ANGLESEA - 1A

Well Elementary Data

W468

WELL ANGLESEA No1 TYPE. N.F.W. BASIN Port Phillip

TEN. HOLDER ~~Alliance~~ Oil Development N.L.® lat. 38°24'26"S 38°24'. Ph. Jan Juc.

OPERATOR ~~A.O.D.~~ Oil Development NL. LOCATION. Long. 144°11'53"E 144°12'30"E

TENEMENT P.P.L. 256 Military Map. Anglesea 1 Mile Military

ELEVATION 65.06 GL. 78.06 KB (Datum) T.O. 10,065 - Driller STATUS. D&A.

SPUD. 23 May 1962 COMPL. Drilling 7 Nov. 1962 ABD. 9 Nov. 1962

CASING 18 5/8" @ 30' C to S. (50sx) 13 3/8" @ 389 C to S. (350sx) 9 5/8" @ 2295 (350sx) C to. 1290 Contractor Reading & Bates.

912458 002

STRATIGRAPHY.

AGE	FORMATION	DEPTH		THICKNESS
Oligocene - Eocene.	Demons Bluff Fm. Anglesea Mmb.	0	+78	390
Eocene	Eastern View Coal Ms.	390.	-312	1542
L. Cret - Jur.	Otway Group.	1932	-1854.	8133+

Dellenbach 1965. -

Demon's Bluff Fm. (Anglesea Mmb) 0'-370'
Eastern View Coal Ms. 370'-1816'
Proposed unit "H" 1816'-1921'
Otway Group 1921'-10065'
(2 Otway Subunits
"H1" 1921'-5710'
"H2" 5710'-10065')

② Name changed after this well drilled to Alliance Oil Development Australia N.L. (1-1-63)

FORMATION TESTS.

D.S.T. 1. 2220 - 2296 Packer failed

D.S.T. 2. 7683 - 7738.

D.S.T. 3. 7688 - 7738 " "

D.S.T. 4. 7672 - 7738 " "

LOG SUMMARY and INTERPRETATION

Type	Run	Interval	Date	Type	Run	Interval	Date	Interval	φ	Sw
E-Log	1	2289 - 390	6 Jun. '62	Microlog	1	2287 - 390	6 Jun '62			
	2	4233 - 2298	28 " "	"	2	4233 - 2298	28 Jun 62			
	3	6313 - 4050	20 Jul. 62	"	3	6313 - 4150	20 Jul "			
	4	7893 - 6200	29 Aug "	"	4	7893 - 6200	29 Aug "			
	5	8954 - 7700	16 Oct "	"	5	8954 - 7700	16 Oct "			
	6	10040 - 8834	8 Nov. "	"	6	10028 - 8700	8 Nov. "			
				+(Sol.)n.						
C.D.M.	1	9000 - 4800	29 Aug 62							
		6300 - 5750	" "							
		7886 - 6602								

~~Alliance~~ Oil Development N.L.
ANGLESEA No 1
①

Ref. Dellenbach J. 1965. A Petrological Examination of Sediments from O.D.N.L. Anglesea No 1 Well, Otway Basin, Victoria.
B.M.R. Records. No. 1965/166.

CORES

No	Interval	Rec	No	Interval	Rec	No	Interval	Rec	No	Interval	Rec.
1	490-510	8'0"	16	4011-4021	10'6"	31	9156-9176	19'0"	S.W.	5206	
2	789-809	4'3"	17	4223-4234	11'0"	32	9641-9656	2'7"		5207	
3	1090-1110	5'7"	18	4517-4527	9'0"	33	10045-10065	20'0"		5208	
4	1214-1234	3'10"	19	4819-4829	5'6"					5209	
5	1506-1526	10'0"	20	5161-5171	9'0"	S.W.	3771			5210	
6	1778-1798	11'0"	21	5487-5497	6'0"		3772			5211	
7	1931-1951	19'0"	22	5766-5776	7'0"		3773			5212	
8	2225-2245	20'0"	23	6237-6247	9'0"		3774				
9	2286-2296	9'0"	24	6723-6727	3'0"		5196				
10	2557-2567	10'0"	25	6759-6773	10'0"		5198				
11	2860-2870	10'0"	26	7255-7265	9'6"		5199				
12	3158-3168	5'0"	27	7544-7550	6'0"		5201				
13	3460-3470	7'0"	28	7857-7867	9'0"		5203				
14	3724-3734	2'0"	29	8190-8200	8'0"		5204				
15	3734-3744	N.I.	30	8690-8707	17'0"		5205				

CHEMICAL ANALYSES (OIL, WATER, GAS)

Mines Dept. analysis of drill cuttings 4200-4210

"It would appear that traces of petroleum [illegible] are present in the cuttings examined".

912458 003

GENERAL (Conclusions, structure, abandonment programme, etc)

Drilling of anglesea 1 has shown original seismic estimate of 4500' to top of otway sandstones, due to multiple reflections. Expected L. Cretaceous absent but may be present seawards dip as indicated by cores and C.D.M. is 20°-25° south. However at 8690'-8707' - Core 30. dip was 70° indicating a fault or its close proximity. Dip in succeeding cores range 35°-45°.

Possible porous beds along the unconformity of otway & presumed L. Palaeozoic basement was not reached, however if they exist they may be intersected at a shallower depth further to the north and northeast towards the margin of the L. Cretaceous basin, since anglesea 1 was selected in an area where the maximum thickness of sediments could be expected in PPL 256

Temp. Survey No continuous survey run but bottom hole temps recorded by Schlumberger Seaco. Inc. during logging operations are. 107°F at 2287'; 140°F. at 4233'; 152°F at 6313'; 168°F at 7894'; 186°F at 8954'; 240°F at 10,028'; The sharp increase in temp between 8954 and 10028 suggests T.D. was probably not far above basement.

