



Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

DEPT. NAT. RES & ENV



PE905755

WCR

EUMERALLA - 1

(W472)

ONSHORE

OTWAY BASIN

1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials
PEP/5							
10,308'							

BY J.S. BAIN

FILE COVER INSTRUCTIONS FOR ACTION OFFICERS

- (1) FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.
- (2) REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer, please initial Column (4) and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column (3).
- (3) BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).
- (4) PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).

LOCATION

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

FROME-BROKEN HILL COMPANY PTY. LTD.

Report No. 7200-W-21

Page 1 of 60.
INCLUDING ENCLOSURE 1 TO 5.
+ Well Composite LOG.

WELL COMPLETION REPORT

EUMERALIA NO. 1, SOUTHWEST VICTORIA

by

J. S. Bain

SEE : "LITHOFACIES DATA SHEET (B)" PREPARED BY
CUNDILL MEYERS & ASSOC. FOR SHELL DEV.
AUST. PTY. LTD. 1967.

Melbourne

February, 1963

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5. Geological Cross Section After Drilling
6. Composite Well Log

: : : : : : : :



APPENDIX NO. 4

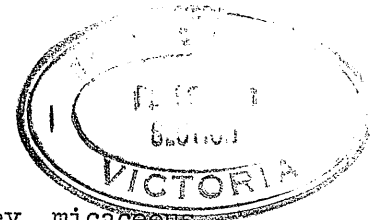
CORE DESCRIPTIONS AND ANALYSES

EUMERALLA - 1

CORE DESCRIPTIONS



- Core No. 1 941 to 961 feet. Recovered 15 feet
Marl; olive grey to greenish grey, very soft, very fossiliferous, slightly slickensided.
- Core No. 2 1160 to 1180 feet. Recovered 12 feet.
Marly sand to sandy and silty marl; very fossiliferous, pyritic, sand grains are iron stained to clear, very fine to coarse grained, subangular to rounded, few grains of altered glauconite pellets and limonite. At top of core a nodule of cream skeletal limestone - possibly caving from above.
- Core No. 3 2109 to 2121 feet. Recovered 6 feet.
Sand; medium grey to green, clear, few milky grains, often with inclusions and coating of pyrite. Fairly clean, mixed with some brownish silt. Loose, fine to granule size with a few pebbles, but mainly coarse grained, subangular to well rounded, and polished, poorly sorted. Very porous. Some pyrite and mica present.
- Core No. 4 2835 to 2849 feet. Recovered 11 feet.
Top 4 feet sandstone; greenish to brownish grey. Quartz grains are clear to white, fine to very coarse grained, poorly sorted, angular to subrounded. Very glauconitic. In places bands contain up to 20% to 30% glauconite. Few red rock fragments. Generally calcareous, with brownish coloured dolomite cement in parts. Soft, friable, porous, cross bedded.
Remainder of core is sand to slightly consolidated sandstone; dark green, very glauconitic, noncalcareous, with some calcareous cemented nodules. Quartz grains are clear to white, fine to very coarse grained, poorly sorted, angular to rounded. Glauconite is medium to pale green in pellet form. Matrix is light brown, soft. Large muscovite flakes.
- Core No. 5 3311 to 3321 feet. Recovered 7 feet.
Sandy siltstone with sandy claystone; bluish-grey, with few lenses of sandstone. Minerals comprise about 40% to 50% quartz, with feldspar, dark rock fragments, chlorite and some distinctive orange, red and pink grains. Fine to medium grained, well sorted, fairly tight, micaceous, soft. Siltstone is bluish grey and has the same minerals, only finer grained and more clayey. No evidence of hydrocarbons, no fluorescence. Density: 2.2.



Core No. 6

3800 to 3812 feet. Recovered 12 feet. Mudstone to siltstone; medium to bluish grey, micaceous, with dispersed carbonaceous material. Soft, tight, laminated, with odd coarse grained quartz and feldspar, containing lenses of white calcareous, clayey material in the sixth foot from top. Conchoidal fracture and slightly slickensided in places. Grades into very fine sandstone in the third foot. Lamination is horizontal but in the seventh foot from top is contorted. No evidence of hydrocarbons. No fluorescence. Density: 2.2.

