbonaceous.
2200-210	10	Mudstone - medium and trace of dark grey, moderately hard, fissile, carbonaceous, as above.
	70	Siltstone - medium grey, sandy, moderately hard, blocky, slightly to moderately calcareous, as above.
	20	Sandstone - light grey, very fine to fine-grained, speckled, as above.
2210-220	10	Mudstone - medium grey and dark grey as above, moderately hard, fissile in darker variety.
	75	Siltstone - medium grey, sandy and grading to very fine-grained sandstone, firm and blocky, calcareous and carbonaceous.
	15	Sandstone - light to medium grey speckled, very fine-grained and silty, moderately hard and friable, slightly calcareous and carbonaceous, consists of subangular quartz, trace of grey lithics, white feldspars, mica, carbon specks with white calcareous clay matrix. Tight with no shows.
2220-230	5	Mudstone - medium grey, silty, as above. Trace of light brown.
	80	Siltstone - medium grey, sandy, carbonaceous and calcareous.
	15	Sandstone - light to medium grey, silty and very fine to fine-grained, as above. Tight with no shows.
2230-240	5	Mudstone - medium and trace of dark grey, as above. Trace of brown.
	85	Siltstone - medium grey, sandy, as above. Trace of brown.
	10	Sandstone - light grey, very fine to fine-grained and silty, calcareous, as above. Tight. No shows.
2240-250	5	Mudstone - medium and trace of dark grey, as above.
	75	Siltstone - medium and dark grey, sandy, slightly carbonaceous, as above.
	20	Sandstone - light grey speckled, very fine to fine-grained and silty, as above. Calcareous and clayey. Tight. No shows.

2250-260	5	Mudstone - medium grey, as above, alightly silty and fissile, carbonaceous.
	85	Siltstone - medium grey, sandy, moderately hard, as above.
	10	Sandstone - light to medium grey, very fine to fine-grained and silty, as above.
2260-270	10	Mudstone - medium grey, blocky, moderately hard, as above.
	65	Siltstone - medium and light grey, as above, sandy, calcareous and carbonaceous.
	25	Sandstone - light and medium grey, very fine to fine-grained and silty, moderately hard and friable, calcareous and slightly carbonaceous, micaceous. Matrix white calcareous clays. Tight. No shows.
	Trace	Coal - black, bright, brittle.
2270-280	10	Mudstone - medium grey and dark grey, moderately hard, silty, blocky, as above.
	80	Siltstone - medium and light grey, sandy, slightly calcareous and carbonaceous.
	10	Sandstone - light and medium grey, very fine to silty, moderately hard, friable, slightly calcareous and carbonaceous. Consists of subangular quartz, grey lithics, white feldspars, slightly micaceous, carbonaceous specks. White, tight, calcareous clay matrix. Loose pebbly quartz grains. No shows.
2280-290	15	Mudstone - medium grey, moderately hard, silty, as above.
	65	Siltstone - light grey, sandy, slightly calcareous and carbonaceous, as above.
	20	Sandstone - light grey, very fine to silty, calcareous, as above. Tight.
2290-2300	20	Mudstone - medium grey, moderately hard, silty, blocky, as above.
	70	Siltstone - light grey, sandy, slightly calcareous and carbonaceous, blocky, as above.
	10	Sandstone - light grey, very fine to silty, subangular grains of quartz, lithics, feldspars, micaceous, carbonaceous specks. White, calcareous clay matrix. Tight, as above.
2300-310	20	Mudstone - medium grey, some dark grey, moderately hard, silty, as above.
	70	Siltstone - light and medium grey, slightly calcareous, blocky, as above.
	10	Sandstone - light grey, very fine to silty, calcareous, carbonaceous specks, micaceous, white calcareous clay matrix, as above.
2310-320	10	Mudstone - medium grey and dark grey, hard, silty, as above.
	75	Siltstone - light and medium grey, slightly calcareous and carbonaceous, blocky, as above.
	15	Sandstone - light grey, very fine to silty, subangular quartz grains, minor lithics, feldspars, micaceous, carbonaceous. White, calcareous clay matrix, as above. Losse, pebbly quartz grains.

2320-330	15	Mudstone - medium grey and dark grey, moderately hard, silty.
	70	Siltstone - light amd medium grey, slightly calcareous and carbonaceous, moderately hard.
	15	Sandstone - light grey, very fine to silty, calcareous, friable, white, calcareous clay matrix, as above.
	Trace	Coal - black, bright, calcite inclusions.
2330-340	10	Mudstone - medium grey, moderately hard, silty, as above.
	70	Siltstone - light grey, slightly calcareous and carbonaceous, as above.
	20	Sandstone - light grey, very fine to silty, subangular grains of quartz, minor lithics, feldspars. White, tight, calcareous matrix.
	Trace	Coal - as above.
2340-350	20	Mudstone - medium grey, silty, slightly calcareous, moderately hard.
	70	Siltstone - light grey, sandy, slightly calcareous and carbonaceous.
	10	Sandstone - light grey, very fine to silty, subangular, poorly sorted quartz, lithic, feldspar grains, slightly micaceous, carbonaceous specks. White to light grey, calcareous clay matrix, tight in part. Trace of shell fragments.
	Trace	Coal - black, brittle.
2350-360	10	Mudstone - medium grey, silty, slightly calcareous, blocky, as above. Kaolinite trace.
	80	Siltstone - light grey, sandy, slightly calcareous, carbonaceous specks, moderately hard, friable in part.
	10	Sandstone - light grey, very fine to silty, subangular quartz, lithic, feldspar grains, slightly micaceous, carbonaceous, light grey, calcareous matrix. Tight in part.
	Trace	Coal- black to brown, bright, in part silty.
2360-370	15	Mudstone - medium grey, silty, slightly calcareous, blocky, as above.
	70	Siltstone - light grey, sandy, slightly calcareous and carbonaceous, as above.
	15	Sandstone - light grey, very fine to silty, subangular grains, whitish, calcareous matrix, as above.
	Trace	Coal - as above.
2370-380	10	Mudstone - medium grey, silty, slightly calcareous, as above.
	80	Siltstone - medium to light grey, sandy, as above.
	10	Sandstone - medium to light grey, very fine to silty, quartz, lithics, feldspar grains, micaceous, carbonaceous specks. Whitish, calcareous matrix, tight in part.
	Trace	Coal - as above, occasionally pyritic.

2380-390	5	Mudstone - medium grey, silty, slightly calcareous, as above.
	85	Siltstone - medium grey, sandy, white feldspar grains, slightly calcareous and carbonaceous.
	10	Sandstone - medium grey, fine, carbonaceous, micaceous. Whte,calcareous matrix, as above.
	Trace	Coal - as above.
2390-2400	10	Mudstone - medium grey and dark grey, moderately hard, fissile.
	80	Siltstone - medium grey, sandy, slightly calcareous, carbonaceous, friable, as above.
	10	Sandstone - medium grey, very fine to silty, subangular quartz, feldspar, lithic grains. White calcareous, clay matrix. Trace of pyritic sandstone.
	Trace	Coal - hard, greasy lustre in part, brittle.
2400-410	10	Mudstone - medium and dark grey, as above, slightly carbonaceous and calcareous. Trace medium brown-grey mudstone.
	75	Siltstone - medium grey, moderately hard, brittle, blocky, sandy, carbonaceous and calcareous. Some fine calcite veins. Rare trace unidentified, laminated, fossil material.
	15	Sandstone - trace light brown, mostly light grey, very fine-grained and speckled, feldspathic and slightly lithic; brown variety very calcareous. All tight with no shows.
2410-420	10	Mudstone - medium to dark grey, trace of brown, as above, moderately hard, slightly carbonaceous.
	70	Siltstone - medium grey, as above.
	20	Sandstone - mostly light grey, very fine to fine-grained, speckled, lithic and feldspathic, as above. Trace light brown, very calcareous. Tight, no shows.
2420-430	10	Mudstone - medium to dark grey and trace brown-grey, silty and carbonaceous, as above.
	70	Siltstone - medium grey, blocky, calcareous, as above.
	20	Sandstone - light grey, speckled, very fine to fine-grained, as above, also light brown, as above. Tight. No shows.
2430-440	10	Mudstone - medium grey, moderately hard, blocky, brittle, silty, slightly carbonaceous.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey, very fine-grained, silty, calcareous and carbonaceous. Tight with no shows.
2440-450	10	Mudstone - medium grey and dark grey, moderately hard and brittle, silty, carbonaceous, slightly calcareous.
	75	Siltstone - medium grey, moderately hard, blocky, sandy, calcareous, carbonaceous.
	15	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, silty, consists of subangular quartz, common trace grey lithic fragments, common feldspars, black carbonaceous specks and trace of mica, in a white, calcareous clay cement. Tight with no shows. Trace calcite.

2450-460	10	Mudstone - medium and dark grey, silty, as above.
	70	Siltstone - medium grey, as above.
	20	Sandstone - light grey, very fine-grained and silty, as above. Tight. No shows.
2460-470	10	Mudstone - medium grey, trace dark grey and black, moderately hard, silty, carbonaceous, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light grey, very fine-grained and silty, moderately hard, as above. Trace calcite vein fragments.
2470-480	10	Mudstone - medium grey and trace dark grey, as above.
	65	Siltstone - medium grey, moderately hard, blocky, sandy, as above. Some light brown-grey, as above.
	25	Sandstone - light grey, speckled, very fine-grained and silty, calcareous and carbonaceous, lithic and feldspathic, as above. Tight with no shows. Trace metamorphic (asbestos-rich) pebble.
2480-490	10	Mudstone - medium grey, trace dark grey, moderately hard, as above.
	70	Siltstone - medium grey, moderately hard, sandy, as above; light brown-grey, as above.
	20	Sandstone - light grey, very fine-grained, speckled, moderately hard and friable, calcareous and carbonaceous. Tight. No shows. Trace calcite vein material.
2490-2500	10	Mudstone - as above.
	75	Siltstone - medium grey, some brown-grey, sandy, carbonaceous, calcareous.
	15	Sandstone - light grey, trace light brown, very fine-grained and silty, moderately hard and friable, lithic, feldspathic and moderately to strongly calcareous. Tight with no shows.
2500-510	10	Mudstone - medium and dark grey, some black, moderately hard and brittle, silty and carbonaceous.
	80	Siltstone - medium grey, moderately hard, brittle, blocky, sandy, carbonaceous, calcareous. Trace light brown-grey, otherwise same.
	10	Sandstone - light grey, speckled, very fine-grained, moderately hard, friable, lithic, feldspathic, carbonaceous and calcareous. Tight with no shows.
2510-520	10	Mudstone - medium and dark grey, silty and carbonaceous, as above.
	85	Siltstone - medium grey, moderately hard, sandy, as above.
	5	Sandstone - light grey, moderately hard, quartz, lithic, feldspathic, carbonaceous, calcareous, as above.
2520-530	15	Mudstone - medium and dark grey, some blocky, moderately hard and brittle, silty and carbonaceous, as above.
	75	Siltstone - medium grey, blocky, sandy, carbonaceous, calcareous.
	10	Sandstone - light grey, very fine-grained, friable. Tight as above.

2530-540	10	Mudstone - medium and dark grey, as above.
	70	Siltstone - medium grey, hard, brittle, sandy, slightly calcareous and carbonaceous, as above.
	20	Sandstone - light grey, very fine-grained, subangular quartz, lithic, feldspathic, carbonaceous specks, friable. Light grey, calcareous matrix.
2540-550	10	Mudstone - medium and dark grey, silty, slightly calcareous, as above.
	75	Siltstone - medium grey, hard, brittle, sandy, slightly calcareous and carbonaceous, as above.
	15	Sandstone - light grey, very fine, calcareous, carbonaceous. Tight, as above.
	Trace	Coal - black, brittle.
2550-560	10	Mudstone - medium grey, silty, slightly calcareous, as above.
	70	Siltstone - medium grey, hard, sandy, as above.
	15	Sandstone - light grey, very fine to fine-grained, subangular quartz, lithic, feldspathic, carbonaceous specks, friable, slightly micaceous. Calcareous, clay matrix.
	5	Coal - black, brittle, calcite inclusions.
2560-570	20	Mudstone - medium and dark grey, moderately hard, silty and slightly carbonaceous.
	70	Siltstone - medium grey, hard, brittle, sandy, slightly calcareous and carbonaceous.
	10	Sandstone - light grey, very fine to fine-grained, subangular quartz, lithics, feldspars, slightly calcareous and carbonaceous. White, calcareous, clay matrix. Loose, pebbley quartz grains.
2570-580	20	Mudstone - medium to dark grey, as above.
	70	Siltstone - medium grey, hard, as above.
	10	Sandstone - light grey, friable, as above, occasionally very carbonaceous.
	Trace	Coal - black, brittle.
2580-590	15	Mudstone - medium to dark grey, moderately hard, silty.
	80	Siltstone - medium grey, hard, slightly calcareous and carbonaceous in part, sandy, friable.
	5	Sandstone - light grey, friable, carbonaceous, slightly micaceous. White, calcareous, clay matrix.
	Trace	Coal - as above.
2590-2600	20	Mudstone - medium to dark grey, silty, slightly calcareous, carbonaceous.
	70	Siltstone - medium grey, hard, slightly calcareous, carbonaceous, in part softer, light grey, occasionally sandy.
	10	Sandstone - light grey, friable, subangular quartz grains, very fine, poorly sorted, lithic, feldspathic. White, calcareous matrix. No shows.
2600-610	10	Mudstone - medium grey, some black, moderately hard, blocky, brittle, silty, carbonaceous.
	80	Siltstone - medium grey, moderately hard, brittle, calcareous, carbonaceous, sandy,
	10	Sandstone - light grey, and medium grey, very fine to fine-grained, moderately hard, friable, calcareous and silty, lithic, as above.

2610-620	15	Mudstone - dark grey, some medium grey, as above.
	75	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey, silty, as above. Tight. No shows.
2620-630	15	Mudstone - dark grey to black, some medium grey, moderately hard. Some slickensided fragments.
	75	Siltstone - medium grey, sandy and very fine-grained, calcareous.
	10	Sandstone - light grey, very fine-grained and silty to fine-grained. Tight with no shows.
2630-640	15	Mudstone - medium grey and dark grey, carbonaceous and coally, moderately hard and brittle, as above.
	75	Siltstone - medium grey, as above.
	10	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, silty, calcareous. Tight with no shows.
2640-650	15	Mudstone - dark grey, to black, as above.
	75	Siltstone - medium grey, sandy, calcareous and carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine-grained, as above.
2650-660	20	Mudstone - dark grey and medium grey, moderately hard to hard, brittle, blocky, silty, as above.
	70	Siltstone - medium grey, as above, sandy.
	10	Sandstone - light to medium grey, very fine-grained and silty, clacareous, slightly carbonaceous, tight with no shows.
2660-668	10	Mudstone - dark grey, and medium grey, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, as above. Tight, No shows.
2668		TWIST OFF ABOVE 2ND DRILL COLLAR TRIP TO RECOVER FISH.
2668-680	10	Mudstone - dark grey and medium grey, silty, carbonaceous, moderately hard and brittle.
	75	Siltstone - medium grey, sandy, slightly calcareous and carbonaceous, moderately hard.
	15	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, silty, calcareous. Tight. Quartz, feldspar, lithic grains, poorly sorted, subangular, micaceous, carbonaceous.
	Trace	Coal - black, brittle.
2680-690	10	Mudstone - medium to dark grey, silty, as above.
	70	Siltstone - medium grey, sandy, as above.
	20	Sandstone - light grey, very fine to silty, moderately hard, friable, calcareous. Tight, as above.
2690-2700	10	Mudstone - medium and dark grey, silty, coally, as above.
	75	Siltstone - medium grey, sandy, slightly calcareous, carbonaceous, as above.
	15	Sandstone - light grey, very fine to silty, friable, calcareous matrix. Tight, as above.

2700-710	20	Mudstone - dark grey, some medium grey, moderately hard, fissile and shaly in part, carbonaceous and coally, silty.
	60	Siltstone - medium grey, moderately hard to hard, brittle, blocky, sandy, calcareous and carbonaceous. Trace of light brown, moderately hard.
	20	Sandstone - light grey, very fine to fine-grained, moderately hard, consists dominantly of quartz, trace of feldspars and grey lithics, cement white, calcareous clays. Tight with no shows.
2710-720	10	Mudstone - dark grey to black, carbonaceous and coally, as above.
	40	Siltstone - medium grey, moderately hard, as above. Trace clay/chlorite and calcite vein minerals.
	50	Sandstone - light grey, very fine to fine-grained, moderately hard, calcareous, silty, as above. Tight. No shows.
2720-730	10	Mudstone - dark and medium grey, as above.
	50	Siltstone - as above, medium to dark grey, blocky.
	40	Sandstone - trace white, very fine to fine-grained and light grey speckled, lithic and feldspathic, calcareous and kaolinitic, as above. Tight. No shows.
2730-740	20	Mudstone - medium and dark grey, trace black, carbonaceous, fissile, as above.
	45	Siltstone - medium grey, as above.
	35	Sandstone - light grey, speckled, as above. Tight with no shows.
	Trace	Coal - black, bright.
2740-750	20	Mudstone - medium and dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, trace brown-grey, speckled, very fine-grained and fine-grained, moderately hard, as above. Tight with no shows.
2750-760	15	Mudstone - medium and dark grey, moderately hard, brittle, blocky to moderately fissile, silty, slightly carbonaceous.
	70	Siltstone - medium grey, moderately hard, blocky, sandy, slightly calcareous, as above.
	15	Sandstone - light grey and brown-grey, very fine-grained, moderately hard, friable, calcareous, tight with no shows.
2760-770	20	Mudstone - medium and dark grey, moderately hard and brittle, blocky to slightly fissile, silty, carbonaceous.
	70	Siltstone - medium grey, moderately hard, brittle, blocky, slightly calcareous, as above.
	10	Sandstone - light grey, speckled, very fine-grained and fine-grained, lithic and feldspathic, slightly calcareous and kaolinitic. Tight with no shows. Some carbonaceous laminae.
2770-780	10	Mudstone - medium grey, trace dark grey, as above.
	70	Siltstone - medium grey, as above.
	20	Sandstone - light grey, silty and very fine-grained, moderately hard, as above. Tight with no shows.

2780-790	10	Mudstone - medium and dark grey, as above. Trace coally.
	75	Siltstone - medium grey, as above.
	15	Sandstone - light grey, very fine to fine-grained, some silty, moderately hard and friable, calcareous. Tight. No shows.
2790-2800	10	Mudstone - medium and dark grey, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light grey, speckled, very fine-grained and silty, moderately hard, friable, calcareous. Tight with no shows.
2800-810	10	Mudstone - dark to medium grey, moderately hard, as above.
	80	Siltstone - medium grey, blocky, slightly calcareous, as above.
	10	Sandstone - light to medium grey,silty, very fine-grained moderately hard. Tight with no shows.
2810-820	15	Mudstone - dark to medium grey, moderately hard, as above.
	80	Siltstone - medium grey, blocky, slightly calcareous, as above.
	5	Sandstone - light to medium grey, silty, very fine-grained, moderately hard. Tight, as above.
2820-830		SAMPLE COLLECTED AFTER TRIP
	10	Mudstone - dark to medium grey, moderately hard, slightly calcareous, carbonaceous.
	85	Siltstone - medium grey, sandy, slightly calcareous, as above.
	5	Sandstone - light to medium grey, slightly friable, very fine-grained. Tight, as above.
2830-840	10	Mudstone - dark and medium grey, moderately hard, slightly calcareous, carbonaceous, silty, brittle.
	85	Siltstone - medium grey, moderately hard, sandy, brittle, calcareous, carbonaceous.
	5	Sandstone - medium and light grey, very fine to fine-grained, moderately hard, friable, calcareous, silty, lithic, as above.
2840-850	10	Mudstone - medium grey, moderately hard, slightly calcareous and carbonaceous, as above.
	80	Siltstone - medium grey, moderately hard, sandy, brittle, slightly calcareous, carbonaceous, feldspathic grains, as above.
	10	Sandstone - medium to light grey, very fine to fine-grained, moderately hard, friable, carbonaceous specks, calcareous matrix, tight, as above.
2850-860	5	Mudstone - medium grey, moderately hard, as above.
	85	Siltstone - medium grey, sandy, brittle, slightly calcareous, carbonaceous.
	10	Sandstone - medium and light grey, very fine to fine-grained, subangular quartz. minor feldspathic and lithic, carbonaceous, calcareous matrix, tight.
	Trace	Coal and calcite.

2860-870	10	Mudstone - medium to dark grey, moderately hard, slightly calcareous and carbonaceous.
	75	Siltstone - medium grey, sandy, calcareous, carbonaceous, brittle, moderately hard.
	15	Sandstone - medium and light grey, very fine to fine-grained, calcareous, carbonaceous, as above.
	Trace	Coal, calcite, kaolinite.
2870-880	10	Mudstone - medium to dark grey, moderately hard, slightly calcareous and carbonaceous, as above.
	80	Siltstone - medium grey, sandy, calcareous, carbonaceous, as above.
	10	Sandstone - medium to light grey, very fine to fine-grained, subangular quartz, calcareous, carbonaceous, as above.
2880-890	20	Mudstone - medium and dark grey, moderately hard, silty, slightly calcareous and carbonaceous, brittle, blocky.
	70	Siltstone - medium grey, moderately hard, brittle, blocky, slightly calcareous and carbonaceous.
	10	Sandstone - light grey, very fine to fine-grained, subangular quartz, minor lithic and feldspathic, slightly calcareous and carbonaceous, trace kaolin. White, calcareous matrix. Tight. No shows. Some quartz pebbles and carbonaceous laminae.
2890-2900	15	Mudstone - medium and dark grey, as above.
	75	Siltstone - medium grey, as above, carbonaceous and sandy.
	10	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, as above. Tight. No shows. Trace white kaolin and clear vein calcite.
2900-910	20	Mudstone - dark grey, moderately hard and medium grey, as above, blocky, brittle.
	65	Siltstone - medium grey, as above, moderately hard, blocky, sandy, calcareous.
	15	Sandstone - light grey, speckled, very fine-grained, moderately hard, as above. Tight with no shows.
2910-920	20	Mudstone - medium and dark grey, moderately hard, blocky, brittle, silty, carbonaceous.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, speckled, as above.
2920-930	30	Mudstone - medium and dark grey, trace black, hard and brittle, blocky, silty, carbonaceous.
	60	Siltstone - medium grey, moderately hard, as above.
	10	Sandstone - light grey, very fine-grained and fine-grained, moderately hard and friable, silty, calcareous, as above. Tight with no shows.
2930-940	20	Mudstone - medium and dark grey, carbonaceous, silty, as above.
	70	Siltstone - medium grey, blocky, moderately hard, as above.
	10	Sandstone - light grey, very fine to fine-grained, moderately hard, calcareous, as above. Tight with no shows. Trace calcite vein material.

