Well Completion Report

Cobia - 2
(W689)

ESSO EXPLORATION AND PRODUCTION
AUSTRALIA INC.

W689.

OIL and GAS DIVISION

WELL COMPLETION REPORT

COBIA-2

GIPPSLAND BASIN, VICTORIA.

CONFIDENTIAL

L.G. ELLIOTT

July, 1977

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APPENDICES

ENCLOSURES

ATTACHMENT

ESSO STANDARD OIL (AUSTRALIA) LTD.

COMPLETION REPORT

I WELL DATA RECORD

Date July, 1977

LOCATION

WELL NAME COBIA-2	STATE Victoria	PERMIT or LICENCE VIC/L5	GEOLOGICAL BASIN GIPPSLAND	FIELD Confirmation

CO-ORDINATES Lat. Long. Surface 38°27'31.791"S 148°18'16.241"E X 613818mE Y 5742454mN	MAP PROJECTION AMG Zone 55	GEOGRAPHICAL DESCRIPTION 1.2 miles east of Cobia-1

ELEVATIONS & DEPTHS

ELEVATIONS Ground MSL KB 83' RT Braden Head Top Deck Platform	WATER DEPTH 249'	TOTAL DEPTH M.D. 8195 T.V.D. Avg.Angle Straight hole
	PLUG BACK DEPTH 2500'	REASONS FOR P.B. Suspension, allowing for re-entry.

DATES

RIG RELEASED from Barracouta-4, 27th April 1977	ON LOCATION 28th April, 1977	SPUDDED 2nd May, 1977
REACH TOTAL DEPTH 14th May, 1977	RIG RELEASED 24th May, 1977	PROD.UNIT - Start Rigging Up
PROD.UNIT - Rig Down Complete	I.P. ESTABLISHED	

MISCELLANEOUS

OPERATOR ESSO	PERMITTEE or LICENCEE Esso-Hematite Petroleum P/L	ESSO INTEREST 50%	OTHER INTEREST Hematite Petroleum

CONTRACTOR Australian Odeco P/L	RIG NAME "Ocean Endeavour"	EQUIPMENT TYPE Semisubmersible drilling vessel

TOTAL RIG DAYS 27	DRILLING AFE NO. 237-003	COMPLETION NO.	TYPE COMPLETION

LAHEE WELL	Before Drilling	Stepout
CLASSIFICATION	After Drilling	Plugged and suspended successful Oil Confirmation Well.

L.G. ELLIOTT
Geologist

COBIA-2

II (a) INITIAL PRODUCTION TEST - Not Applicable

II (b) FORMATION INTERVAL TESTS - Summary, full details in Appendix 3. Conducted 5 successful FIT's, 28 RFT settings were attempted. Three were technically successful.

Designation	Depth	Details	
FIT-1	7940'	Oil Test	Rec. 36.6 cu ft of gas 13350cc oil 46° API at 72°F, white fluorescence, black oil. 6750cc muddy filtrate 0.589Ω at 70°F.
FIT-2	7916'	Oil Test	Rec. 55.7 cu ft of gas 20250cc oil 46° API at 67°F, black, yellow fluorescence. Trace mud.
FIT-3	7896'	Oil Test	Rec. 42.3 cu ft of gas 13400cc oil 46° API at 69°F black, yellow/white fluorescence. 6850cc mud and filtrate 0.550Ω at 68°F, 11200 ppm.
FIT-4	7877'	Oil Test	Rec. 43.5 cu ft gas 15500cc oil 45° API at 70°F, black, white fluorescence 4500cc muddy oil.
FIT-5	7866'	Oil Test	Rec. 56 cu ft of gas 15850cc oil 44°? API at 70°F black. 4000cc muddy oil.
RFT-1	7965'	Water Test	Rec. 21200cc of formation water. RW 0.303Ω at 71°F = 72500ppm.
RFT-2	8014'		Pressure only.
RFT-3	7945'	Water Test	Rec. 0.7 cu ft of gas 300cc dark brown oil, < 40° API at 85°F; 750cc thick oily amber coloured froth; 20550cc of formation water 0.349Ω at 72° > 25000ppm, flow line plugged and segregator was not filled. Attempted to fill the segregator.
RFT-4	7945'		Had no seal.
RFT-5	7945'.5		Flowline plugged.
RFT-6	7944'.5		Segregator did not open.
RFT-7	7916'.5		No seal.
RFT-8	7917'		Flowline plugged.
RFT-9	7916'		No seal.
RFT-10	7896'		Partial plugging of flowline.
RFT-11	7897'		No seal.
RFT-12	7896'.5		No seal.
RFT-13	7895'.5		Flowline plugged.
RFT-14	7896'		No seal.
RFT-15	7965'		No seal.

2/....

Designation	Depth	Details
RFT-16	7964'	No seal.
RFT-17	7853'	No seal.
RFT-18	7853'5	No seal.
RFT-19	7852'5	No seal.
RFT-20	7906'	No seal.
RFT-21	7917'	Tool did not open.
RFT-22	7906'	No seal.
RFT-23	7905'	Tool did not open.
RFT-24	7854'	No seal.
RFT-25	7852'	Mud run Tool did not set properly, but retained intermittant seal, during the filling of the main chamber as well as the segregator.
RFT-26	7905'5	No seal.
RFT-27	7904'5	No seal.
RFT-28	7905'	No seal.

III. PERFORATING RECORD (Prod. test, Completion, DST.)

Not applicable.

IV. Casing and Cementing Record

Casing

Casing size	Shoe Depth	Cemented by Sacks	
20"	747'	1000	
$13^3/8$"	7866'	1000	
$9^5/8$"	8184'	680	cement behind casing 7130' cement in shoe 7750'

Cement Plugs

Depth	Cemented by Sacks	
1. 7750'-7450'	105	tagged 7435'
2. 2700'-2500'	71	

WELL COBIA-2 GIPPSLAND BASIN

IV(a) CASING - LINER - TUBING RECORD

Type	Size	Weight	Grade	Thread	No. Joints	Amount	**Depth**
Pile Joint	24"	670#	-	CC	1	35.0	355.00
Cross Over	20"	129#	X-52	JV-CC	1	43.33	398.33
Conductor Casing	20"	91#	X-52	JV	7	303.29	701.62
Float Joint	20"	91#	X-52	JV	1	45.00	746.62
Casing Hanger	18-3/4" x 13-3/8"	-	-	-	1	2.30	326.30
Pup Joint	13-3/8"	54.5 #	K-55	Butt	1	5.40	331.70
Surface Casing	13-3/8"	54.5 #	K-55	Butt	64	2491.66	2823.36
Float Collar	13-3/8"	-	-	Butt	1	1.70	2825.06
Float Joint	13-3/8"	54.5 #	K-55	Butt	1	38.60	2863.66
Float Shoe	13-3/8"	-	-	Butt	1	2.00	2865.66

V (a) CEMENT RECORD

String	20" Conductor Csg.		13-3/8" Surface Csg.		
Type of Cement	Aust. 'N' Neat +12% Gel	Aust. 'N' Neat	Aust. 'N' Neat +1% CaCl2	Aust. 'N' Neat	
Number of FT^3	1424	413	330	850	
Average weight of slurry	12.6	15.6	15.6	15.6	
Cement Top	Seafloor		1400'		
Casing Tested with	500 psi		1500 psi		
Number of Centralizers	6		9		
Number of Scratchers	-		-		
Stage Collar etc.	-		-		
Remarks	-		-		

G.W. WEYBURY
Engineer

WELL COBIA-2 GIPPSLAND BASIN

IV (b)	CASING - LINER - TUBING RECORD						
Type	Size	Weight	Grade	Thread	No. Joints	Amount	**Depth**
Casing Hanger	18-3/4" x 9-5/8"	-	-	-	1	2.29	325.29
Pup Joint	9-5/8"	47 #	N-80	Butt	1	4.28	329.57
Inter. Casing	9-5/8"	47 #	N-80	Butt	202	7776.44	8106.01
Float Collar	9-5/8"	-	-	Butt	1	1.55	8107.56
Float Joint	9-5/8"	47 #	N-80	Butt	1	38.49	8146.05
Float Shoe	9-5/8"	-	-	Butt	1	1.76	8147.81

V (b)	CEMENT RECORD		
String	9-5/8" Intermediate Casing		
Type of Cement	Aust. 'N' Neat + 0.5% HR-4		
Number of FT^3	802		
Average weight of slurry	15.6		
Cement Top	7130'		
Casing Tested with	1500 psi		
Number of Centralizers	31		
Number of Scratchers	-		
Stage Collar etc.	-		
Remarks	-		

VI SUBSURFACE COMPLETION EQUIPMENT - not applicable

G.W. WEYBURY
Engineer

WELL COBIA-2

VII SAMPLES, CONVENTIONAL CORES, SW CORES

INTERVAL	TYPE	RECOVERED	INTERVAL	TYPE	RECOVERED
800 -3200 3200 -5000 5000 -8190	5 sets of Washed and dried, 1 set of unwashed cutting samples.	30' intervals 20' intervals 10' intervals	90 sidewall cores were attempted, 89 were recovered. A detailed list and description is attached.		
			7855-7894	Core-1	100%
			7894-7935	Core-2	95%
			7935-7982	Core-3	100%
800 -8190	One set of Composite canned cuttings scaled at 100 feet intervals				

VIII WIRELINE LOGS AND SURVEYS Incl. FIT)

Type & Scale	From To	Type & Scale	From To
ISF-Sonic Run 1 2" & 5" = 100'	748-2892'		
FDC-GR-Cal Run 1 2" & 5" = 100'	FDC 748-2896 GR 332-2896		
ISF-Sonic Run 2 2" & 5" = 100'	2867-8199	FIT's and RFT's see Part II	
FDC-CNL-GR Run 1 2" & 5" = 100'	2867-8199		
HDT Run 1	2867-8200		
Velocity Survey	2867-8200 19 levels		
CST 1	7822-8188		
CST 2	7110-7822		
CST 3	2912-7110		

L.G. ELLIOTT
Geologist

PE904819

This is an enclosure indicator page.
The enclosure PE904819 is enclosed within the container PE902263 at this location in this document.