Core No. 7

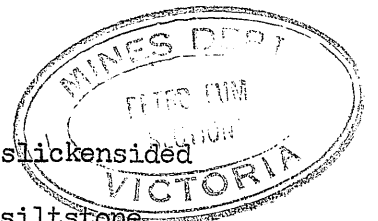
4285 to 4300 feet. Recovered 15 feet. Top 3 feet sandstone; greenish to bluish grey, very fine to fine grained, fairly tight and compact. Composed of approximately 60% quartz and feldspar which are clear to light grey, angular to subrounded; 40% dark rock fragments, abundant magnetite, chlorite, biotite. Some grains, which are colourless to light pinkish with fairly high refractive index may be garnet. Matrix is silty, siliceous, feldspathic, chloritic and adheres tightly to grains. Next 5 feet mudstone; medium grey, tight, dense, compact. Composed of quartz, feldspar, chlorite. Rest of core sandstone as for the top three feet. No apparent bedding. No evidence of hydrocarbons. No fluorescence. Soxhlet extraction yielded slight yellow greasy film with yellowish blue fluorescence. Density sandstone: 2.25. Mudstone: 2.35.

Core No. 8

4796 to 4814 feet. Recovered 18 feet. Sandstone; light grey, mottled, very fine to fine grained, crossbedded, grading occasionally into siltstone. Composed of clear to light grey, angular to rounded quartz and feldspar (approximately 60%) and dark rock fragments, chlorite, biotite, magnetite. Some pink garnets and yellow to light brown heavy mineral are fairly common. Matrix is chloritic clay. Carbonaceous matter is present and increases in the thirteenth foot which is coarse sandstone. No apparent dip. No evidence of hydrocarbon. No fluorescence. Soxhlet: light yellow cut with faint yellow fluorescence. Density: 2.2.

Core No. 9

5297 to 5309 feet. Recovered 5 feet. Sandstone; grey, mottled, composed of quartz, feldspar, dark rock fragments, chlorite, mica. Matrix is very fine, soft, white, noncalcareous material. Grains are angular to subangular, mainly medium grained, fairly well sorted. The amount of matrix varies from place to place, and the porosity changes accordingly. The bottom two-thirds of core has carbonaceous plant remains and vitreous coal fragments. Plant remains are slightly bituminous. The core becomes finer grained and tighter towards the bottom. Noncalcareous, slightly crossbedded. No hydrocarbons. No fluorescence. Soxhlet: no visible film, very weak fluorescence. Density: 2.35.



Core No. 10

5799 to 5816 feet. Recovered 12 feet.
Top 18 inches mudstone to siltstone; grey, slickensided with large flakes of golden mica.
Next 18 inches mudstone; greenish grey, to siltstone, grey, as above, with carbonaceous material which increases towards base. Conchoidal fracture, slickensided, with soft white material on slickensided surface.
24 inches mudstone to siltstone; grey, micaceous.
12 inches mudstone; greenish grey, very slickensided.
4 feet 6 inches siltstone to mudstone; grey, micaceous, with disseminated carbonaceous fragments, laminated, with very thin lighter coloured siltstone lenses, slightly crossbedded.
1 foot 6 inches sandstone; grey, slightly greenish grey, composed of quartz, feldspar, dark rock fragments, chlorite, mica. Tight, with very fine white matrix. Towards bottom laminated bands of mica and coal concentrations occur. No fluorescence. Soxhlet: weak cut with good fluorescence. Density: 2.43.

Core No. 11

6034 to 6054 feet. Recovered 14 feet 6 inches.
Siltstone to mudstone; greenish grey. Composed of quartz, feldspar, dark fragments, chlorite, mica. Dense, tight, fractured, with some carbonaceous material, slightly crossbedded. No fluorescence. Soxhlet: greasy film with bluish white fluorescence. Density: 2.5.

Core No. 12

6242 to 6252 feet. Recovered 6 feet.
Top 2 feet sandstone; light greenish to mottled grey. Quartz, feldspar, dark rock fragments, mica, carbonaceous material, non-calcareous, tight, crossbedded.
Remainder of core is medium to dark grey siltstone to mudstone; compact, dense, with thin bands of sandstone as above. No evidence of hydrocarbon. Density: sandstone 2.43. Mudstone: 2.48.