2940-950	20	Mudstone - medium and trace dark grey, moderately hard to hard, brittle, blocky to slightly fissile, silty, and carbonaceous. Trace light brown-grey, otherwise as above.
	70	Siltstone - medium grey, moderately hard, blocky, brittle, sandy, carbonaceous, calcareous, as above.
	10	Sandstone - light grey, speckled, very fine-grained, moderately hard, friable, silty, calcareous, carbonaceous, lithic and slightly feldspathic. Tight with no shows.
2950-960	20	Mudstone - medium grey, trace light grey and brown-grey, as above.
	70	Siltstone - medium grey, as above, moderately hard to hard.
	10	Sandstone - light grey, silty, moderately hard, as above.
2960-970	30	Mudstone - medium grey, silty, as above.
	60	Siltstone - medium grey, sandy and calcareous, as above.
	10	Sandstone - light grey, silty, very fine-grained, moderately hard, finely carbonaceous, calcareous. Tight with no shows.
2970-980	20	Mudstone - medium grey, silty, as above. Trace dark grey and light brown-grey.
	65	Siltstone - medium grey, as above.
	15	Sandstone - light grey, silty and very fine-grained, carbonaceous and calcareous, as above. No shows, tight.
2980-990	30	Mudstone - medium grey, moderately hard, brittle and blocky, as above.
	60	Siltstone - medium grey, sandy, calcareous, as above.
	10	Sandstone - light grey, fine-grained and very fine-grained, lithic, as above. Tight with no shows.
2990-3000	20	Mudstone - medium grey, moderately hard, brittle, as above.
	65	Siltstone - medium grey, as above, calcareous and slightly carbonaceous.
	15	Sandstone - light grey, fine-grained and very fine-grained, calcareous, slightly carbonaceous, lithic and slightly feldspathic, as above. Tight with no shows.
3000-010	15	Mudstone - medium grey, to dark grey, moderately hard, brittle, as above.
	65	Siltstone - medium grey, as above, calcareous and slightly carbonaceous.
	20	Sandstone - light grey, fine-grained and very fine-grained, calcareous, slightly carbonaceous, slightly lithic and slightly feldspathic, as above.
3010-020	25	Mudstone - medium and dark grey, moderately hard, brittle, occasional calcite bands, slightly carbonaceous.
	65	Siltstone - medium grey, moderately hard, blocky, brittle, sandy, slightly carbonaceous and calcareous, as above.
	10	Sandstone - light grey, speckled, very fine-grained, moderately hard, slightly friable, silty, calcareous, carbonaceous, subangular quartz grains, lithic and slightly feldspathic. Calcareous, tight matrix. No shows.

3020-030	20	Mudstone - medium and dark grey, moderately hard, brittle, as above.
	70	Siltstone - medium grey, sandy, slightly calcareous, as above.
	10	Sandstone - light grey, speckled, very fine to fine-grained, slightly friable, calcareous, carbonaceous. Tight, as above.
3030-040	25	Mudstone - medium and dark grey, moderately hard, brittle, blocky.
	65	Siltstone - medium grey, sandy, slightly calcareous, carbonaceous, as above.
	10	Sandstone - light grey, speckled, very fine-grained, moderately hard, slightly friable, subangular quartz, lithic, slightly feldspathic. Calcareous, tight matrix, as above.
	Trace	Coal and kaolinite.
3040-050	20	Mudstone - medium and dark grey, moderately hard, brittle, blocky.
	70	Siltstone - medium grey, sandy, slightly calcareous, carbonaceous, as above.
	10	Sandstone - light grey, speckled, very fine-grained, moderately hard, slightly friable, subangular quartz, lithic, slightly feldspathic, calcareous, carbonaceous, as above.
	Trace	Coal with calcite.
3050-060	20	Mudstone - medium and dark grey, as above.
	70	Siltstone - medium grey, sandy, friable, slightly calcareous, carbonaceous.
	10	Sandstone - light grey, very fine-grained, moderately hard, slightly friable, silty, calcareous, carbonaceous, slightly micaceous. Calcareous matrix. Tight. No shows.
3060-070	20	Mudstone - medium and dark grey, silty, moderately hard, blocky to friable, slightly calcareous, carbonaceous.
	70	Siltstone - medium grey, sandy, friable, calcareous, carbonaceous, as above.
	10	Sandstone - light grey, very fine to fine-grained, moderately hard, friable, carbonaceous, calcareous, as above.
	Trace	Coal with calcite bands.
3070-080	10	Mudstone - dark to medium grey, silty, blocky to friable, slightly calcareous, carbonaceous.
	80	Siltstone - light and medium grey, sandy, slightly friable, slightly calcareous, carbonaceous.
	10	Sandstone - light grey, very fine, moderately hard, slightly friable, silty, calcareous, carbonaceous. Calcareous matrix. Tight. No shows.
3080-090	10	Mudstone - dark and medium grey, silty, blocky to friable, slightly calcareous, carbonaceous.
	80	Siltstone - light and medium grey, sandy, slightly friable, slightly calcareous, carbonaceous.
	10	Sandstone - light grey, very fine-grained, moderately hard, slightly friable, subangular quartz grains, lithic, feldspathic, carbonaceous laminae. Calcareous matrix. Tight. No shows.
	Trace	Coal.

3090-3100	10	Mudstone - medium and dark grey to black, moderately hard and brittle, blocky, carbonaceous, silty, as above.
	75	Siltstone - medium grey, sandy, moderately hard, calcareous, carbonaceous.
	15	Sandstone - light grey, very fine-grained and fine-grained, moderately hard and slightly friable, silty, calcareous, carbonaceous, lithic, feldspathic, tight with no shows.
	Trace	White vein calcite.
3100-110	10	Mudstone - medium and dark grey, as above.
	70	Siltstone - medium grey, as above.
	20	Sandstone - light and medium grey, very fine-grained and silty, otherwise as above. Tight with no shows.
3110-120	10	Mudstone - medium to dark grey, as above.
	80	Siltstone - light grey to medium grey, as above.
	10	Sandstone - light to medium grey, silty, calcareous, lithic, as above. Tight with no shows.
3120-130	10	Mudstone - medium and dark grey, moderately hard, carbonaceous, as above.
	80	Siltstone - medium grey, moderately hard, carbonaceous, sandy, calcareous, as above.
	10	Sandstone - light grey, speckled, very fine-grained and silty, calcareous and lithic, slightly feldspathic and carbonaceous. Tight. No shows.
3130-140	10	Mudstone - medium and dark grey, moderately hard, blocky, silty, calcareous, carbonaceous, as above.
	75	Siltstone - medium grey, moderately hard, blocky, sandy, slightly calcareous, carbonaceous, micaceous. Trace pyrite.
	15	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard and friable, consists of subangular to subrounded dull, waxy quartz, minor white feldspars, grey lithics and rare green lithics, micas and carbonaceous specks. Matrix is white calcareous clays. Tight with no shows.
3140-150		NO SAMPLE DUE TO TRIP AT 3151
3151-160	20	Mudstone - medium and dark grey, moderately hard, silty, as above.
	70	Siltstone - medium grey, moderately hard, sandy, slightly calcareous, carbonaceous, micaceous, as above.
	10	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard and friable. White, calcareous matrix, as above.
3160-170	15	Mudstone - medium and dark grey, moderately hard, silty, blocky, slightly calcareous, carbonaceous, as above.
	75	Siltstone - medium grey, moderately hard, sandy, blocky, slightly calcareous, carbonaceous, as above.
	10	Sandstone - light grey, speckled, very fine-grained to fine-grained, moderately hard and friable, subangular, waxy quartz, minor white feldspars, grey lithics, micaceous and carbonaceous specks. White, calcareous clay matrix, as above. Tight.

3170-180	15	Mudstone - medium and dark grey, moderately hard, silty, as above.
	70	Siltstone - medium grey, moderately hard, sandy, slightly calcareous, carbonaceous laminae.
	15	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard and friable, white, calcareous clay matrix. Tight, as above.
3180-190	10	Mudstone - medium and dark grey, moderately hard, silty, as above.
	75	Siltstone - medium grey, moderately hard, sandy, slightly calcareous, carbonaceous, as above.
	15	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard and friable, subangular quartz waxy grains, lithics, feldspathic. White, calcareous clay matrix. Tight, as above.
	Trace	Coal
3190-3200	15	Mudstone - medium to dark grey, moderately hard, blocky, slightly carbonaceous and calcareous, silty.
	70	Siltstone - medium grey, moderately hard, blocky, slightly calcareous, carbonaceous, micaceous, sandy.
	15	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard and friable, subangular to subraounded, waxy quartz, grey lithics and minor white feldspars, slightly micaceous and carbonaceous. White, calcareous, clay matrix. Tight with no shows.
3200-210	10	Mudstone - medium to dark grey, moderately hard, slightly carbonaceous, as above.
	80	Siltstone - medium grey, moderately hard, slightly calcareous, carbonaceous, as above.
	10	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard, quartz, lithic, feldspathic, slightly carbonaceous and micaceous. White, calcareous, clay matrix, as above.
3210-220	15	Mudstone - medium to dark grey, moderately hard, slightly carbonaceous, as above. Trace kaolinite.
	70	Siltstone - medium grey, moderately hard, slightly calcareous, carbonaceous laminae.
	10	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard, quartz, lithic, feldspathic, as above. White, calcareous matrix. Tight.
	5	Coal - black, brittle in part, silty. Trace calcite.
3220-230	15	Mudstone - medium to dark grey, slightly carbonaceous and calcareous, as above.
	65	Siltstone - medium grey, moderately hard, blocky, slightly calcareous and carbonaceous, sandy, as above.
	15	Sandstone - light grey, speckled, very fine to fine-grained, moderately hard, quartz, lithic, feldspathic, slightly micaceous, carbonaceous specks. White, calcareous clay matrix. Tight. No shows.
	5	Coal - black, brittle and silty, as above.

3230-240	5	Coal - black, brittle, bright, some dull and earthy. Some associated gas (bubbles) and gas detector peaks.
	20	Mudstone - dark grey, moderately hard, blocky to moderately friable, silty. Carbonaceous and coally in part.
	55	Siltstone - medium grey, moderately hard, blocky, carbonaceous, slightly calcareous.
	20	Sandstone - light grey, trace light brown, moderately hard and friable, consists of very fine to fine-grained quartz, trace grey lithics, white feldspars, micas, carbonaceous specks with trace green chlorite(?), and a white to light brown calcareous and slightly dolomitic clay matrix. Tight with no shows.
3240-250	5	Coal - black, as above.
	20	Mudstone - dark grey to black, moderately hard to hard, brittle and blocky, as above.
	35	Siltstone - medium grey, moderately hard, as above.
	40	Sandstone - light grey, very fine-grained and light brown, calcareous, lithic, feldspathic, carbonaceous. Tight, no shows.
	Trace	Kaolin, trace vein calcite.
3250-260	20	Mudstone - dark grey to black, moderately hard, slightly fissile, silty, carbonaceous and coally.
	60	Siltstone - medium grey, moderately hard, blocky, brittle, slightly calcareous, carbonaceous.
	20	Sandstone - light to medium grey, very fine-grained, lithic, hard and brittle, calcareous. Tight with no shows.
	Trace	Coal, calcite and kaolin, all as above.
3260-270	15	Mudstone - dark grey to black, as above.
	25	Siltstone - medium grey, moderately hard and brittle, sandy, calcareous, as above.
	60	Sandstone - medium grey, some light grey, hard and brittle, very fine-grained and silty, consists of quartz, trace lithics and rare feldspars with a calcite matrix. Tight. No shows.
3270-280	5	Coal - shaly, very dark brown-black, some bright, brittle.
	15	Mudstone - dark grey to black, as above.
	50	Siltstone - medium grey, hard, brittle, blocky, as above.
	30	Sandstone - medium and light grey, very fine-grained and calcareous, hard and brittle, as above.
	Trace	Calcite and kaolin.
3280-290	Trace	Coal - as above.
	20	Mudstone - dark grey to balck, as above.
	50	Siltstone - medium and dark grey, as above, sandy and calcareous.
	30	Sandstone - medium grey, very fine-grained, hard and brittle, tight with no shows, as above.

3290-3300	25	Mudstone - dark grey to black, moderately hard to hard, brittle, silty, carbonaceous and coally, as above.
	60	Siltstone - medium grey, hard and brittle, sandy, calcareous, carbonaceous.
	15	Sandstone - light to medium grey, mostly very fine-grained, hard and brittle, silty and calcareous, as above, tight with no shows. Minor light grey fine-grained, moderately hard, friable, lithic, tight, as above.
	Trace	Coal - black, dull, earthy. Trace gas associated.
3300-310		NO SAMPLE DUE TO TRIP AT 3311.
3310-320	25	Mudstone - medium grey to black, moderately hard, brittle, silty, carbonaceous, as above.
	60	Siltstone - medium grey, hard and brittle, sandy, calcareous, carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine-grained, hard, silty, calcareous, tight. Trace light grey, fine-grained, moderately hard, friable, lithic, tight, as above.
	5	Coal - black, brittle, in part, dull, earthy.
3320-330	20	Mudstone - medium grey to black, moderately hard, brittle, silty, carbonaceous, slightly calcareous, as above.
	70	Siltstone - light to medium grey, hard and brittle, sandy, calcareous, carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine-grained, hard, silty, calcareous, tight, subangular, waxy quartz grains, grey lithics, white feldspars. White to light grey, calcareous clay matrix. Tight. No shows.
	Trace	Coal - black, dull, earthy, as above.
3330-340	20	Mudstone - medium grey to black, moderately hard, brittle, silty, carbonaceous, coally in part, slightly calcareous, as above.
	70	Siltstone - medium grey, hard and brittle, sandy, calcareous, carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine, moderately hard, silty, subangular to subrounded, waxy, milky quartz, grey lithics, minor feldspars. White, calcareous, clay matrix. Tight.
	Trace	Coal - as above.
3340-350	20	Mudstone - medium grey to black, hard, silty, carbonaceous, micaceous, with trace of plant debris.
	70	Siltstone - light to medium grey, hard, micaceous, sandy, and carbonaceous.
	10	Sandstone - light to medium grey, hard, fine to medium-grained, poorly sorted with subangular grains of quartz and lithics, clayey and tight.
	Trace	Coal - black, brittle and calcite.
3350-360	20	Mudstone - dark grey to black, as above.
	70	Siltstone - light to medium grey, carbonaceous, as above.
	10	Sandstone - light to medium grey, clayey, tight, as above.
	Trace	Coal - as above, and calcite.

3360-370	20	Mudstone - dark grey to black, as above.
	60	Siltstone - light to medium grey, carbonaceous, as above.
	20	Sandstone - light to medium grey, fine to coarse-grained, clayey, calcite cement, tight.
	Trace	Coal and calcite.
3370-380	10	Mudstone - dark grey to black, as above.
	70	Siltstone - light grey, carbonaceous, as above.
	20	Sandstone - light grey, fine to coarse-grained, clayey, calcite cement, tight, as above.
	Trace	Coal and calcite.
3380-390	30	Mudstone - dark grey to black, carbonaceous and coally streaks.
	60	Siltstone - light to medium grey, sandy, laminated, micaceous and carbonaceous, as above.
	10	Sandstone - light grey, fine to medium-grained, clayey and tight, as above.
	Trace	Coal and calcite.
3390-3400	10	Mudstone - dark grey to black, carbonaceous and coally streaks, as above.
	70	Siltstone - light grey to medium grey, sandy, laminated, micaceous and carbonaceous, as above.
	20	Sandstone - light grey, fine to medium-grained, poorly sorted, clayey and tight with calcite cement.
	Trace	Coal and calcite.
3400-410	10	Mudstone - dark grey to brown, carbonaceous, as above.
	70	Siltstone - light grey, sandy, laminated, micaceous, as above.
	10	Sandstone - light grey, fine to medium-grained, clayey and tight, as above.
	10	Coal - black, brittle. Trace calcite.
3410-420		SAMPLE COLLECTED AFTER TRIP.
	10	Mudstone - medium grey to black, hard, silty, carbonaceous.
	80	Siltstone - light and medium grey, sandy, medium to very hard, carbonaceous, slightly calcareous.
	10	Sandstone - light grey, very fine to fine-grained, medium sorted, subnagular to subrounded, waxy quartz, grey lithics, minor white feldspars, slightly carbonaceous and micaceous, moderately hard. White, calcareous, clay matrix. No shows.
	Trace	Coal and calcite.
3420-430	10	Mudstone - medium grey to black, hard, silty, carbonaceous, as above.
	70	Siltstone - light amd medium grey, sandy, moderately hard to very hard, carbonaceous, calcareous, as above.
	15	Sandstone - light grey, very fine to fine-grained, moderately hard, white, calcareous clay matrix. Very tight, as above.
	5	Coal - black, brittle.
	Trace	Kaolinite and calcite.

3430-440	10	Mudstone - medium grey to dark grey, carbonaceous at times.
	75	Siltstone - light grey, carbonaceous as times.
	15	Sandstone - light coloured, fine to medium-grained.
	Trace	Coal
	Trace	Calcite.
3440-450	30	Mudstone - generally very dark.
	65	Siltstone - light, often fairly coarse and often carbonaceous and micaceous.
	5	Sandstone - tight, as above.
	Trace	Coal
3450-460	20	Mudstone - generally very dark.
	75	Siltstone - light coloured to brown, wide range of grain sizes.
	5	Sandstone - light and tight plus calcareous cement(?), as above.
	Trace	Coal - possibly 2-3%.
3460-470	30	Mudstone - generally dark, grading into siltstone, some light grey.
	65	Siltstone - as above.
	5	Sandstone - very well cemented, very tight, light.
	Trace	Calcite.
3470-480	20	Mudstone - light to dark grey, uniform.
	70	Siltstone - generally light, speckled, sometimes carbonaceous, medium to dark grey.
	10	Sandstone - very light, well cemented.
3480-490	5	Mudstone - dark and medium grey.
	80	Siltstone - generally medium grey and light grey.
	15	Sandstone - light, tight.
	Trace	Coal and calcite.
3490-3500	5	Mudstone - generally dark.
	80	Siltstone - light grey, generallly.
	15	Sandstone - light coloured, fine to medium-grained, tight, calcareous cement.
	Trace	Coal
3500-510	5	Mudstone - very dark.
	90	Siltstone - light to medium grey, as above.
	5	Sandstone - calcareous, fine-grained.
	Trace	Coal. Trace calcite.
3510-520	5	Mudstone - dark grey, hard, silty, slightly carbonaceous, not calcareous.
	85	Siltstone - light to medium grey, hard, very slightly calcareous, sandy, slightly carbonaceous.
	10	Sandstone - light grey, very fine to fine-grained, subangular to subrounded, poorly sorted, dull, waxy quartz, grey lithics, minor white feldspars, carbon specks. Matrix of white, moderately calcareous clay. Tight. No shows.
	Trace	Coal, calcite and kaolinite.
3520-530	5	Mudstone - dark grey, hard, silty, slightly carbonaceous, as above.
	80	Siltstone - light and medium grey, hard, very slightly calcareous, sandy, as above.
	15	Sandstone - light grey, very fine to medium, subangular, subrounded quartz grains, lithics, minor feldspars, trace chlorite(?). White, calcareous clay matrix, Tight.
	Trace	Coal and calcite.

3530-540	10	Mudstone - dark grey to black, hard, silty, carbonaceous, as above.
	70	Siltstone - light to medium grey, andy, hard, as above.
	20	Sandstone - light to medium grey, very fine to medium-grained, moderately hard, white, calcareous matrix, as above. Tight.
	Trace	Coal and calcite.
3540-550	5	Mudstone - dark grey to black, as above.
	70	Siltstone - light to medium grey, sandy, slightly calcareous, carbonaceous specks.
	20	Sandstone - light and medium grey, very fine to medium-grained, carbonaceous. Calcareous, white clay matrix, as above.
	5	Coal - black, brittle in part, black-brown, earthy.
	Trace	Calcite.
3550-560	10	Mudstone - medium to dark grey to black, slightly carbonaceous, moderately hard, silty, not calcareous, as above.
	80	Siltstone - light to medium grey, sandy, slightly calcareous, moderately hard to hard.
	10	Sandstone - light and medium grey, very fine to medium-grained, subangular to subrounded quartz, lithics, minor feldspars, carbonaceous laminae, slightly micaceous. White, calcareous, clay matrix. Tight.
	Trace	Coal and calcite flakes.
		Associated small gas peak and drilling break.
3560-570	5	Mudstone - medium and dark grey, slightly carbonaceous, silty, moderately hard, as above.
	75	Siltstone - light to medium grey, sandy, slightly calcareous, moderately hard, carbonaceous specks.
	15	Sandstone - light and medium grey, very fine to medium-grained, carbonaceous, micaceous. Tight, white, moderately calcareous, clay matrix.
	5	Coal - black, brittle in part, black-brown, earthy.
	Trace	Calcite flakes(abundant) and pyrite (small).
3570-580	10	Mudstone - medium and dark grey, slightly carbonaceous, silty, moderately hard, as above.
	85	Siltstone - light to medium grey, sandy, slightly calcareous, moderately hard, as above.
	5	Sandstone - light and medium grey, very fine to medium-grained, carbonaceous. Tight. White, calcareous, clay matrix.
	Trace	Coal and calcite.
3580-590	15	Mudstone - medium to dark grey, moderately hard, carbonaceous, as above.
	70	Siltstone - light and medium grey, hard, slightly calcareous, carbonaceous, sandy in part.
	15	Sandstone - light and medium grey, hardin part, friable, very fine to fine-grained, carbonaceous. White, tight, calcareous matrix.
	Trace	Coal and calcite.
3590-3600		NO SAMPLE DUE TO TRIP AT -3601 FEET.

3600-610	20	Mudstone - dark grey-brown, micaceous, carbonaceous, silty, as above.
	60	Siltstone - light to medium grey, micaceous, sandy, carbonaceous streaks.
	15	Sandstone - light grey, hard in part, friable in part, fine to medium-grained, poorly sorted, clayey, tight, as above, calcareous cement.
	5	Coal and calcite.
3610-620	30	Mudstone - dark grey-brown, micaceous, carbonaceous, as above.
	40	Siltstone - light to medium grey, sandy, micaceous, as above.
	20	Sandstone - light grey, medium-grained, better sorted and less clayey, still calcite cement, still tight but more friable.
	10	Coal - black, brittle and calcite.
3620-630	30	Mudstone - dark grey-brown, as above.
	40	Siltstone - medium grey, as above.
	20	Sandstone - light grey, as above, in part friable but still tight.
	10	Coal - black, brittle and calcite.
3630-640	30	Mudstone - dark grey-brown, with coally streaks.
	50	Siltstone - medium grey, carbonaceous streaks, as above.
	20	Sandstone - light grey, as above, micaceous, partly friable but tight.
	Trace	Coal and calcite.
3640-650	30	Mudstone - dark grey-brown, with coally streaks, as above.
	40	Siltstone - medium grey, carbonaceous, sandy, as above.
	30	Sandstone - medium to coarse-grained, light grey, in part friable, developing slight porosity.
	Trace	Coal and calcite.
3659-673		Cut core No. 2 Cut 14 feet. Recovered 12½ feet. Recovery 90%.
		Top of Core: Sandstone - light grey, fine-grained, poorly sorted, subnagular quartz and lithic, calcareous cement, tight with minor cross bedding defined by dark grey to black carbonaceous mudstones.
		Base of Core: Mudstone - dark grey to black, carbonaceous, micaceous, silty with minor interbeds of light grey sandstone, as above, wavy to parallel laminated bedding, flat dips.
3673-680	25	Mudstone - dark grey, micaceous, carbonaceous, coally streaks.
	60	Siltstone - medium grey, micaceous, sandy, carbonaceous, micaceous.
	15	Sandstone - light grey, fine-grained, subangular quartz and lithics, poorly sorted, mostly hard, slightly friable, clayey, tight with calcareous cement.
	Trace	Coal and calcite.