The enclosure PE904819 has the following characteristics:

ITEM_BARCODE = PE904819
CONTAINER_BARCODE = PE902263
NAME = Cobia 2 Stratigraphic Table
BASIN = GIPPSLAND
ON_OFF = OFFSHORE
PERMIT = VIC/L5
TYPE = WELL
SUBTYPE = CHART/STRAT_COL?
DESCRIPTION = Cobia 2 Stratigraphic Table
REMARKS =
DATE_CREATED = 31/08/77
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia 2
CONTRACTOR =
CLIENT_OP_CO = Esso Australia Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

DESCRIPTION OF LITHOLOGICAL UNITS

COBIA-2

332-80	No samples were collected, gamma ray log indicates limestones.
800-1630	*CALCARENITE* - buff, very fine to medium, subangular to subrounded grains, firm to semi-friable, very calcareous, saccharoidal texture, rare glauconite grains. Skeletal material common at times, consisting of forams, bryzoa and bivalves.
1630-2000	*MARL* - buff to light grey, very soft, very calcareous, very silty, abundant forams, a trace of fine calcarenite, rare glauconite.
2000-2240	*SILTSTONE* - buff to light olive green, silt to very fine grained sand, subangular to rounded grains, very calcareous, firm, rare glauconite, grains appear partly leached.
2249-2450	*CALCARENITE* - buff to olive green, silt to fine, subangular to subrounded equant grains, very calcareous, firm, saccharoidal texture, very low porosity and permeability. Forams and bryzoa common at times.
2450-5950	*INTERBEDDED SILTSTONE-MARL* SILTSTONE - very calcareous medium grey, silt to very fine subangular to subrounded equant grains, firm to friable, very calcareous. Marl - light grey, soft, silty, forams abundant.
5950-7200	*INTERBEDDED SHALE-MARL* - Shale to very calcareous, medium grey, silty fissile, forams common, firm. Marl - light grey, soft, sticky.
7200-7846	*SHALE* - dark grey, slightly silty, very calcareous firm, fissile, slightly green due to finely disseminated glauconite, occasional pyrite. Some interbedded Marl - light grey, soft.
7846-7865	*SANDSTONE* - light to medium grey, glauconitic and pyritic, finely laminated, strongly bioturbated, silty. Corbonate and pyrite cement, very fine grained, some coarse.
7665-8195	*SANDSTONE* - buff to medium grey, friable quartz, medium to coarse grained with pebbles, may have calcareous cement, rare dolomitic stringers, micaceous.

X. GEOLOGICAL AND GEOPHYSICAL ANALYSIS

PRE-DRILL

Stratigraphically, the reservoir units east of Cobia-1 were expected to show a lateral facies change into marginal marine sands, accompanied by an internal dip reversal to the east. The reservoir characteristics were expected to be intermediate between those seen in Cobia-1 and the massive marine sands in the Mackerel Field.

The M-1.0 shale in Cobia-1 was expected to be present at the Cobia-2 location although possibly with a higher sand content.

This prognosis was based largely upon tying Cobia-1 into the seismic stratigraphy seen in Mackerel. There were indications, on some lines, of cycle rollover, i.e., progradation, to the east of Cobia-1 and it appeared that the lower M. diversus could be traced across Cobia into the paleontologically-barren upper section in the Mackerel Field.

Due to the probable lack of marker horizons expected in the well, the only predicted horizons were:

Top of Latrobe (Gurnard)	-	7800'
Base of M-1.0 Shale	-	7825'
OWC	-	7866'

POST-DRILL

Geophysics

The top of the Latrobe Group was encountered 37 feet high to prediction at Cobia-2. This error can be attributed to the pre-drill velocity interpretation which proved to be 45 ft per second too fast at this location. The structure map on the top of the Latrobe Group has been adjusted to tie the new well data. In addition, the eastern flank of the field has been recontoured on the north-eastern side of the fault to place due emphasis on a small eroded channel in this area.

The intra-Latrobe correlation of the well logs and the palaeontological data between Cobia-1 and Cobia-2 show 2(+)^{o} of west dip. Such correlations indicate that the pre-drill seismic interpretation of the uppermost intra-Latrobe between the two wells was incorrect. A seismic interpretation consistent with the well data requires the truncation of the base of the M-1.1/2 seismic marker in the vicinity of the Cobia-2 well. Evidence for this truncation can be seen on several seismic lines across the field, including line G72A-591A which was included in both the Application and Authorisation to Drill Cobia-2. These lines have been used to generate the post-drill intra-Latrobe map on the base of the M-1.1/2 seismic marker. This map shows truncation in the vicinity of Cobia-2 and about 2° of west dip at Cobia-1 which is consistent with the well correlations.

The difficulties experienced in correctly mapping the eastern limits of the M-1.1/2 seismic marker appear to be the result of a large acoustic impedance contrast at the top of the Latrobe Group, and much smaller density dependent contrasts within the uppermost intra-Latrobe. It is believed that deconvolution on many seismic lines across Cobia has not been able to attenuate a high amplitude top of Latrobe trail cycle sufficiently to allow the truncation of the lower amplitude M-1.1/2 event to be seen.

Geology

Top of Latrobe - 7763

In addition to the Top of Latrobe being high to prediction (see Geophysics), palaeontological and dipmeter results showed the correlation to be based purely on regional dip (2°-3°) to the west, as seen in Halibut.

An assemblage at -7801 in Cobia-2 is considered to be equivalent in age to an Upper L. balmei shale (Top -8013) in Cobia-1, approximately 250± downdip. Similarly an assemblage at -7769', 6' below the Top of Latrobe in Cobia-2, is correlated with a lower M. diversus (W. hyperacantha) pick at -7980' in Cobia-1. Therefore Cobia-2 encountered only 10' of basal M-1.1/2 sand, which represents a loss in section, due to post-Latrobe erosion, of 175' between Cobia-1 and Cobia-2. The remainder of the section penetrated in Cobia-2 is represented by M-1.3-1.5 which can be tied into both Cobia-1 and the southernmost Halibut development wells, and exhibits similar reservoir properties.

Dipmeter results also indicate regional dip of 2°-4° to the W and WSW, as well as showing intra-unit progradation and/or sediment transport in a generally ESE direction. This is also described by the log character seen in Cobia-2 showing several progradational units, e.g., M-1.4, M-1.5. Progradation, as predicted from seismic, is confined to discrete units.

The overall facies character of the Cobia-2 units (M-1.1/2 - M-1.5) is therefore intermediate between Cobia-1 and Mackerel, as anticipated. However, the internal reservoir geometry consists of simple dip to the west, as in Halbiut, rather than structural rollover.

RESERVOIR PARAMETERS AND HYDROCARBONS

Hydrocarbons - Porosity/Permeability/Reservoir

The Latrobe Group sediments intersected in Cobia-2 included a very high percentage of good quality reservoir sandstone. Average porosities within the sand units range from 10 to 24 percent and similarly high permeabilities are interpreted.

A total of 82' net oil sand was penetrated within three units which can be correlated with Halibut wells:

UNIT	INTERVAL (Measured Depths)	GROSS THICKNESS	NET SAND	NET OIL SAND
M-1.1/2	7846-7861	15	10	10
M-1.3	7861-7893	32	24	24
M-1.4	7893-8000	107	97	48
OWC	7944			

Average water saturations within the oil column range from 11 to 30 percent. The oil/water contact was sharp and essentially the same as the original contact in Halibut and Mackerel wells and Cobia-1. No rise in oil/water contact due to Halibut production could be detected.