Core No. 13

6252 to 6257 feet. Recovered 5 feet.
Siltstone to mudstone as for bottom of core No. 12, with thin bands of very fine to fine sandstone as for top of core No. 12.

Core No. 14

6478 to 6488 feet. No recovery.

Core No. 15

6704 to 6720 feet. Recovered 14 feet.
13 feet sandstone; grey to greenish grey, dominantly quartz, with feldspar, dark rock fragments, chlorite, red fragments, mica. Very fine to fine grained, angular to subrounded; fairly well sorted. White matrix, calcareous. Dark siltstone fragments, hard, at 5 to 6 feet from top, very hard calcareous cement, carbonaceous fragments and streaks. Very tight, slightly crossbedded. Dip 10° to 13°.
1 foot siltstone-sandstone; grey to brown grey, with carbonaceous material and plant remains, 1/2 inch of coal with some resin at bottom of core. No fluorescence. Soxhlet: No visible film, bluish white fluorescence. Density: sandstone 2.4, siltstone 2.4.



- Core No. 16 7225 to 7240 feet. Recovered 6 feet.
18 inches sandstone; light grey, very fine grained, composed of quartz, feldspar, dark rock fragments, chlorite, muscovite, biotite. Angular, poorly sorted, tight. Streaks of carbonaceous material. Very crossbedded.
3 feet 6 inches sandstone; light grey, fine grained. Made up of quartz, feldspar, dark rock fragments, chlorite, muscovite, biotite, coal fragments and carbonaceous streaks. Tight, with very fine, white, slightly calcareous matrix. Angular to subangular, poorly sorted, crossbedded.
1 foot siltstone to mudstone; light brown with the same mineral assemblage, carbonaceous material, plant remains, streaks and thin lenses of black coal, crossbedded. No fluorescence. Soxhlet: greasy film, bright yellow fluorescence. Density: 2.4.
- Core No. 17 7697 to 7712 feet. Recovered 15 feet.
Siltstone to mudstone; light to medium grey, very micaceous, laminated. Carbonaceous material disseminated evenly throughout the core. Dense, tight, soft. Lenses and thin bands of very fine sandstone are common in some places. Apparent dip 10°. Soxhlet: yellow cut with yellow fluorescence.
- Core No. 18 7712 to 7717 feet. Recovered 5 feet.
Siltstone to mudstone; medium to dark to greenish grey, dense, compact, with mica and carbonaceous material, thin bedded, laminated. Very tight. Density: 2.64. No evidence of hydrocarbons.
- Core No. 19 8143 to 8156 feet. Recovered 11 feet 6 inches.
Interbedded siltstone and very fine grained sandstone; light to medium grey with numerous thin laminae of carbonaceous material, and few thin inclusions of black coal. Sandstone is micaceous, and generally calcareous. Three feet above bottom is intraformational breccia with fragments up to 1/3 inch diameter. Inclusions consist of light greenish grey, very fine sandstones, grading into coarse sandstone. Gas bubbles were noted emanating from black coal fragments in core.
- Core No. 20 8459 to 8465 feet. Recovered 6 feet.
18 inches siltstone; grey to green-grey to brown-grey. Very fine to fine quartz, slightly coarser feldspar, carbonaceous fragments, slickensided. Core becomes coarser grained towards base.
4 feet 6 inches sandstone, greenish grey, 80% to 90% clear, angular quartz grains. Smaller grains of feldspar, some biotite, chlorite, carbonaceous fragments, very fine silt matrix. Slightly calcareous, very tight, hard. Small bands and lenses of siltstone as on top of core. Small fault appears on core with few inches of displacement, also some indication of intraformational siltstone conglomerate. Crossbedded and has vertical cleavage through centre of the core. No fluorescence. Density: 2.56.