3680-390	30	Mudstone - dark grey to black, carbonaceous, as above.
	50	Siltstone - medium grey, micaceous, as above.
	20	Sandstone - light grey, fine-grained, slightly friable but tight, as above.
	Trace	Coal and calcite.
3690-3700	20	Mudstone - dark grey to black, carbonaceous with coally streaks, as above.
	40	Siltstone - medium grey, micaceous, as above.
	40	Sandstone - light grey, fine-grained, friable, tight with perhaps slight porosity.
	Trace	Calcite.
3700-710	20	Mudstone - dark grey to black, carbonaceous, as above.
	50	Siltstone - light to medium grey, micaceous, as above, very sandy.
	30	Sandstone - light grey, fine-grained, friable, tight with calcareous cement.
	Trace	Calcite.
3710-720	20	Mudstone - dark grey, carbonaceous, as above.
	50	Siltstone - light to medium grey, very sandy, as above.
	30	Sandstone - light grey, fine-grained, friable, tight, with calcareous cement, as above.
3720-730	20	Mudstone - dark grey-brown, carbonaceous, micaceous, with coally streaks.
	50	Siltstone - light grey to medium grey, sandy, micaceous, carbonaceous.
	30	Sandstone - light grey, fine-grained, poorly sorted, subangular quartz with minor lithics, tight, friable, in part with calcareous cement.
	Trace	Coal and calcite.
3730-740	20	Mudstone - dark grey, hard, carbonaceous, slightly micaceous, as above.
	70	Siltstone - light to medium grey, sandy, carbonaceous, slightly calcareous, moderately hard.
	10	Sandstone - light and medium grey, moderately hard to friable, very fine to fine-grained, subangular to subrounded quartz, poorly sorted, minor lithics and few feldspar grains in tight, white, calcareous matrix.
	Trace	Calcite.
3740-750	25	Mudstone - dark grey, hard, carbonaceous, as above.
	70	Siltstone - light to medium grey, sandy, carbonaceous, slightly calcareous, as above.
	5	Sandstone - light to medium grey, slightly micaceous, carbonaceous; white, tight, calcareous matrix, as above.
	Trace	Coal and calcite.
3750-760	15	Mudstone - dark grey, carbonaceous, as above.
	75	Siltstone - light to medium grey, sandy, carbonaceous, slightly calcareous, as above.
	10	Sandstone - light to medium grey, moderately hard to friable, waxy quartz grains, poorly sorted, lithic, trace feldspar. White, calcareous matrix.
	Trace	Calcite.

3760-770	15	Mudstone - dark grey, carbonaceous, as above.
	70	Siltstone - light to medium grey, as above.
	15	Sandstone - light to medium grey, very fine to fine-grained, subangular quartz, lithic, feldspars, as above. White calcareous matrix.
	Trace	Coal and calcite.
3770-780	15	Mudstone - dark grey, carbonaceous, as above.
	70	Siltstone - light to medium grey, moderately hard, carbonaceous, as above.
	15	Sandstone - light to medium grey, as above.
	Trace	Coal and calcite.
3780-790	10	Mudstone - dark grey to black, hard, brittle, carbonaceous.
	40	Siltstone - light and medium grey, slightly calcareous, carbonaceous laminae, as above.
	50	Sandstone - light and medium grey, very fine to fine-grained quartz, lithics, feldspar (trace). Trace pink grains, white calcareous matrix, tight.
	Trace	Coal and calcite.
3790-3800	5	Mudstone - dark grey, as above.
	55	Siltstone - light and medium grey, slightly calcareous, carbonaceous laminae, as above.
	40	Sandstone - light and medium grey, very fine to fine-grained, moderately hard to friable, waxy and white quartz, grey lithics, trace feldspar, trace pink grains. White, calcareous, tight matrix.
	Trace	Calcite.
3800-810	5	Mudstone - dark grey, as above.
	50	Siltstone - light and medium grey, slightly calcareous, as above.
	45	Sandstone - light and medium grey, very fine to fine-grained, moderately hard, quartz, lithics, as above. White, calcareous matrix.
	Trace	Calcite.
3810-820	10	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - light and medium grey, slightly calcareous, carbonaceous, laminae, as above.
	30	Sandstone - light and medium grey, very fine to fine-grained, subangular to subrounded, poorly sorted, of white, milky quartz, grey lithics, trace feldspars, carbonaceous specks. White, calcareous clay matrix. Tight. No shows.
3820-830	30	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - light to medium grey, sandy, carbonaceous, as above.
	30	Sandstone - light grey, fine-grained, subangular to subrounded, poorly sorted quartz - rich, friable, tight with calcareous cement.
	Trace	Coal and calcite.
3830-840	40	Mudstone - dark grey, carbonaceous, with coally streaks.
	30	Siltstone - light to medium grey, carbonaceous, sandy, as above.
	30	Sandstone - light grey, fine-grained quartz - rich, friable, tight, as above, with calcareous cement.
	Trace	Coal and calcite.

3840-850	40	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, carbonaceous, sandy, micaceous, as above.
	20	Sandstone - light grey, fine-grained, friable, tight with calcareous cement, as above.
	Trace	Coal and calcite.
3850-860	40	Mudstone - dark grey-brown, micacecus, carbonaceous, silty, with coally streaks.
	30	Siltstone - medium grey, micaceous, carbonaceous, sandy.
	30	Sandstone - light grey, fine-grained, poorly sorted, quartz rich, friable, tight, with calcareous cement.
	Trace	Calcite.
3860-870	40	Mudstone - dark grey-brown, carbonaceous, as above.
	40	Siltstone - medium grey, sandy, carbonaceous, as above.
	20	Sandstone - light grey, fine-grained, calcareous cement, tight, as above.
3870-880	50	Mudstone - dark grey-brown, carbonaceous, as above.
	20	Siltstone - light to medium grey, sandy, micaceous, as above.
	30	Sandstone - light grey, fine-grained, calcareous cement, tight, friable, as above.
3880-890	40	Mudstone - dark grey-brown, carbonaceous, as above.
	30	Siltstone - medium grey, sandy, micaceous, as above.
	30	Sandstone - light grey, fine-grained, tight, not as friable, calcareous cement.
3890-3900	40	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, micaceous, as above.
	20	Sandstone - light grey, fine-grained, tight, calcareous cement, as above.
3900-910	30	Mudstone - dark grey, carbonaceous, as above.
	50	Siltstone - medium grey, carbonaceous, micaceous, sandy, as above.
	20	Sandstone - light grey, hard, fine-grained, tight with calcareous cement.
	Trace	Calcite and coal.
3910-920	30	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, micaceous, as above.
	30	Sandstone - light grey, fine-grained, hard in part, friable in part, tight with calcareous cement.
3920-930	30	Mudstone - dark grey, carbonaceous, as above.
	50	Siltstone - medium grey, micaceous, sandy, as above.
	20	Sandstone - light grey, fine-grained, tight, as above.
3930-940	40	Mudstone - dark grey, carbonaceous, slightly calcareous, silty in part, as above.
	40	Siltstone - medium grey, carbonaceous, calcareous, micaceous, as above.
	20	Sandstone - light grey, fine-grained, friable quartz, lithic, minor feldspars, carbonaceous, micaceous. Calcareous, clay matrix. Tight. Trace calcite, pebbly.

3940-950	40	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, carbonaceous, calcareous, micaceous, as above.
	20	Sandstone - light grey, fine-grained, friable, calcareous, clay matrix. Tight, as above.
3950-960	50	Mudstone - dark grey, carbonaceous, slightly calcareous, moderately hard, silty, as above.
	40	Siltstone - medium grey, micaceous, sandy, carbonaceous, calcareous, as above.
	10	Sandstone - light grey, fine-grained, calcareous, white clay matrix. Tight. No shows.
3960-970	45	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, micaceous, sandy, carbonaceous, calcareous, as above.
	15	Sandstone - light grey, fine-grained, friable, white clay matrix, tight, as above.
3970-980	30	Mudstone - medium and dark grey, carbonaceous, slightly calcareous, sandy, as above.
	60	Siltstone - medium grey, sandy in part, carbonaceous, calcareous, as above.
	10	Sandstone - light grey, fine-grained, friable quartz, lithics, minor feldspars. White, calcareous clay matrix, as above.
	Trace	Calcite.
3980-990	20	Mudstone - medium and dark grey, as above.
	60	Siltstone - medium grey, sandy, calcareous, carbonaceous, as above.
	20	Sandstone - light grey, fine-grained, silty in part, quartose, carbonaceous, calcareous, as above. Tight. No shows.
	Trace	Coal and calcite.
3990-4000	15	Mudstone - medium and dark grey, carbonaceous, moderately hard, slightly calcareous, as above.
	65	Siltstone - medium grey, sandy, calcareous, carbonaceous, as above.
	20	Sandstone - light grey, fine-grained, silty, carbonaceous, calcareous, white clay matrix, as above.
	Trace	Coal and calcite.
4000-010	20	Mudstone - medium to dark grey, as above.
	60	Siltstone - medium grey, sandy, calcareous, carbonaceous, as above.
	20	Sandstone - light grey, fine-grained, silty, calcareous matrix, tight, as above.
4010-020	30	Mudstone - medium and dark grey, carbonaceous, slightly calcareous, silty, as above.
	50	Siltstone - medium grey, sandy, calcareous, carbonaceous, as above.
	20	Sandstone - light to medium grey, carbonaceous, silty, calcareous matrix, tight, micaceous, as above.
	Trace	Calcite.

4020-030	40	Mudstone - medium to dark grey, carbonaceous, silty, as above.
	50	Siltstone - medium grey, sandy, carbonaceous, as above.
	10	Sandstone - light grey, fine-grained, poorly sorted, tight with calcareous cement.
	Trace	Calcite.
4030-040	30	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - light to medium grey, sandy, micaceous, carbonaceous, as above.
	10	Sandstone - light grey, fine-grained, tight with calcareous cement, as above.
	Trace	Calcite.
4040-050	10	Mudstone - generally very dark, though some pale but very fine-grained.
	60	Siltstone - wide range of grain sizes and colours, from light feldspathic(often with carbonaceous fragments included) to fairly dark material.
	30	Sandstone - medium-grained, moderately friable, 50% light coloured quartz-rich, no calcite cement, other material more brownish with high lithic content.
	Trace	Coal with very minor trace of calcite.
4050-060		SAMPLE MISSED.
4060-070	25	Mudstone - dark grey, hard, carbonaceous, slightly calcareous, silty.
	50	Siltstone - medium grey, carbonaceous, calcareous, sandy.
	20	Sandstone - light to medium grey, fine-grained, friable in part, subangular to subrounded, waxy quartz, some lithics, minor feldspars, carbonaceous, micaceous. White, tight, calcareous, clay matrix.
	5	Coal - black, earthy.
	Trace	Calcite.
4070-080	15	Mudstone - dark grey, carbonaceous, silty, as above.
	50	Siltstone - medium grey, carbonaceous, calcareous, sandy, as above.
	30	Sandstone - light and medium grey, fine-grained quartz, carbonaceous, micaceous. White, tight, calcareous clay matrix, as above.
	5	Coal - as above.
4080-090	10	Mudstone - very dark grey, carbonaceous, silty, slightly calcareous, as above.
	55	Siltstone - medium to dark grey, sandy, hard, slightly calcareous, carbonaceous, as above.
	30	Sandstone - light grey, very fine to medium-grained quartz, lithics, minor feldspathic, subangular to subrounded grains. White, calcareous matrix. Tight. Abundant loose, pebbly grains of calcite.
	5	Coal - black, brown, earthy, silty.
4090-4100	20	Mudstone - dark grey to black, carbonaceous, silty, slightly calcareous, as above.
	50	Siltstone - medium grey to dark grey, sandy with very fine grains of feldspar, slightly calcareous, carbonaceous.
	30	Sandstone - light grey, very fine to silty, carbonaceous, micaceous; and medium grey, fine-grained to medium-grained, less carbonaceous. White, calcareous, clay matrix.
	Trace	Coal and calcite (very abundant).

4100-110	20	Mudstone - medium to dark grey, slightly calcareous, carbonaceous, silty, moderately hard.
	60	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, moderately hard, feldspathic grains.
	15	Sandstone - light and medium grey, very fine to fine-grained, friable, subangular quartz, lithic, minor feldspars, carbonaceous. White, slightly calcareous, clay matrix. Tight.
	5	Coal - black, earthy.
	Trace	Calcite.
4110-120	10	Mudstone - medium to dark grey, very slightly calcareous, carbonaceous, silty, as above.
	80	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, friable.
	10	Sandstone - light and medium grey, very fine to fine-grained, friable, carbonaceous matrix, slightly calcareous, in part kaolinitic. Tight.
	Trace	Coal, calcite, pyrite.
4120-130	30	Mudstone - dark grey to black, slightly calcareous, carbonaceous, silty.
	50	Siltstone - medium and dark grey, slightly calcareous, carbonaceous, moderately hard, calcite bands.
	15	Sandstone - medium grey, very fine to fine-grained, slightly friable, carbonaceous, micaceous. Matrix slightly calcareous, tight.
	5	Coal - black, earthy in part, brittle.
	Trace	Calcite.
4130-140	10	Mudstone - dark grey to black, slightly calcareous, carbonaceous, silty, as above.
	60	Siltstone - medium to dark grey, slightly calcareous, carbonaceous, moderately hard, as above.
	25	Sandstone - medium and light grey, very fine to fine-grained, slightly friable, carbonaceous, micaceous, subangular quartz, lithic, minor feldspathic grains. Matrix slightly calcareous, tight.
	5	Calcite - white transparent, crystallised.
	Trace	Coal.
4140-150	20	Mudstone - dark grey to black, very slightly calcareous, carbonaceous, silty, as above.
	40	Siltstone - medium and dark grey, slightly calcareous, carbonaceous, moderately hard.
	40	Sandstone - medium and light grey, very fine to fine-grained, slightly friable, carbonaceous, matrix of white, calcareous clays. Tight.
	Trace	Coal and calcite.
4150-160	20	Mudstone - dark grey to black, as above.
	40	Siltstone - medium and dark grey, slightly calcareous, carbonaceous, as above.
	40	Sandstone - light to medium grey, very fine to fine-grained quartz, lithic (occasionally pebbly), minor feldspars; carbonaceous, micaceous. Matrix calcareous in light sandstone. In part kaolinitic in medium grey stuff. Tight.
	Trace	Coal and calcite.

4160-170	30	Mudstone - dark grey, carbonaceous, micaceous, silty with coally streaks.
	30	Siltstone - medium grey, carbonaceous, micaceous and sandy.
	40	Sandstone - light grey, fine-grained, quartz rich, friable but tight with calcareous cement.
	Trace	Calcite.
4170-180	20	Mudstone - generally very dark grey.
	35	Siltstone - varies light to dark grey and wide range of grain sizes between mudstone and sandstone, bands of carbonaceous material.
	40	Sandstone - fine to medium-grained, light coloured, moderately friable, 30-40% dark fragments and lithics, some calcite content. Tight, well sorted.
	5	Calcite - sand-sized grains, probably from filled fractures.
	Trace	Coal - insignificant.
4180-190	10	Mudstone - dark, often with carbonaceous material.
	35	Siltstone - light to medium grey, feldspathic.
	55	Sandstone - varies fine to very fine-grained, generally light with 40% dark material, but some all dark sand (grading into siltstone).
	Trace	Coal.
4190-4200	5	Mudstone - as above.
	60	Siltstone - as above, much dark grey siltstone, carbonaceous material not as evident.
	35	Sandstone - possibly finer-grained than before, and may have more lithic material, tight.
	Trace	Calcite -(significant).
4200-210	5	Mudstone - as above.
	65	Siltstone - at times carbonaceous, light to dark grey.
	30	Sandstone - light, tight, fine-grained, 40% lithics.
	Trace	Coal and calcite.
4210-220	5	Mudstone - very dark, very carbonaceous.
	65	Siltstone - as above, some very dark carbonaceous streaks, some light, grading to very fine sandstone.
	30	Sandstone - fine-grained to very fine-grained, more of sandstone is less quartzose and more lithic.
4220-230	5	Mudstone - generally very dark, high carbonaceous content.
	75	Siltstone - some 10% is close to being very, very fine-grained, lithic sandstone; carbonaceous material present at times.
	20	Sandstone - as abefore, tight, ranges from very fine to fine-grained.
	Trace	Coal and calcite (both very minor).
4230-240	15	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, sandy, carbonaceous, as above.
	25	Sandstone - light grey, fine-grained, quartzose, friable but tight with calcareous cement.
	Trace	Coal and calcite.

4240-250	20	Mudstone - dark grey, carbonaceous, moderately hard, blocky, poorly calcareous.
	60	Siltstone - medium and light grey, carbonaceous, slightly calcareous, hard, feldspathic grains, sandy.
	20	Sandstone - very fine-grained, light grey; medium-grained, medium grey, carbonaceous, subangular waxy quartz. Tight, slightly calcareous matrix. Trace pyrite.
	Trace	Coal and calcite.
4250-260	10	Mudstone - dark grey, carbonaceous, as above.
	65	Siltstone - medium and light grey, sandy, carbonaceous, slightly calcareous, as above.
	25	Sandstone - light and medium grey, slightly friable, subangular, medium sorted, waxy quartz, grey lithic, minor white feldspars, carbonaceous, micaceous. White, clay, slightly calcareous matrix. Tight, no shows.
	Trace	Coal, calcite, pyrite.
4260-270	20	Mudstone - medium and dark grey, carbonaceous, slightly calcareous, as above.
	65	Siltstone - medium and light grey, sandy, in part friable.
	15	Sandstone - light and medium grey, slightly friable, carbonaceous, micaceous; slightly calcareous, clay matrix. Tight.
	Trace	Coal - black, earthy; calcite, pyrite.
4270-280	10	Mudstone - dark grey to balck, carbonaceous, slightly calcareous, moderately hard, some coally, softer.
	75	Siltstone - medium and dark grey, sandy, feldspathic, slightly calcareous.
	15	Sandstone - light grey, moderately hard, subangular, subrounded quartz, minor lithic and few feldspathic grains. White clay, calcareous matrix. Tight.
	Trace	Coal - black, brittle.
	Trace	Calcite - white, milky.
4280-290	15	Mudstone - dark grey, carbonaceous, slightly calcareous, moderately hard.
	60	Siltstone - medium and dark grey, sandy, carbonaceous, feldspathic, slightly calcareous, in part slightly friable.
	25	Sandstone - light and medium grey, very fine-grained, carbonaceous, micaceous, white clay, calcareous matrix. Tight.
4290-4300	15	Mudstone - dark grey, carbonaceous, slightly calcareous, as above.
	70	Siltstone - medium to dark grey, sandy, carbonaceous, slightly calcareous, as above.
	15	Sandstone - light and medium grey, very fine-grained, carbonaceous, micaceous, white clay, calcareous matrix. Tight, as above.
	Trace	Coal - black, brittle.
	Trace	Calcite - white, milky.

4300-310	15	Mudstone - dark grey, carbonaceous, slightly calcareous, as above.
	70	Siltstone - medium to dark grey, sandy, carbonaceous, slightly calcareous, as above.
	15	Sandstone - light and medium grey, very fine to fine-grained quartz, lithics, feldspars, carbonaceous, micaceous. White clay, calcareous matrix. Tight, as above.
	Trace	Coal and calcite.
4310-320	20	Mudstone - medium and dark grey, carbonaceous, slightly calcareous, moderately hard, as above.
	70	Siltstone - medium and dark grey, sandy, carbonaceous, slightly calcareous, feldspathic grains, as above.
	10	Sandstone - light and medium grey, very fine to fine-grained, carbonaceous, micaceous, as above, in part silty.
	Trace	Coal and calcite.
4320-330	20	Mudstone - dark grey, micaceous, carbonaceous.
	70	Siltstone - medium to dark grey, sandy, micaceous.
	10	Sandstone - light to medium grey, fine-grained, silty, quartzose, tight with calcareous cement.
	Trace	Calcite.
4330-340	5	Mudstone - dark grey, carbonaceous, as above.
	35	Siltstone - generally light to medium grey, speckled with white feldspathic particles, some carbonaceous matter.
	60	Sandstone - very fine-grained, light, tight, very friable, generally white, quartose, but lot of pale grey - lithic rich. White sandstone is highly calcareous.
4340-350	10	Mudstone - dark grey, carbonaceous with coally streaks.
	50	Siltstone - medium grey, sandy, micaceous, as above.
	40	Sandstone - light grey, fine-grained, quartzose, tight with calcareous cement, as above.
	Trace	Calcite.
4350-360	15	Mudstone - as above, very dark, fairly hard.
	75	Siltstone - light to dark grey, not particularly carbonaceous, very friable.
	10	Sandstone - as above, quartzose, tight, very light coloured, very friable (grey sandstone not present).
	Trace	Calcite, very minor.
4360-370	10	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium to light grey, carbonaceous, sandy, as above.
	30	Sandstone - light grey, fine-grained, tight with calcareous cement, as above.
	Trace	Calcite.
4370-380	20	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, micaceous, as above.
	20	Sandstone - light grey, fine-grained, tight with calcareous cement, as above.
	Trace	Calcite.

4380-390	30	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, micaceous, carbonaceous, as above.
	10	Sandstone - light grey, fine-grained, hard, tight with calcareous cement.
	Trace	Calcite.
4390-4400	20	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, sandy, micaceous, as above.
	20	Sandstone - light grey, fine-grained, hard, tight with calcareous cement.
	Trace	Calcite.
4400-410	20	Mudstone - dark grey, micaceous, carbonaceous.
	70	Siltstone - medium grey, micaceous, sandy, carbonaceous.
	10	Sandstone - light grey, fine-grained, poorly sorted, subangular quartz, hard, tight with calcareous cement.
	Trace	Coal and calcite.
4410-420	15	Mudstone - dark grey, micaceous, carbonaceous, hard, slightly calcareous.
	70	Siltstone - medium and dark grey, sandy, carbonaceous, slightly calcareous.
	15	Sandstone - light grey, very fine to fine-grained, poorly sorted, subangular, waxy quartz, minor lithics and feldspars, hard, in part slightly friable. White, calcareous cement. Tight. No shows.
	Trace	Coal and calcite.
4420-432	20	Mudstone - dark grey, carbonaceous, hard, slightly calcareous, in part coally.
	60	Siltstone - medium and dark grey, sandy, carbonaceous, slightly calcareous, feldspathic, hard.
	15	Sandstone - light and medium grey, very fine to fine-grained, poorly sorted, subangular, qaxy quartz, lithic, feldspars, carbonaceous, micaceous, friable to hard. White, calcareous cement, tight.
	5	Calcite - white, milky, crystallised.
	Trace	Coal - black, brittle.
4432		TRIP FOR NEW BIT.
4432-440		SAMPLE MISSED.
4446		TRIP.
4440-450	10	Mudstone - dark grey, carbonaceous, as above.
	80	Siltstone - medium grey, carbonaceous, sandy, micaceous, feldspathic.
	10	Sandstone - light grey, fine-grained, hard to friable, tight, carbonaceous, slightly calcareous.
	Trace	Coal and calcite.
4450-460	5	Mudstone - dark grey, carbonaceous, as above.
	85	Siltstone - medium to light grey, carbonaceous, feldspathic, micaceous.
	10	Sandstone - light grey, fine-grained, hard, tight with calcareous cement.
		Only slight trace of coal and calcite.

4460-470	10	Mudstone - dark grey, carbonaceous, as above.
	85	Siltstone - medium to dark grey, carbonaceous, fedlspathic, hard.
	5	Sandstone - light to medium grey, fine-grained, hard, tight with calcareous cement.
	Trace	Coal and calcite.
4470-480	10	Mudstone - dark grey, carbonaceous, hard, coally, very poorly calcareous.
	80	Siltstone - medium to dark grey, in part sandy, slightly calcareous, carbonaceous, feldspathic, hard.
	10	Sandstone - light to medium grey, very fine-grained, carbonaceous, micaceous, hard; white, calcareous matrix. Tight.
	Trace	Coal and calcite, pyrite.
4480-490	5	Mudstone - dark grey, as above.
	85	Siltstone - medium to dark grey, in part sandy, carbonaceous, as above.
	10	Sandstone - light to medium grey, very fine-grained, carbonaceous, micaceous, hard, tight, as above.
	Trace	Coal, calcite, pyrite.
4490-4500	10	Mudstone - dark grey, carbonaceous, coally in part, as above.
	75	Siltstone - medium to dark grey, in part sandy, slightly calcareous, carbonaceous, as above, calcite bands.
	15	Sandstone - light to medium grey, very fine-grained, silty, subangular quartz, lithic, minor feldspars, carbonaceous, micaceous. White, calcareous, clay matrix. Tight.
	Trace	Coal and calcite.
4500-510	10	Mudstone - dark grey, carbonaceous, as above.
	75	Siltstone - medium to dark grey, in part sandy, slightly calcareous, as above, calcite bands.
	15	Sandstone - light and medium grey, very fine-grained, silty, subangular quartz, carbonaceous, micaceous. White, calcareous, clay matrix. Tight, as above.
	Trace	Coal and calcite.
4510-520	15	Mudstone - dark grey, carbonaceous, hard, as above.
	70	Siltstone - medium to dark grey, sandy, slightly calcareous, carbonaceous, as above, calcite bands.
	15	Sandstone - light and medium grey, very fine-grained, silty, carbonaceous, micaceous. White, calcareous matrix, as above.
	Trace	Coal and calcite.
4520-530	10	Mudstone - dark grey, carbonaceous, as above.
	70	Siltstone - medium to dark grey, slightly calcareous, carbonaceous, in part sandy.
	20	Sandstone - light and medium grey, very fine-grained, silty, slightly carbonaceous, micaceous. White, calcareous matrix, as above.
	Trace	Coal and calcite.