APPENDIX
1

WELL COMPLETION REPORT

COBIA-2

APPENDIX 1

SAMPLE DESCRIPTIONS

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
		Water Depth: 249' 20" casing shoe at 747', cemented with 1,000 sacks Rathole to 800' NOTE: Depths are uncompensated (CoreLab compensator line not connected) and may be ± 4'
800-830'	80	Skeletal limestone - fragments, light grey to white, bryozoa, bivalves, forams and corals
	20	Cement cavings
830-860	90	Skeletal calcarenite - mainly loose fragments, white to light grey, bryozoa, forams, bivalves and corals, some fine to medium aggregates of calcite
	10	Cement cavings
860-890	100	Skeletal calcarenite - as above
	Tr	Cement cavings
890-920	100	Skeletal calcarenite - buff to light grey, fine to coarse, some very coarse, aggregates of calcite grains - saccharoidal texture, loose fragments - forams, bryozoa, bivalves
	Tr	Cement cavings
920-950	100	Skeletal calcarenite - as above
	Tr	Cement cavings
950-980	100	Skeletal calcarenite - as above
	Tr	Cement cavings
980-1010	75	Calcarenite - buff, very fine to medium subangular grains, firm, very calcareous, few dark grains, saccharoidal texture
	25	Skeletal fragments - forams, bryozoa and bivalves
1010-1040	80	Calcarenite - as above
	20	Skeletal fragments - as above, mainly bivalve fragments
1040-1070	80	Calcarenite - buff, very fine to medium, subangular to subrounded grains, firm to semi-friable, very calcareous, saccharoidal texture, rare glauconite grains
	20	Skeletal fragments - mainly forams, bryozoa and bivalves
	Tr	Cement cavings
1070-1100	70	Calcarenite - as above
	20	Skeletal fragments - as above
	10	Cement cavings
1100-1130	90	Calcarenite - buff, very fine to medium, subangular to subrounded grains, poorly sorted, firm, some semi-friable, very calcareous, rare glauconite, saccharoidal texture
	10	Skeletal fragments - forams, bryozoa, shells
	Tr	Cement cavings
1130-1160	60	Calcarenite - as above
	40	Cement cavings
1160-1190	50	Calcarenite - as above
	50	Cement cavings

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
1190-1220	80	Calcarenite - buff, very fine to fine, subangular to subrounded grains, poorly sorted, firm, very calcareous, rare glauconite, saccharoidal texture, very low porosity and permeability
	20	Cement cavings
	Tr	Skeletal fragments - forams, bryozoa, shell
1220-1250	100	Calcarenite - as above
	Tr	Skeletal fragments - as above; cement cavings
1250-1280	100	Calcarenite - buff to light grey, very fine to fine grains, as above
	Tr	Skeletal fragments - as above
1280-1310	100	Calcarenite - as above
	Tr	Skeletal fragments - as above, rare pieces calcite
1310-1340	100	Calcarenite - buff to light grey, silt to fine subangular grai , poorly sorted, very calcareous, very low porosity and permeability, firm to semi-friable
	Tr	Skeletal fragments - mainly forams, bryozoa and shells
	Tr	Cement cavings
1340-1370	100	Calcarenite - as above, silty
	Tr	Skeletal fragments - as above, fossil tooth ??
1370-1400	100	Calcarenite - as above
	Tr	Skeletal fragments - as above
1400-1430	100	Calcarenite - as above
	Tr	Skeletal fragments - as above
1430-1460	100	Calcarenite - buff to light grey, silt to fine subangular to subrounded grains, firm to semi-friable, poorly sorted
	Tr	Skeletal fragments - mainly forams, bryozoa and bivalve pieces.
		Hot Wire: 5 units; C_1: 2339ppm; C_2: 41ppm
1460-1490	100	Calcarenite - buff to light grey, silt to fine subangular to subrounded grains, poorly sorted, firm to semi-friable
	Tr	Skeletal fragments - forams, bryozoa, bivalves
1490-1520	100	Calcarenite - as above, light grey
	Tr	Skeletal fragments - mainly forams
1520-1550	100	Calcarenite - as above
	Tr	Skeletal fragments - as above
1550-1580	100	Calcarenite - buff to light grey, silt to fine subangular to subrounded grains, poorly sorted, firm to semi-friable, very low porosity and permeability
	Tr	Skeletal fragments - forams, bryozoa
1580-1610	100	Calcarenite - as above
	Tr	Skeletal fragments - mainly forams, up to 2mm
1610-1640	100	Calcarenite - as above
	Tr	Skeletal fragments - as above
	Tr	Cement cavings

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
1640-1670	80	Calcarenite - buff to light grey, silt to fine, subangular grains, poorly sorted, firm to soft
	20	Marl - buff, very soft, mostly washed away, probably interbedded calcarenite and marl, silty
	Tr	Fossils - forams
1670-1700	70	Marl - buff, as above
	30	Calcarenite - as above
	Tr	Fossils - as above
1700-1730	80	Marl - as above
	20	Calcarenite - as above
	Tr	Fossils - as above
1730-1760	90	Marl - buff, very soft, very calcareous, silty
	10	Calcarenite - buff to light grey, silt to very fine, firm, poorly sorted
	Tr	Fossils - forams
1760-1790	100	Marl - as above
	Tr	Calcarenite - as above
	Tr	Fossils - abundant forams
1790-1820	100	Marl - as above
	Tr	Calcarenite - as above
	Tr	Fossils - abundant forams
1820-1850	100	Marl - buff to light grey, very soft, very calcareous, silty, minor calcarenite fragments, abundant forams (coarser grains in a calcareous soup)
1850-1880	100	Marl - as above
1880-1910	100	As above
1910-1940	100	Marl - buff to light grey, very soft, very calcareous, very silty, abundant forams, trace silt to fine calcarenite
1940-1970	100	Marl - as above; trace glauconite
1970-2000	100	Marl - as above
2000-2030	80	Calcareous Siltstone - graded from Marl above; buff to light grey, silt to very fine subangular grains, firm, some friable, glauconite inclusion, some pyrite
	20	Marl - buff to light grey, very soft, mostly washed out, abundant fossils, forams, bryozoa ?
2030-2060	100	Calcareous siltstone - as above
	Tr	Fossils - forams, bryozoa
2060-2090	100	Calcareous siltstone - as above, firm to hard
	Tr	Fossils - as above
2090-2120	100	Calcareous siltstone - buff to light grey, silt to very fine, poorly sorted, firm to semi-friable, subangular to rounded equant grains, saccharoidal texture on border of a silty calcarenite, rare glauconite
	Tr	Fossils - mainly forams, some bryozoa

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
2120-2150	100 Tr	Calcareous siltstone - as above, buff to olive green Fossils - as above
2150-2180	100 Tr	Calcareous siltstone - as above Fossils - as above
2180-2210	100 Tr	Calcareous siltstone - buff to light olive green, silt to very fine grained, subangular to rounded grains, very calcareous, firm, rare glauconite, grains appear partly leached. Fossils - forams, bryozoa
2210-2240	100 Tr	Calcareous siltstone - as above Fossils - as above
2240-2270	100 Tr	Calcarenite - grades from calcareous siltstone above, buff to olive green, silt to fine subangular to subrounded grains, very calcareous, firm, rare glauconite Fossil fragments - forams, bryozoa
2270-2300	100 Tr	Calcarenite - buff to light olive green, silt to fine subangular to subrounded grains, very calcareous, firm to semi-friable, saccharoidal texture, low porosity and permeability, no show. Fossil fragments - forams and bryozoa
2300-2330	100 Tr	Calcarenite - as above Fossils - as above
2330-2360		As Above.
2360-2390	100 Tr	Calcarenite - buff to olive green, silt to fine subangular to subrounded equant grains, very calcareous, firm, saccharoidal texture, very low porosity and permeability Fossils - forams, bryozoa
2390-2420	100 Tr	Calcarenite - as above, silt to very fine grain size, fringes on calcareous siltstone Fossils - forams, bryozoa
2420-2450	100 Tr	Calcarenite - as above Fossils - forams, bryozoa
2450-2480	100 Tr	Calcareous siltstone - grades from calcarenite above, buff to olive grey, silt to very fine subangular to subrounded equant grains, firm to soft, very low porosity and permeability, very calcareous Fossils - forams, bryozoa
2480-2510	100 Tr	Calcareous siltstone - as above, some grains grade to very fine to fine calcarenite Fossils - as above
2510-2540	100 Tr	Calcareous siltstone - as above, minor pyrite Fossils - as above
2540-2570		As above.
2570-2600	100 Tr	Calcareous siltstone - olive grey, silt to very fine subangular to subrounded equant grains, firm to brittle, saccharoidal texture, no effective porosity and permeability, very calcareous Fossils - mainly forams.