- Core No. 21 8914 to 8924 feet. Recovered 10 feet.
Top 2 feet sandstone; light greenish grey, calcareous. Composed mainly of very fine to fine grained quartz and some feldspar. Chlorite and biotite common, white to light tan grains or coatings of ?calcic feldspar. Sandstone is tight with low porosity. Rest of core siltstone-mudstone; light grey, calcareous, micaceous, chloritic, carbonaceous, with minor sandstone made up of quartz, feldspar, very fine to medium grained. Density: 2.6.
- Core No. 22 9373 to 9385 feet. Recovered 12 feet.
Top 6 feet siltstone to mudstone; dark grey, hard, tight. Bottom 6 feet interbedded very fine grained sandstone, siltstone and minor mudstone. Calcareous, finely cross bedded. No good dip but bedding indicates generally low dip. Disseminated carbonaceous material. No fluorescence. Density: 2.54.
- Core No. 23 9767 to 9774 feet. Recovered 5 feet.
Siltstone to very fine sandstone; medium to greenish to brownish-grey, tight. Core is very uniform, made up of siltstone which grades in some places to very fine sandstone, micaceous, with abundant carbonaceous material, mainly as fine particles. Cross bedding present but not dominant. No fluorescence. Density: 2.6.
- Core No. 24 9881 to 9890 feet. Recovered 4 feet.
Top 4 inches sandstone, light grey to greenish grey, interbedded with seams of carbonaceous matter nearly parallel, partly cross bedded, bedding plane approx. 35° to 40°. Composed of very fine to fine quartz and feldspar, with abundant biotite, common chlorite and chloritic clayey matrix. The rest of top foot consists of breccia of medium to dark grey siltstone to very fine sandstone, very micaceous and tight.
Second foot is sandstone composed of light grey, very fine to medium grained quartz, angular to subrounded, with feldspar, mica, dark rock fragments, chlorite, some garnets and/or zircon, magnetite. In the middle of second foot there is a two inch thick dark grey siltstone with apparent dip of 35° to 40°.
Bottom 2 feet quartz sandstone, fine to coarse, angular to subrounded with secondary crystallisation. Fair amount of pink garnet, biotite, dark rock fragments, feldspar, chlorite, trace of graphite. Sandstone appears to be very similar to basal sandstone of Pretty Hill No. 1. Apparent dip 35° to 40°. No fluorescence. Soxhlet: light yellow cut. Density: 2.5.



Core No. 25

10,300 to 10,308 feet. Recovered 5 feet.
Top 2 feet 6 inches sandstone; very light grey, compact, and tight, calcareous, crossbedded, medium grained, interbedded with laminae and lenses of fine to very fine carbonaceous sandstone and siltstone, and with dark, rounded, brecciated mudstone-siltstone material, mixed with coarse sand grains. Lenses of coarse sandstone are present in places. Composition of sandstone is fine to medium grained, angular to subrounded quartz, some dark rock fragments, biotite, chlorite and possible feldspar. Matrix and cement is crystalline calcite. Pink garnet is common. Rest of core is siltstone to very fine sandstone, micaceous, very tight, compact. No fluorescence. Density: Sandstone 2.59. Siltstone 2.63.

SIDEWALL CORES



2764 feet	Mudstone to siltstone; brown, dense, tight.
2765 "	Mudstone to siltstone; brown, dense, tight, with few quartz grains and mica.
2770 "	Mudstone to siltstone; brown, dense, tight,
2775 "	Mudstone to siltstone. brown, dense, tight.
2780 "	Mudstone to siltstone; brown, dense, tight, sandy, glauconitic, fossiliferous, with a pocket of clear sand.
2818 "	Sand; clear quartz, subangular to rounded, medium grained, fairly well sorted.
2820 "	Sand; clear quartz, subangular to rounded, medium grained, fairly well sorted, with some dark rock fragments.
2822 "	Sand as above.
2824 "	Sand as above.
2826 "	Mud cake with some silty sand.
2960 "	Siltstone; sandy brown glauconitic, pyritic, with large muscovite flakes.
2970 "	Same as 2960 feet sample.
2980 "	Mudstone; brown, sandy, pyritic, tight.
2990 "	Mudstone; brown, sandy, pyritic, tight, with fossil fragments.
3000 "	Mudstone; brown, tight, with fossil fragments.
3010 "	Mud cake.
3020 "	Mudstone, brown, tight.
3030 "	Mudstone; sandy, brown, tight.
3040 "	Mudstone; brown, silty, micaceous, pyritic, with patches of light grey, very fine sand.
3050 "	Mudstone; brown, silty.
3070 "	Mudstone; brown, tight, glauconitic, plant remains replaced by pyrite.
3080 "	Mudstone; brown, tight, very glauconitic. Glauconite is in the form of dark green to black pellets.
3090 "	Same as 3080 feet.
3100 "	Same as 3080 feet.
3110 "	Sandstone; quartz, feldspar, dark rock fragments, red fragments, medium to coarse grained, mainly medium, poorly sorted, porous. Quartz grains are angular to subrounded.
3116 "	Siltstone; grey, tight, with carbonaceous material.
3118 "	Siltstone; grey, tight, with laminated carbonaceous material.
3120 "	Mudstone; grey, tight, dense.
8217 "	Siltstone; grey, with thin laminae of carbonaceous material.