4530-540	5	Mudstone - as above.
	80	Siltstone - at times very carbonaceous, at other times approaches fine-grained lithic sandstones.
	10	Sandstone - very light coloured, feldspathic, tight, equal quantities of lithic sandstone(fine-grained), is still calcareous.
	5	Coal(?) - shiny, possible cleavage, at times conchordal-like fracture, moderately hard.
4540-550	5	Mudstone - as above, some very light, some very dark.
	90	Siltstone - fairly variable grain size and feldspathic content.
	5	Sandstone - as above, some quartzose, some lithic-rich, moderately friable.
	Trace	Coally, carbonaceous material (see above).
4550-560	5	Mudstone - as above - dark grey.
	80	Siltstone - as above, wide range of grey and grain sizes, grades into lithic sandstone.
	10	Sandstone - light coloured, quartzose, tight, as above, is very pale, very very fine-grained.
	5	Coal(?) - as above.
	Trace	Kaolinite(?) - pure white, ultrafine material.
4560-570	5	Mudstone - dark to medium grey.
	75	Siltstone - as above, light coloured, feldspathic, to dark grey, lithic.
	15	Sandstone - generally light, fine to medium-grained with minor percentage of lithics, some pure lithic sandstone (grades into siltstone), is tight, calcareous, hard.
	5	Lustrous coally material.
	Trace	White, ultra fine-grained material.
4570-580	10	Mudstone - as above, sometimes very finely interbedded with carbonaceous material.
	70	Siltstone - as above.
	15	Sandstone - fine to medium-grained, tight, calcareous.
	5	Calcite.
	Trace	Ultra white, ultra fine-grained material.
4580-590	10	Mudstone - as above.
	70	Siltstone - as above.
	15	Sandstone - fine to medium-grained, light coloured with some lithics, tight, calcareous.
	Trace	Coal and calcite.
4590-4600		SAMPLE MISSED FOR CEMENTING.
4600-610	10	Mudstone - dark grey to black, silty, carbonaceous, micaceous, moderately hard, slightly friable.
	70	Siltstone - light to dark grey, in part sandy and feldspathic, slightly micaceous and carbonaceous, moderately hard, thin calcite bands.
	20	Sandstone - light grey, very fine to fine-grained quartz, some lithics and feldspars. Calcareous clay matrix. Tight.
	Trace	Coal - black, brittle.
	Trace	Calcite.

4610-620	5	Mudstone - dark grey, some carbonaceous layers.
	85	Siltstone - light to medium to dark grey, light coloured siltstone is like very fine-grained quartzose sandstone. Carbonaceous material present in darker siltstone.
	10	Sandstone - fine-grained, light coloured, tight, fairly hard, seems at times to show sheared platey mature, although this material generally is (much) finer-grained.
4620-630	10	Mudstone - dark grey, homogeneous.
	70	Siltstone - light to dark grey, as above, light material is carbonaceous at times.
	10	Sandstone - fine-grained, light coloured, as above.
	10	Coal.
4630-640	5	Mudstone - as above.
	75	Siltstone - medium grey, often carbonaceous.
	15	Sandstone - light coloured, fine-grained (1/3 of which is fine-grained, platey, sheared-like nature).
	5	Coal.
4640-650	5	Mudstone - as above.
	80	Siltstone - medium grey, some material fairly coarse, resembling fine-grained, lithic sandstone.
	10	Sandstone - as above, including sheared material, moderately friable.
	5	Coal.
4650-660	10	Mudstone - dark grey, carbonaceous, micaceous.
	75	Siltstone - medium grey, sandy, micaceous, calcareous.
	10	Sandstone - light grey, fine-grained, hard, tight, quartzose, with calcareous cement.
	5	Coal - black, vitreous, brittle.
4660-670	10	Mudstone - dark grey, as above.
	75	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, hard to friable, tight, as above.
	5	Coal - black, brittle.
	Trace	Pyrite and calcite.
4670-680	10	Mudstone - dark grey, as above.
	75	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained.
	5	Coal - black, brittle, as above.
	Trace	Pyrite and calcite.
4680-690	5	Mudstone - dark, some light, very weak material, claystone(?).
	75	Siltstone - at times carbonaceous, as above, (range of shade and grain size.)
	20	Sandstone - light, tight, moderately hard.
	Trace	Coal and calcite (very minor).
4690-4700	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, micaceous, carbonaceous, as above.
	10	Sandstone - light grey, fine-grained, tight, quartzose, friable.
	10	Coal - black, brittle.
	Trace	Calcite.

4700-710	5	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, micaceous, as above.
	20	Sandstone - light grey, fine-grained, tight, friable, calcareous cement.
	5	Coal - as above.
	Trace	Calcite.
4710-720	10	Mudstone - dark grey, carbonaceous, micaceous, slightly calcareous.
	55	Siltstone - medium grey, micaceous, calcareous, in part friable.
	20	Sandstone - light grey, fine-grained, tight, friable, slightly calcareous matrix. Tight.
	5	Coal - black, greasy lustre, fragile.
	Trace	Calcite.
4720-730	5	Mudstone - dark grey, as above.
	80	Siltstone - light and medium grey, micaceous, calcareous, as above.
	10	Sandstone - light grey, fine-grained, tight, friable, calcareous matrix.
	5	Coal - as above.
	Trace	Calcite.
4730-740	5	Mudstone - dark grey, as above, silty.
	65	Siltstone - light and medium grey, some dark grey, micaceous, calcareous, feldspathic in part, sandy.
	30	Sandstone - light grey, fine-grained, subangular to subrounded quartz, minor lithics, some feldspars, micaceous, carbonaceous, friable. Tight, calcareous matrix.
	Trace	Coal - as above.
4746		TRIP FOR NEW BIT.
4740-750	5	Mudstone - dark grey, as above.
	85	Siltstone - medium and dark grey, micaceous, slightly calcareous, sandy, as above.
	10	Sandstone - light grey, fine-grained, friable; tight, calcareous matrix, as above.
	Trace	Coal - as above.
4750-760	5	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, fraible to hard, tight.
	5	Coal - as above.
	Trace	Calcite.
4760-770	5	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, micaceous, as above.
	5	Sandstone - light grey, fine-grained, tight, as above.
	30	Coal - black, brittle, vitreous.
	Trace	Calcite.
4770-780	20	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, tight, as above.
	10	Coal - black, vitreous, as above.
	Trace	Calcite.

4780-790	10	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	30	Sandstone - as above.
	10	Coal - black, brittle, as above.
	Trace	Calcite.
4790-4800	20	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, micaceous, sandy, calcareous.
	10	Coal - black, vitreous.
	Trace	Sandstone and calcite.
4800-810	10	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, hard to friable, quartzose with calcareous cement, tight.
	20	Coal - black, vitreous.
	Trace	Calcite.
4810-820	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	5	Sandstone - light grey, tight, as above.
	5	Coal - black.
4820-830	20	Mudstone - dark grey, carbonaceous with coally streaks.
	70	Siltstone - medium grey, micaceous, as above.
	5	Sandstone - light grey, fine-grained, tight, as above.
	5	Coal - black.
	Trace	Calcite.
4830-840	20	Mudstone - dark grey, with coally streaks, as above.
	70	Siltstone - medium grey, micaceous, sandy, as above.
	10	Sandstone - light grey, fine-grained, hard, tight, as above.
	Trace	Coal.
4840-850	10	Mudstone - dark grey, carbonaceous, as above.
	80	Siltstone - medium grey, micaceous, feldspathic, sandy, as above.
	10	Sandstone - light grey, fine-grained, hard, tight, as above.
	Trace	Coal - as above.
4850-860	10	Mudstone - dark grey, carbonaceous, slightly calcareous, as above.
	75	Siltstone - medium grey, micaceous, slightly calcareous, sandy, as above.
	10	Sandstone - light grey, fine-grained, quartz and lithic and feldspars, calcareous, tight matrix, as above.
	5	Coal - black, vitreous.
4860-870	10	Mudstone - dark grey, carbonaceous to coally, moderately hard, as above.
	80	Siltstone - medium-grained, micaceous, slightly calcareous, sandy, as above.
	10	Sandstone - light grey, very fine to fine-grained, slightly friable, calcareous matrix. Tight.
	Trace	Coal.

4870-880	20	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, micaceous, feldspathic, as above.
	10	Sandstone - light grey, fine-grained, calcareous, tight, as above.
	Trace	Coal.
4880-890	10	Mudstone - dark grey, micaceous, as above.
	80	Siltstone - medium grey, micaceous, sandy, as above.
	10	Sandstone - light grey, fine-grained, calcareous, tight matrix, as above.
	Trace	Coal.
4890-4900	10	Mudstone - dark grey, carbonaceous, as above.
	90	Siltstone - medium grey, sandy, micaceous, as above.
	Trace	Sandstone, coal and calcite.
4900-910	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, tight, as above.
	Trace	Coal - black.
4910-920	20	Mudstone - dark grey, with coally streaks.
	60	Siltstone - medium grey, micaceous, as above.
	10	Sandstone - light grey, fine-grained, tight, as above.
	10	Coal - black, vitreous.
4920-930	30	Mudstone - dark grey, carbonaceous, slightly micaceous, with coally streaks, non-calcareous.
	50	Siltstone - medium grey, micaceous, sandy, as above.
	10	Sandstone - light grey, fine-grained, tight, friable with calcareous cement.
	10	Coal - black, vitreous.
4930-940	20	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	20	Sandstone - light grey, fine-grained, as above.
	10	Coal - as above.
	Trace	Calcite.
4940-950	20	Mudstone - dark grey, carbonaceous, with coally streaks.
	30	Siltstone - medium to dark grey, sandy.
	30	Sandstone - light grey, fine-grained, friable, slightly porous, with calcareous cement.
	20	Coal - black, brittle.
4950-960	25	Mudstone - dark grey, carbonaceous with coally streaks.
	30	Siltstone - medium grey, micaceous, sandy.
	40	Sandstone - fine to medium-grained, light grey, becoming dark grey, quartzose, feldspathic with calcareous and dark ferruginous matrix, tight and clayey
	5	Coal - black.
4960-970	20	Mudstone - dark grey, as above.
	40	Siltstone - medium grey, as above.
	30	Sandstone - light grey, fine-grained, quartzose, with calcareous cement.
	10	Coal - black.

4970-980	10	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, as above.
	20	Sandstone - light grey, fine-grained, quartzose with calcareous cement, as above.
	10	Coal - black, vitreous.
4980-990	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, fine-grained, quartzose, calcareous cement, as above.
	10	Coal - black, vitreous.
4990-5000	10	Mudstone - dark grey, with coally streaks, as above.
	60	Siltstone - medium grey, sandy, slightly calcareous, as above.
	10	Sandstone - light grey, fine-grained, quartzose, calcareous cement, as above. Trace conglomeratic sandstone, coarse, angular to subangular quartz grains in slightly calcareous, shaly matrix.
	20	Coal - black, vitreous, as above.
5000-010	15	Mudstone - dark grey, coally, as above.
	55	Siltstone - medium grey, sandy, slightly calcareous, as above.
	10	Sandstone - light grey, fine-grained, quartzose, carbonaceous, calcareous cement, in part dark grey, coarse-grained quartz, calcareous, shaly matrix.
	20	Coal - black, vitreous, as above.
5010-020	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, sandy, slightly calcareous, as above.
	10	Sandstone - light grey, fine-grained, carbonaceous, in part friable, tight, calcareous matrix. Trace of dark grey, coarse-grained, slightly calcareous.
	10	Coal - black, vitreous, brittle.
5020-030	10	Mudstone - dark grey, silty, as above.
	70	Siltstone - medium grey, sandy in part, slightly calcareous, as above.
	10	Sandstone - light and medium grey, fine-grained, carbonaceous, micaceous, tight, calcareous matrix
	10	Coal - black, as above.
5030-040	5	Mudstone - dark grey, silty, as above.
	70	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, as above.
	15	Sandstone - light and medium grey, fine-grained, carbonaceous, micaceous and tight, calcareous matrix, as above.
	10	Coal - black, as above.
5040-050	10	Mudstone - dark grey, silty, as above.
	70	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, as above, trace of pyrite.
	15	Sandstone - light and medium grey, fine-grained, carbonaceous, micaceous. Tight, calcareous matrix, as above.
	5	Coal - black, as above.

5050-060	10	Mudstone - dark grey, silty, coally, as above.
	70	Siltstone - medium grey, sandy, carbonaceous, slightly calcareous, as above.
	15	Sandstone - light and medium grey, fine-grained, carbonaceous, micaceous. Tight, calcareous matrix, as above.
	5	Coal - black, as above.
5060-070	15	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, fine-grained, tight with calcareous/ferruginous cement.
	5	Coal - black, as above.
5070-080	30	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, as above.
	5	Sandstone - light grey, fine-grained, tight, as above.
	5	Coal - black, as above.
5080-090	20	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, micaceous, as above.
	40	Sandstone - light to dark grey, fine to medium-grained, arkosic with quartz, feldspar, lithics, including mica, in calcareous matrix, hard to friable, tight.
	Trace	Coal - black with calcite veins.
5090-5100	25	Mudstone - dark grey, carbonaceous, with coally streaks.
	30	Siltstone - medium to dark grey, micaceous, feldspathic, speckled.
	40	Sandstone - light to dark grey, medium to fine-grained, arkosic with quartz, feldspar and lithics with mica (subangular to angular) in a calcareous to ferruginous matrix. Hard to friable, tight.
	5	Coal - black, vitreous.
	Trace	Pyrite and calcite.
5100-110	20	Mudstone - dark grey, as above.
	30	Siltstone - medium grey, speckled, as above.
	30	Sandstone - light to medium grey, fine to medium-grained, arkosic, as above.
	20	Coal - black, brittle.
5110-120	15	Mudstone - dark grey, carbonaceous, as above.
	20	Siltstone - medium grey, speckled, carbonaceous, feldspar, as above.
	60	Sandstone - light grey to white, fine to medium-grained, arkosic, tight, as above, with calcareous cement.
	5	Coal - black, brittle.
5120-130	20	Mudstone - dark grey, carbonaceous, as above.
	30	Siltstone - medium grey, feldspathic, carbonaceous, as above.
	30	Sandstone - light grey to white, fine to medium-grained, arkosic, with calcareous cement, tight, as above.
	20	Coal - black, as above.

5130-140	20	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, feldspathic, carbonaceous, as above.
	30	Sandstone - light to dark grey, fine to medium-grained, arkosic, as above.
	10	Coal - black, vitreous, as above.
5140-150	10	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey, carbonaceous, feldspathic, speckled.
	20	Sandstone - light grey, fine-grained, arkosic, with calcareous cement, tight.
	30	Coal - black, vitreous, brittle.
5150-160	10	Mudstone - dark grey, carbonaceous, as above.
	50	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, as above.
	20	Sandstone - light grey, very fine-grained, arkosic, with calcareous cement, tight, carbonaceous specks.
	20	Coal - black, vitreous, brittle.
5160-170	10	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, carbonaceous, feldspathic, speckled, slightly calcareous, as above.
	20	Sandstone - light grey, very fine-grained, arkosic, calcareous cement, tight, as above.
	10	Coal - black, vitreous, brittle.
5170-180	15	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, as above.
	15	Sandstone - light grey, very fine-grained quartz, feldspar, tight, calcareous cement.
	10	Coal - vitreous, brittle.
5180-190	5	Mudstone - dark grey, carbonaceous, as above.
	30	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, as above.
	60	Sandstone - light grey, fine-grained, arkosic, plus coarse, angular quartz grains; calcareous, tight matrix.
	5	Coal - as above.
5190-5200	10	Mudstone - dark grey, carbonaceous, as above.
	50	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, as above.
	35	Sandstone - light grey, fine-grained, arkosic, white, calcareous matrix, and medium to coarse, angular quartz grains, grey calcareous matrix, as above.
	5	Coal - black, vitreous, brittle.
5200-210	10	Mudstone - dark grey, carbonaceous, as above.
	60	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, as above.
	25	Sandstone - light grey, fine-grained, arkosic in part, tight, calcareous matrix.
	5	Coal - black, vitreous, brittle.

5210-220	10	Mudstone - dark grey, carbonaceous, as above.
	45	Siltstone - medium grey, feldspathic, slightly calcareous, as above.
	40	Sandstone - light grey, fine-grained, arkosic in part, calcareous, tight matrix.
	5	Coal - black, vitreous, brittle.
5220-230	10	Mudstone - dark grey, carbonaceous, as above.
	55	Siltstone - medium grey, feldspathic, slightly calcareous, carbonaceous specks.
	30	Sandstone - light grey, fine-grained, quartz, feldspar and some lithics. Calcareous, tight matrix.
	5	Coal - as above.
5230-240	20	Mudstone - dark grey, as above.
	70	Siltstone - medium to dark grey, carbonaceous, feldspathic, speckled, non-calcareous.
	10	Sandstone - light to medium grey, fine-grained, arkosic, tight, calcareous.
	Trace	Coal - as above, black.
5240-250	30	Mudstone - dark grey, carbonaceous with coally streaks.
	50	Siltstone - medium grey, carbonaceous, feldspathic, speckled.
	10	Sandstone - light grey, fine-grained, arkosic, tight, calcareous.
	10	Coal - black, vitreous, brittle with conchoidal fractures.
5250-260	20	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - very arkosic, as above.
	Trace	Coal - as above.
5260-270	20	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	10	Sandstone - arkosic, as above.
	20	Coal - black, brittle, as above.
	Trace	Phyllite fragments- medium grey, micaceous with sheen.
5270-280	10	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	15	Sandstone - light grey, fine-grained, arkosic, tight, as above.
	10	Coal - as above.
	5	Phyllite - medium grey, micaceous with schistosity.
5280-290	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, as above.
	5	Coal - black, as above.
	5	Phyllite - medium grey, as above.
5290-5300	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	20	Sandstone - light grey, as above.
	Trace	Coal - black, as above.
	Trace	Phyllite - as above.

5300-310	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, as above.
	5	Coal - black, as above.
	5	Phyllite - medium grey, as above, less soft.
5310-320	5	Mudstone - dark grey, carbonaceous with coally streaks.
	75	Siltstone - medium to dark grey, carbonaceous, feldspathic, slightly calcareous, moderately hard to hard.
	10	Sandstone - light grey, fine-grained, quartz, feldspar, calcareous matrix, tight.
	5	Coal - black, vitreous, brittle.
	5	Phyllite - medium grey, silky lustre, with schistosity.
5320-330	Trace	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	20	Sandstone - light grey, fine-grained, quartz, feldspar, calcareous, tight cement, as above.
	Trace	Coal - as above.
	Trace	Phyllite - as above.
5330-340	5	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	25	Sandstone - light grey, fine-grained, calcareous, tight cement, as above; arkosic.
	Trace	Coal.
	Trace	Phyllite.
5340-350	5	Mudstone - dark grey, as above.
	65	Siltstone - medium grey, as above.
	20	Sandstone - light grey, fine-grained, arkosic, calcareous, tight cement, as above.
	5	Coal - black, vitreous, brittle.
	5	Phyllite - medium grey, as above.
5350-360	10	Mudstone - dark grey, as above.
	55	Siltstone - medium grey, as above, with calcite bands.
	15	Sandstone - light grey, fine-grained, arkosic, tight, calcareous cement, as above.
	10	Coal - black, vitreous, brittle.
	10	Phyllite - medium grey, as above.
5360-370	10	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	10	Sandstone - light grey, friable, tight, as above.
	25	Coal - black, as above.
	5	Phyllite - medium grey, as above.
		Trace chert, white milky.
5370-380	10	Mudstone - dark grey, as above.
	55	Siltstone - medium grey, as above.
	5	Sandstone - light grey, arkosic, as above.
	20	Coal - black, as above.
	10	Phyllite - medium grey, as above.

5380-390	10	Mudstone - dark grey, carbonaceous with coally streaks.
	80	Siltstone - medium grey, carbonaceous, feldspathic, speckled.
	Trace	Sandstone - white, fine-grained, arkosic, calcareous, tight.
	5	Coal - black, vitreous, brittle, with conchoidal fractures.
	5	Phyllite - medium grey with dull schistose sheen.
5390-5400	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	10	Phyllite - medium grey, as above.
	Trace	Sandstone and Coal.
5400-410	20	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey, fine-grained, arkosic, calcareous, tight.
	15	Coal - black, with calcite veins.
	5	Phyllite - medium grey, as above.
	Trace	Tertiary fossils, glauconite and loose, round to angular, clear quartz grains (coarse).
5410-420	20	Mudstone - dark grey, as above.
	55	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey, fine-grained, arkosic, calcareous, tight. Some rounded quartz grains, pebbly.
	10	Coal - black, with calcite veins.
	5	Phyllite - medium grey, as above.
	Trace	Tertiary fossils.
5420-430	30	Mudstone - dark grey, carbonaceous, silty, coally, as above.
	50	Siltstone - medium grey, carbonaceous, feldspathic, as above.
	10	Sandstone - light and medium grey, fine-grained, arkosic, calcareous, tight. Trace pyrite.
	5	Coal - black, with calcite veins.
	5	Phyllite - medium grey, as above.
5430-440	10	Mudstone - dark grey, carbonaceous, silty, as above.
	65	Siltstone - medium grey, carbonaceous, feldspathic, as above.
	5	Sandstone - light and medium grey, fine-grained, arkosic, calcareous, tight, as above, more friable, trace pyrite.
	15	Coal - black, vitreous, brittle, with calcite veins.
	5	Phyllite - medium grey, as above.
5440-450	10	Mudstone - dark grey, carbonaceous, silty.
	40	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous.
	40	Sandstone - light grey, very fine-grained, quartz, feldspars; friable, calcareous matrix, tight.
	5	Coal - black, vitreous, brittle with calcite veins.
	5	Phyllite - medium grey, as above.
	Trace	Pyrite and foraminifera.

5450-460	10	Mudstone - dark grey, as above.
	65	Siltstone - medium grey, as above.
	10	Sandstone - light grey, very fine-grained quartz, friable, calcareous, tight cement, as above.
	10	Coal - black, as above.
	5	Phyllite - medium grey, as above.
	Trace	Pyritic siltstone.
5460-470	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, very fine-grained, quartz, friable, calcareous, tight, cement, as above.
	5	Coal - black, as above.
	5	Phyllite - medium grey, as above.
5470-480	10	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, as above.
	20	Sandstone - light grey, very fine-grained, quartz, arkosic, calcareous, tight cement, as above.
	5	Coal - black, as above.
	5	Phyllite - medium grey, as above.
5480-490	10	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, as above.
	15	Sandstone - light grey, very fine-grained, arkosic, calcareous, tight cement, as above.
	10	Coal - black, as above, in part earthy, black-brown.
	5	Phyllite - medium grey, as above.
	Trace	Pyrite and foraminifera and glauconite.
5490-5500	20	Mudstone - dark grey, as above.
	50	Siltstone - medium grey, as above.
	15	Sandstone - light grey, fine-grained, arkosic, calcareous, tight cement, as above.
	10	Coal - black, vitreous, with calcite veins.
	5	Phyllite - medium grey, as above.
	Trace	Pyrite.
5500-510	20	Mudstone - dark grey, carbonaceous, silty.
	55	Siltstone - medium grey, feldspathic, slightly calcareous, in part sandy.
	10	Sandstone - light grey, very fine-grained to silty, arkosic, calcareous, tight cement.
	10	Coal - black, vitreous, brittle with calcite veins.
	5	Phyllite - medium grey, silky lustre, laminated.
5512		TRIP FOR NEW BIT.
5510-520	20	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, feldspathic, as above.
	20	Sandstone - light grey, very fine-grained to silty, arkosic, calcareous, tight cement, as above.
	Trace	Coal and phyllite.