Plugging
1. 7550 - 7450 - 50sx
2. 4900 - 4800 - 50sx
3. 2350 - 2250 - 50sx
4. 12' - Surface - 5sx

A.O.D. - Westralian - Planet Terms

Under original agreement Westralian Oil Ltd holds 20%, A.O.D. holds [redacted] 60%. Planet earned 20% interest by meeting 25% of well costs

BEST GAS SHOWS (?):
463 - 1509
1524 - 1567
1198 - 1207
2639 - 2679

STATE OF VICTORIA

DEPARTMENT OF MINERALS & ENERGY, OIL AND GAS DIVISION

912458 004

WELL SHEET

1. WELL NAME/OP/RIG: ANGLESEA - 1 / ODNL (ALLIANCE OIL DEVELOPMENT) / RGB
2. BASIN/GRATICULE: OTWAY / TORQUAY EMBAYMENT
3. PERMIT: PETROLEUM PROSPECTING LICENCE No. 256
4. CLASSIFICATION: STRATIGRAPHIC TEST
5. STATUS/CERTIFICATION: DRY, PLUGGED AND ABANDONED; SUITABLE FOR SUBSEQUENT REENTRY.
6. SPUD DATE: 23.05.62
7. T.D. DATE: 07.11.62 TOTAL DEPTH (LOG): 3067.8 M HOLE TVDSS:
8. RIG RELEASE DATE: 09.11.62
9. K.B. 23.8
10. G.L. 19.8
11. WATER DEPTH: —
12. TOPHOLE SOUTHERLY: 38° 24' 26" TOPHOLE EASTERLY: 144° 11' 53"
13. BOTTOMHOLE SOUTHERLY: — BOTTOMHOLE EASTERLY: —
14. AVERAGE DEVIATION: ± 4° NET DRIFT (AZIMUTH):
15. OBJECTIVES: 1) MARINE WEDGE UNCONFORMABLY ABOVE OTWAY GROUP
16. 2) COARSE FLUVIAL ARENITES AT BASE OF OTWAY GROUP 3) INTRA OTWAY.
17. PERFORATED INTERVALS, SS: NONE
18.
19. SHOW TYPES & INTERVALS, MDKB: "SOME QUESTIONABLE TRACES OF CRUDE OIL (?)" (SPOTTY CORE FLUORESCENCE (RESIDUAL?) THROUGHOUT OTWAY GROUP.
20. UPPER OTWAY GROUP), WITH HYDROCARBON GAS BELOW 1097M TO T.D.*
CHECK OUT * CORE SAMPLE AT 460 m (E5) CUT AMBER POSSIBLY FROM LIGNITE.
21. CUTTINGS SAMPLE INTERVALS, MDKB: 9 - 3067
22. LOGS RUN, LDKB: CAL, DLL - SP, MSFL (118.9 - 3056.0); HDT (1463.0 - 2403.5)
JN GAS DETECTOR (853.4 - 3056.0); GEOLOGRAPH (9.1 - 3056.0)
23. RFT/DST RECOVERIES (INTERVALS), LDKB: NONE DUE TO PACKER FAILURES IN RUGOSE HOLE.
24. FSIP (DEPTH, TVDSS):
33 X CORES WITH 21% - 100% RECOVERY (49.3 - 3067.5)
25. INTERVAL CORES RECOVERED, MDKB:
26. N/A RW at °C at Metre, LDKB RESERVOIR NAME
27. N/A RW at °C at Metre, LDKB RESERVOIR NAME
28. CONDUCTOR CASING ml(") to M. -Hole Size (Metric) (Imperial)
29. SURFACE CASING ml(18-7/8") to 9.1 M. -Hole Size
30. INTERMEDIATE CASING ml(13-3/8") to 18.6 M. -Hole Size
31. LINER/FINAL CASING ml(9-5/8") from M. to 699.5 M.
32. NOTE: ALL LINEAR MEASUREMENTS REPORTED IN METRIC UNLESS OTHERWISE SPECIFIED.

* LATE - MIDDLE - EARLY

912458 005

GEOLOGY: ANGLESEA NO. 1

FM./Key Bed	AGE *	KEY	LITH	LOG TOP,KB	SMPL TOP,KB	VDME TOP,SS	TVD,SS	TVT
ANGLESEA MBR. DEMON'S BLUFF EQ.	L. EO - E. OL		CLY & LS SD.	0				119+
EASTERN VIEW COAL MEASURES	PA - E. EO		CONGL, CLY, LIGNITE	118.9				470+
OTWAY GROUP	E. CRET.		ARKOSE, SLTST & MUDST.	588.8				2,479+

RESERVOIRS:

OIL/GAS PAY ZONES	DEPTH INT,SS	RECD %	TOP SEAL THICK,TVT	BTM SEAL THICK,TVT

* "AEROMAGNETIC SURVEY SUGGESTS THAT TARGET PETROLIFEROUS (?) WEDGE SEDIMENTS MAY BE PRESENT IN THE OFFSHORE ARE TO THE SOUTHEAST OF THE ANGLESEA "TROUGH".

COMMENTS: LOCATION DESIGNED FOR OFF-STRUCTURE, STRATIGRAPHIC TEST IN SW CORNER OF PPL 256, WHERE SEISMIC INDICATED THAT SEDIMENTARY SECTION ABOVE THE LOWER PALEOZOIC BASEMENT COULD BE THICKEST. OWING TO 20-25° DIPS (SOUTH) IN HARD BEDS OF OTWAY GROUP BELOW 618 m, IT WAS DIFFICULT TO KEEP STRAIGHT HOLE. THE SHARP INCREASE IN TEMPERATURE BETWEEN 2729 m AND 3057 m INDICATES PROXIMITY TO BASEMENT, ALTHOUGH A BASAL CONGLOMERATE WAS NOT ATTAINED AS PER TARGET PLAN. FURTHERMORE

* IT APPEARS LIKELY THAT SHOWS WERE NOT PROPERLY EVALUATED AND THAT AN OFFSET WELL SHOULD BE DRILLED ON STRUCTURE (?) TO BASEMENT WITH A PROPER MUD PROGRAMME TO WITHSTAND CAVING HOLE CONDITIONS AND TO ALLOW FOR COMPLETE AND ACCURATE HYDROCARBON EVALUATION VIA MODERN MUDLOGGING, ELECTRIC LOGGING, AND DRILLSTEM TESTING. "IT WAS HOPED THAT A WEDGE * (STRATIGRAPHIC PLAY ONLY?) OF THE MARINE MIDDLE AND UPPER CRETACEOUS SEDIMENTS WHICH YIELDED PETROLIFEROUS GAS IN THE ADJOINING OTWAY BASIN WOULD BE PRESENT AT THIS LOCATION, BELOW THE EASTERN VIEW COAL MEASURES AND RESTING UNCONFORMABLY ON THE OTWAY GROUP. HOWEVER, AS THIS PRIMARY TARGET PROVED TO BE ABSENT, THE SECONDARY OBJECTIVE OF SEEKING ϕ WITHIN OR AT THE BASE OF THE OTWAY GROUP WAS PURSUED TO THE MAXIMUM OF THE CAPACITY OF THE AVAILABLE EQUIPMENT." (COMPLETION REPORT, PAGE 5.)