- 8640 feet Sandstone; white to light grey, clear quartz, mica, very fine crystalline pyrite, garnet, disseminated carbonaceous material. Sand grains are angular, unsorted, white matrix, slightly calcareous, tightly packed.
- 8660 " Sandstone; white to light grey, clear to white quartz, mica, chlorite, dark rock fragments, garnet. Quartz grains are angular, dark rock fragments are rounded. Very fine to fine grained, unsorted, calcareous. Slight fluorescence, some porosity.
- 9123 " Sandstone; white to light grey, quartz grains are clear to white and angular. Garnet, chlorite, very fine to fine grained, poorly sorted, with carbonaceous material. Weak fluorescence.
- 9123 " Mudstone to siltstone; brownish grey, micaceous, with plant remains, carbonaceous material. Small lens of light grey to white sandstone, composed of quartz, garnet, chlorite, dark rock fragments, very fine to fine grained poorly sorted, angular. Very slight fluorescence in sandstone.
- 9133 " Sandstone; light grey, white to clear quartz, garnet, dark rock fragments, chlorite, very fine to fine grained, calcareous.
- 9145 " Sandstone; white, clear, angular quartz grains, garnet, disseminated coal, with very fine white matrix. Very fine grained, noncalcareous. Weak fluorescence.
- 9314 " Sandstone; light grey, quartz, dark rock fragments, very fine white matrix.
- 10,026 " Sandstone; light grey to white, quartz, very fine to fine grained, angular disseminated carbonaceous material. Very fine, white matrix.
- 10,063 " Siltstone; sandy, grey, quartz, feldspar, chlorite, carbonaceous material, mica.
- 10,165 " Siltstone; brown-grey, with very fine disseminated carbonaceous material, micaceous.
- 10,071 " Siltstone; brown-grey, micaceous, feldspathic.



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

Date: 26th March, 1963

CORE ANALYSIS RESULTS

Notes (i) Unless otherwise stated, the porosities and permeabilities were determined on two small plugs (V & H) cut at right angles from the core or sample. Ruska field porometer and permeameter were used, with air and dry nitrogen, respectively, as the saturating and flowing media. (ii) Oil and water saturations were determined using Soxhlet type extraction apparatus. (iii) Acid solubilities were determined using 15% commercial hydrochloric acid (iv) N.D. means Not Determined.

Well or Area	Core or sample number	Depth in ft. From: To:	Effective Absolute porosity permeability % by Vol. millidarcys.				Avg. density in gms/cc.		Fluid saturation			Acid solubility % by vol.	Oil Characteristics		
			V.	H.	V.	H.	Dry Bulk	Grain	Water: % pore space	Oil: % pore space	Oil: Metric tons/acre ft.		Fluorescence in solvent	Colour of extracted oil.	Fluorescence of extracted oil.
EUMERALIA NO. 1	1	941 961	Very Friable, could not analyse												
"	2	1162 1164	32	31	100	84	1.89	2.75	45	Nil	Nil	N.D.	Trace	Nil oil	Nil oil
"	3	2110 2112	Sample Received in Powdered Form										-	-	-
"	4	2839 2841	N.D.	18	N.D.	100	2.34	2.86	63	Nil	Nil	N.D.	Trace	Nil oil	Nil oil
"	5	3311 3313	32	32	Nil	Nil	1.94	2.70	40	"	"	"	Faint Trace	"	"
"	6	3810 3812	26	26	Nil	Nil	1.94	2.61	46	"	"	"	Strong	"	"
"	7	4295 4297	30	28	20	3	2.04	2.87	22	"	"	"	Trace	"	"
"	8	4800 4804	19	19	Nil	Nil	2.18	2.68	50	"	"	"	Strong	"	"