5520-530	10	Mudstone - dark grey, as above.
	40	Siltstone - medium grey, feldspathic, slightly calcareous, as above.
	50	Sandstone - light grey, very fine-grained to silty, quartz, feldspar, minor lithics, carbonaceous, micaceous. Calcareous, tight cement, Fraible.
	Trace	Coal and phyllite.
5530-540	10	Mudstone - dark grey, as above.
	30	Siltstone - medium grey, feldspathic, slightly calcareous, as above.
	50	Sandstone - light grey, very fine-grained to silty, quartzose. Calcareous, tight cement, as above.
	10	Coal - black, brittle, vitreous, occasional pyritic calcite veins.
	Trace	Phyllite.
5540-550	20	Mudstone - dark grey, as above.
	65	Siltstone - medium grey, feldspathic, as above.
	10	Sandstone - light grey, very fine-grained, arkosic. Calcareous, tight cement, as above.
	5	Coal - black, as above.
	Trace	Phyllite.
5550-560	15	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, feldspathic, sandy, as above.
	20	Sandstone - light grey, very fine-grained, arkosic in part. Calcareous, tight cement, as above.
	5	Coal - black, as above.
	Trace	Phyllite.
5560-570	30	Mudstone - dark grey, as above.
	55	Siltstone - medium grey, feldspathic, as above.
	10	Sandstone - light grey, very fine-grained, arkosic. Calcareous, tight cement, as above.
	5	Coal - black, as above.
	Trace	Phyllite.
5570-580	20	Mudstone - dark grey, carbonaceous, silty.
	60	Siltstone - medium grey, feldspathic, carbonaceous, slightly calcareous, in part sandy.
	15	Sandstone - light grey, very fine-grained, arkosic, carbonaceous, calcareous, tight matrix, slightly friable.
	5	Coal - black, brittle, vitreous with calcite veins.
	Trace	Phyllite and calcite.
5580-590	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	5	Sandstone - light grey, as above.
	5	Coal - black, as above, bleeding gas.
5590-5600	10	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, as above.
	10	Sandstone - light grey, as above.
	20	Coal - black, as above.

5600-610	10	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light to medium grey, fine-grained, bedded with carbonaceous material, slightly porous, friable, calcareous cement.
	10	Coal - black, as above.
5610-620	10	Mudstone - dark grey, as above.
	90	Siltstone - medium to dark grey, speckled, feldspathic, calcareous, carbonaceous.
	Trace	Coal, sandstone and pyrite.
5620-630	15	Mudstone - dark grey, as above.
	80	Siltstone - medium to dark grey, as above.
	5	Sandstone - light grey, fine-grained, bedded, carbonaceous, friable, calcareous cement.
	Trace	Coal and pyrite.
5630-640	10	Mudstone - dark grey, as above.
	85	Siltstone - medium to dark grey, as above, in part sandy.
	5	Sandstone - light to medium grey, fine-grained, carbonaceous, friable, trace porosity, calcareous cement.
	Trace	Coal - black, brittle, calcareous veins and pyrite.
5640-650	20	Mudstone - dark grey, as above.
	70	Siltstone - medium to dark grey, calcareous, carbonaceous, as above.
	10	Sandstone - light to medium grey, fine-grained, carbonaceous, friable, calcareous cement.
	Trace	Coal and pyrite.
5650-660	20	Mudstone - dark grey, carbonaceous, feldspar grains.
	70	Siltstone - medium grey, speckled, feldspathic, calcareous, carbonaceous.
	10	Sandstone - light and medium grey, fine-grained, quartz, lithic, feldspars, slightly friable. Calcareous cement.
	Trace	Coal - black, brittle with calcite veins.
5660-670	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	5	Sandstone - light and medium grey, as above.
	5	Coal - black, as above.
	Trace	Phyllite - dark grey, silky lustre.
5670-680	15	Mudstone - dark grey, as above.
	75	Siltstone - medium grey, feldspathic, calcareous, carbonaceous, as above, in part sandy.
	5	Sandstone - light and medium grey, as above.
	5	Coal - black, as above.
	Trace	Phyllite - as above.
5680-690	15	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, feldspathic, calcareous, carbonaceous, as above, sandy.
	10	Sandstone - light grey, fine-grained, slightly friable, carbonaceous, micaceous, tight, calcareous cement.
	5	Coal - black, as above.
	Trace	Phyllite.

5690-5700	20	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, feldspathic, calcareous, carbonaceous, as above.
	Trace	Sandstone, as above; coal, as above; phyllite, as above.
5700-710	20	Mudstone - dark grey, as above.
	45	Siltstone - medium grey, as above, sandy.
	30	Sandstone - light grey, very fine-grained to silty, arkosic, carbonaceous, micaceous, slightly friable, white, calcareous matrix. Tight.
	5	Coal - black, brittle, vitreous with calcite veins.
	Trace	Phyllite.
5710-720	20	Mudstone - dark grey, as above.
	60	Siltstone - medium grey, as above.
	10	Sandstone - light grey, fine-grained, arkosic, friable, tight.
	10	Coal - black, vitreous.
5720-730	20	Mudstone - dark grey, carbonaceous, laminated with coally streaks.
	70	Siltstone - medium to dark grey, very hard, slightly calcareous, in part feldspathic and sandy, speckled.
	10	Sandstone - light to dark grey, fine-grained, arkosic, with calcareous cement, tight, hard to slightly friable.
	Trace	Coal - black, vitreous.
5730-740	20	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, very hard, as above, feldspathic and speckled.
	20	Sandstone - light to dark grey, fine-grained, arkosic, quartz and feldspar in calcareous matrix, faint bedding defined by carbonaceous layers, friable, tight.
	Trace	Coal - black, as above.
5740-750	30	Mudstone - dark grey, carbonaceous, feldspars, as above.
	60	Siltstone - medium to dark grey, as above.
	10	Sandstone - light to dark grey, fine-grained, arkosic, as above.
	Trace	Coal - black, as above.
5750-760	30	Mudstone - dark grey, carbonaceous, as above, with calcite veins and bleeding gas.
	40	Siltstone - medium to dark grey, as above.
	20	Sandstone - light to medium grey, fine-grained, arkosic, very feldspathic, calcareous cement, friable, tight poorly sorted.
	10	Coal - black, as above.
5760-770	20	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, feldspathic, speckled, hard.
	20	Sandstone - light to dark grey, fine-grained, arkosic, hard to friable, tight with calcareous cement, poorly sorted, subangular to angular.
	Trace	Coal.

5770-780	20	Mudstone - dark grey, as above.
	70	Siltstone - medium and dark grey, as above.
	10	Sandstone - light grey, fine-grained, arkosic, moderately friable, tight, calcareous cement, as above.
	Trace	Coal.
5780-790	20	Mudstone - dark grey, as above.
	70	Siltstone - medium and dark grey, feldspathic, as above.
	10	Sandstone - light grey, fine-grained, arkosic, moderately friable, tight, calcareous cement, as above.
	Trace	Coal.
5790-5800	10	Mudstone - dark grey, carbonaceous, feldspathic with calcite veins.
	80	Siltstone - medium to dark grey, feldspathic, calcareous, in part sandy with calcite veins.
	10	Sandstone - light grey, arkosic, moderately friable, subangular quartz grains, poorly sorted, tight, calcareous cement.
	Trace	Coal - black, earthy.
5800-810	20	Mudstone - dark grey, carbonaceous, interbedded with calcite veins.
	70	Siltstone - medium to dark grey, as above.
	10	Sandstone - light grey, arkosic, tight, calcareous cement, slightly friable.
	Trace	Coal - black, vitreous and earthy, with calcite.
5810-820	30	Mudstone - dark grey, carbonaceous with abundant calcite veins.
	55	Siltstone - medium to dark grey, as above.
	20	Sandstone - light grey, arkosic, fine to medium-grained, carbonaceous, micaceous. Tight, calcareous cement.
	5	Coal - black, vitreous, in part earthy.
	Trace	Calcite.
5820-830	30	Mudstone - dark grey, carbonaceous, pyritic, with calcite veins.
	60	Siltstone - medium to dark grey, carbonaceous, feldspathic, in part sandy, slightly calcareous.
	10	Coal - black, vitreous.
	Trace	Sandstone, pyrite and chert.
5830-840	40	Mudstone - dark grey, carbonaceous, laminated with coally streaks, pyritic with calcite veins.
	50	Siltstone - medium to dark grey, as above.
	10	Sandstone - light to medium grey, fine-grained, tight with calcareous cement, arkosic.
	Trace	Coal - black.
5840-850	40	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	10	Sandstone - light to medium grey, fine-grained, tight, as above.
	Trace	Coal - black.

5850-860	30	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, as above.
	10	Sandstone - light to medium grey, very hard, as above.
	Trace	Coal - black, as above.
5860-870	20	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	10	Sandstone - light to medium grey, arkosic, as above.
	20	Coal - black, brittle.
5870-880	20	Mudstone - dark grey, carbonaceous, pyritic with calcite veins.
	60	Siltstone - dark to medium grey, carbonaceous, sandy to feldspathic, hard, slightly calcareous.
	10	Sandstone - light to medium grey, arkosic, fine-grained, carbonaceous, with calcareous cement, hard and tight.
	10	Coal - black, vitreous.
5880-890	20	Mudstone - dark grey, as above.
	70	Siltstone - dark to medium grey, carbonaceous, sandy, feldspathic, as above.
	10	Sandstone - light to medium grey, arkosic, fine-grained, carbonaceous; calcareous cement, tight.
	Trace	Coal - black, vitreous.
5890-5900	20	Mudstone - dark grey, as above.
	70	Siltstone - dark to medium grey, as above.
	Trace	Sandstone - light to medium grey, as above.
	10	Coal - black.
5900-910	30	Mudstone - dark grey-brown, fairly hard, grading to siltstone.
	30	Siltstone - grey to dark grey, lithic, feldspathic, occasionally sandy, calcareous and carbonaceous in part.
	40	Sandstone - fine-grained, quartzose, lithic, feldspathic, calcareous, tight. Trace pyrite and calcite.
	Trace	Coal.
5910-920	30	Mudstone - as above.
	10	Shale- dark grey, flaggy, hard, fairly brittle.
	50	Siltstone - as above.
	10	Sandstone - as above.
5920-930	40	Mudstone - dark grey, as above.
	50	Siltstone - as above.
	10	Sandstone - as above.
	Trace	Shale - as above.
5930-940	30	Mudstone - dark grey, as above.
	60	Siltstone - medium and dark grey, as above.
	10	Sandstone - light grey, fine-grained, arkosic, as above, tight, calcareous matrix.
	Trace	Coal.

5940-950	20	Mudstone - dark grey, feldspathic, silty.
	70	Siltstone - medium to dark grey, feldspathic, calcareous, carbonaceous, sandy in part.
	10	Sandstone - light grey, fine-grained, quartzose, lithic, feldspathic, tight, calcareous matrix.
	Trace	Coal - black, brittle.
5950-960	30	Mudstone - dark grey, as above.
	60	Siltstone - medium and dark grey, as above.
	10	Sandstone - light grey, very fine to fine-grained, as above.
	Trace	Shale - black to dark grey.
5966		3" OF JUNK BASKET CORE RECOVERED. Dark grey mudstone, massive hard, slightly micaceous, occasional black, carbonaceous fragments. Trace pyrite.
5960-970	60	Mudstone - dark grey, as above, some grading to siltstone.
	40	Siltstone - grey to dark grey, lithic, feldspathic, calcareous in part.
5970-980	40	Mudstone - as above.
	60	Siltstone - as above.
5980-990	20	Mudstone - as above.
	80	Siltstone - light to dark grey, lithic, feldspathic, slightly micaceous and carbonaceous, calcareous.
	Trace	Coal - black, vitreous.
5990-6000	40	Mudstone - as above.
	60	Siltstone - as above.
6000-010	20	Mudstone - as above.
	10	Siltstone - as above.
	70	Coal - black to dark brown, very hard, in part flaggy, brittle, conchoidal fractures, shaley streaks. High gas reading, 180 units.
6010-020	60	Mudstone - dark grey to dark brown, calcareous in part, carbonaceous and silty, in part.
	30	Siltstone - as above.
	10	Coal - as above.
6020-030	70	Mudstone - as above.
	30	Siltstone - as above, trace calcite veining.
	Trace	Coal.
6030-040	70	Mudstone - as above.
	30	Siltstone - as above.
	Trace	Sandstone - medium grey, fine to medium-grained, quartzose, friable, calcareous matrix.
	Trace	Coal.

6040-050	60	Mudstone - dark grey to black, very hard, calcareous in part, carbonaceous, silty in part.
	40	Siltstone - light to dark grey, feldspathic, slightly micaceous, carbonaceous, calcareous.
	Trace	Coal - black, vitreous, with calcite veins.
	Trace	Sandstone - light to medium grey, quartz, lithics, feldspars, calcareous matrix.
6050-060	50	Mudstone - dark grey, slightly calcareous, feldspathic, carbonaceous, silty in part, as above.
	50	Siltstone - medium to dark grey, feldspathic, slightly micaceous, carbonaceous, calcareous, with calcite veins. Abundant trace of pyritic siltstone, lithic grains, slightly calcareous.
6060-070	40	Mudstone - as above.
	60	Siltstone - as above, trace pyritic siltstone.
	Trace	Sandstone - medium grey, fine-grained, angular quartz, feldspars, calcareous matrix.
6070-080	30	Mudstone - as above.
	60	Siltstone - as above.
	Trace	Sandstone - as above.
	10	Coal - black, vitreous in part, bituminous.
6080-090	30	Mudstone - as above.
	50	Siltstone - dark to medium grey, feldspathic, carbonaceous, calcareous with calcite veins, in part sandy.
	10	Sandstone - light to medium grey, angular to subangular quartz, medium-grained, lithics, feldspars, micaceous, carbonaceous, friable. Calcareous matrix.
	10	Coal - as above.
6090-6100	30	Mudstone - as above.
	65	Siltstone - dark to medium grey, as above.
	5	Coal - as above, with calcite veins.
	Trace	Sandstone - as above.
6100-110	30	Mudstone - as above, in part silty.
	40	Siltstone - dark to medium grey, carbonaceous, feldspathic, calcareous, as above.
	20	Coal - as above.
	Trace	Sandstone - as above.
6110-120	30	Mudstone - grey, dark grey and dark brown, micaceous and carbonaceous in part.
	70	Siltstone - light to dark grey, feldspathic, lithic, carbonaceous, calcareous in part, trace pyrite.
	Trace	Coal - black, lustrous, shaley.
	Trace	Sandstone - grey, fine to very fine, lithic, feldspathic, quartzose, tight, calcareous matrix.
6120-130	30	Mudstone - as above.
	70	Siltstone - as above.
	Trace	Sandstone - as above, trace calcite.
	Trace	Coal - as above, shaley.

6130-140	20	Mudstone - as above.
	80	Siltstone - light to dark grey, feldspathic, lithic, rarely sandy, carbonaceous, calcareous in part, occasional calcite veins.
	Trace	Sandstone - as above.
	Trace	Coal - as above, shaley.
6140-150	50	Mudstone - as above.
	50	Siltstone - as above.
	Trace	Coal.
6150-160	20	Mudstone - as above.
	60	Siltstone - light to dark grey, lithic, feldspathic, calcareous grading to sandstone in part.
	20	Sandstone - light to dark grey, lithic, feldspathic, quartzose, fine to very fine, subangular grains in dark grey, muddy, silty matrix, calcareous. (Greywacke?)
	Trace	Calcite veining.
6160-170	60	Mudstone - as above.
	30	Siltstone - as above.
	10	Sandstone - as above.
6170-180	20	Mudstone - dark grey, carbonaceous, slightly feldspathic, as above.
	70	Siltstone - light to dark grey, as above.
	10	Sandstone - light to medium grey, as above.
	Trace	Coal - black, brittle, vitreous with calcite veins.
6180-190	10	Mudstone - dark grey, as above, with trace pyrite.
	50	Siltstone - light to dark grey, as above with calcite veins.
	10	Sandstone - light to medium grey, as above.
	20	Coal - black, as above, in part bituminous.
6190-6200	10	Mudstone - dark grey, micaceous and carbonaceous, slightly feldspathic.
	55	Siltstone - light to dark grey, feldspathic, lithic, carbonaceous, calcareous in part with calcite veins.
	5	Sandstone - grey, fine to medium quartz grains, lithics, feldspars, tight, calcareous matrix.
	30	Coal - black, brittle, vitreous with calcite veins, in part shaley and bituminous.
6200-210	20	Mudstone - dark grey, as above.
	60	Siltstone - light to dark grey, as above.
	Trace	Sandstone - light grey, as above.
	20	Coal - as above.
6210-220	40	Mudstone - dark grey, as above.
	50	Siltstone - light to dark grey.
	Trace	Sandstone - as above.
	10	Coal - as above.
6220-230	50	Mudstone - dark grey, micaceous, slightly silty in part, occasionally very carbonaceous.
	40	Siltstone - light to dark grey, lithic, feldspathic, carbonaceous, occasionally micaceous, calcareous in part, trace calcite veins.
	Trace	Sandstone - as above.
	10	Coal - as above, pyritic in part.

6230-240	30	Mudstone - as above.
	50	Siltstone - as above.
	20	Coal - as above.
6240-250	40	Mudstone - dark grey to dark brown.
	60	Siltstone - light to dark grey, as above.
	Trace	Coal - as above.
6250-260	30	Mudstone - as above.
	60	Siltstone - as above.
	10	Coal - as above.
6260-270	30	Mudstone - dark grey and dark brown, as above.
	50	Siltstone - light to dark grey, lithic, feldspathic, calcareous, trace calcite veining.
	20	Coal - black, vitreous, and shaley bituminous.
6270-280	20	Mudstone - dark grey and dark brown.
	80	Siltstone - light to dark grey, feldspathic, lithic, carbonaceous and micaceous in part. Calcareous.
	Trace	Coal - black, vitreous and bituminous shaley.
6280-290	Trace	Mudstone - as above.
	90	Siltstone - light to dark grey, as above, in part sandy.
	10	Sandstone - light to medium grey, subangular, fine-grained, quartzose, lithic, feldspathic, slightly friable. Moderately calcareous matrix.
	Trace	Coal - as above, with pyrite.
6290-6300	Trace	Mudstone - as above.
	90	Siltstone - light to dark grey, as above.
	10	Sandstone - light to medium grey, as above.
	Trace	Pyrite.
6300-310	10	Mudstone - as above.
	60	Siltstone - as above.
	30	Sandstone - light to dark grey, lithic, feldspathic, quartzose, calcareous, some calcite veins. Occasionally carbonaceous, silty in part. Some dark grey, very lithic (greywacke?).
	Trace	Coal - as above, trace pyrite.
6310-320	20	Mudstone - as above.
	50	Siltstone - as above.
	20	Sandstone - as above.
	10	Coal - mainly black, vitreous.
6320-330	50	Mudstone - as above.
	40	Siltstone - as above.
	10	Sandstone - as above.
	Trace	Coal - as above.
6330-340	40	Mudstone - dark grey and brown, as above.
	40	Siltstone - light to dark grey, slightly sandy in part.
	20	Coal - black, vitreous and bituminous.
6340-350	50	Mudstone - dark grey to dark brown, micaceous and carbonaceous in part.
	50	Siltstone - light to dark grey, lithic, feldspathic, carbonaceous, calcareous.
	Trace	Coal - black, vitreous and bituminous.

6350-360	50	Mudstone - trace pale cream, slightly waxy, bentonitic? (weathered feldspar?), shaley. Otherwise as above.
	30	Siltstone - as above.
	Trace	Sandstone - white to light grey, quartzose, lithic, feldspathic, calcareous, tight, carbonaceous in part.
	20	Coal - as above, mainly vitreous.
6360-370	40	Mudstone - dark grey, carbonaceous and micaceous in part.
	20	Siltstone - grey to dark grey.
	40	Coal - as above.
	Trace	Shale - white and pale cream.
6370-380	20	Mudstone - dark grey, carbonaceous, as above.
	40	Siltstone - medium grey (60%), feldspathic, slightly calcareous, sandy; dark grey (40%), slightly feldspathic, very poorly calcareous.
	40	Sandstone - light grey, fine to medium-grained, quartzose, lithic, feldspathic, carbonaceous, slightly micaceous, slightly calcareous matrix. Tight.
	Trace	Shale, coal and pyrite.
6380-390	20	Mudstone - dark grey, feldspathic, silty in part.
	50	Siltstone - medium and dark grey, as above.
	20	Sandstone - light grey, as above, friable in part.
	10	Coal - black, vitreous and bituminous.
	Trace	Shale.
6390-6400	30	Mudstone - dark grey, feldspathic, silty, as above.
	50	Siltstone - medium and dark grey, fine to medium grains of quartz, lithic, feldspathic, carbonaceous, slightly calcareous, as above.
	10	Sandstone - light grey, quartz, lithic, feldspathic, calcareous matrix, tight.
	10	Coal - black, as above, with calcite veins.
	Trace	Pyrite.
6400-410	20	Mudstone - dark grey to dark brown, slightly micaceous and carbonaceous.
	30	Siltstone - light to dark grey, lithic, feldspathic, carbonaceous, slightly micaceous, slightly calcareous in part, trace calcite veining in this plus sandstone.
	40	Sandstone - light to medium grey, quartzose, feldspathic and lithic, clay and var. calcareous matrix. Tight, fine-grained.
	10	Coal - black, bituminous and vitreous.
6410-420	30	Mudstone - as above.
	60	Siltstone - as above.
	Trace	Sandstone - as above.
	10	Coal - as above.
6420-430	20	Mudstone - dark grey to brown, as above.
	80	Siltstone - medium to dark grey, lithic, feldspathic, occasionally carbonaceous and pyritic, slightly sandy in part, only slightly calcareous.
	Trace	Sandstone - light to medium grey, silty, feldspathic, quartzose, tight.
6430-440	40	Mudstone - as above.
	60	Siltstone - as above.
	Trace	Sandstone - as above.

6440-450	30	Mudstone - as above.
	70	Siltstone - as above.
	Trace	Sandstone - as above.
6450-460	40	Mudstone - as above.
	60	Siltstone - as above.
	Trace	Sandstone - as above.
	Trace	Coal - black, bituminous, trace vitreous.
6460-470	10	Mudstone - as above.
	20	Siltstone - as above.
	70	Sandstone - pale grey, fine-grained and trace medium-grained, quartzose, slightly feldspathic and lithic, clay and calcareous matrix, carbonaceous and silty in part. Very slight trace pyrite. Subrounded grains. Tight
	Trace	Coal.
6470-480	10	Mudstone - as above.
	60	Siltstone - medium to dark grey, as above, in part light grey, much softer, sandy.
	30	Sandstone - pale grey, as above.
	Trace	Coal.
6480-490	20	Mudstone - dark grey, slightly micaceous, carbonaceous, feldspathic.
	60	Siltstone - medium to dark grey, lithic, feldspathic, slightly calcareous in part, slightly sandy.
	20	Sandstone - pale grey, fine-grained, quartzose, slightly feldspathic and lithic, matrix calcareous and clay.
	Trace	Coal - black, bituminous.
6490-6500	5	Mudstone - as above.
	55	Siltstone - medium to dark grey, as above, trace light grey, as above.
	10	Sandstone - pale grey, fine to medium-grained, as above.
	30	Coal - with pyrite, black, in part silty, in part dark grey, bituminous.
6500-510	Trace	Mudstone - as above.
	70	Siltstone - medium to dark grey, as above, in part light grey, softer, slightly calcareous, sandy.
	20	Sandstone - pale grey, fine to medium-grained, as above.
	10	Coal - with trace of pyrite, as above.
6510-520	20	Mudstone - dark grey, as above.
	65	Siltstone - medium to dark grey, and light grey, as above.
	10	Sandstone - pale grey, as above.
	5	Coal - with pyrite, as above, in part bituminous.
6520-530	30	Mudstone - dark grey, slightly carbonaceous and feldspathic, silty in part.
	60	Siltstone - as above, increase of light grey.
	5	Sandstone - pale grey, as above.
	5	Coal - as above.