NEEDS FURTHER RESEARCH

BASIN STUDIES SECTION - DEEP WELL SUMMARY SHEET - DIP & E WELL

Jan Juc 8241

WELL NAME: ANGLESEA 1 BASIN:

STATUS: RIG: CONSEC. No.:

DATE: Commenced Completed 6. 6. 62 TOTAL DEPTH: 3062

ELEVATION (G.L.) 19.8 LOCATION: A.M.G. sheet

PARISH No N 38 24 20 E. 144 11 52

ENGINEERING DATA: (casing, plugs, completion details) ODE. SA Oil Wells.

17" casing to 118
12 1/2 to 699
8 1/4 to 3062.

912458 006

GEOPHYSICAL LOGS: Logged by SCHLUMBERGER. B.H.T.

Microlog 3 runs to 1923
Dipmeter
Electric

66.6 at 1923
75.5 at 2403
115°C at 3062

Core cuts 12 – 3068

CORES:	Conventional				Side Wall Cores			
	From (m)		Thick	Recov.	%	Depth (m)	Recov.	Depth	Recov.
1									
2	240	246							
3	332	338							
4	370	376							
5	459	465							
6	542	548							
7	588	594							
8	678	681							

DRpmr.

912458 007

GROUNDWATER DATA: (T.D.S., screened intervals, S.L., Drawdown, Yield).

STRATIGRAPHY: Formation		Depth(m)	FROM	TO	Comments
	Newer Basalt	CXNV			
	Whalers Bluff Fm	CQWB			
	Moorabool Viaduct Sds.	CXMO			
Heytesbury Group (CHH)	PortCambell Lst Fm	CHPC			
	Gellibrand Marl	CHGM			
	Clifton Fm.	COCL			
Nirranda Group (CON)	~~Narrawaturk Marl~~ Demons Bluff	CONM	0		
	Mepunga Fm	CEME			
Wangerrrip Group (CPW)	~~Dilwyn~~ Fm (Easter View)	~~CPDI~~	118·8		
	Older Volcanics	CEEV			
	Pember Mudstone	CPPM			
	Pebble Point Fm.	CPPP			
Sherbrook Group (MCS)	Paaratte Fm	MCPA			
	Timboon Sd (Skull Ck)	MCTS			
	Nullawaare Fm	MCNG			
	Belfast Mudstone	MCBM			
	Flaxmans Fm	MCFL			
	Waarre Snds Fm	MCWA			
Otway Group (MCOZ)	Eumeralla Fm	MCEU	585	3065	
	Pretty Hill Sds (GELTWOOD BEACH) MCGB	MCPH			
	Palaeozoic Mudstones	PSMV			

OTHER DATA: (Velocity survey, seismic line, gas/oil show, tests)

DATA SOURCE, REFERENCES, COMMENTS

Douglas UR 63/18

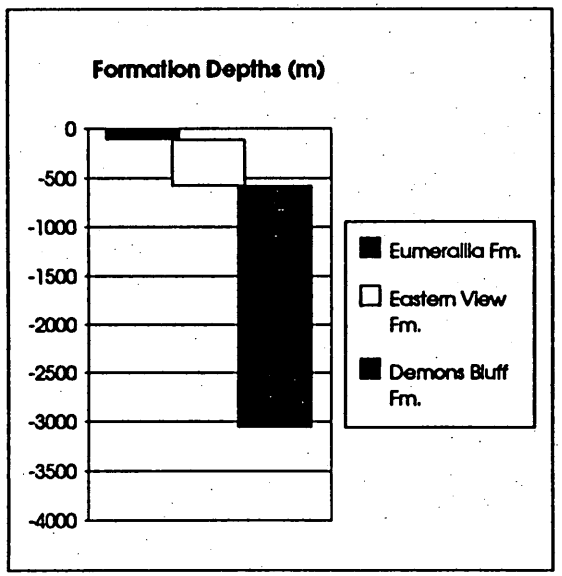
Dellenbach BMR Rec 1965/66

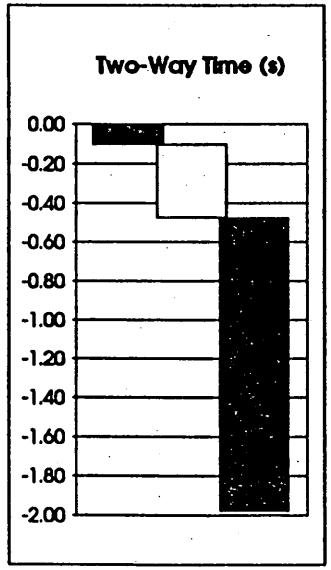
Dettmann 1965. for Prom Koka 1A C2 P1

OTWAY BASIN **ANGLESEA NO.1**

Strat. log by -	S. Tickell et al.(GSV) 1991		
Lat:	-38.407222	Long:	144.19806
KB Elev. (m ASL)	23.4	Grd. Elev.	19.8

Age	Unit	Remarks	Depth (m)	Thickness	Int. Vel. (m/s)	T-time (s)	2*T-time (s)	TWT Fm. top (s)
Eocen-Oligocene	Demons Bluff Fm.	Nirranda Gp.	-4	-114	2200	-0.05	-0.10	0.00
	Eastern View Fm.		-118	-466	2500	-0.19	-0.37	-0.10
E. Cret.	Eumeralla Fm.	Otway Gp.	-584	-2480	3300	-0.75	-1.50	-0.48
	TD		-3064					-1.98