Additional information:

General file no. 62/399

Well file no. 62/1308



Date: 6th March. 1963

CORE ANALYSIS RESULTS

Notes (i) Unless otherwise stated, the porosities and permeabilities were determined on two small plugs (V & H) cut at right angles from the core or sample. Ruska field porometer and permeameter were used, with air and dry nitrogen, respectively, as the saturating and flowing media. (ii) Oil and water saturations were determined using Soxhlet type extraction apparatus. (iii) Acid solubilities were determined using 15% commercial hydrochloric acid (iv) N.D. means Not Determined.

Well or Area	Core or sample number	Depth in ft. From: To:	Effective porosity % by Vol.		Absolute permeability millidarcys.		Avg. density in gms/cc.		Fluid saturation			Acid solubility % by vol.	Oil Characteristics			
			V.	H.	V.	H.	Dry Bulk	Grain	Water: % pore space	Oil: % pore space	Oil: Metric tons/acre ft.		Fluorescence in solvent	Colour of extracted oil.	Fluorescence of extracted oil.	
EUMERALLA No. 1	9	5299 5302	21	23	Nil	Nil	2.05	2.63	22	Nil	Nil	N.D.	Faint Trace	Nil oil	Nil oil	
"	10	5809 5811	21	13	Nil	Nil	2.29	2.76	34	"	"	"	Strong	"	"	
"	11	6046' 6048' 6"	17	16	Nil	Nil	2.19	2.63	32	"	"	"	Strong	"	"	
"	12	6242 6244	16	15	2	2	2.21	2.61	34	"	"	"	Strong	"	"	
"	13	6252 6254	10	11	Nil	Nil	2.22	2.54	69	"	"	"	Strong	"	"	
"	14		No Core Available					-	-	-	-	-	-	-	-	-
"	15	6712 6714	11	11	Nil	Nil	2.34	2.63	61	Nil	Nil	N.D.	Strong	Nil oil	Nil oil	
"	16	7227 7229	8	5	Nil	Nil	2.49	2.66	58	"	"	"	Strong	"	"	

Additional information:

General file no. 62/399

Well file no. 62/1308



Date: 6th March, 1963

CORE ANALYSIS RESULTS

Notes: (i) Unless otherwise stated, the porosities and permeabilities were determined on two small plugs (V & H) cut at right angles from the core or sample. Ruska field porometer and permeameter were used, with air and dry nitrogen, respectively, as the saturating and flowing media. (ii) Oil and water saturations were determined using Soxhlet type extraction apparatus. (iii) Acid solubilities were determined using 15% commercial hydrochloric acid (iv) N.D. means Not Determined.

Well or Area	Core or sample number	Depth in ft. From: To:	Effective porosity % by Vol.		Absolute permeability millidarcys.		Avg. density in gms/cc.		Fluid saturation			Acid solubility % by vol.	Oil Characteristics		
			V.	H.	V.	H.	Dry Bulk	Grain	Water: % pore space	Oil: % pore space	Oil: Metric tons/acre ft.		Fluorescence in solvent	Colour of extracted oil.	Fluorescence of extracted oil.
EUMERALLA No. 1	17	7709 7712	4	2	Nil	Nil	2.48	2.55	100	Nil	Nil	N.D.	Strong	Nil oil	Nil oil
"	18	7716 7717	5	5	"	"	2.41	2.55	99	"	"	"	Strong	"	"
"	19	8147 8149	3	3	"	"	2.48	2.55	100	"	"	"	Strong	"	"
"	20	8463 8465	4	5	"	"	2.52	2.64	78	"	"	"	Strong	"	"
"	21	8914 8916	3	2	"	"	2.57	2.63	100	"	"	"	Trace	"	"
"	22	9383 9385	2	2	"	"	2.51	2.55	100	"	"	"	Trace	"	"
"	23	9769 9772	3	3	"	"	2.53	2.61	100	"	"	"	Trace	"	"
"	24	9881 9890	13	12	2	2	2.37	2.67	49	Not Measurable		N.D.	Good	Not Extracted	Trace Only

Additional information: Core No. 24 was received in a sealed condition. Salinity for extracted water - 4740 p.p.m. NaCl.