6530-540	40	Mudstone - as above.
	60	Siltstone - medium grey, lithic, feldspathic, calcareous in part, occasionally carbonaceous, slightly sandy in part.
	Trace	Coal.
6540-550	40	Mudstone - grey-brown to medium-brown, slightly micaceous and carbonaceous.
	60	Siltstone - as above.
6550-560	30	Mudstone - as above, in part feldspathic, micaceous.
	60	Siltstone - light to medium grey, as above, micaceous.
	10	Sandstone - pale grey, fine to medium-grained, quartzose, slightly feldspathic and lithic, slightly carbonaceous, friable, calcareous and clay matrix.
	Trace	Coal - with pyrite, as above.
6560-570	20	Mudstone - dark grey, carbonaceous, micaceous, slightly feldspathic.
	70	Siltstone - light to dark grey, carbonaceous, feldspathic, calcareous, in part sandy.
	10	Sandstone - pale grey to pale brown, fine to medium-grained quartz, lithics, feldspars, micaceous, carbonaceous, calcareous matrix, tight. In part friable
	Trace	Coal - with pyrite and calcite veins, in part bituminous.
6570-580	30	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, as above, in part light grey, friable.
	10	Sandstone - pale grey, as above.
	Trace	Coal - as above.
6580-590	20	Mudstone - dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - pale grey, as above.
	Trace	Coal - as above.
6590-6600	10	Mudstone - as above.
	30	Siltstone - as above.
	60	Sandstone - light grey to grey, fine to medium-grained, quartzose, variably lithic, feldspathic and carbonaceous. Calcareous matrix. Subrounded to subangular grains. Tight.
	Trace	Coal.
6600-610	10	Mudstone - dark grey, as above.
	80	Siltstone - medium grey, as above.
	10	Sandstone - light grey, as above.
	Trace	Coal.
6610-620	40	Mudstone - medium to dark grey, slightly carbonaceous, micaceous, slightly calcareous.
	60	Siltstone - medium grey, carbonaceous, feldspathic, slightly calcareous, in part sandy.
	Trace	Sandstone - as above.
6620-630	20	Mudstone - medium to dark grey, as above.
	70	Siltstone - medium grey, as above.
	10	Sandstone - light grey, fine to medium-grained, quartzose, carbonaceous, calcareous matrix, tight.
	Trace	Coal - black, vitreous.

6630-640	30	Mudstone - medium to dark grey, micaceous and carbonaceous in part.
	70	Siltstone - light to dark grey, lithic, feldspathic, micaceous, carbonaceous in part, occasionally sandy.
	Trace	Coal - black, vitreous and bituminous.
6640-650	30	Mudstone - as above, trace light grey.
	70	Siltstone - as above.
6650-660	40	Mudstone - as above.
	60	Siltstone - as above.
	Trace	Sandstone - light grey, fine-grained, quartzose, slightly lithic and feldspathic, clay and calcareous matrix.
	Trace	Coal.
6660-670	30	Mudstone - as above.
	70	Siltstone - as above.
	Trace	Sandstone - as above.
6670-680	30	Mudstone - as above, trace calcite veining.
	60	Siltstone - as above.
	10	Sandstone - as above.
6680-690	30	Mudstone - as above.
	50	Siltstone - as above.
	20	Sandstone - pale grey, fine-grained, quartzose, slightly lithic and feldspathic, subrounded to subangular grains, slightly calcareous, tight.
6690-6700	30	Mudstone - as above.
	40	Siltstone - as above.
	30	Sandstone - as above.
	Trace	Coal - with pyrite.
6700-710	30	Mudstone - medium to dark grey, plus brown.
	60	Siltstone - light to dark grey, lithic, feldspathic, carbonaceous, variably calcareous, slightly sandy in part.
	10	Sandstone - as above.
6710-720	40	Mudstone - light to dark grey, hard, occasionally silty, brittle in part.
	60	Siltstone - light to medium-grained, lithic, feldspathic, quartzose, carbonaceous and sandy in part. Variably calcareous, generally hard, grades to sand in part.
	Trace	Sandstone - as above.
6720-730	40	Mudstone - light to dark grey, in part silty, hard.
	50	Siltstone - light to medium grey, lithic, feldspathic in part, carbonaceous and sandy, variably calcareous.
	10	Sandstone - pale grey, fine-grained, quartzose, slightly lithic and feldspathic, calcareous, tight matrix.
6730-740	30	Mudstone - light to dark grey, as above.
	60	Siltstone - light to medium grey, as above.
	10	Sandstone - pale grey, as above, friable in part.
	Trace	Coal - black, brittle, vitreous with calcite veins.

6740-750	20	Mudstone - as above.
	70	Siltstone - as above, less calcareous.
	10	Sandstone - pale grey to grey, quartzose, feldspathic, lithic, fine to medium-grained, carbonaceous, slightly calcareous matrix.
	Trace	Coal - black, as above and trace of pyrite.
6750-760	30	Mudstone - as above.
	50	Siltstone - as above.
	20	Sandstone - pale grey, as above.
	Trace	Coal - as above.
6760-770	30	Mudstone - light to dark grey, carbonaceous in part, grades to siltstone, in part.
	50	Siltstone - light to dark grey, lithic, feldspathic, quartzose, carbonaceous, calcareous, slightly sandy in part.
	20	Sandstone - light grey, quartzose, fairly feldspathic and lithic, slightly carbonaceous and silty, calcareous in part.
6770-780	20	Mudstone - as above.
	50	Siltstone - as above.
	30	Sandstone - as above and mainly fine-grained, quartzose, slightly calcareous. Some black grains, subangular (pyroxenes?), other grains subrounded to subangular in quartzose matrix. Some authigenic feldspar grains. May just be slightly metamorphic sandstone? Streaky bedding visible in part.
6780-790	20	Mudstone - as above.
	40	Siltstone - as above.
	40	Sandstone - light grey, as above, still could be slightly metamorphic, some bedding obvious in some fragments.
6790-6800	10	Mudstone - medium to dark grey.
	50	Siltstone - medium grey, lithic, feldspathic, carbonaceous, slightly calcareous, also quartzose, only slightly lithic and feldspathic. Individual quartz silt grains appear to be fused together for the most part. (Sharp break edge).
	40	Sandstone - as for siltstone. A certain amount of recrystallization seems to have taken place in the siltstones and sandstones. Some still soft and friable, but mostly hard.
6800-810	20	Mudstone - medium to dark grey.
	50	Siltstone - medium grey, as above.
	30	Sandstone - light grey, as above.
6810-820	10	Mudstone - medium to dark grey, as above.
	20	Siltstone - medium grey, lithic, feldspathic, carbonaceous, slightly calcareous, as above.
	70	Sandstone - light grey, fine to medium-grained, angular to subangular quartz, minor lithics, feldspars, carbonaceous, in part friable, in highly calcareous matrix. In part silty, appears to be recrystallized.

6820-830	10	Mudstone - medium to dark grey.
	40	Siltstone - medium grey, lithic, feldspathic, carbonaceous, slightly calcareous, grading into sandstone. Some appear to be fused together.
	50	Sandstone - light grey. very fine to medium-grained quartz, minor lithics, feldspars, friable, highly calcareous matrix.
	Trace	Coal - black, brittle, vitreous.
6830-840	30	Mudstone - medium to dark grey.
	60	Siltstone - light to dark grey, lithic, feldspathic, quartzose, carbonaceous in part.
	10	Sandstone - light grey, fine-grained, quartzose, lithic, feldspathic, calcareous.
6840-850	30	Mudstone - medium to dark grey.
	60	Siltstone - medium to dark grey, lithic, feldspathic, quartzose, occasionally calcareous.
	10	Sandstone - as above.
	Trace	Coal - black.
6850-860	50	Mudstone - light to dark grey,
	40	Siltstone - as above.
	10	Sandstone - as above.
6860-870	10	Mudstone - light to dark grey.
	50	Siltstone - light and medium grey, quartzose, lithic, feldspathic, variably carbonaceous, calcareous grading to sandstone.
	40	Sandstone - fine to very fine-grained, as for siltstone.
6870-880	20	Mudstone - medium to dark grey.
	50	Siltstone - light to dark grey, lithic, feldspathic, variably quartzose and carbonaceous, calcareous in part.
	30	Sandstone - light to medium grey, fine to very fine-grained, quartzose, lithic, feldspathic, variably carbonaceous, calcareous.
6880-890	20	Mudstone - medium to dark grey.
	60	Siltstone - medium to dark grey, some light grey, quartzose, variably lithic, feldspathic and carbonaceous, calcareous in part.
	20	Sandstone - light grey, quartzose, slightly lithic, feldspathic, very calcareous in part.
6890-6900	30	Mudstone - medium to dark grey.
	60	Siltstone - medium to dark grey, in part light grey, quartzose, variably lithic, feldspathic, and carbonaceous, calcareous, in part sandy.
	10	Sandstone - light grey, fine to medium-grained quartz, very calcareous in part.
6900-910	20	Mudstone - medium to dark grey, in part feldspathic and calcareous.
	40	Siltstone - medium to dark grey, as above, in part friable, some with trace of pyrite.
	30	Sandstone - medium to dark grey, in part light grey, softer fine to medium-grained quartz, minor lithics, feldspars and carbonaceous, very calcareous matrix, friable.
	10	Calcite - in part white, glossy, crystallized, in part cream, amorphous.
	Trace	Coal - black, brittle, vitreous.

6910-920	10	Mudstone - medium to dark grey, as above.
	80	Siltstone - medium to dark grey, as above, less calcareous.
	10	Sandstone - as above, less calcareous.
	Trace	Calcite. - as above.
6920-930	30	Mudstone - medium to dark grey, in part slightly calcareous.
	60	Siltstone - medium to dark grey, some light grey, quartzose, feldspathic, carbonaceous, micaceous, slightly calcareous, mostly hard, some friable, in part sandy.
	10	Sandstone - light to medium grey, fine to medium-grained, angular to aubangular quartz, some lithics, feldspars, slightly friable, calcareous matrix.
	Trace	Coal and calcite.
6930-940	20	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium to dark grey, some light grey, as above.
	30	Sandstone - light to medium grey, quartzose, calcareous, carbonaceous, as above.
	Trace	Calcite, crystallized.
6940-950	10	Mudstone - medium to dark grey, as above.
	40	Siltstone - medium to dark grey, some light grey, feldspathic, carbonaceous, micaceous, in part hard, slightly calcareous in part, slightly friable, sandy.
	50	Sandstone - light to medium grey, quartzose, lithic, feldspathic, calcareous matrix, in part friable.
6950-960	40	Mudstone?- medium to dark grey, carbonaceous in part, very fine-grained
	50	Siltstone - light to dark grey, quartzose, variably lithic, feldspathic and carbonaceous, calcareous in part.
	10	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic, calcareous, trace calcite veining.
6960-970	40	Mudstone - medium to dark grey, silty and carbonaceous in part.
	50	Siltstone - medium grey, lithic, feldspathic, quartzose, slightly carbonaceous and calcareous in part.
	10	Sandstone - light to medium grey, quartzose, slightly lithic and feldspathic, calcareous, fine-grained.
	Trace	Calcite.
6970-980	20	Mudstone - as above.
	20	Siltstone - as above.
	60	Sandstone - light grey, quartzose, variably lithic, feldspathic and carbonaceous, fine-grained, slightly metamorphic, very calcareous in part, tight.
	Trace	Calcite - crystallization and amorphous.
6980-990	20	Mudstone - medium to dark grey, carbonaceous, silty in part.
	40	Siltstone - medium grey, lithics, feldspathic, quartzose , slightly carbonaceous, poorly calcareous, slightly sandy in part.
	40	Sandstone - light to medium grey, quartzose, variably lithic, feldspathic and carbonaceous, fine to medium-grained, angular to subangular, in part poorly calcareous and some very calcareous matrix.
	Trace	Coal and calcite.

6990-7000	30	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium grey, as above.
	20	Sandstone - light to medium grey, fine to medium-grained, angular to subangular, quartzose, variably lithic, feldspathic, variably calcareous matrix.
7000-010	20	Mudstone - medium to dark grey, as above.
	60	Siltstone - medium grey, as above, in part pyritic.
	20	Sandstone - light to medium grey, calcareous, as above.
7010-020	30	Mudstone - medium to dark grey, silty in part, as above.
	70	Siltstone - medium to dark grey, lithic, feldspathic, slightly carbonaceous, micaceous, calcareous, hard.
	Trace	Sandstone - light to medium grey, as above.
7020-030	30	Mudstone - medium to dark grey, as above.
	60	Siltstone - medium to dark grey, as above, in part sandy.
	10	Sandstone - light to medium grey, as above.
7030-040	30	Mudstone - as above.
	60	Siltstone - as above.
	10	Sandstone - as above.
7040-050	10	Mudstone - medium to dark grey, carbonaceous, silty in part.
	50	Siltstone - medium to dark grey, lithic, feldspathic, quartzose, slightly carbonaceous, in part slightly calcareous and sandy and micaceous.
	40	Sandstone - light to medium grey, fine to medium-grained, quartzose, variably lithic and feldspathic, slightly carbonaceous, micaceous, calcareous matrix. Tight.
7050-060	10	Mudstone - as above.
	30	Siltstone - medium grey, quartzose, lithic, feldspathic, slightly calcareous and sandy in part.
	60	Sandstone - light grey, fine to very fine-grained, quartzose, variably slightly lithic and feldspathic, trace carbonaceous and micaceous, calcareous matrix. Tight, grains subangular to subrounded.
7060-070	10	Mudstone - dark grey.
	50	Siltstone - medium to dark grey, lithic, feldspathic, slightly quartzose, calcareous and carbonaceous in part.
	40	Sandstone - light grey, fine-grained, quartzose, variably lithic and feldspathic, slightly carbonaceous in part, variably calcareous, tight, trace calcite veining.
7070-080	10	Mudstone - dark grey.
	40	Siltstone - medium grey, quartzose, lithic, feldspathic.
	50	Sandstone - lighter grey, quartzose, feldspathic, lithic, fine-grained, occasionally carbonaceous, variably calcareous, micaceous in part.
	Trace	Calcite- white crystals.

7080-090	10	Mudstone - dark grey.
	60	Siltstone - medium to dark grey, lithic, feldspathic, slightly quartzose, in part calcareous and carbonaceous.
	30	Sandstone - light grey, fine-grained, quartzose, feldspathic, lithic, variably carbonaceous, calcareous, micaceous.
	Trace	Calcite - white crystals;and trace of Coal - black, vitreous.
7090-7100	10	Mudstone - dark grey.
	50	Siltstone - medium to dark grey, as above, mostly sandy.
	40	Sandstone - light grey, fine-grained, quartzose, feldspathic, lithic, in part friable, variably carbonaceous, calcareous, micaceous, tight.
7100-110	20	Mudstone - dark grey, in part silty.
	70	Siltstone - medium to dark grey, lithic, feldspathic, slightly quartzose, in part calcareous and carbonaceous, slightly friable.
	10	Sandstone - light grey, fine-grained, quartzose, feldspathic, lithic, as above.
	Trace	Coal.
7110-120	20	Mudstone - dark grey to black, carbonaceous.
	60	Siltstone - medium to dark grey, lithic, feldspathic, slightly quartzose, in part slightly calcareous and carbonaceous, with trace of pyrite.
	20	Sandstone - light grey, fine-grained, quartzose, feldspathic, lithic, carbonaceous, micaceous, variably calcareous matrix, tight.
	Trace	Coal.
7120-130	20	Mudstone - dark grey, silty.
	80	Siltstone - medium to dark grey, lithic, feldspathic, lighter, slightly calcareous.
	Trace	Sandstone - light grey, quartzose, calcareous matrix, as above.
7130-140	20	Mudstone - dark grey.
	50	Siltstone - medium to dark grey, in part sandy.
	30	Sandstone - light grey, quartzose, feldspathic, lithic, very fine-grained, in part silty, carbonaceous, slightly micaceous, calcareous matrix, tight.
7140-150	10	Mudstone - as above.
	30	Siltstone - as above.
	60	Sandstone - as above.
7150-160	10	Mudstone - dark grey.
	20	Siltstone - medium to dark grey.
	70	Sandstone - pale grey, fine to medium-grained, quartzose slightly feldspathic and lithic, micaceous and carbonaceous in part, grains subangular to subrounded, variably calcareous, tight.

7160-170	Trace	Mudstone - as above.
	20	Siltstone - as above.
	80	Sandstone - pale grey, fine to medium-grained, as above, trace white, crystalline calcite.
7170-180	Trace	Mudstone - as above.
	30	Siltstone - as above.
	70	Sandstone - as above.
7180-190	Trace	Mudstone - dark grey.
	20	Siltstone - medium to dark grey, mostly sandy.
	80	Sandstone - pale grey, fine to medium-grained, quartzose, slightly feldspathic and lithic, micaceous and carbonaceous, in part variably calcareous. Tight.
7190-7200	10	Mudstone - dark grey, silty in part.
	40	Siltstone - medium to dark grey, lithic, feldspathic, slightly calcareous.
	50	Sandstone - pale grey, fine to medium-grained, quartzose, feldspathic, lithic, as above, variably calcareous.
7200-210	30	Mudstone - dark grey, silty in part.
	40	Siltstone - medium to dark grey, lithic, feldspathic, poorly calcareous, slightly carbonaceous.
	30	Sandstone - pale grey, fine to medium-grained, angular to subangular quartz, lithic, feldspars, slightly carbonaceous, micaceous. Calcareous matrix, tight.
7210-220	10	Mudstone - dark grey, silty.
	50	Siltstone - medium to dark grey, quartzose, lithic and feldspathic, as above.
	40	Sandstone - pale grey, fine to medium-grained, as above.
7220-230	20	Mudstone - dark grey, slightly silty in part, quartzose in part.
	40	Siltstone - medium grey to dark grey, quartzose, very lithic and feldspathic, rarely calcareous.
	40	Sandstone - light grey, fine-grained, quartzose, slightly lithic and feldspathic, calcareous. Trace calcite.
7230-240	30	Mudstone - dark grey, as above, trace silica.
	40	Siltstone - medium to dark grey, lithic, feldspathic, variably quartzose and calcareous.
	30	Sandstone - light grey, as above, trace calcite.
7240-250	30	Mudstone - medium to dark grey, siliceous in part.
	50	Siltstone - medium to dark grey, as above.
	20	Sandstone - light grey, quartzose, slightly lithic and feldspathic, calcareous.
7250-260	10	Mudstone - medium to dark grey, as above.
	70	Siltstone - medium to dark grey, as above, pyritic.
	20	Sandstone - light grey, quartzose, slightly lithic and feldspathic, carbonaceous, calcareous matrix. Tight.

7260-270	10	Mudstone - medium to dark grey, slightly siliceous.
	50	Siltstone - medium to dark grey, quartzose, feldspathic, in part carbonaceous, sandy.
	40	Sandstone - light grey, fine to medium-grained, angular to subangular quartz, minor lithics, feldspars, slightly carbonaceous and micaceous. Calcareous matrix, tight.
7270-280	20	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - light grey, quartzose, lithic, feldspathic, as above, in part slightly friable.
7280-290	10	Mudstone - medium to dark grey, in part siliceous.
	50	Siltstone - medium to dark grey, feldspathic, slightly lithic, carbonaceous, in part slightly calcareous.
	40	Sandstone - light to medium grey, fine to medium-grained with occasional coarse grains quartz, minor lithics, less feldspars, in part slightly calcareous, very calcareous matrix. Tight.
7290-7300	10	Mudstone - medium to dark grey, as above.
	40	Siltstone - medium to dark grey, as above, with calcite veins.
	50	Sandstone - light to medium grey, quartzose, lithic, feldspathic, calcareous, slightly carbonaceous, as aobe.
7300-310	20	Mudstone - medium to dark grey, silty in part, carbonaceous in part.
	50	Siltstone - medium to dark grey, lithic, feldspathic, variably quartzose.
	30	Sandstone - light to medium grey, quartzose, slightly lithic and feldspathic, slightly quartzose, silty, variably calcareous.
7310-720	30	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	20	Sandstone - light to medium grey, as above.
7320-330	40	Mudstone - dark grey, carbonaceous in part, silty.
	50	Siltstone - medium to dark grey, lithic, feldspathic, siliceous in part.
	10	Sandstone - as above, trace calcite.
7330-340	30	Mudstone - as above.
	60	Siltstone - as above.
	10	Sandstone - as above.
7340-350	40	Mudstone - medium to dark grey, silty and carbonaceous in part.
	40	Siltstone - medium to dark grey, lithic, feldspathic and quartzose, variably lithic and feldspathic. Calcareous in part.
	20	Sandstone - light grey, fine-grained, quartzose, slightly lithic and feldspathic, calcareous. Trace calcite.

7350-360	20	Mudstone - medium to dark grey, silty and carbonaceous in part.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - fine to very fine-grained, quartzose, slightly lithic and feldspathic, carbonaceous in part. Calcareous.
	Trace	Coal - black, vitreous.
7360-370	30	Mudstone - medium to dark grey, silty and carbonaceous in part.
	50	Siltstone - medium to dark grey, lithic and feldspathic, quartzose, slightly calcareous in part with calcite veins.
	20	Sandstone - light grey, fine-grained, angular to subangular quartz, slightly lithic and feldspathic, moderately calcareous matrix. Tight.
7370-380	30	Mudstone - medium to dark grey, as above.
	60	Siltstone - medium to dark grey, calcareous in part, as above.
	10	Sandstone - light grey, quartzose, slightly carbonaceous, as above.
7380-390	10	Mudstone - medium to dark grey, as above.
	80	Siltstone - medium to dark grey, in part sandy, slightly calcareous.
	10	Sandstone - light grey, fine to medium-grained, lithic, feldspathic, carbonaceous, slightly micaceous, friable, slightly calcareous matrix.
7390-7400	10	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	40	Sandstone - light grey, fine-grained, angular to subangular quartz, minor lithics, feldspars, slightly carbonaceous and micaceous, slightly friable. Calcareous matrix.
7400-410	10	Mudstone - medium to dark grey, as above.
	60	Siltstone - medium to dark grey, as above.
	30	Sandstone - light grey, fine-grained, as above.
	Trace	Coal and calcite.
7410-420	30	Mudstone - medium to dark grey, as above.
	50	Siltstone - medium to dark grey, as above, plus some lighter grey, siliceous.
	20	Sandstone - light grey, fine-grained, quartzose, slightly lithic and feldspathic and carbonaceous. Calcareous, tight. Trace clacite veining.
	Trace	Coal - as above.
7420-430	30	Mudstone - medium to dark grey, as above.
	40	Siltstone - medium to dark grey, trace light grey.
	30	Sandstone - light grey, as above.
7430-440	20	Mudstone - as above.
	50	Siltstone - as above.
	30	Sandstone - as above.