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
2600-2630	100	Calcareous siltstone - as above
	Tr	Fossils - as above
2630-2660	100	Calcareous siltstone - as above, generally more silty than above and consequently softer
	Tr	Fossils - as above
2660-2690	100	Calcareous siltstone - as above
	Tr	Forams
2690-2720	100	Calcareous siltstone - light olive grey, silt to very fine (mainly silt) subangular to subrounded ? equant grains, firm to semi-soft, poorly sorted, very calcareous, no effective porosity and permeability
	Tr	Fossils - mainly forams, few bryozoa
2720-2750	100	Calcareous siltstone - as above, rare finely disseminated pyrit coats, some grains
	Tr	Fossils - as above
2750-2780	100	Calcareous siltstone - as above
	Tr	Fossils - as above
2780-2810	100	Calcareous siltstone - as above
	Tr	Fossils - as above
2810-2840	60	Calcareous siltstone - light grey, silt to very fine, firm to soft, very calcareous
	40	Marl - buff to light grey, very soft, surrounded calcareous siltstone, silty
	Tr	Fossils - forams, bryozoa
2840-2870	100	Marl - as above
	Tr	Calcareous siltstone - as above, grades to marl
2870-2900	100	Marl - as above
	Tr	Calcareous siltstone and fossils
		POH to log and run 13-3/8" casing Shoe at 2866' Leak off test at 2920'. BU for 5 mins, hold for 5 MW 8.8 685psi - 685psi - 684psi ROP now compensated
		7.5.77
2900-2930	100	Calcareous siltstone - light grey, silt to very fine subangular to rounded equant grains, firm, very calcareous
	Tr	Marl - buff to light grey, very soft, silty
	Tr	Cement cavings
2930-2960	90	Calcareous siltstone - as above, firm to semi-soft
	10	Marl - as above
	Tr	Calcite - fossil fragments
2960-2990	80	Marl - as above
	20	Calcareous siltstone - as above
	Tr	Fossils
2990-3020	100	Micritic limestone - buff to light grey, clay grain size, very hard, very calcareous, very dense
	Tr	Marl - light grey, silty, soft

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
3020-3050	80	Micritic limestone - as above
	20	Calcareous siltstone - light grey, silt to subangular to subrounded equant grains, firm
3050-3080	50	Micritic limestone - as above
	50	Calcareous siltstone - as above, tends to marl
3080-3110	80	Marl - light grey, soft to very soft, silty, very calcareous
	20	Calcareous siltstone - as above
3110-3140	100	Marl - as above
	Tr	Calcareous siltstone - as above
3140-3170	100	Marl - light grey, soft to very soft, silty, very calcareous
3170-3200	100	Marl - as above
3200-3220	100	Marl - as above, clay to silt grain size
3220-3240	100	Marl - light grey, very soft, generally silt, very calcareous
	Tr	Calcareous siltstone - light grey, silt grain size, firm to soft
3240-3260	100	Marl - as above
	Tr	Fossils - rare forams
3260-3280	100	Marl - as above
	Tr	Forams
3280-3300	100	Marl - light grey, very soft, silty, very calcareous, shows just a hint of fissility, therefore may be silty calcareous shale
	Tr	Forams
3300-3320	100	Marl - as above
3320-3340	100	Marl - as above
	Tr	Calcareous siltstone - light grey, firm to semi soft, very calcareous
3340-3360	80	Marl - light grey, very soft, silty, very calcareous
	Tr	Forams
	20	Calcareous siltstone - light grey, firm, very calcareous, subangular to subrounded equant grains
3360-3380	80	Calcareous siltstone - as above, slightly fossiliferous
	20	Marl - as above
3380-3400	50	Calcareous siltstone - as above
	50	Marl - as above
3400-3420	50	Calcareous siltstone - light grey, silt to very fine subangular to subrounded equant grains, firm to soft, very calcareous, no effective porosity and permeability
	50	Marl - light grey, clay grain size, silty, very soft, sticky
	Tr	Forams
3420-3440	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Fossils - forams

SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
3440-3460	60	Calcareous siltstone - as above
	40	Marl - as above
	Tr	Forams
3460-3480	40	Calcareous siltstone - light grey, silt to very fine grains, subangular to subrounded equant grains, very calcareous, firm to semi-friable
	60	Marl - light grey, silty, soft, sticky
		Calcareous siltstone grains in marly soup
3480-3500	10	Calcareous siltstone - as above
	90	Marl - as above
	Tr	Forams
3500-3520	100	Marl - as above
	Tr	Calcareous siltstone - as above
	Tr	Forams
3520-3540	80	Marl - light grey, very soft, silty, very calcareous
	20	Calcareous siltstone - light grey, silt to very fine grain size, subangular to subrounded equant grains, very calcareous, firm to soft
	Tr	Fossils - forams
3540-3560	100	Marl - as above
	Tr	Calcareous siltstone - as above
	Tr	Forams
3560-3580	85	Marl - as above
	15	Calcareous siltstone - as above
	Tr	Forams
3580-3600		As Above.
3600-3620	80	Marl - light grey, very soft, silty, very calcareous
	20	Calcareous siltstone - light grey, silt grain size, subangular subrounded equant grains, very calcareous, firm to soft
	Tr	Forams
3620-3640	90	Marl (Calcareous claystone) - light grey, very calcareous, clay grain size, silty and fine fossil fragments, very soft
	10	Calcareous siltstone - light grey, silt grain size, subangular to subrounded equant grains, firm to soft, very calcareous
	Tr	Forams
3640-3660	90	Marl - as above
	10	Calcareous siltstone - as above
	Tr	Forams
3660-3680	70	Marl - as above
	30	Calcareous siltstone - as above
	Tr	Forams
3680-3700		As above
3700-3720	80	Marl - light grey, very soft, silty, very calcareous
	20	Calcareous siltstone - light grey, silt, subangular to subrounded equant grains, very calcareous, firm to soft
	Tr	Forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
3720-3740		As above
3740-3760	90	Marl - as above
	10	Calcareous siltstone - as above
	Tr	Forams
3760-3780	60	Marl - light grey, silty, very calcareous, very soft
	40	Calcareous siltstone - light grey, silt grain size, subangular to subrounded equant grains, firm to soft, very calcareous
	Tr	Forams
3780-3800		As above
3800-3820	60	Calcareous siltstone - as above
	40	Marl - as above
	Tr	Forams
3820-3840	70	Calcareous siltstone - as above, light to medium grey
	30	Marl - as above, becoming firmer
	Tr	Forams
3840-3860	80	Calcareous siltstone - light to medium grey to buff, very fine to silt, subangular to subrounded equant grains, firm to semi-friable, very calcareous, fossil fragments included
	20	Marl - light grey, firm to soft, very calcareous, silty
	Tr	Forams
	Tr	Calcite - fossil fragments
3860-3880	85	Calcareous siltstone - light to medium grey, silt subangular to subrounded equant grains, firm to semi-friable, very calcareous
	15	Marl - light grey, very soft, silty, clay grain size, very calcareous
	Tr	Forams and calcite fossil fragments
3880-3900	90	Calcareous siltstone - as above
	10	Marl - as above
	Tr	Forams and calcite
3900-3920	80	Calcareous siltstone - as above
	20	Marl - as above
	Tr	Forams and calcite
3920-3940	90	Calcareous siltstone - as above
	10	Marl - as above
	Tr	Fossil fragments
3940-3960	90	Calcareous siltstone - buff to light grey, silt subangular to subrounded equant grains, very calcareous, hard to semi-friable
	10	Marl - light grey, silty, soft, very calcareous
	Tr	Fossil fragments
3960-3980	100	Calcareous siltstone - as above
	Tr	Marl - as above
3980-4000	100	Calcareous siltstone - as above
	Tr	Marl - as above
4000-4020	100	Calcareous siltstone - medium grey, silt subangular to subrounded equant grains, firm to brittle, very calcareous
	Tr	Marl - light grey, soft, silty, very calcareous
	Tr	Forams and calcite fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
4020-4040	100	Calcareous siltstone - as above
	Tr	Marl - as above
	Tr	Forams
4040-4060	100	Calcareous siltstone - as above
	Tr	Marl - as above
	Tr	Forams, calcite fossil fragments
4060-4080	100	Calcareous siltstone - medium grey, silt subangular to subrounded equant grains, firm, very calcareous
	Tr	Marl - light grey, soft, silty, very calcareous
	Tr	Forams
4080-4100	100	Calcareous siltstone - medium grey, silt grain size, subangular to subrounded equant grains, firm to semi-friable, very calcareous
	Tr	Marl - light grey, silty, soft, very calcareous
	Tr	Forams and calcareous fossil fragments
4100-4120	75	Calcareous siltstone - as above
	25	Marl - as above
	Tr	Fossils
4120-4140	90	Calcareous siltstone - as above
	10	Marl - as above
4140-4160	100	Calcareous siltstone - as above
	Tr	Marl - as above
	Tr	Forams and calcite
4160-4180	90	Calcareous siltstone - as above
	10	Marl - as above
	Tr	Calcite
		8.5.77
4190'		Circulated Bottoms Up POH trip for N.B. Trip Gas: HW: 15; C_1: 7435; C_2: Tr; C_3: Tr BOB 0545 8.5.77 N.B. 3 HTC-X3A 3x18 jets
4180-4200	100	Calcareous siltstone - medium grey, silt subangular to subrounded equant grains, very calcareous, hard to brittle
	Tr	Marl - light grey, silty, soft, very calcareous
	Tr	Fossil calcite
4200-4220	100	Calcareous siltstone - as above, moderately calcareous
	Tr	Fossils - forams, calcite fragments
4220-4240	100	Calcareous siltstone - as above, leaves little residue upon dissolution by HCl
	Tr	Marl - as above, leaves dirty residue when dissolved by HCl
	Tr	Forams, calcite
4240-4260	100	Calcareous siltstone - as above
	Tr	Forams, calcite
4260-4280	80	Calcareous siltstone - medium grey, silt subangular to subrounded equant grains, moderately calcareous, firm to brittle
	20	Micritic limestone - tan, very hard, dense, brittle, slightly calcareous, ? dolomitic
	Tr	Forams, calcite fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
4280-4300	100	Calcareous siltstone - medium grey, silt grain size, subangular to subrounded equant grains, very calcareous, firm
	Tr	Micritic limestone - tan, clay grain size, very hard, dense, brittle, moderately calcareous, ? dolomitic
	Tr	Forams, calcite fragments
4300-4320	100	Calcareous siltstone - as above, firm to friable
	Tr	Forams, calcite
4320-4340	100	Calcareous siltstone - as above
	Tr	Micritic limestone - as above - cavings
	Tr	Marl - light grey, soft, silty, very calcareous
4340-4360	90	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, firm to hard, grades in part to very fine calcarenite
	10	Micritic limestone - as above
	Tr	Forams, calcite
4360-4380		As Above
	Tr	Marl - as above
4380-4400	100	Calcareous siltstone - as above
	Tr	Micritic limestone - as above
	Tr	Marl - as above
	Tr	Fossils - forams; calcite
4400-4420	60	Calcarenite - grades from calcareous siltstone above; medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, firm to friable
	40	Marl - light grey, silty, soft, very calcareous
	Tr	Forams, calcite
4420-4440	50	Calcarenite - as above
	50	Marl - as above
	Tr	Forams, calcite
4440-4460	70	Marl - as above
	30	Calcarenite - as above, light to medium grey
	Tr	Forams, calcite
4460-4480	70	Marl - light grey, very calcareous, soft to very soft, silty to sandy particles in carbonate soup
	30	Calcarenite - light to medium grey, silt to very fine, firm to friable, very calcareous, subangular to subrounded equant grains
	Tr	Forams, calcite fragments
4480-4500	60	Calcarenite - light to medium grey, soft to very fine subangular to subrounded equant grains, very calcareous, firm to hard
	40	Marl - light grey, very calcareous, soft, silty
	Tr	Forams, calcite
4500-4520	50	Calcarenite - as above
	50	Marl - as above
	Tr	Forams, calcite
4520-4540	70	Calcarenite - as above
	30	Marl - as above
	Tr	Fossils, calcite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
4540-4560	40	Calcarenite - as above
	60	Marl - as above
	Tr	Forams, calcite
4560-4580	60	Calcarenite - light to medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, firm to friable
	40	Marl - light grey, silty, soft to very soft, very calcareous
	Tr	Forams, calcite fragments
4580-4600	50	Calcarenite - as above
	50	Marl - as above
	Tr	Fossils - forams; calcite fragments
4600-4620	65	Calcarenite - as above, medium grey
	35	Marl - as above
	Tr	Forams, calcite
4620-4640	80	Calcarenite - as above
	20	Marl - as above
	Tr	Forams, calcite
4640-4660	80	Calcarenite - medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, firm to friable, nil effective porosity and permeability
	20	Marl - light grey, silty, very calcareous, soft
	Tr	Forams, calcite
4660-4680	80	Calcarenite - as above, hard to firm
	20	Marl - as above
	Tr	Micritic limestone - buff to tan, clay grain size, hard, dense, moderately calcareous, ? dolomitic
	Tr	Forams
	Tr	Calcite - fossil fragments
4680-4700	85	Calcareous siltstone - grades from calcarenite above, medium g /, silt to very fine subangular to subrounded equant grains, very calcareous, firm to semi friable, some hard
	15	Marl - light grey, very calcareous, silty, soft
	Tr	Forams, calcite
4700-4720	80	Calcareous siltstone - as above
	20	Marl - as above
	Tr	Forams, calcite fossil fragments - as above
4720-4740	90	Calcareous siltstone - as above
	10	Marl - as above
	Tr	Calcite fossil fragments
4740-4760	85	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to friable, some hard, very calcareous, nil effective porosity and permeability
	15	Marl - light grey, soft, very calcareous, silty, clay grain size
	Tr	Forams, calcite fossil fragments
4760-4780	80	Calcareous siltstone - as above, grades in part to very fine calcarenite
	20	Marl - as above
	Tr	Forams, calcite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
4780-4800	70 30 Tr	Calcareous siltstone - as above Marl - as above Calcite
4800-4820		As Above.
4820-4840	80 20 Tr	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, hard to firm, very calcareous Marl - light grey, firm to soft, very calcareous, silty Forams, calcite
4840-4860	60 40 Tr	Calcareous siltstone - as above Marl - as above Forams, calcite
4860-4880	30 70 Tr	Calcareous siltstone - as above Marl - as above Forams, calcite
4880-4900	50 50 Tr	Calcareous siltstone - as above Marl - as above Forams, calcite - fossil fragments
4900-4920	85 15 Tr	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to hard, very calcareous, nil effective porosity and permeability Marl - light grey, silty, very calcareous, firm to soft Calcite - fossil fragments
4920-4940	80 20 Tr	Calcareous siltstone - as above Marl - as above Calcite - fossil fragments
4940-4960	65 35 Tr	Calcareous siltstone - as above Marl - as above Forams
4960-4980	65 35 Tr	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, brown residue left after dissolving in HCl, firm to hard, nil effective porosity and permeability Marl - light grey, silty, very calcareous, firm to soft, minor fossils and forams in a clay matrix Forams and calcite - fossil fragments
4980-500	40 60	Calcareous siltstone - as above Marl - as above
5000-5010	70 30 Tr	Calcareous siltstone - as above Marl - as above Forams, calcite
5010-5020	50 50 Tr	Calcareous siltstone - as above Marl - as above Forams
5020-5030	40 60 Tr	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to hard, very calcareous Marl - light grey, firm to soft, very calcareous Forams and calcite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5030-5040	30	Calcareous siltstone - as above
	70	Marl - as above
	Tr	Forams, calcite
5040-5050	70	Marl - as above
	30	Calcareous siltstone - as above
	Tr	Forams, calcite
5050-5060	60	Calcareous siltstone - medium grey, very fine to silt subangular to subrounded equant grains, very calcareous, firm to hard
	40	Marl - light grey, silty, very calcareous, firm to soft
	Tr	Forams and calcite - fossil fragments
5060-5070	70	Calcareous siltstone - as above
	30	Marl - as above, some including forams
	Tr	Forams and calcite
5070-5080	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Forams and calcite
5080-5090	80	Calcareous siltstone - medium grey, very fine to silt subangular to subrounded equant grains, very calcareous, firm to hard
	20	Marl - light grey, silty, very calcareous, firm to soft
	Tr	Forams and calcite - fossil fragments
5090-5100	60	Calcareous siltstone - as above
	40	Marl - as above, extremely calcareous, large amount residue left after dissolving in HCl
	Tr	Forams, fossil fragments (calcite)
5100-5110		As Above
5110-5120	80	Calcareous siltstone - as above
	20	Marl - as above
	Tr	Forams
5120-5130	80	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to semi-friable, very calcareous
	20	Marl - light grey, soft, silty, very calcareous
	Tr	Micritic limestone - tan, hard, dense, moderately calcareous, ? dolomitic
	Tr	Forams
5130-5140	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Forams
5140-5150	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Forams and fossil fragments (calcite)
5150-5160	60	Calcareous siltstone - as above
	40	Marl - as above
	Tr	Forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5160-5170	70	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to hard, very calcareous
	30	Marl - light grey, silty, very very calcareous, firm to soft
	Tr	Forams
5170-5180	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Forams
5180-5190	60	Calcareous siltstone - as above, hint of fissility seen
	40	Marl - as above
	Tr	Forams
5190-5200	60	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to semi-friable, very calcareous
	40	Marl - light grey, silty, very calcareous, firm to soft
	Tr	Forams
5200-5210	80	Calcareous siltstone - as above
	20	Marl - as above
	Tr	Forams
5210-5220	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Forams
5220-5230	40	Marl - as above
	60	Calcareous siltstone - as above
5230-5240	80	Calcareous siltstone - as above
	20	Marl - as above, with abundant forams
5240-5250	50	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to friable, very calcareous
	50	Marl - light grey, clay grain size, soft, very calcareous, sil , and abundant small forams
5250-5260	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Calcite - fossil fragments
5260-5270	60	Calcareous siltstone - as above
	40	Marl - as above
	Tr	Calcite - fossil fragments
5270-5280	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Calcite, forams
5280-5290	80	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, very calcareous, firm to friable, nil effective porosity and permeability
	20	Marl - light grey, soft, silty, very calcareous, abundant small forams
	Tr	Fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5290-5300	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Fossil fragments
5300-5310	70	Calcareous siltstone - as above
	30	Marl - as above
	Tr	Fossil fragments
5310-5320	70	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to semi-friable, very calcareous
	30	Marl - light grey, soft to firm, very calcareous, silty, abundant small forams, held in calcareous clay matrix
	Tr	Fossil fragments
5320-5330	50	Calcareous siltstone - as above
	50	Marl - as above, abundant small forams
	Tr	Forams, fossil fragments
5330-5340	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Fossil fragments, abundant small forams
5340-5350	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Fossil fragments, abundant forams
5350-5360	60	Calcareous siltstone - medium grey, very fine to silt subangular to subrounded equant grains, very calcareous, firm to friable, mainly silt grain size
	40	Marl - light grey, soft, sticky, very calcareous, silty, abundant small forams
5360-5370	70	Calcareous siltstone - as above, some fissility grading to calcareous shale
	30	Marl - as above
	Tr	Fossil fragments
5370-5380	70	Calcareous shale - graded from calcareous siltstone above, silty, medium grey, firm, very calcareous
	30	Marl - very light grey, soft, very calcareous, silty
	Tr	Fossil fragments, forams
5380-5390	50	Calcareous shale - medium grey, silty, very calcareous, fissile, forams
	50	Marl - very light grey, soft, sticky, very calcareous
	Tr	Fossil fragments
5390-5400	60	Marl - as above
	40	Calcareous shale - as above, grades in part back to calcareous siltstone
	Tr	Fossil fragments
5400-5410	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Fossil fragments
5410-5420	70	Calcareous shale - medium grey, silty, very calcareous, firm
	30	Marl - light grey, soft, very calcareous, forams
5420-5430		As above