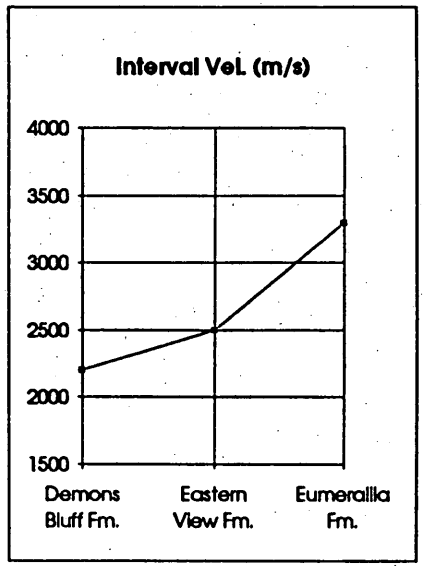


TABLE 2

Summary of Extraction and Liquid Chromatography

Wellname: ANGLESEA 1

Date of Job: FEBRUARY 1987

A. Concentrations of Extracted Material

Depth(ft)	Weight of Rock Extd. (grams)	Total Extract (ppm)	Loss on Column (ppm)	Hydrocarbons: Saturates (ppm)	Hydrocarbons: Aromatics (ppm)	Hydrocarbons: HC Total (ppm)	Nonhydrocarbons: NSO's (ppm)	Nonhydrocarbons: Asphaltenes (ppm)	Nonhydrocarbons: NonHC Total (ppm)
497.0 Core 1	8.9	11674.2	4568.5	679.2	1724.2	2403.4	4702.2	nd	4702.2
2565.0 Core 10	30.3	343.2	75.9	145.2	19.8	165.0	102.3	nd	102.3
6239.0 Core 23	73.1	243.5	43.8	53.4	52.0	105.3	94.4	nd	94.4

TABLE 2

Summary of Extraction and Liquid Chromatography

Wellname: ANGLESEA 1

Date of Job: FEBRUARY 1987

B. Compositional Data

Depth(ft)	Hydrocarbons: %SAT.	%AROM.	%HC's	Nonhydrocarbons: %NSO's	%ASPH.	%Non HC's	EOM(mg) TOC(g)	SAT(mg) TOC(g)	SAT AROM	ASPH NSO	HC Non HC
497.0 Core 1	9.6	24.3	33.8	66.2	nd	66.2	24.5	1.4	.39	nd	.5
2565.0 Core 10	54.3	7.4	61.7	38.3	nd	38.3	41.4	17.5	7.33	nd	1.6
6239.0 Core 23	26.7	26.0	52.7	47.3	nd	47.3	28.3	6.2	1.03	nd	1.1

na = not applicable nd = no data

TABLE 3

Summary of Gas Chromatography Data

Wellname: ANGLESEA 1

Date of Job:FEBRUARY 1987

A. Alkane Compositional Data

Depth(ft)	Prist./Phyt.	Prist./n-C17	Phyt./n-C18	CPI(1)	CPI(2)	(C21+C22)/(C28+C29)
497.0 Core 1	.86	.50	.68	3.17	3.99	.29
2565.0 Core 10	.99	.46	.58	1.46	1.74	4.88
6239.0 Core 23	.90	.63	.85	nd	nd	nd

TABLE 3

Summary of Gas Chromatography Data

Wellname: ANGLESEA 1

Date of Job:FEBRUARY 1987

B. n-Alkane Distributions

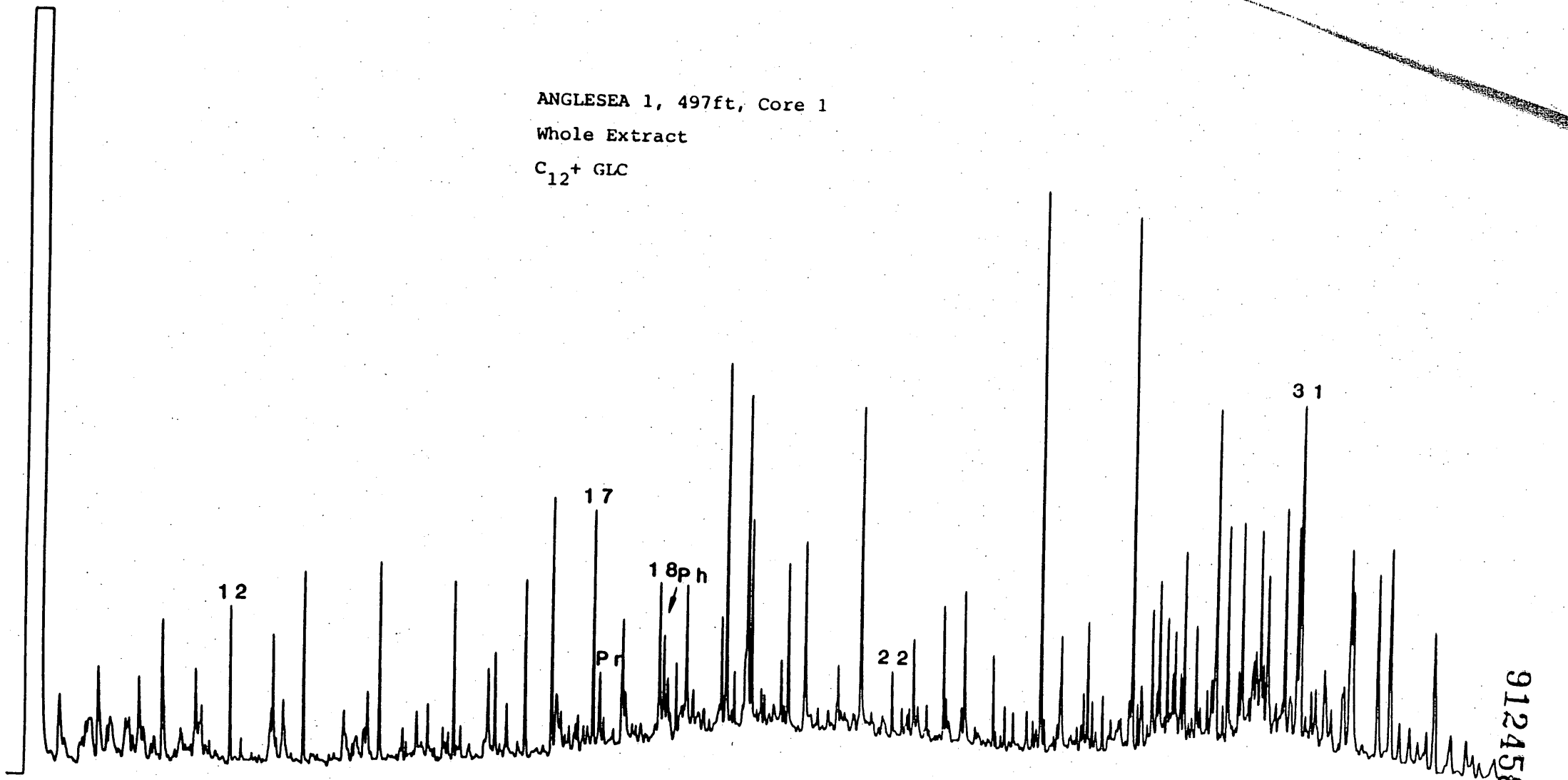
Depth(ft)	nC12	nC13	nC14	nC15	nC16	nC17	iC19	nC18	iC20	nC19	nC20	nC21	nC22	nC23	nC24	nC25	nC26	nC27	nC28	nC29	nC30	nC31
497.0 Core 1	3.5	4.3	4.4	3.6	3.9	5.1	2.6	4.4	3.0	2.8	1.6	1.5	1.7	3.0	2.1	12.3	3.3	12.4	2.3	8.7	4.7	8.8
2565.0 Core 10	5.3	6.8	9.3	6.5	8.5	12.3	5.6	9.8	5.6	6.5	4.1	2.7	4.6	1.9	1.4	2.9	1.1	1.3	.6	.9	1.3	1.2
6239.0 Core 23	7.7	8.2	15.9	7.4	8.5	9.2	5.8	7.6	6.5	8.4	3.7	2.4	5.2	3.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