7440-450	20	Mudstone - medium to dark grey, trace medium to dark brown.
	50	Siltstone - light to dark grey, lithic, feldspathic, quartzose, variably carbonaceous, slightly calcareous in part, occasionally siliceous.
	30	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic, occasionally micaceous and carbonaceous. Siliceous in part, calcareous, tight.
	Trace	Calcite.
7450-460	10	Mudstone - medium to dark grey, as above.
	50	Siltstone - light to dark grey, as above, in part micaceous.
	40	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic, siliceous, micaceous, slightly carbonaceous, in part calcareous.
7460-470	10	Mudstone - medium to dark grey, as above.
	60	Siltstone - light to dark grey, as above.
	30	Sandstone - light to medium grey, quartzose, as above.
7470-480	20	Mudstone - medium to dark grey, as above.
	50	Siltstone - light to dark grey, lithic, feldspathic, quartzose, micaceous, variably carbonaceous, slightly calcareous in part.
	30	Sandstone - light to medium grey, fine-grained, angular to subangular quartz, variably lithic and feldspathic, micaceous, slightly carbonaceous, siliceous in part. Calcareous matrix, tight.
	Trace	Coal - black-brown, silky lustre.
7480-490	10	Mudstone - medium to dark grey.
	60	Siltstone - light to dark grey, as above.
	30	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic and feldspathic, calcareous in part.
7490-7500	10	Mudstone - medium to dark grey.
	50	Siltstone - light to dark grey, as above with calcite veins.
	40	Sandstone - light to medium grey, quartzose, lithic, feldspathic, as above, calcareous matrix, tight.
	Trace	Coal.
7500-510	10	Mudstone - medium to dark grey, as above.
	40	Siltstone - light to dark grey, as above, in part calcareous, micaceous.
	50	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic and feldspathic, micaceous, slightly carbonaceous, calcareous matrix.
	Trace	Coal - black-brown, earthy.
7510-520	20	Mudstone - dark grey, micaceous and carbonaceous in part, silty.
	50	Siltstone - medium to dark grey, lithic, feldspathic, occasionally quartzose, carbonaceous and micaceous in part.
	30	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic, occasionally carbonaceous, calcareous matrix. Silty in part.

7520-530	20	Mudstone - dark grey, as above.
	50	Siltstone - grey to dark grey, as above.
	30	Sandstone - pale grey to grey, fine-grained, quartzose, variably lithic and feldspathic, trace carbonaceous, calcareous.
7530-540	20	Mudstone - dark grey, as above.
	60	Siltstone - grey to dark grey.
	20	Sandstone - light grey, fine-grained, calcareous as above, trace calcite.
7540-550	20	Mudstone - dark grey, micaceous and carbonaceous, in part silty.
	50	Siltstone - medium to dark grey, lithic, feldspathic, carbonaceous and micaceous, with trace of pyrite, slightly calcareous in part.
	30	Sandstone - light to medium grey, fine-grained, angular to subangular, quartzose, variably lithic and feldspathic, micaceous, occasionally carbonaceous, calcareous matrix, slightly friable in part.
7550-560	20	Mudstone - dark grey, micaceous and carbonaceous, occasionally siliceous.
	60	Siltstone - medium to dark grey, as above.
	20	Sandstone - light to medium grey, quartzose, lithic, feldspathic, micaceous, occasionally pyritic, calcareous, as above.
	Trace	Calcite, white crystallized.
7560-570	20	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, feldspathic, micaceous, as above.
	20	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic and feldspathic, slightly micaceous and carbonaceous, occasionally pyritic, calcareous matrix, tight.
	Trace	Calcite, as above.
7570-580	10	Mudstone - dark grey, as above.
	40	Siltstone - medium to dark grey, feldspathic, micaceous, as above, in part sandy.
	50	Sandstone - light to medium grey, fine to medium-grained, quartzose, variably lithic and feldspathic, carbonaceous, calcareous matrix, tight.
7580-590	10	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, feldspathic, lithic, micaceous, in part sandy, slightly calcareous.
	40	Sandstone - light to medium grey, fine, angular to subangular grains, quartzose, variably lithic and feldspathic, slightly micaceous, carbonaceous, in part friable. Calcareous matrix.
	Trace	Coal - black-brown, silky lustre.
7590-7600	20	Mudstone - dark grey, some dark brown.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - light to medium grey, quartzose, as above.
	Trace	Coal - black, brittle, vitreous.

7600-610	20	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, lithic, feldspathic, quartzose in part, carbonaceous streaks.
	20	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic., carbonaceous in part, calcareous.
	Trace	Coal - black, vitreous in part, occasional silky lustre.
7610-620	30	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above, pyritic in part.
	20	Sandstone - light grey, quartzose, slightly lithic and feldspathic, calcareous.
7620-630	20	Mudstone - as above.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - fine-grained, light to medium grey, quartzose, variably lithic, feldspathic and carbonaceous subangular to subrounded, calcareous matrix, maybe some silica matrix also, very tight.
7630-640	20	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic, feldspathic, carbonaceous, in part friable, calcareous, as above.
7640-650	20	Mudstone - as above.
	60	Siltstone - as above.
	20	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic, feldspathic, carbonaceous, calcareous matrix.
7650-660	10	Mudstone - dark grey, slightly silty in part.
	60	Siltstone - medium to dark grey, quartzose, feldspathic, micaceous, carbonaceous, slightly calcareous in part.
	20	Sandstone - light to medium grey, fine-grained, quartz, variably lithic, feldspathic, carbonaceous, micaceous, calcareous matrix.
	10	Coal - black-brown, earthy, soft.
7660-670	10	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, as above, in part sandy.
	30	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic, feldspathic, slightly carbonaceous, micaceous. Calcareous matrix.
	Trace	Coal - as above.
7670-680	20	Mudstone - dark grey to black, as above.
	60	Siltstone - medium to dark grey, quartzose, feldspathic, micaceous, carbonaceous, occasionally pyritic, slightly calcareous in part.
	20	Sandstone - light to medium grey, fine-grained quartz, variably lithic, feldspathic, carbonaceous, micaceous, calcareous matrix.
	Trace	Coal - as above.

7680-690	20	Mudstone - dark grey, as above.
	30	Siltstone - medium to dark grey, as above, siliceous in part.
	50	Sandstone - light grey, fine to very fine-grained, quartzose, slightly lithic &feldspathic in part, carbonaceous and silty streaks, calcareous, tight. Trace calcite veining.
	Trace	Coal.
7690-7700	20	Mudstone - as above.
	50	Siltstone - medium to dark grey, lithic, feldspathic, quartzose, siliceous in part, grades to sandstone.
	30	Sandstone - light grey, fine to very fine-grained, quartzose, variably slightly lithic and feldspathic, carbonaceous in part, calcareous.
7700-710	20	Mudstone - dark grey, as above.
	60	Siltstone - medium to dark grey, as above.
	20	Sandstone - light grey, quartzose, slightly lithic and feldspathic, calcareous.
7710-720	30	Mudstone - dark grey, in part silty, feldspathic.
	50	Siltstone - medium to dark grey, feldspathic, carbonaceous, slightly micaceous, in part sandy, calcareous.
	20	Sandstone - medium grey, fine-grained, angular to subangular quartz, variably lithic, feldspathic, carbonaceous, occasionally micaceous, calcareous matrix. Some light grey, friable.
7720-730	20	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	30	Sandstone - light to medium grey, fine-grained, quartzose, variably lithic, feldspathic, slightly and micaceous, calcareous.
7730-740	20	Mudstone - dark grey, silty and carbonaceous streaks.
	60	Siltstone - medium to dark grey, lithic, feldspathic, variably quartzose. Siliceous in part, some carbonaceous streaks, micaceous in part, calcareous in part. Some sandy patches.
	20	Sandstone - light grey, fine to very fine-grained, quartzose, lithic, feldspathic, calcareous in part, trace calcite veining, grains subangular, occasionally to subrounded.
7740-750	40	Mudstone - dark grey, as above.
	30	Siltstone - medium to dark grey, as above.
	30	Sandstone - light grey, quartzose, fine-grained, as above
7750-760	20	Mudstone - dark grey, as above.
	30	Siltstone - medium to dark grey, sandy in part, as above
	50	Sandstone - light to medium grey, quartzose, variably lithic and feldspathic, calcareous.
7760-770	30	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above, sandy in part
	20	Sandstone - light to medium grey, fine-grained, quartzose, slightly lithic and feldspathic in part, calcareous.
7770-780	30	Mudstone - dark grey, as above.
	50	Siltstone - medium to dark grey, as above.
	20	Sandstone - light to medium grey, as above.

A P P E N D I X IV

CORE DESCRIPTIONS AND ANALYSES

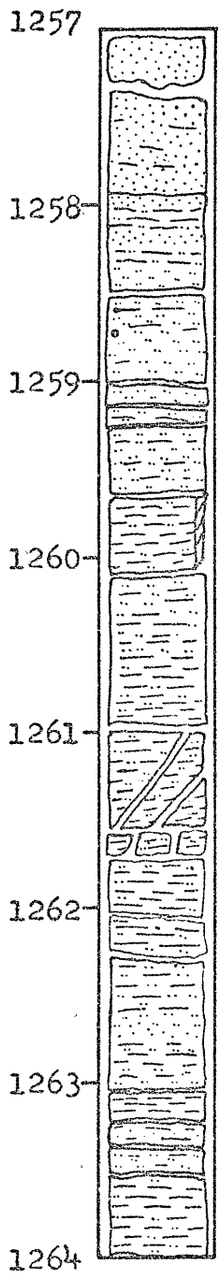
PURSUIT OIL N.L.

HINDHAUGH CREEK NUMBER 1

CORE DESCRIPTION

Core Number 1 — 1257 feet to 1264 feet. Recovered 7 feet.

The core consists of finely interbedded and interlaminated sandstone, siltstone and mudstone, with coally and carbonaceous bedding interfaces.



The top 12" of the core is dominantly sandstone with interlaminations of silt; at 12" from the top is a parting showing a carbonized tree trunk. The sandstone is light grey, salt and pepper speckled very fine and fine grained, moderately hard and friable. It consists of dull and waxy subangular to subrounded quartz, grey and rare green lithic grains, white feldspars (now kaolinized) and traces of white mica and carbonaceous specks. The matrix is white calcareous clays, and the detritals/matrix ratio is 6:4 to 7:3. The ratio of quartz to lithics plus feldspars is about 2:1. The rock is tight with no shows.

From 1'4" to 2'6" from the top the core is mostly siltstone with minor mudstone. Both are medium grey, moderately hard and blocky, and slightly calcareous, carbonaceous, sandy and feldspathic. It grades from siltstone to silty mudstone, and some of the mudstone laminae range to dark grey.

From 2'6" to 5' from the top is interlaminated mudstone and siltstone, both as described above.

This passes down into dominantly siltstone with some sandstone and mudstone from 5' to 6'6" from the top, and the basal portion is a fine and uniform massive mudstone and siltstone.

Sedimentary structures include scour and fill, small scale slumps, very fine cross bedding and slight bedding gradations, plus two worm burrows at about five feet from the top of the core.

Local bedding dips reach about 10° but structural dip is about 3°.

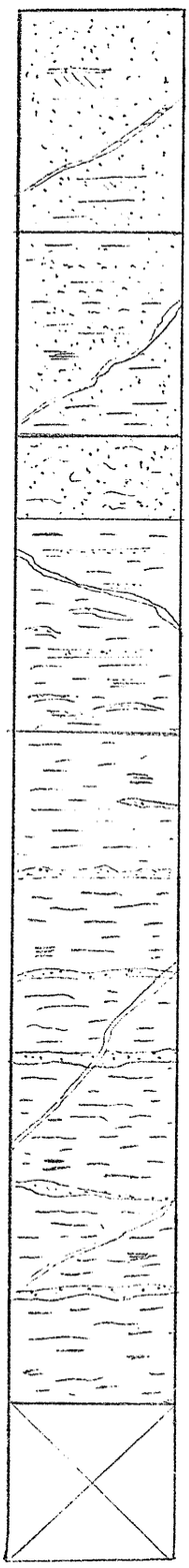
Some subvertical fractures are present, and these are partially to fully healed with white calcite.

. PURSUIT OIL N.L.

HINDHAUGH CREEK NO. 1

Core No. 2 3,659 - 73 Cut 14' Rec. 12½'

Recovery 90%



Sandstone, lt.gy, fine gr. med. sorted, subang grains of qtz. & lithics in calc. cement. Minor mica and feldspar. Calcite filling fractures. Minor carb., laminae defining cross bedding.

Interlaminated fine gr. lt.gy. sandstone aa. and mudstone dk. gy, blk, mica., carb. w/parallel laminated bedding. Calcite filling fractures.

Sandstone, lt. gy, fine gr. aa w/wavy contorted bedding defined by carb. mudstone laminae.

Interlaminated fine gr. lt. gy. sandstone aa and dk. gy. - blk, mica. carb., mudstone. Bedding wavy to parallel laminated. Calcite filling fractures. Flat dip.

Mudstone, dk. gy.-blk., mica., silty, carb., with minor interbeds of lt. gy. fine gr. sandstone aa. Bedding is wavy to parallel laminated w/ flat dip. Calcite filling fractures.

All sandstones are hard, in part friable, but tight with no fluorescence.

PURSUIT OIL N.L.

HINDHAUGH CREEK No.1

CORE No.3 7776 - 7781 FEET. RECOVERED 6". RECOVERY 10%.

7776' 0" -- 7776' 6".

6".....Mudstone, dark grey, rare, very fine lithic, feldspathic and quartz grains. Rare streaks and stringers of medium and light grey siltstone and sandstone. These are quartzose, slightly lithic and feldspathic, rarely carbonaceous and variably calcareous. White calcite infills and fine vertical fractures present in the lower part of the core.

No estimate of dip can be made as the core is badly broken up.

CL-811-1

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company PURSUIT OIL N. L. Formation File AP-1-190
Well HINDHAUGH NO. 1 Core Type Date Report 21 OCT '69
Field WILDCAT Drilling Fluid Analysts AD
County VICTORIA State AUST. Elev. Location

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM
DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP
ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS
SANDY-SDY, SHALY-SHY, LIMY-LMY
FINE-FN, MEDIUM-MED, COARSE-CSE
CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL
BROWN-BRN, GRAY-GY, VUGGY-VGY
FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY
SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1257		0.1	6.7			

PURSUIT OIL N.L. HINDHAUGH CREEK NO. 1

SIDEWALL CORE DESCRIPTIONS

RUN NO. 1

No.	Depth	Rec.	Lithology	Fluorescence
1	4,510 1374.64m	¼"	Siltstone - fine grained. Sandstone, light to dark grey, very hard, very calcareous, quartzose with minor lithics and feldspas, carbonaceous streaks forming well defined bedding. Tight.	None
2	4,502 1372.21	½"	Sandstone - fine grained, light grey, very friable, quartz rich with calcareous cement. Carbonaceous streaks define irregular bedding. Slight porosity with perhaps good permeability along bedding planes.	None
3	4,440 1353.31	½"	Siltstone - medium grey, hard but fractured, calcareous and carbonaceous with poorly defined bedding. Some felds-pathic and micaceous material. Tight.	None
4	4,172 1271.62	1¼"	Siltstone - medium grey, hard but fractured, only slightly calcareous and carbonaceous, massive, tight.	None
5	4,159 1267.66	¾"	Siltstone - medium grey, hard but fractured, calcareous and micaceous, massive and non-carbonaceous, tight. Calcite filling fractures.	None
6	4,147 1264.00	1¾"	Siltstone - fine grained Sandstone, light grey, very friable, very calcareous, quartzose, massive. Almost unconsolidated, porous and permeable.	None
7	3,821 1164.64	1"	Sandstone - fine to medium grained, white, massive, quartz rich with calcareous cement. Very friable, almost unconsolidated, porous and permeable.	Very faint pin-point fluorescence

No.	Depth	Rec.	Lithology	Fluorescence
8	3.809 1160.98	1¼"	Sandstone - fine to medium grained, light grey, massive, quartz rich with calcareous cement. Friable with hard streaks. Good porosity.	None
9	3,795 1156.71	1"	Sandstone - fine to medium grained, white, massive, quartz rich with calcareous cement. Very friable, almost unconsolidated, porous and permeable.	None
10	3,793 1156.10	¾"	Sandstone - fine to medium grained, white, massive, quartz rich with calcareous cement. Very friable, almost unconsolidated. Porous and permeable.	None
11	3,790 1155.18	½"	Interbedded Sandstones as above with black carbonaceous almost coaly mudstones. Slightly calcareous, friable, particularly along bedding planes. Porous and permeable.	Mineral fluorescence
12	3,782 1152.75	1½"	Sandstone, fine - medium grained, white to medium grey, massive, quartz rich, in part with a calcareous cement. In part friable with very hard pyritic nodules. Probably porous and permeable.	None
13	3,781		No recovery.	-
14	3,607 1099.41	¾"	Siltstone - dark grey, carbonaceous, slightly calcareous. Faint bedding defined by lighter grey silty bands. Fractured and friable. Tight.	None
15	3,571 1088.44	1¼"	Sandstone, medium grained, white, massive, deeply invaded with mud, quartz rich with very calcareous cement. Very friable, porous and permeable.	None
16	3,569 1087.83	1¼"	Siltstone - medium grey, slightly calcareous, massive, Moderately hard, fractured, Tight.	Mineral fluorescence

No.	Depth	Rec.	Lithology	Fluorescence
17	3,565 1086.61	¾"	Siltstone, medium grey, very calcareous, laminated bedding defined by lighter grey bands. Hard but fractured with calcite veins filling fractures. Tight.	Mineral fluorescence
18	3,000 914.4	¾"	Sandstone, fine to medium grained, white, massive, deeply invaded with mud. Quartz rich with very calcareous cement. Very friable, almost unconsolidated, porous and permeable.	None
19	2,700 822.96	¾"	Sandstone, fine grained, light grey, massive, quartz rich with minor lithics and feldspars. Very calcareous cement. Soft and friable, almost unconsolidated, porous and permeable.	None
20	2,350 716.28	½"	Siltstone, medium grey, massive, non-calcareous, hard but fractured. Tight.	None
21	2,346 715.06	1½"	Siltstone, light grey silty silty bands and dark grey carbonaceous bands define a finely laminated bedding. Only slightly calcareous. Hard but friable along bedding. Tight.	None
22	2,329 709.87	¾"	Sandstone, fine to medium grained, light grey, massive, quartz rich with very calcareous cement. In part hard, in part friable, porous and permeable.	None
23	2,234 680.32	¾"	Sandstone, fine to medium grained, light grey, massive, quartz rich with very calcareous cement. In part hard, in part friable, porous and permeable.	None
24	1,759 536.14	¾"	Siltstone, medium grey, massive, calcareous. Hard but fractured. Tight.	None

No.	Depth	Rec.	Lithology	Fluorescence
25	1,500 457.2	1"	Mudstone, dark grey to black, massive, very carbonaceous, almost lignitic, slightly calcareous. Hard but fractured. Tight.	None
26	1,461 445.31	¾"	Siltstone to fine grained Sandstone, light to medium grey bands defining faint laminated bedding. Quartz rich with minor lithics and feldspars in a calcareous cement. Hard and tight.	None
27	1,305 387.76	1¾"	Siltstone, light to medium grained, calcareous, massive, carbonaceous. Hard but fractured, tight.	None
28	1,191 363.01	1¾"	Mudstone, medium grey, slightly carbonaceous and micaceous, non-calcareous, massive. Hard and tight.	None
29	1,098 334.67	1¾"	Sandstone, fine grained, light grey, massive. Quartz rich with minor feldspars in a very calcareous matrix. Hard and tight.	None
30	917 279.5	2"	Mudstone, medium grey, carbonaceous, calcareous, massive, soft and tight.	None

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company PURSUIT OIL N.L. Formation _____ File AP3-154
Well HINDHAUGH CREEK No. 1 Core Type SIDE WALL Date Report 1 OCT 69
Field _____ Drilling Fluid _____ Analysts GAK, BJL
County _____ State _____ Elev. _____ Location _____

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY (MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
1	1098	0.2	13.6	0.0	86.8	SIDE WALL CORE No. 29
2	2235	2.2	16.9	0.0	81.7	No. 23
3	2329	19	26.9	0.7	78.8	No. 22
4	2700	0.3	–	–	–	No. 19
5	3000	7.5	–	–	–	No. 18
6	3571	36	–	–	–	No. 15
7	3782	0.6	23.4	0.4	87.6	No. 12
8	3790	71	–	–	–	No. 11
9	3793	36	–	–	–	No. 10
10	3795	351	–	–	–	No. 9
11	3809	0.2	27.8	0.0	85.0	No. 8
12	3821	0.7	24.6	0.0	72.4	No. 7
13	4147	0.1	23.0	0.0	82.7	No. 6
14	4502	33	–	–	–	No. 2

SAMPLE No. 4 - 6, 8 - 10, AND 14 INSUFFICIENT FOR FULL ANALYSIS

PURSUIT OIL N.L. HINDHAUGH CREEK NO. 1

SIDEWALL CORE DESCRIPTIONS

RUN NO. 2

No.	Depth	Rec.	Lithology	Fluorescence
11	7,097 (2163.16m)	1"	Sandstone - light grey, very fine grained, quartzose slightly lithic and feldspathic, calcareous matrix. Could have some porosity?	Very dull fluorescence
14	6,091 (1856.5M)	¾"	Mudstone - dark grey, with thin laminae of calcareous siltstone.	None
15	5,833 (1777M)	1¼"	Mudstone - dark grey, rarely silty, with several fractures along which white calcite is deposited.	None
16	5,829 (1776.67M)	1"	Coal - dark brown, fairly soft, earthy with several thin veins of white amorphous calcite.	None
18	5,547 (1690.7M)	1½"	Coal - black, slightly lustrous, flakey.	None
19	5,539 (1688M)	1¼"	Sandstone - grey, very fine grained, quartzose, slightly lithic and feldspathic, calcareous matrix. Coaly and carbonaceous laminae.	None
20	5,270 (1606M)	¾"	Siltstone - grey, quartzose, lithic, calcareous with minor coaly streaks.	None
21	5,237 (1596.24m)	1½"	Mudstone - dark grey, with minor silty streaks. The siltstone is calcareous.	None
23	5,175 (1577.3m)	¼"	Mudstone - dark grey, slightly silty.	None
24	5,155 (1571.24m)	½"	Mudstone - dark grey, shattered into small angular fragments.	None
27	5,086 (1550.21m)	¾"	Mudstone - dark grey, hard, broken by shattering and fractures into angular fragments.	None

No.	Depth	Rec.	Lithology	Fluorescence
28	4,941 1506.01 m	¾"	Sandstone - light grey, fine grained, quartzose, slightly lithic and feldspathic, abundant calcareous matrix. Some silty and muddy streaks.	Very dull fluorescence
SWC 1 - 10, 12, 13, 17, 25, 26 - No recovery.				

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Company PURSUIT OIL N.L. Formation _____ Page 1 of 1
Well HINDHAUGH CREEK No.1 Cores SIDEWALL File AP-1-194
Field WILDCAT Drilling Fluid _____ Date Report 13 NOV 1969
County AUST. State VICTORIA Elevation _____ Analysts AD
Location _____ Remarks _____

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS HORIZONTAL	PERMEABILITY MILLIDARCYS VERTICAL	POROSITY PERCENT	RESIDUAL SATURATION OIL % VOLUME	RESIDUAL SATURATION OIL % PORE	RESIDUAL SATURATION TOTAL WATER % PORE	PROBABLE PRODUCTION	REMARKS
11	7097 2163m	5.7		21.95	0.0	0.0	79.00		ss,grey,f/gn,very Argill.
19	5539 1688	1160.0		26.56	0.0	0.0	79.00		ss,dk grey,f/gn,v/Argill w/corp ptgs.
28	4941 1506	63.0		26.10	0.0	0.0	70.00		ss,lt grey,f/gn,very Argill.

NOTE:
(*) REFER TO ATTACHED LETTER.
(1) INCOMPLETE CORE RECOVERY—INTERPRETATION RESERVED.
(2) OFF LOCATION ANALYSES—NO INTERPRETATION OF RESULTS.

A P P E N D I X V

LIST AND INTERPRETATION OF LOGS

By K. Millheim

(Formerly Pursuit Oil N.L.)

APPENDIX V

LOG ANALYSIS OF HINDHAUGH CREEK NO. 1

by

Keith Millheim

The following logs were run on Hindhaugh Creek No. 1:-

Induction-Electric
Gamma - Caliper Density
Caliper - BHC Sonic
Continuous Dipmeter

Log analysis of Hindhaugh Creek No. 1 is complicated by the irregularity of the well bore. Contrary to normal behaviour, all the indicated sands in this well were washed out. However, it was later determined that these sands were not washed out, but eroded as the fresh water filtrate broke down the clays that were binding the sand grains. This caused progressive erosion of the sand and prevented a filter cake build-up. Deep invasion should have occurred in most of the sandstone intervals without a filter cake build-up.