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5430-5440	60	Calcareous shale - as above, grades to calcareous siltstone in part
	40	Marl - as above
	Tr	Forams
5440-5450	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Forams
5450-5460	65	Calcareous shale to calcareous siltstone - as above
	35	Marl - as above
	Tr	Forams, fossil fragments
5460-5470	70	Calcareous shale - medium grey, silty, very calcareous, firm
	30	Marl - light grey, silty, soft, very calcareous, forams
5470-5480	60	Calcareous siltstone - grades from calcareous shale above, as above, silt to very fine subangular to subrounded grains
	40	Marl - light grey, as above
5480-5490		As above, abundant forams
5490-5500	65	Calcareous siltstone - as above
	35	Marl - as above
	Tr	Forams
5500-5510	40	Calcareous siltstone - as above
	60	Marl - as above
	Tr	Forams, fossil fragments
5510-5520	50	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded equant grains, firm to friable, very calcareous, grades in part to calcareous shale
	50	Marl - very light grey, soft to very soft, very calcareous
	Tr	Forams, fossil fragments
5520-5530		As Above
5530-5540	75	Calcareous siltstone - as above
	25	Marl - as above
	Tr	Forams, fossil fragments
5540-5550	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Forams, fossil fragments
5550-5560	75	Calcareous siltstone - medium grey, silt to very fine, very calcareous, subangular to subrounded equant grains, firm to friable, nil effective porosity and permeability
	25	Marl - light grey, soft, very calcareous
	Tr	Forams, calcite - fossil fragments
5560-5570	40	Calcareous siltstone - as above
	60	Marl - as above, abundant forams
	Tr	Fossil fragments
5570-5580	60	Marl - light grey, soft to very soft, very calcareous, sticky, silt
	40	Calcareous siltstone - medium grey, silt, subangular to subrounded equant grains, grades to calcareous shale, firm, very calcareous, some fissility
	Tr	Forams, calcite - fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5580-5590	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Fossil fragments, abundant small forams
5590-5600	70	Marl - as above
	30	Calcareous siltstone - as above
		Abundant small forams, trace fossil fragments
5600-5610	60	Marl - as above
	40	Calcareous siltstone - as above
	Tr	Fossil fragments, forams
5610-5620	75	Marl - as above
	25	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5620-5630	50	Calcareous siltstone - medium grey, silt size grains, firm to friable, very calcareous
	50	Marl - light grey, very calcareous, soft, sticky, silty
	Tr	Fossil fragments, abundant small forams
5630-5640	70	Marl - as above
	30	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5640-5650	60	Marl - as above
	40	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5650-5660	70	Marl - as above
	30	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5660-5670	80	Marl - light grey, soft, sticky, silty, very calcareous
	20	Calcareous siltstone - medium grey, silt size, subangular to subrounded equant grains, very calcareous, firm to friable
		Abundant forams, trace fossil fragments
5670-5680	90	Marl - as above, abundant forams
	10	Calcareous siltstone - as above
5680-5690	40	Marl - as above
	60	Calcareous siltstone - as above
	Tr	Fossil fragments
5690-5700	50	Marl - light grey, soft, sticky, silty, abundant small forams
	50	Calcareous siltstone - medium grey, silt, subangular to subrounded equant grains, very calcareous, firm to friable
	Tr	Fossil fragments
5700-5710	50	Marl - as above
	50	Calcareous siltstone - as above
	Tr	Fossil fragments
5710-5720	60	Marl - as above
	40	Calcareous siltstone - as above
	Tr	Fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5720-5730	50	Marl - as above
	30	Calcareous siltstone - as above
	Tr	Fossil fragments
5730-5740	60	Marl - light grey, soft, sticky, very calcareous, silty, abundant forams
	40	Calcareous siltstone - medium grey, silt grain size, subangular to subrounded equant grains, firm to hard, some friable, very calcareous
	Tr	Fossil fragments
5740-5750	50	Calcareous siltstone - medium grey, silt grain size, subangular to subrounded equant grains, firm to friable, some hard, very calcareous
	50	Marl - light grey, soft, sticky, very calcareous, silty, forams
	Tr	Fossil fragments
5750-5760	60	Calcareous siltstone - as above, small amount of residue left after dissolving in acid
	40	Marl - as above, large proportions of silt residue left after dissolving in HCl
	Tr	Fossil fragments
5760-5770		As Above
5770-5780	70	Marl - light grey, soft, sticky, very calcareous, silty
	30	Calcareous siltstone - medium grey, subangular to subrounded grains, firm to friable, some hard, very calcareous
	Tr	Small forams, fossil fragments
5780-5790	50	Marl - as above
	50	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5790-5800	50	Marl - as above
	50	Calcareous siltstone - as above, firm to soft, light to medium grey
	Tr	Forams (small), calcite - fossil fragments
5800-5810	60	Calcareous siltstone - as above
	40	Marl - as above
	Tr	Forams, fossil fragments
5810-5820	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Forams, fossil fragments
5820-5830	50	Calcareous siltstone - medium grey, very calcareous, subangular to subrounded equant grains, firm to friable
	50	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Forams, fossil fragments
5830-5840	70	Calcareous siltstone - as above, some hard
	30	Marl - as above
	Tr	Forams, calcite - fossil fragments
5840-5850	50	Calcareous siltstone - as above
	50	Marl - as above
	Tr	Forams, fossil fragments

SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5850-5860	50	Calcareous siltstone - medium grey, subangular to subrounded equant grains, very calcareous, firm to hard, some friable
	50	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Forams (small), fossil fragments
5860-5670	75	Marl - as above, abundant forams
	25	Calcareous siltstone - as above
	Tr	Forams and fossil fragments (calcite)
5870-5880	60	Marl - as above
	40	Calcareous siltstone - as above, grading to calcareous shale in part - some fissility and clay grain size predominantly
	Tr	Forams and fossil fragments
5880-5890	35	Marl - as above
	65	Calcareous siltstone - as above
	Tr	Fossils
5890-5900	50	Marl - light grey, soft, sticky, very calcareous, silty, abundant forams
	50	Calcareous siltstone - medium grey, silt to very fine subangular to subrounded grains, very calcareous, firm to friable, some hard, nil effective porosity and permeability
	Tr	Forams, fossil fragments (calcite)
5900-5910	35	Marl - as above
	65	Calcareous siltstone - as above, some moderately soft and fissile
	Tr	Fossil fragments, forams
5910-5920	60	Marl - as above
	40	Calcareous siltstone - as above
	Tr	Fossils fragments, forams
5920-5930	50	Calcareous siltstone - medium grey, silt to clay grains size some grading to calcareous shale, very calcareous, firm
	50	Marl - light grey, soft, very calcareous, silty, abundant forams
5930-5940		As above
5940-5950	60	Marl - as above
	40	Calcareous siltstone - medium grey, as above
	Tr	Forams, fossil fragments
5950-5960	60	Marl - as above
	40	Calcareous siltstone - as above
	Tr	Forams, fossil fragments
5960-5970	50	Marl - light grey, soft, sticky, very calcareous, silty, forams
	50	Calcareous siltstone - medium grey, silt grain size, ? subangular to subrounded grains, firm to soft and friable, very calcareous, nil effective porosity and permeability
5970-5980	65	Marl - as above
	35	Calcareous siltstone - as above grades in part to calcareous shale
	Tr	Forams, fossil fragments
5980-5990	40	Marl - as above
	60	Calcareous siltstone - as above
	Tr	Forams, fossil fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
5990-6000	50	Marl - light grey, soft, sticky, very calcareous, silty
	50	Calcareous shale - medium grey, silty in part, very calcareous, firm, fissile, grades from calcareous siltstone above
	Tr	Forams and fossil fragments
6000-6010		As above
6010-6020	70	Marl - as above
	30	Calcareous shale - as above
	Tr	Forams and fossil fragments
6020-6030	40	Marl - light grey, soft, sticky, very calcareous, silty
	60	Calcareous shale - medium grey, silty, very calcareous, firm, fissile
	Tr	Forams and fossil fragments
6030-6040		As above
6040-6050	50	Marl - as above
	50	Calcareous shale - as above
	Tr	Forams and fossil fragments
6050-6060	40	Marl - as above
	60	Calcareous shale - as above
	Tr	Forams and fossil fragments
6060-6070		As above
6070-6080	50	Marl - light grey, soft, sticky, very calcareous, silty
	50	Calcareous shale - medium grey, silty, very calcareous, firm, fissile
	Tr	Forams and fossil fragments
6080-6090	70	Marl - light grey, soft, sticky, silty, very calcareous
	30	Calcareous shale - medium grey, very calcareous, silty - grades in part to calcareous siltstone, firm to friable
	Tr	Forams, fossil fragments
6090-6100	60	Marl - as above
	40	Calcareous shale - as above
	Tr	Forams, fossil fragments (calcite)
6100-6110	50	Marl - as above
	50	Calcareous shale - as above
	Tr	Forams, fossil fragments
		6117' Circulate B.U. POH TG 33 units; C_1 16100ppm; C_2 97ppm; C_3 55ppm NB 5 HTC-X3A 3 x 18 jets BOB 0110 hrs. 10.5.77
6110-6120	75	Calcareous shale - medium to dark grey, firm, fissile, partly silty, very calcareous
	25	Marl - light grey, soft, silty, very calcareous
	Tr	Abundant "ball bearing" forams and other forams
6120-6130	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6130-6140	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Abundant small forams
	Tr	Quartz grains - coarse to very coarse, clear, conchoidal fracture
6140-6150	90	Calcareous shale - as above
	5	Marl - as above
	5	Forams - abundant "ball bearing" forms and others
6150-6160	75	Calcareous shale - medium grey, silty in part, very calcareous, firm, partly fissile
	20	Marl - light grey, very calcareous, soft, sticky, silty
	5	Forams - as above
6160-6170	65	Calcareous shale - as above
	30	Marl - as above
	5	Forams - as above
6170-6180	65	Calcareous shale - medium to dark grey, silty, very calcareous, firm, partly fissile
	30	Marl - light grey, soft, sticky, very calcareous, silty
	5	Forams - mainly "ball bearing" forms
6180-6190	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Abundnat forams
6190-6200		As above
6200-6210	35	Calcareous shale - as above
	65	Marl - as above
	Tr	Abundant forams
6210-6220	65	Calcareous shale - medium to dark grey, firm, silty, very calcareous, partly fissile
	35	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Quartz grains - coarse to very coarse, fractured, clear to white translucent
	Tr	Abundant forams
6220-6230	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Quartz grains - as above
	Tr	Forams - as above
6230-6240	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Quartz and forams
6240-6250	60	Calcareous shale - medium to dark grey, firm, very calcareous, grades in part to calcareous siltstone, partly fissile
	40	Marl - light grey, silty, soft, sticky, very calcareous
	Tr	Quartz - loose grains, coarse to very coarse, fractured, clear to white, translucent
	Tr	Forams - generally small "ball bearing" form
6250-6260	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Quartz and forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6260-6270	40	Calcareous shale - as above
	60	Marl - as above
	Tr	Forams - tan and white, rare quartz grains - as above
6270-6280	50	Calcareous shale - medium to dark grey, firm, very calcareous, grades in part to calcareous siltstone, partly fissile
	50	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Abundant forams, mainly tan, white "ball bearing" forms and others
6280-6290	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Abundant forams, quartz grains
6290-6300	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6300-6310	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
6310-6320	70	Calcareous shale - medium to dark grey, firm, very calcareous, grades in part to calcareous siltstone, partly fissile
	30	Marl - light grey, soft, sticky, clay grain size, silty
	Tr	Abundant forams, mainly small (0.2mm) forams
	Tr	Quartz - loose grains, clear and white translucent
6320-6330	30	Calcareous shale - as above
	40	Marl - as above
	Tr	Fossil forams
6330-6340	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Forams
6340-6350	70	Marl - as above
	30	Calcareous shale - as above
	Tr	Forams
6350-6360	60	Marl - light grey, soft, sticky, silty, very calcareous
	40	Calcareous shale - medium to dark grey, very calcareous, firm, fissile, silty
	Tr	Forams
6360-6370	65	Calcareous shale - as above
	35	Marl - as above
	Tr	Forams
6370-6380	60	Calcareous shale - medium to dark grey, firm, silty, very calcareous, partly fissile
	40	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Forams - mainly small "ball bearing" forms
6380-6390	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6390-6400	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
	Tr	Pyrite - finely disseminated in some shale fragments

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6400-6410	65	Calcareous shale - as above
	35	Marl - as above
	Tr	Forams - tan and white, Quinqueloculina sp. ? and other forms
6410-6420	75	Calcareous shale - medium to dark grey, firm, silty, very calcareous, fissile
	25	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Forams - mainly small
6420-6430	70	Calcareous shale - as above, rarely pyritic
	30	Marl - as above
	Tr	Forams - as above
6430-6440	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams - as above
6440-6450	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams - as above
6450-6460	60	Calcareous shale - medium to dark grey, silty, very calcareous, fissile, rarely pyritic, firm
	40	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Forams - white and tan, generally small
6460-6470	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams - as above
6470-6480	70	Calcareous shale - medium to dark grey, firm, silty, very calcareous, fissile, very slightly pyritic
	30	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Forams - generally small "ball bearing" forms and some others
6480-6490	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams - as above
6490-6500	50	Calcareous shale - as above
	50	Marl - as above
	Tr	Forams - as above
6500-6510	65	Calcareous shale - as above, slightly more pyritic
	35	Marl - as above
	Tr	Forams - as above
6510-6520	70	Calcareous shale - medium to dark grey, very calcareous, silty, firm, partly fissile, slightly pyritic
	30	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Forams - generally small
6520-6530	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams - as above
6530-6540	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams - as above
6540-6550		As above

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6550-6560	65	Calcareous shale - medium to dark grey, very calcareous, silty, firm, partly fissile, slightly pyritic
	35	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Forams
6560-6570	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6570-6580	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams
6580-6590	60	Calcareous shale - medium to dark grey, very calcareous, silty, firm, partly fissile, very slightly pyritic
	40	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Forams, fossil fragments
6590-6600	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams and fossil fragments
6600-6610	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams and fossil fragments
6610-6620	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Forams and fossil fragments
6620-6630	50	Calcareous shale - medium to dark grey, silty, very calcareous, firm, partly fissile, slightly pyritic
	50	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Forams
6630-6640	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
6640-6650	65	Calcareous shale - as above
	35	Marl - as above
	Tr	Forams, lignite from Spersene
6650-6660	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams; lignite
6660-6670	70	Calcareous shale - medium to dark grey, very calcareous, silty, firm, partly fissile, slightly pyritic
	30	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Forams - generally small; lignite
6670-6680	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams - as above; lignite
6680-6690	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Forams - as above; lignite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6690-6700	70	Calcareous shale - medium to dark grey, very calcareous, silty, firm, fissile, pyritic
	30	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Forams - generally small; lignite
6700-6710	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams; lignite
6710-6720	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams; lignite
6720-6730	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams; lignite
6730-6740	70	Calcareous shale - medium to dark grey, very calcareous, silty, firm, fissile, pyritic
	30	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Forams
6740-6750	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams
6750-6760	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6760-6770		As above
6770-6780	75	Calcareous shale - medium to dark grey, very calcareous, silty, firm, fissile, pyritic
	25	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Forams
6780-6790	80	Calcareous siltstone - as above
	20	Marl - as above
	Tr	Forams
6790-6800	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
6800-6810	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6810-6820	70	Calcareous shale - medium to dark grey, silty, very calcareous, firm, partly fissile, slightly pyritic
	30	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Forams
6820-6830	60	Calcareous shale - as above, some grades to calcareous siltstone
	40	Marl - as above
	Tr	Forams, fossil fragments

SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6830-6840	65	Calcareous shale - as above
	35	Marl - as above
	Tr	Forams
6840-6850	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams
6850-6860	75	Calcareous shale - medium to dark grey, silty, very calcareous, firm, partly fissile, pyritic
	25	Marl - light grey, soft, sticky, very calcareous, silty
	Tr	Forams
6860-6870		As above
6870-6880	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6880-6890	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
6890-6900	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6900-6910	75	Calcareous shale - medium to dark grey, silty, very calcareous, clay grain size, firm, partly fissile, pyritic
	25	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Forams
6910-6920	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Forams
6920-6930	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams; lignite
6930-6940	60	Calcareous shale - medium to dark grey, very calcareous, silty, firm, fissile, pyritic
	40	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Fossil fragments, abundant small forams - tan, white
6940-6950	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams - as above
6950-6960	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams
6960-6970	80	Calcareous shale - medium to dark grey, very calcareous, silty, firm, fissile, pyritic
	20	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
6970-6980	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams
6980-6990	75	Calcareous shale - as above, rare glauconite
	25	Marl - as above
	Tr	Forams
6990-7000	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams - as above
7000-7010	70	Calcareous shale - medium to dark grey, silty, firm, very calcareous abundant forams
7010-7020	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Forams
7020-7030	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams
7030-7040	80	Calcareous shale - as above, dark grey, rare glauconite
	20	Marl - as above
	Tr	Forams
7040-7050	85	Calcareous shale - dark grey, silty, very calcareous, firm, fissile, pyritic, rare glauconite
	15	Marl - light grey, very calcareous, silty, soft, sticky
	Tr	Quartz - loose grains, angular, clear
	Tr	Forams
7050-7060	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Forams
7060-7070	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Calcarenite - buff, medium to coarse, subangular to rounded, friable, nil effective porosity and permeability, no show, glauconite
	Tr	Forams
7070-7080	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Calcarenite - as above
	Tr	Forams
7080-7090	80	Calcareous shale - medium to dark grey, silty, very calcareous, firm, fissile, pyritic
	20	Marl - light grey, very calcareous, soft, sticky, silty
	Tr	Calcarenite - buff, medium to coarse, subangular to subrounded, friable, glauconitic, nil effective porosity and permeability
	Tr	Forams - tan and white