na = not applicable nd = no data

ANGLESEA 1, 497ft, Core 1

Whole Extract

C_{12}^{+} GLC



912458 012

PE905784

This is an enclosure indicator page.
The enclosure PE905784 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905784 has the following characteristics:

ITEM_BARCODE	= PE905784
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 6 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 6 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

912458 013

PE905785

This is an enclosure indicator page.
The enclosure PE905785 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905785 has the following characteristics:

ITEM_BARCODE	= PE905785
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 5 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 5 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

PE905786

This is an enclosure indicator page.
The enclosure PE905786 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905786 has the following characteristics:

ITEM_BARCODE	= PE905786
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 4 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 4 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

PE905787

This is an enclosure indicator page.
The enclosure PE905787 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905787 has the following characteristics:

ITEM_BARCODE	= PE905787
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 3 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 3 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

PE905788

This is an enclosure indicator page.
The enclosure PE905788 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905788 has the following characteristics:

ITEM_BARCODE	= PE905788
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 2 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 2 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

912458 017

PE905789

This is an enclosure indicator page.
The enclosure PE905789 is enclosed within the container PE905677 at this location in this document.

The enclosure PE905789 has the following characteristics:

ITEM_BARCODE	= PE905789
CONTAINER_BARCODE	= PE905677
NAME	= Fossil Distribution Sheet for Anglesea-1(sheet 1 of 6)
BASIN	= OTWAY BASIN
PERMIT	= PPL/256
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Fossil distribution Data Sheet, sheet 1 of 6, (from Appendix 6 of WCR) for Anglesea-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W345
WELL_NAME	= ANGLESEA-1
CONTRACTOR	=
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

BIOSTRATA PTY LTD
A.C.N. 053 800 945

Principal Scientist:
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La Trobe University
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After Hours: (03) 457 3888
Geol. Dept. Fax: (03) 479 1272

912458 018

8 March 1993

Mr B Simons
Manager, Basin Studies
Geological Survey of Victoria
Department of Energy & Minerals
Private Bag No. 1
EAST MELBOURNE VIC 3002

Dear Bruce

I have reviewed the palynological reports on Anglesea-1 by Morgan (1987) and Macphail (1989) which I borrowed from you on 26 February. My interpretation of the data is synthesised into a single STRATDAT file given as an Excel file printout.

Both reports are fairly typical of contract palynological work and there is general agreement on zones and ages in the well. Most differences reflect different samples and different experience of the two palynologists.

The one glaring anomaly is that the sample from core-4 at 1216ft reported on by Roger Morgan is either badly contaminated or somehow mixed up. It contains a mixed assemblage of Eocene *N. asperus* Zone species with Paleocene *L. balmei* Zone species. Whilst it is not possible to say exactly what went wrong one or more of the following are possible:

i. Sample was poorly cleaned.
ii. Samples were cross-contaminated in laboratory.
iii. Slides were wrongly labelled.
iv. Species were assigned to wrong samples during computer entry of data for range chart.

The species list from the sample given on Morgan's range chart is rearranged on attachment according to *N. asperus* Zone species, *L. balmei* Zone species and long ranging species. Note that Macphail (1987) records 25 (71%) of the species from the *L. balmei* Zone and long ranging lists from his sample from this core. When this sample is accepted as Upper *L. balmei* Zone the rest of the data falls into place.

The other major comments to be made on the sequence in Anglesea-1 are as follows:

1. The limited palynological data suggests that the most reasonable geological interpretation is that at T.D. Anglesea-1 was still within the Otway Group and still within the Early Cretaceous.

2. Below about Core-19 at 4821+ feet all samples are carbonised yielding very poorly preserved and very limited assemblages. Any zone picked on this data must be used with extreme caution.

3. The differences in zone picks in the Otway Group between the reports is consistent with the use of different samples, different processing technique and different effort factor at the microscope. Palynomorph assemblages extracted from the Otway Group are notoriously <u>variable</u>. An amalgam of ages from both reports is considered best.

4. The deepest occurrences of the zones species in Macphail's report are used to pick the bases of the *C. striatus*, *C. hughesii* and *C. australiensis* Zones within the carbonised section. Because of the overall rarity of palynomorphs these picks are all likely to be TOO SHALLOW.