Porosities could be obtained from the BHC Sonic and the Formation Density Logs. However, the density is less effected by the bore hole irregularities than the sonic. This can be seen on the sonic log where the transit time exceeds the normal porosity range (0-30%) of sandstones. Transit times greater than 90 microseconds per foot occur in a number of places that are associated with the sands and with the bore hole irregularity. For this reason, the density log was used for calculating porosities.

To determine the porosity, Schlumberger Log Interpretation charts were used.

Assuming fresh water (13000 ppm or less) and a sandstone matrix density of 2.65, bulk densities were picked from the logs and the bore hole corrections were applied when applicable.

Depth	Bulk Density gms/cc	Density Correction gms/cc	Porosity	Core Plug Porosity
4,171	2.47	Nil	11%	
4,166	2.50	Nil	9%	
4,161	2.47	Nil	11%	
4,147	2.30	.20	9%	23.0%
4,144	2.60	Nil	3%	
4,123	2.36	Nil	18%	
3,800	2.50	+ .10	3%	
3,796	2.27	+ .10	17%	
3,795	2.05	+ .15	26%	
3,792	2.34	+ .05	16%	
3,786	2.47	+ .05	8%	
3,782	2.35	+ .02	18%	23.5%
3,776	2.53	+ .07	3%	
3,772	2.52	Nil	8%	
2,370	2.47	Not applicable	11%	
2,356	2.53	Nil	7%	
2,350	2.38	+ .05	13%	
2,347	2.46	+ .04	9%	
2,329	2.52	Nil	8%	26.9%
2,258	2.37(est)	+ .10	11%	
2,247	2.32	+ .20	8%	
2,235	2.50	+ .05	6%	16.9%
1,191	2.20	Nil	27%	
1,189	2.27	Nil	23%	
1,186	2.40	Nil	15%	
1,181	2.45	+ .02	11%	
1,174	2.50	Nil	9%	

To calculate water saturations, water resistivities from the drill stem tests were used. The induction log (6FF40) was used to determine Rt. The porosities from the density log were used assuming a cementation factor of 2.0 to obtain the formation factor. Archies equation was then used to determine saturations for the various intervals that the D.S.T. were run.

$$Sw = \sqrt{\frac{RwF}{Rt}}$$

Rw formation resistivity at BHT
F formation factor
Rt Resistivity of non-invaded zone

Depth	Average Log Porosity	Formation Factor	Rt	Rw at BHT	Sw (water saturation)
4160-4170	11%	80	10	.27	139%
4145-4150	10%	100	15	.27	127%
3790-3780	18%	30	15	.29	76%
3780-3790	18%	30	8	.29	105%
3770-3780	11%	80	15	.29	124%
2340-2350	11%	80	17	.55	160%
2240-2250	11%	80	22	.55	141%
1180-1195	20%	25	15	2.60	216%

If the core porosities are used for the above intervals, the following water saturations are obtained:

Depth	Core Plug Porosity	Formation Factor	Rt	Rw at BHT	Sw (water saturation)
4145-4150	23%	20	15	.27	56.27%
3780-3790	23.4%	20	8	.27	77%
2325-2335	27%	18	18	.55	74%
2230-2240	17%	30	27	.55	77%

Water saturations obtained from calculations based on the density porosities seem entirely too high. The water resistivity should be fairly accurate since it was measured from fluids recovered on the D.S.T. Values of Rt should be representative since the 6FF40 sonde is not effected by the large wellbore and has a large radius of investigation. Therefore, the porosity values obtained from the density log must be too low. This can be explained in part by the density sonde behaviour. The density tool has a two-arm caliper and usually these arms will track in the larger part of the wellbore. The wellbore in Hindhaugh Creek No. 1 was elliptical in shape (refer to dip meter results). This would explain some of the corrections that might not be correct, such as at 4,147 feet, 3,800 feet and 2,247 feet. However, porosity values at 2,329-2,370 feet which range from 8% to 13% by log analysis and 27% at 2,329 feet by core analysis cannot be attributed to the density log. In this case, the lithology seems to indicate a series of layered porous sands and sandstones interbedded, resulting in an overall porosity below 13%. This can be seen by the other two core plugs that are tight siltstones.

Assuming the porosities of the core plugs are representative, the interval at 4,145-4,150' calculates 56% water saturation. Analysis of the fluids from the D.S.T. by the C.S.I.R.O. indicates a small percentage of paraffinic crude oil that was recovered from the test at 4,146-4,175' (.5 millilitres recovered from 500 millilitres). This zone could contain hydrocarbons, but has a low permeability (less than 1 millidarcy) and would not be commercially productive. Log calculations of the other intervals indicate high water saturations of 74% or greater. Therefore, the only hydrocarbons would be residual and non-commercial. In a higher structural position these sands could be potential.

Keith Millheim

January, 1970.

A P P E N D I X VI

DETAILS OF DRILL STEM TESTING

PURSUIT OIL N.L. HINDHAUGH CREEK NO. 1

Summary of Drill Stem Tests

Two conventional and eight Halliburton RTTS Hook Wall tests were run. A Halliburton Formation Testing Service Report giving full details of tests and pressure charts for each test is enclosed with this report (Enclosure 3).

D.S.T. No. 1. 1,485-1,511' Otway Group

Tool opened 9 minutes first flow. Shut in 18 minutes first shut in. Re-opened for 30 minutes second flow with weak air blow. Shut in for 31 minutes second shut in.

Recovered: 15 feet mud.

Pressures		Top Recorder (1,470')	Bottom Recorder (1,507')
	IHP	741 psi	763 psi
1st	IFP	7	29
	FFP	10	30
	SIP	630	652
2nd	IFP	17	45
	FFP	36	57
	SIP	630	654
	FHP	717	744

D.S.T. No. 2. 5,072-5,132' Otway Group

Opened tool for 11 minutes first flow. Very weak air blow. Shut in tool for 32 minutes first shut in. Re-opened tool for 30 minutes second flow. No final shut in.

Recovered: 45 feet of drilling mud.

Pressures		Top Recorder (5,021')	Bottom Recorder (5,029')
	IHP	2,712 psi	2,755 psi
1st	IFP	40	87
	FFP	43	90
	SIP	62	107
2nd	IFP	49	101
	FFP	48	94
	SIP	-	-
	FHP	2,700	2,745

D.S.T. No. 3. Perforations 4,144-4,152' & 4,162-4,165' Otway Group

Tool opened 73 minutes. Fair blow decreasing to weak blow after 60 minutes, dead after 73 minutes. Tool shut in 73 minutes.

Recovered: 60 feet mud. Tool plugged with sand.

Pressures	Top Recorder (4,125')	Bottom Recorder (4,144')
IHP	1948 psi	1961 psi
IFP	59	74
FFP	43	58
SIP	772	786
FHP	1922	1946

D.S.T. No. 4. Perforations 4,144-4,152' & 4,162-4,165' Otway Group

Tool open 120 minutes. Shut in 120 minutes.

Recovered: 170 feet verly slightly oil cut mud.
160 feet muddy acid water.

Pressures	Top Recorder (4,125')	Bottom Recorder (4,144')
IHP	1924 psi	1936 psi
IFP	55	65
FFP	161	175
SIP	1122	1139
FHP	1916	1934

D.S.T. No. 5. Perforations 3,770-3,800' Otway Group

Tool opened 8 hours 37 minutes. Weak to fair blow throughout. Tool closed 102 minutes.

Recovered: 760 feet gas cut mud and muddy salt water.
1,170 feet heavily gas cut salt water.
(13,000 ppm salinity, Rw 0.42 at 79°)

D.S.T. No. 5 (cont'd)

Pressures	Top Recorder (3,730')	Bottom Recorder (3,751')
IHP	1745 psi	1764 psi
IFP	109	97
FFP	963	967
SIP	1360	1371
FHP	1732	1748

D.S.T. No. 6. Perforations 2,328-2,335.5' ; 2,345-2,360' ; 2,366-2,373.5' Otway Group

Tool opened for 30 minutes. Strong blow decreasing to very weak blow, dead after 30 minutes. Tool shut in 1 hour.

Recovered: 2,120 feet mud. Misrun. Cement had not set.

Pressures	Top Recorder (2,294')	Bottom Recorder (2,315')
IHP	1078 psi	1093 psi
IFP	1004	1016
FFP	1061	1074
SIP	1066	1078
FHP	1084	1094

D.S.T. No. 7. Perforations 2,328-2,335.5' ; 2,345-2,360' ; 2,366-2,373.5' Otway Group.

Tool opened for 3 hours. Strong initial blow decreasing to weak by end of test. Ignitable gas to surface in 2 hours 35 minuts. Amount too small to measure. Tool shut in 3 hours.

Recovered: 1,100 feet mud to muddy gas cut salt water.
1,110 feet gas cut salt water.
(6,000 ppm salinity; Rw 0.88 at 80^{o}F)

Pressures	Top Recorder (2,294')	Bottom Recorder (2,315')
IHP	1082 psi	1088 psi
IFP	92	194
FFP	976	984
SIP	987	999
FHP	1068	1077

D.S.T. No. 8. Perforations 2,239-2,259'. Otway Group

Tool opened for 25 minutes. Strong initial blow, dead after 25 minutes. Tool shut in 1 hour.

Recovered: 25 feet mud. Misrun. Tool plugged.

Pressures	Top Recorder (2,226')	Bottom Recorder (2,245')
IHP	1049 psi	1054 psi
IFP	55	297
FFP	112	957
SIP	961	970
FHP	1027	1036

D.S.T. No. 9. Perforations 2,239-2,259'. Otway Group

Tool opened 1 hour. Good initial blow, decreasing to weak blow at end of test. Tool shut in for 70 minutes.

Recovered: 1,170 feet slightly gas cut mud to muddy salt water.
1,000 feet salt water.
(7,000 ppm salinity, Rw 0.86 at 75^{o})

Pressures	Top Recorder (2,226')	Bottom Recorder (2,245')
IHP	1048 psi	1054 psi
IFP	75	83
FFP	940	948
SIP	943	951
FHP	1042	1049

D.S.T. No. 10. Perforations 1,167-1,192'. Otway Group

Tool open 61 minutes. Strong initial blow decreasing to weak blow at end of test. Very small amount of gas to surface, ignitable, rate to small to measure. Tool shut in 1 hour.

Recovered: 580 feet mud cut fresh water.
560 feet slightly gas cut fresh water.
(2,000 ppm salinity, Rw 2.55 at 75^{o})

D.S.T. No. 10 (cont'd)

Pressures	Top Recorder (1,155')	Bottom Recorder (1,174')
IHP	535	548
IFP	96	110
FFP	477	491
SIP	477	491
FHP	532	545

Appendix VII
Geochemistry and Well Data

(Added by DNRE 26/07/00)

Petroleum Technology Laboratory, Bureau of Mineral Resources, Geology and Geophysics, Canberra

CORE ANALYSIS RESULTS

NOTE: (i) Unless otherwise stated, porosities and permeabilities were determined on two plugs (V&H) cut vertically and horizontally to the axis of the core. Ruska porosimeter and permeameter were used with air and dry nitrogen as the saturating and flowing media respectively. (ii) Oil and water saturations were determined using Soxhlet type apparatus. (iii) Acetone test precipitates are recorded as Neg., Trace, Fair, Strong or Very Strong.

WELL NAME AND NO. Hindhaugh Creek No. 1

DATE ANALYSIS COMPLETED October 22, 1970

Core No.	Sample Depth		Lithology	Average Effective Porosity two plugs (% Bulk Vol.	Absolute Permeability (Millidarcy)		Average Density (gm/cc.)		Fluid Saturation (% pore space)		Core Water Salinity (p.p.m. NaCl)	Acetone Test	Fluorescence of freshly broken core	
	From	To			V	H	Dry Bulk	Apparent Grain	Water	Oil				
1	1263'0"	1263'5"	Slst;calc carb arg.	8.1	nil	nil	2.50	2.72	62	nil	n.d.	neg.	dull even yell. spotted	
2	3670'0"	3670'5"	Sst;v.f.gr slty.carb	1.7	nil	nil	2.58	2.62	100	nil	n.d.	neg.	nil	
3	7780'0"	7780'7"	Sh;slty	1.1	nil	nil	2.67	2.70	100	nil	n.d.	neg.	nil	

Remarks: -

General File No. 69/1414
Well File No. 69/2026

The Shell Company of Australia Ltd.

A.C.N. 004 610 459

UPSTREAM OIL
AND NATURAL GAS

1 SPRING STREET, MELBOURNE 3001
VICTORIA, AUSTRALIA

DATA TRANSFER

To DEPARTMENT OF ENERGY AND MINERALS Date 12/4/94

Address 7th Floor 176 WELLINGTON PDE EAST MELB VIC 3002

ATTN: KEN WILSON

For Shell MAX DI-PAOLO

DESCRIPTION OF DATA

ITEM

VIC/P28

Please find enclosed remnants of samples used for Geochemical studies for the following wells:

Wild Dog - 1
Snail - 1
Nerita - 1
Hindhaugh Creek - 1
Anglesea - 1

Received by: [signature] Date: 15/4/94

PLEASE ACKNOWLEDGE RECEIPT BY SIGNING AND RETURNING THE ENCLOSED COPY

Hindhaugh Creek - 1

Core 1	1 261'	2No.
Cuttings	345' -	375'
	490' -	500'
	820' -	830'
	910' -	920'
	3 620' -	3 630'
	6 320' -	6 330'
	7 340' -	7 350'

5459-96

6'41.1"S
11'58"E
232' DATUM: 244' STATUS: P & A
Otway TOTAL DEPTH: 7798' OPERATOR: Pursuit
E: 21/ 8/69 COMPLN DATE: 10/11/69 PARTNERS: James Say
: Stratigraphic test, gravity structure LEASE: Vic PEP 68
SOURCE: Well Completion Report DRILLER: Richter RIG: Brewster N4

WELL NAME: Hindhaugh Creek 1

ORMATION DATA: [Pyecroft & Millheim 1970]

		Top RKB	Subsea	Thickness
Recent to Pliocene		Surface	232'	27'
Miocene to Oligocene Torquay Gp	Puebla Fm	40'	+ 205'	130'
Oligocene to Eocene Jan Juc Gp	Demons Bluff Fm	170'	+ 75'	190'
Palaeocene Knight Gp	Eastern View Coal Measures	360'	- 115'	20'
Early Cretaceous Otway Gp		380'	- 135'	7401' +
	Total Depth	7798'	-7553'	

SEISMIC HORIZONS:

ENGINEERING DATA: HOLE AND CASING DATA: 17 1/2" hole to 750', 13 3/8" 48# H40 Range 2 casing to 745', cemented to surface with 403 sacks of class A followed by 110 sacks class A + 2% CaCl2. 8 3/4" hole to 4280', reamed to 12 1/4" hole, 9 5/8" 36# J 55 Range 2 casing to 4262', cemented to with 230 sacks class A + 2% CaCl2 and 50 sacks class A neat. 8 1/2" hole to 7781' TD.

ENGINEERING DATA: DRILL STEM TESTS:

1	1481' - 1511'	9-18-30-31	7- 630-	36- 630	Tight; rec 15' mud
2	5071' - 5131'	11-32-30-	40- 62-	48-	Tight; rec 45' mud
3	4144' - 4175'	73-73		59- 59	Tight; rec 60' mud
4	4144' - 4175'	120-120		55-1122	Tight; rec 170' V Sl OC mud
5	3770' - 3800'	517-102		109-1360	Rec 1930' GCMSW
6	2327' - 2374'	30- 60		Misrun	Rec 2120' mud
7	2328' - 2374'	180-180		92- 987	GTS in 155 mins @ RTSTM Rec 2210' Muddy GC SW
8	2239' - 2259'	25- 60		55- 961	Misrun - rec 25' mud
9	2239' - 2259'	60- 70		75- 943	Rec 2270' Sl GC MSW
10	1167' - 1192'	61- 60		96- 477	GTS @ RTSTM Rec 1140' GCFW

ENGINEERING DATA: The following intervals of 9 5/8" casing were perforated with 4 shots per foot, using 3/8" shaped charges: 4144' - 4175', 3770' - 3800', 2414', 2327' - 2374', 2328' - 2374', 2239' - 2259' and 1167' - 1192'. Bridge plugs [Baker] were subsequently set at 4230', 3845', 2414', and 2280'. A 50 sack plug was set from 1190' to 1070', and a surface plug of 70 sacks [200' to surface] was run.

WIRELINE LOG DATA: [Schlumberger]

IE	745' - 7798'	FDC-GR-Cal	745' - 7798'
CDM	745' - 7798'	CBL	3150' - 4200'
BHCS-GR-Cal	745' - 7798'		

DIGITAL LOGS: [Wiltshire 1985]

SP	737.5' - 7822.5'	Induction	754.0' - 7800.0'
Gamma Ray	17.0' - 7795.0'	Sonic	749.5' - 7813.0'

MUD PROPERTIES: at 4528': Type: FW Gel/Lignos SG: 1.24 Vis: 37 pH: 10.5 WL: 9.5
Rm: 3.61 @ 56 deg F Rmf: 2.81 @ 60 deg F Rmc: 3.92 @ 60 deg F
at 7798': Type: FW Gel/Lignos SG: 1.21 Vis: 48 pH: 9.7 WL: 9.0
Rm: 2.59 @ 72 deg F Rmf: 2.31 @ 63 deg F Rmc: 2.11 @ 63 deg F

SIDEWALL CORE POINTS:

917'	1098'	1191'	1303'	1461'	1500'	1759'	
2234'	2329'	2346'	2350'	2700'	3000'	3565'	3569'
3571'	3607'	3782'	3790'	3793'	3795'	3809'	3821'
4147'	4159'	4172'	4440'	4502'	4510'	4941'	5086'
5155'	5175'	5237'	5270'	5539'	5547'	5829'	5833'
6091'	7097'						

DATA: # 1 1257′ - 1264′ Rec 7.0′ # 2 3659′ - 3673′ Rec 12.5′
3 7776′ - 7781′ 0.5′

S: at 4528′ : 150 deg F on log run # 1
5100′ : 186 deg F on DST # 2
6100′ : 226 deg F on ?
7798′ : 234 deg F on log run # 2

ALYNOLOGY: [Douglas]
1258′ - 1274′ : [Core 1] - Lower Cretaceous

HYDROCARBON SHOWS: [Warris, Pyecroft, Millheim]
Minor methane associated with coals and carbonaceous mudstones in Otway Gp.
Slight OCM recovered from DST # 4 [4144′ - 4175′] and heavily gas cut salt water from DST # 5 [3770′ - 3800′]
Scattered fluorescence in SWCs from 3821′, 4941′ and 7097′

SOURCE POTENTIAL: No data in WCR. Coal LOM studies by CSIRO suggest that all of Otway Group is post-mature for oil and gas.

RESERVOIR DATA: [CORE Lab]

1257′ :	Por 6.7% K 0.1 md	4941′ :	Por 26.1% K 63 md
5539′ :	26.6% 1160 md	7097′ :	21.9% 5.7 md

[Log Interpretation - Millheim]

1174′ - 1191′	Por 9% to 27%	1195′ - 2340′	Por 11% to 20%
2235′ - 2258′	6% to 11%	2329′ - 2370′	7% to 13%
3780′ - 3790′	11% to 18%	4123′ - 4171′	3% to 18%
4145′ - 4160′	10%		

WATER ANALYSES: [Brooks, CSIRO, Sydney]

DST No.	Interval	pH	Rw @ 68 deg F.	NaCl ppm	Ext HCs	Sat. HCs
3	4144′ - 4175′	7.5	2.45	1500	0.11%	0.02%
4	4144′ - 4175′	6.0	0.23	36300	0.06%	0.02%
5	3770′ - 3800′	6.5	0.48	12200	nd	nd
7	2328′ - 2374′	12.0	0.82	6600	0.014%	0.001%
9	2239′ - 2259′	12.0	0.76	8200	0.01%	0.001%

VELOCITY SURVEY: [United Geophysical]

0.0535 secs OWT	to 505′	0.0810 secs OWT	to 755′
0.0995	955′	0.1425	1455′
0.182	1955′	0.2175	2455′
0.2540	2955′	0.288	3455′
0.3255	3955′	0.3605	4455′
0.3955	4955′	0.4205	5455′
0.4645	5955′	0.4985	6455′
0.5305	6955′	0.5630	7455′

REMARKS:

Located in the Torquay Embayment, approximately 9 miles north of Anglesea. Target was a hypothetical basement high overlain by low density sediments [considered to be equivalents of the Pretty Hill Sandstone] - mapped by gravity.

Basement was proven to be much deeper than thought, with no Pretty Hills Sandstone equivalent found.

The sequence appears post-mature for oil.

WELLSITE GEOLOGIST: Mike Wiltshire and Bevan Warris

CARD BY: Wiltshire Geological Services

ENCLOSURES

PE602884

This is an enclosure indicator page.
The enclosure PE602884 is enclosed within the container PE907690 at this location in this document.

The enclosure PE602884 has the folllowing characteristics:

ITEM_BARCODE	= PE602884
CONTAINER_BARCODE	= PE907690
NAME	= Composite Well Log (sheet 1 of 3)
BASIN	=
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log, sheet 1 of 3, 0-2000', scale 1"=100', (Enclosure from WCR), by Pursuit Oil NL, for Hindhaugh Creek-1
REMARKS	=
DATE_CREATED	= 10/11/1969
DATE_RECEIVED	=
WELL_NO	= W562
WELL_NAME	= HINDHAUGH CREEK-1
CONTRACTOR	=
CLIENT_OP_CO	= PURSUIT OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE602885

This is an enclosure indicator page.
The enclosure PE602885 is enclosed within the container PE907690 at this location in this document.

The enclosure PE602885 has the folllowing characteristics:

ITEM_BARCODE	= PE602885
CONTAINER_BARCODE	= PE907690
NAME	= Composite Well Log (sheet 2 of 3)
BASIN	=
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log, sheet 2 of 3, 2000-5000', scale 1"=100', (Enclosure from WCR), by Pursuit Oil NL, for Hindhaugh Creek-1
REMARKS	=
DATE_CREATED	= 10/11/1969
DATE_RECEIVED	=
WELL_NO	= W562
WELL_NAME	= HINDHAUGH CREEK-1
CONTRACTOR	=
CLIENT_OP_CO	= PURSUIT OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE602886

This is an enclosure indicator page.
The enclosure PE602886 is enclosed within the container PE907690 at this location in this document.

The enclosure PE602886 has the folllowing characteristics:

ITEM_BARCODE	= PE602886
CONTAINER_BARCODE	= PE907690
NAME	= Composite Well Log (sheet 3 of 3)
BASIN	=
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log, sheet 3 of 3, 5000-7781', scale 1"=100', (Enclosure from WCR), by Pursuit Oil NL, for Hindhaugh Creek-1
REMARKS	=
DATE_CREATED	= 10/11/1969
DATE_RECEIVED	=
WELL_NO	= W562
WELL_NAME	= HINDHAUGH CREEK-1
CONTRACTOR	=
CLIENT_OP_CO	= PURSUIT OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE907703

This is an enclosure indicator page.
The enclosure PE907703 is enclosed within the container PE907690 at this location in this document.

The enclosure PE907703 has the folllowing characteristics:

ITEM_BARCODE	= PE907703
CONTAINER_BARCODE	= PE907690
NAME	= Well History Chart
BASIN	=
PERMIT	=
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Well History Chart, Depth/Time, (Enclosure from WCR), by Pursuit Oil NL, for Hindhaugh Creek-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
WELL_NO	= W562
WELL_NAME	= HINDHAUGH CREEK-1
CONTRACTOR	=
CLIENT_OP_CO	= PURSUIT OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)