All cores which gave "strong" fluorescence in solvent contained coal or carbonaceous partings and pieces. General file No. 62/399

Well file no. 62/1308



Date: 6th March, 1963

CORE ANALYSIS RESULTS

Notes: (i) Unless otherwise stated, the porosities and permeabilities were determined on two small plugs (V & H) cut at right angles from the core or sample. Ruska field porometer and permeameter were used, with air and dry nitrogen, respectively, as the saturating and flowing media. (ii) Oil and water saturations were determined using Soxhlet type extraction apparatus. (iii) Acid solubilities were determined using 15% commercial hydrochloric acid (iv) N.D. means Not Determined.

Well or Area	Core or sample number	Depth in ft. From: To:	Effective porosity % by Vol.		Absolute permeability millidarcys.		Avg. density in gms/cc.		Fluid saturation			Acid solubility % by vol.	Oil Characteristics		
			V.	H.	V.	H.	Dry Bulk	Grain	Water: % pore space	Oil: % pore space	Oil: Metric tons/acre ft.		Fluorescence in solvent	Colour of extracted oil.	Fluorescence of extracted oil.
EUMERALIA No. 1	25	10,300 10,302	5	5	Nil	Nil	2.52	2.61	20	Nil	Nil	N.D.	Trace	Nil oil	Nil oil

Additional information:

General file no. 62/399

Well file no. 62/1308

APPENDIX 6:

Geochem

AMERICAN OVERSEAS PETROLEUM LIMITED

1ST FLOOR, "GLEN CRAG"
119-123 LEICHHARDT STREET, BRISBANE
QUEENSLAND

PHONE: 23327
BOX 1086 N. G.P.O., BRISBANE

June 27, 1967.

EXPLORATION GEOLOGY

Source Rock Analysis

The General Manager,
Frans-Broken Hill Company Pty. Ltd.
31 Queen Street,
MELBOURNE, C.I., Victoria

Dear Sir:

We have received the following source rock analyses from the Chevron Research Company, for samples from your Eumeralla 1, Pretty Hill 1 and Port Campbell 1 wells in the Otway basin.

<u>Well</u>	<u>Core No.</u>	<u>Depth Feet</u>	<u>Weight Percent of</u>		<u>Total Organ. content Vol %</u>	<u>Petroleum Source Index</u>
			<u>Bitumen Carbon</u>	<u>Bitumen-free organic carbon</u>		
Eumeralla	22	9384	0.01	0.19	0.60	0.32
Pretty Hill 1 ✓	6	2825-32	0.01	1.04	3.15	0.90
Pretty Hill 1	12	4640-57	0.02	0.54	1.68	0.89
Port Campbell	8	2915-33	0.09	1.92	6.05	0.95
Port Campbell	15	4293	0.02	2.07	2.27	0.98
Port Campbell	21	5223-33	0.02	1.13	3.45	0.95
Port Campbell	23	5700-18	0.05	2.85	8.71	0.98

An evaluation of the source potential of a sample can be made by referring to the attached chart. For example, a shale containing 3.15% organic matter with a source index of 0.90 would rate very highly as opposed to one with 0.60% organic matter and an index of 0.32.

We wish to thank you for permission to sample the wells and hope the above information will be of value.

Yours very truly,

AMERICAN OVERSEAS PETROLEUM LIMITED.