5. The limited assemblages recorded <u>force</u> both palynologist to give a broad Latest Jurassic to Early Cretaceous to the deepest samples. Both are relying on negative evidence as neither identified species which become extinct within the Jurassic.

6. The range of the diagnostic spore *Cicatricosisporites australiensis* further complicates the issue as whilst most palynologists take its first appearance as the base of the Cretaceous in Australia others extend its range a considerable distance into the Jurassic. I do not consider this argument relevant to Anglesea-1 because near the base of its range *C. australiensis* is always rare. Thus, this rarity, combined with the poor preservation and low yield in Anglesea-1 would virtually preclude the recording of this species.

7. Both authors record anomalous species ranges in their assemblages. I consider most represent laboratory contamination, because mud contamination is highly unusual with conventional cores.

Finally there is the question of what additional palynological work is warranted on Anglesea-1? Firstly, no further work is recommended on the Otway Group as it is unlikely to significantly improve the age dating. In the Tertiary and Late Cretaceous the cores 1, 2 and 5 are worth re-analysing as there are still some ambiguities on their assemblages and ages. Cuttings could also be used to fill in the gaps between the Tertiary and Upper Cretaceous zones identified in the cores if this was needed.

This review of Anglesea-1 is a good example of how different palynology reports can be synthesised to give a new and better interpretation. I hope it will help you when evaluating other reports in the future.

Yours sincerely

Alan Partridge

ALAN D. PARTRIDGE

ATTACHMENT 1

Species recorded from Core-4 at 1216 feet by Roger Morgan.

N. asperus Zone - 14 species.

Granodiporites nebulosus	
Nothofagidites emarcidus/heterus (common)	*
Nothofagidites falcatus	*
Nothofagidites vansteenisii	
Proteacidites crassus	
Proteacidites kopiensis	
Proteacidites leightonii	
Proteacidites ornatus (misidentified?)	
Proteacidites pachypolus	
Proteacidites rectomarginis	
Proteacidites rugulatus	
Tricolporites estoutus	
Triorites magnificus (?)	
Triporopolenites ambiguus (?)	

L. balmei Zone - 9 species.

Australopollis obscurus	*
Cyathidites gigantis	*
Ephedripites sp.	*
Gambierina rudata	*
Gleicheniidites circinidites (frequent)	*
Lygistepollenites balmei	*
Nothofagidites endurus	
Periporopollenites polyoratus	
Tetracolporites textus	

Long Ranging Species - 26 forms.

Clavifera triplex	*
Cupanieidites orthoteichus	*
Cyathidites splendens	*
Dacrycarpites australiensis	
Dilwynites granulatus	*
Dilwynites tuberculatus	
Ericipites scabratus	
Haloragicidites harrisii	*
Latrobosporites crassus	*
Lygistepollenites florinii	*
Malvacipollis diverus	
Malvacipollis subtilis	*
Myrtaceidites parvus/mesonesus	*
Nothofagidites brachyspinulosus	*
Nothofagidites flemingii	
Periporopollenites demarcatus	*
Proteacidites adenanthoides	*
Proteacidites annularis	*
Proteacidites grandis	*
Proteacidites incurvatus	*
Proteacidites lapis	
Proteacidites spp. (frequent)	*
Retitriletes austroclavatides	
Stereioporites antiquisporites	*
Stereisporites (Tripunctisporis) punctatus	*
Verrucosisporites kopukuensis	

* Identified by M.K. Macphail from same core.

912458 021

	A	B	C	D	E	F	G	H	I	J	K
1	STRATDAT FILE FOR ANGLESEA-1, TORQUAY BASIN.										
2											
3	ABBREVIATION AT TOP OF COLUMNS										
4			CODE =	ZONE CODE							
5			/ =	TOP/BASE OF ZONE OR FORMATION							
6			PT =	PICK TYPES							
7			P/A =	PREFERRED/ALTERNATE DEPTH							
8			C =	CONFIDENCE RATING							
9			S =	SECURITY RATING							
10			R =	REFERENCE CODE							
11											
12	WELL NAME	DEPTH	DEPTH	CODE	/	ZONE NAME	PT	P/A	C	S	R
13		FEET	METRES								
14	ANGLESEA-1	490.0	149.4	S2110		LOWER N. ASPERUS	Y		A4	O	2
15	ANGLESEA-1	809.0	246.6	S2115		P. ASPEROPOLUS	M		A4	O	2
16	ANGLESEA-1	1090.0	332.2	S2155	H	UPPER L. BALMEI	Z	P	A2	O	2
17	ANGLESEA-1	1090.0	332.2	M2180	H	A. HOMOMORPHUM	Z	P	A3	O	2
18	ANGLESEA-1	1234.0	376.1	M2180	L	A. HOMOMORPHUM	Z	P	A3	O	2
19	ANGLESEA-1	1234.0	376.1	S2155	L	UPPER L. BALMEI	Z	P	A2	O	2
20	ANGLESEA-1	1506.0	459.0	S2160	H	LOWER L. BALMEI	Z	P	A2	O	2
21	ANGLESEA-1	1526.0	465.1	S2160	L	LOWER L. BALMEI	Z	P	A2	O	2
22	ANGLESEA-1	1778.0	541.9	S3110	H	T. LILLIEI	Z	P	A2	O	1
23	ANGLESEA-1	1798.0	548.0	S3110	L	T. LILLIEI	Z	P	A2	O	2
24	ANGLESEA-1	1931.0	588.6	S3145	H	C. STRIATUS	Z	P	A3	O	2
25	ANGLESEA-1	5171.0	1576.1	S3145	L	C. STRIATUS	Z	P	A3	O	2
26	ANGLESEA-1	~~6327.0~~	~~1928.5~~	S3150	H	C. HUGHESII	Z	P	A3	O	2
27	ANGLESEA-1	~~6347.0~~	~~1934.6~~	S3150	L	C. HUGHESII	Z	P	A3	O	2
28	ANGLESEA-1	10065.0	3067.8	S3160		C. AUSTRALIENSIS	M		A3	O	2
29											
30	REFERENCES:										
31	1. R. Morgan, Palynology report for AMOCO, January 1987 (R/4/87).										
32	2. M.K. Macphail, Palynology report for SHELL, August 1989 (R7423).										
33											
34	REMARKS:										
35	1. Palynology based on 32 samples from 21 cores.										
36	2. Palynomorphs carbonised and of low reliability below 4800 ft.										
37	3. Assemblage reported by R. Morgan from C-4 at 1216 ft is L. balmei Zone contaminated with										
38	N. asperus Zone fossils.										

6237' 1901 m

6247' 1904.1 m

LITH 1

Anglesea 1.

912458 022

1. Pendleton yellowish orange sandy & clayey clasts 40-80' + 170'

2. Demons Bluff — Probable Upward decrease in Qtz, erratic presence of fossils & glauconite, burrows suggestive of cyclic marine - non marine sedimentation [Most abundant Cyclammina 40-60']

3. Polished well rounded clear quartz grains at 140' 170' (Contam.?)

4 Coal interbeds 260'

5 Clays like upper seams 290'

0 Cliff E View

6 Coal 320' & 350' 330 20% Coal 340 17% Coal

7 Coarse Qtz conglomerate 360' 25%, 370' 10%, 380' 90',

1

21 SW Cores 3678 – 5212
Very very little remaining

912458 023

Anglesea 1. OOWL

40-60' 75% f - vf Qtz – mostly pale brn – off wh, ang - srd, transl / transp. coated with mud.

20% Muddy red brn slst. prob cavs.

5% Non calc pale yell, powdery to waxy clasts. occ fn sdy

soft bright red brown clasts weath Voles?

Pale gr glauc + non dolo clayey slst? sli calc.

Fossils – mod abundant cyclammina large

Traces Glauc, pellets + as bryz/echinoid casts.

yel brn dolo + lim fn sst

Trace muscovite

lim + dolo clasts fn sst.

Trace vitreous concoid fract black coal.

<1% Co. Qtz – Col. opaque o transl (wh) transp, sang - srd, uneven surfs, indented with some mud coating.

80' brn blk clasts sdy slst / slty sdy fn sst. – frags are 60% fn Qtz 37% blkish slty mud, 3% sli fn sdy gr clay. A/A.

Pale yell clay A/A.

Cyclammina (much reduced in N°)

Muscov.

Traces glauc + lim sst

Trace pyrite cement (stallers)

No Glauc

Qtz vfn - fn - off wh (brnish coated), ang - srd., transl / transp

0.1% Co. – wh transp / transl, shiny, uneven surfs, traces of mud in shallow indentations.

110 A/A No glauc or cyclammina

occ pyritic slst rod – burrowing.

Poss ?iron fron clasts – a fn sandy sdy slst.

part transl, wh. sub rd smooth Qtz grain

Prob iron manoxi.

2 Anglesea 1 ODNL

912458 024

Seems to be a progressive down hole incr in fr qtz at the expense of rdd + incr in grainsize

— — — — — — — — — 5% lo-Vco rdd Qtz.

140' blk gr fn sdy muddy slst with co-vco polished srd-rdd qtz grains - white transl/transp, smooth, polished glassy surfaces. At times slightly indented + with some mud coating

Fines - 5% fn qtz wh/opq wh, ang to srd, sli coated, transl/transp.

95% sdy slst/sltz mst. Some muscov. The mud is likely to be carb. Burrows/tubes of yell gr clay pyritic mud

No glauc. Prob Non Marine

170' 10% Prob contains some cement, re-appearance of org brn 'lean' clayey fmtn (samples 50-60, 80); lt gr glauc sdy sdy 'clay' w-calc $CO_3^=$. Effervescent

Some soft lt lmy gr 'marl'. Freq red rusty brn ferrug rdd.

90% fines - 70% Qtz A/A. Occ rdd yell opaque fn qtz.

30% poss carb sltz mst A/A.

Trace of mdg glauc, Pyritic burrows to 0.2 mm diam

2% polished rdd co qtz A/A.

Co-gran Qtz - transp/wh transl/yell transl opaque, mainly srd smooth polished surfs with sli indentation + accompanying mud.

Occ grains are sang. V indented and are prob composite grains with sil cement. The col + V indented grains seem from a different source.

200' 10% - 3% Clasts gr blk sndy sltz fmtn A/A

5% Red brn ferrug fmtn. sli calc.

3% Qtz - Vco-pebble, srd to rd, occ sang, polished smooth surfs.

The V indented grains may be composite grains or 2ndary Qtz overgrowths. Grains are wh, opaque transl wh/transp wh. Rarely col

89% fines 85% Qtz - fn, opq wh, ang - srd, coated.

15% carb mud.

traces musc trace glauc, + poss dolomite Some dense pyrite cement

230' Cont'd A/A. Prob a bioturbated sndy fn sst.

5% Clasts - blk cps slst, sndy sltz fmtn, Qtz pebble, occ pyrite concealed. med org brn dolo ferrug fn sst (poss lim);

95% fines A/A. musc, poss glauc

Anglesea 1. Oxmt

912458 025

2800' Dark chocolate brn fn sdy or sndy slst to slty mst with black chips blk shiny (vit) coal poss 5% of total.
Rare clasts with waxy pale brn sand.
Sed prob thin-lam bedded, bioturbated
Occ clast sndy fn micac mst.
Traces of colourless sub transp/transl qtz
Rare clast with flat 11 cloth like [illegible], [illegible]. [illegible]
[illegible] of [illegible] Prob Non marine

290 [illegible] gr brn to [illegible] gr blk, carb slty mst / sndy slst + off wh, v micac or micac slt sdy fn mst
Clasts suggest thin-lam beds with micac partings.
Qtz - transl/transp sub angular. slt coated. [illegible] grains - transp transl [illegible] [illegible] coated, [illegible] on polished end.
White transl/opaque rods 0.1 mm x 0.6 mm [illegible] [illegible] [illegible]?
(type of [illegible]) [illegible] [illegible] — some sponge spics

[illegible] 80% Qtz
5% [illegible]
15% slty mst / sndy silt
Traces of coaly clasts. Poss trace Glauc marine

— — — — — — — — — — — — Coals
Prob E Vilear top
320. 80% low rank dk brn black coal with occ clast pale brn gr sndy fn sdy slst. + pyrite cemented fn sdy slst.
Fines 60% blk gr coal / lig mst. 40% fn Qtz - ang-srd transl/transp wh to slt coated.
Misc. traces amber resin etc
Trace clasts of cemented fn sst with poss chloritic coating

300 10% clasts med dk brn micac fn sdy slst, V micac sndy slst with ? spicules (see 300')
~~lams~~ lams of carb sndy slst + fn cleaner sst.
Fines 90% — 85% fn off wh Qtz (rare Co-Vo qtz) ang-srd, slt coated, transp - transl.
15% carb sdy slst. Mica
310 A/A w ? S spics.