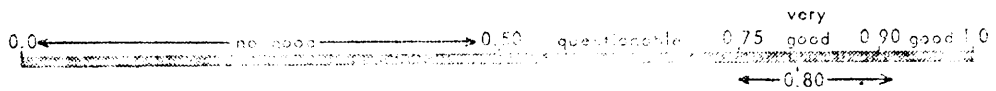
NWH:CDS,
cc. Victoria Dept. of Mines
Encl.1

E.R. LOCKE,
Manager

SOURCE ROCK POTENTIAL

Quantity - Volume of Organic Matter in Rock (to be included in future CRC reports)
(See Table I and II in text)

Source Potential
or Index
(0 to 1.0)



*Needs consistency in several samples to be rated

Source Potential results from the volume of organic matter (quantity) and its relation to the potential or index (quality).

*Section
Eumeralla*

EUMERALLA 1

EUM-1

Otway Basin

38 13 s. lat.

141 56 e. long.

#	M	FT	XI-C	XO-C	XN	XH	S1	S2	TMAX	PI	HI	GP
1	355	1166	8.3	0.32	bd1	0.37	bd1	0.2	ndm	---	29	0.2
2	506	1660	13.0	0.81	bd1	0.25	bd1	bd1	ndm	---	---	---
3	655	2150	4.8	0.64	bd1	0.14	bd1	bd1	ndm	---	---	---
4	811	2660	12.9	0.23	bd1	0.12	bd1	bd1	ndm	---	---	---
5	1189	3900	3.8	0.56	bd1	0.44	0.05	0.2	463	0.20	39	0.3
6	1396	4580	5.9	0.63	bd1	0.46	bd1	0.3	432	---	40	0.3
7	1710	5610	2.7	0.77	bd1	0.43	bd1	0.6	462	---	72	0.6
8	1784	5850	2.5	1.11	bd1	0.51	bd1	0.4	465	---	36	0.4
9	1832	6010	1.5	5.86	0.15	0.92	0.43	17.5	467	0.02	299	17.9
10	1845	6050	0.5	0.79	0.05	0.56	0.18	0.3	458	0.36	40	0.5
11	2024	6640	0.9	0.83	0.06	0.62	bd1	0.4	460	---	43	0.4
12	2048	6716	bd1	20.09	0.36	1.84	1.09	68.1	452	0.02	339	69.2
13	2415	7920	1.7	3.02	0.14	0.61	0.30	1.6	459	0.16	54	1.9
14	2579	8459	0.3	0.42	0.06	0.47	0.16	0.5	461	0.26	108	0.6
15	2604	8540	1.7	2.27	0.09	0.59	0.25	1.8	465	0.12	80	2.1
16	2619	8590	2.5	4.19	0.16	0.74	0.74	7.8	464	0.09	185	8.5
17	2643	8670	2.2	13.24	0.39	1.23	3.20	36.9	433	0.08	279	40.1
18	2738	8980	2.0	1.99	0.10	0.58	0.30	3.1	497	0.09	154	3.4
19	2774	9100	2.3	1.53	0.10	0.53	0.18	2.1	465	0.08	135	2.2
20	2902	9520	1.8	0.85	0.08	0.50	0.19	0.8	473	0.19	93	1.0
21	2977	9764	0.1	0.48	0.08	0.50	0.08	0.3	473	0.24	54	0.3
22	3003	9850	1.2	0.48	0.05	0.41	0.17	0.5	464	0.25	110	0.7
23	3070	10070	1.7	0.54	0.06	0.39	0.31	0.7	464	0.30	133	1.0
24	3122	10240	1.0	0.92	0.08	0.54	0.11	0.5	464	0.20	49	0.6

Pyrolysis run with CDS Pyroprobe and modified interface: TMAX inaccurate.

M is sample depth in meters.

FT is sample depth in feet.

XI-C is inorganic carbon as % calcium carbonate in rock.

XO-C is organic carbon as % carbon in rock.

XN is % nitrogen in rock.

XH is % hydrogen in rock.

S1 is pyrolysis free-hydrocarbon signal (mg hydrocarbons/g rock).

S2 is pyrolysis kerogen signal (mg S2 hydrocarbons/g rock).

PI is production index [S1/(S1+S2)].

TMAX is temperature at which S2 signal is maximum (deg C).

HI is hydrogen index (mg hydrocarbons/g O-C).

GP is genetic potential (kg hydrocarbons/ton rock) (S1+S2).

'bd1' means 'below detection limit'; '---' means 'not determined'.

'ndm' means 'no definitive maximum'.