Anglesea 1

912458 026

330' 20% dk blk brn coal

Coarser particles 75% — 20% as coal

80% med brn mica & carb soft, mdy slst. occ pyrite.

Thin to dom occ dark org gel ?lam pyrite. + white glauc ff, slt mdy slt.

Trace Qtz cse - vco, transp/frosted wh. rdd - srd, occ well polished, with smooth ext surfs

Fines 25% — 25% coal to carb mst.

10% fn Qtz

Prob Non marine

65-75% fn carb sndy slst.

Traces cuticular matl & resin; amber, sponge spic micas.

340' Coarser clasts. 30% — 30% coal

70% med brn carb mica sndy slst occ patch pyrite; Trace indurated sst & possibly composite. white frosted Qtz, sli coated. Trace discrete pyritic cemented fn qtz grains in a slst.

Fines 70% — 10% coal

15% mica sndy dk carb slst.

65-75% fn Qtz - sli off wh, ang - srd, sli coated with mud matrix.

1% Musc. + cuticular matl poss glauc pellets. Amber trace of sponge spics

Prob Non marine.

Anglesea 1   6000

912458 027

350' chocolate brown low rank brown coal — soaks to scratch
some lenticular mat[l], occ amber resin grains
occ fn qtz grain white sl coated — fines 10% prob 5% wh fn qtz.
ang - sang - srd.
occ med - co Qtz sang, indented.
More amounts of muscovite.   Non marine
— — — — — — — Qtz incr

36[0] 55% med gy brn carb mst, fn slst, fn sdy mdy slst. (5%)
25% co - vco Qtz — off wh, transl / rarely transp, sang - srd.
mainly with irreg indented sl mud coated surfs occ smooth rounded abraded surf; lensed frost, rarely polished w occ inclusion
fines prob 60% Qtz fine grained A/A   remainder silt sdy silt + carb
Most grains have some sd brnish mud on them.
No Glauc   Non marine.   Some Muscovite
Prob thin-lam interval of sdy carb slst w lenses of coarser Qtz

370. 5% coal clasts,
35% pale gy brn sandy silty mud
10% v co - gran Qtz — off wh, transl, irreg surfs sang - srd
5% dkr brn carb sdy slst.
45% fines 50% Qtz sang - srd A/A
50% mud silt + carb mat[l]
Prob Non marine   Traces Muscov.   Traces carbonaceous

380' 90% co. gran Qtz — off wh, dusted with mud, transl / occ transp, 10% opaque wh. (well srtd)
sang rarely srd, surfaces irreg, indented with mud infilling crevices
occ grain may be a composite, occ with xtal growths — faces projecting sharply from surf.
The high irregularity is suggestive of basin margin.
clasts of sdy slty coal - v c est, brn coal, paler brngy sdy slst
Fines 10% or less — 90% fn qtz, off wh sl coated ang - srd   10% mud carb mat[l]
Traces musc.
Trace cardamonena — ascerac (fn qtz)

Anglesea 1 OONL

400-410

90% Qtz - Co-grain well std, sang - srd, white - slt off wh, much smoother surfaces than 380' less indentations, less mud/matrix adhering to grains. Mainly transl. though occ transp & opaque. Some solution cavities. Most grains show some polishing on edges.

7% Clasts dk brn carb sltst, freq cracked coal with Vit polished angular & conchoidal/ven fractured.

[illegible] clasts off wh calc cemented med - vco sst, slt buggy. (Prob casing cemented)

420-30 65% off wh casing cement. [Note 17½" casing set at 389']

20% brn blk coal

15% Qtz - Co-grain, transl wh, occ transp & opaque, ang occ srd, cracked/split, mod coated. Surfaces indented occ Xtalline

trace glauc Contam

450 7% casing cement.

90% Qtz - med-grain, mod std, ang-sang rarely srd, occ composite, transl off wh - wh brn, coated. Surfaces very indented, etched, occ Xtal faces, edges mod polished

3% Coal, fr sdy sltst, med brn lig clay,

480 13% dk brn coal, occ thin clasts studded with fr Qtz - Coal frost lams

85% Qtz. cleaner wh slt off wh. transl - transp, sang - srd, with dull polished freq indented/etched surfs mod std

Fines - mix of Qtz & carb matl.

Core 1 490-510 Rec 8' Coal.

510 A/A. 7% cement, 65% Qtz - well std, Co-grain, clean white transl & transp, sang occ srd, few faceted grains, occ split with mod polished shallow indented surfs. Small amts adhering wh mud,

30% brn blk low rank soft coal. Small amts resin.

occ with fr - med qtz in the coal.

Prob the beds/lams of coal in the sst.

Prob Contam due to Core 1 at 490'-510'.

Harris 1970

Anglesea   western Gambelis Embay

P pachyporus

Eoc   P confragosus Z

Paleoc.   C orthotescheus Z

G edwardsii

2670 - 2780

Core 2 2667-99   58% protective sdy mst / silty mst   34% glauc fn-c sst, 10% V hd

lo calc sst

SWC 21   2706   fn-vco glauc sst, sli silty & micac.

2730 - 80   60% hd shale, sdy shale

40% med-grain qtz (sbd - rd)

2790-2820   85% Vco qtz (sang - sbd)

10% shale

20 - 40   50% co-gran qtz (sang - sbd)

20% v fn ang qtz   chert granules

15% silty mst

40 - 70   75% fn-gran qtz .

15% granite pebs .