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7090-7100	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Glauconite, forams
7100-7110	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Calcarenite - as above
	Tr	Forams - as above
7110-7120	75	Calcareous shale - medium grey, silty, firm, fissile, very calcareous, slightly glauconitic and pyritic
	25	Marl - light grey, soft, sticky, silty
	Tr	Calcarenite, forams
7120-7130	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Calcarenite, forams
7130-7140	80	Calcareous shale - dark grey, silty, very calcareous, firm, fissile, slightly glauconitic and pyritic
	20	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Calcarenite - buff, fine to medium subangular to rounded grains, glauconitic, very calcareous
	Tr	Forams - tan, white
7140-7150	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Calcarenite - as above; forams - as above
7150-7160	60	Calcareous shale - as above
	40	Marl - as above
	Tr	Calcarenite - as above; forams - as above
7160-7170	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Calcarenite; forams
7170-7180	75	Calcareous shale - dark grey, firm, silty, very calcareous, fissile, slightly glauconitic, and pyritic
	25	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Calcarenite - buff, very calcareous, fine to medium subangular to well rounded grains, glauconitic
	Tr	Forams - tan and white
7180-7190	70	Calcareous shale - as above, some greenish due to glauconite
	30	Marl - as above
	Tr	Calcarenite, forams - as above
7190-7200	65	Calcareous shale - as above
	35	Marl - as above
	Tr	Calcarenite, forams - as above
7200-7210	75	Calcareous shale - dark grey, very calcareous, silty, firm, fissile, slightly glauconitic, and pyritic
	25	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Calcarenite - buff, fine to medium subangular to subrounded grains, very calcareous, slightly glauconitic, friable
	Tr	Quartz - angular, clear
	Tr	Forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7210-7220	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams, glauconite
7220-7230	65	Calcareous shale - dark grey, silty, very calcareous, firm, slightly pyritic and glauconitic
	35	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Forams - tan and white
7230-7240	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams, glauconite
7240-7250	75	Calcareous shale - as above
	25	Marl - as above
	Tr	Forams, glauconite
7250-7260	70	Calcareous shale - as above
	30	Marl - as above
	Tr	Forams, pyrite
7260-7270	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Forams, pyrite
7270-7280	75	Calcareous shale - dark grey, silty, very calcareous, firm, fissile, slightly pyritic
	25	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Abundant pyrite; forams
7280-7290	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Pyrite, forams
7290-7300	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Pyrite, rare forams
7300-7310	100	Calcareous shale - dark grey, slightly silty, very calcareous, firm, fissile, slightly green in part due to finely disseminated glauconite, occasionally pyritic
	Tr	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Pyrite, rare forams
7310-7320	85	Calcareous shale - as above
	15	Marl - as above
	Tr	Pyrite
7320-7330	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Pyrite
7330-7340	100	Calcareous shale - dark to green grey, firm, fissile, partly silty, some pyritic and glauconitic, very calcareous
	Tr	Marl - light grey, soft to firm, very calcareous, silty
	Tr	Pyrite
7340-7350	100	Calcareous shale - as above
	Tr	Marl - as above
	Tr	Pyrite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7350-7360	85	Calcareous shale - as above
	15	Marl - as above
	Tr	Pyrite, forams
7360-7370	100	Calcareous shale - dark grey, firm, fissile, very calcareous, some pyritic and glauconitie
	Tr	Marl - light grey, firm, fissile, very calcareous, some pyritic and glauconitic
	Tr	Marl - light grey, soft, silty, sticky, very calcareous
	Tr	Pyrite
7370-7380	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Pyrite, forams
7380-7390	90	Calcareous shale - as above
	10	Calcareous siltstone - buff to light grey, silt to very fine grains, very calcareous, firm to friable
	Tr	Marl - as above; pyrite
7390-7400		As above
7400-7410	90	Calcareous shale - dark grey, occasionally green-grey, firm, fissile very calcareous, slightly pyritic, glauconitie
	10	Marl - light grey, very calcareous, soft, sticky, silty
	Tr	Calcareous siltstone - buff, silt to very fine grains, very calcareous, firm to friable
	Tr	Pyrite, forams
7410-7420	90	Calcareous shale - as above
	10	Marl - as above
	Tr	Calcareous siltstone - as above
	Tr	Pyrite, forams
7420-7430	100	Calcareous shale - as above
	Tr	Marl - as above
	Tr	Calcareous siltstone - as above
	Tr	Pyrite, forams
7430-7440	100	Calcareous shale - dark grey, firm, partly silty, fissile, very calcareous, slightly pyritic and rare glauconite
	Tr	Calcareous siltstone - buff, very calcareous, silt to very fine subangular to subrounded grains, firm to friable
	Tr	Pyrite, forams
7440-7450	100	Calcareous shale - as above
	Tr	Calcareous siltstone - as above
	Tr	Pyrite, forams
	Tr	Quartz - loose grains, angular, clear
7450-7460	100	Calcareous shale - as above
	Tr	Calcareous siltstone - as above
	Tr	Pyrite, forams, quartz
7460-7470		As above
7470-7480	90	Calcareous shale - dark grey, firm, partly silty, fissile, very calcareous, slightly pyritic
	10	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Pyrite, forams

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7480-7490	100	Calcareous shale - as above, good fissility
	Tr	Pyrite, forams
7490-7500	100	Calcareous shale - as above, some grades to calcareous siltstone
	Tr	Pyrite, forams
7500-7510		As above
7510-7520	100	Calcareous shale - dark grey, very calcareous, fissile, firm, slightly pyritic
	Tr	Calcareous siltstone - buff, very fine to medium grains, very calcareous, firm to friable, subangular to subrounded
	Tr	Forams, pyrite
7520-7530	90	Calcareous shale - dark grey, as above
	10	Marl - light grey, very calcareous, soft, sticky, silty
	Tr	Calcareous siltstone/calcarenite - buff, very fine to silt, ver. calcareous, firm to friable, subangular to subrounded
	Tr	Pyrite, forams
7530-7540	90	Calcareous shale - as above
	10	Calcarenite - as above
	Tr	Marl - as above
	Tr	Pyrite, forams
7540-7550	80	Calcareous shale - dark grey, firm, fissile, very calcareous, slightly pyritic
	10	Marl - light grey, soft, sticky, silty, very calcareous
	10	Calcarenite - buff, very fine to silt, subangular to subrounded grains, firm to friable, very calcareous
	Tr	Pyrite, forams
7557		Cuttings in hole inc. P PRES and tight hole. Ream, circulate and pump viscous slug. Plugged flowline 22.51
		11.5.77
7550-7560	90	Calcareous shale - dark grey, firm, fissile, calcareous, slightly pyritic
	10	Marl - light grey, very soft, sticky, silty, very calcareous
	Tr	Calcarenite - buff, fine to medium subangular to rounded grains, very calcareous, friable, glauconitic
	Tr	Pyrite, some forams
7560-7570	80	Calcareous shale - as above
	20	Marl - as above
	Tr	Calcarenite - as above
	Tr	Pyrite
7570-7580	100	Calcareous shale - as above
	Tr	Marl - as above
	Tr	Calcarenite/calcareous siltstone - buff, silt to fine subangular to subrounded grains, very calcareous, firm
7580-7590	90	Calcareous shale - as above, firm to hard, some greenish
	10	Marl - as above
	Tr	Calcarenite/calcareous siltstone - as above
	Tr	Pyrite

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7590-7600	90	Calcareous shale - as above
	10	Calcareous siltstone - as above
	Tr	Marl - as above
	Tr	Pyrite, rare glauconite
7600-7610	90	Calcareous shale - as above, firm to brittle
	5	Marl - as above
	5	Calcareous siltstone - as above
	Tr	Pyrite, forams
7610-7620	80	Shale - medium grey, slightly silty, slightly pyritic, very calcareous, firm
	15	Siltstone - light grey, moderately firm, calcareous
	5	Marl - light grey, very soft, gooey
	Tr	Forams - benthonic, oxidised planktonics
	Tr	Pyrite - clusters of crystals
7620-7630	80	Shale - as above
	15	Marl - as above, not quite as soft ? silty
	5	Siltstone - as above
	Tr	Forams - as above
7630-7640	90	Shale - as above
	10	Marl - as above, silty
	Tr	Siltstone
7640-7650	90	Shale - as above, some rare glauconite
	10	Siltstone - as above
7650-7660	60	Shale - as above, becoming softer
	30	Marl - as above
	10	Siltstone - as above
7660-7670	90	Shale - as above, becoming silty in patches
	10	Siltstone - as above
7670-7680	60	Marl - light grey, soft, calcareous
	25	Shale - medium to dark grey, silty, calcareous, fissile, firm
	15	Siltstone - light grey, calcareous, moderately firm
7680-7690	50	Shale - as above
	40	Siltstone - as above
	10	Marl- as above
7690-7700	50	Shale - as above
	50	Siltstone - as above, some mica, soft
	Tr	Forams - planktonics and benthonics
	Tr	Marl
7700-7710	60	Siltstone - as above
	40	Shale - as above
	Tr	Marl - as above
7710-7720	70	Calcareous shale - dark grey, calcareous, fissile, firm, brittle, pyritic
	30	Calcareous siltstone - light to medium grey, very calcareous, firm to semi-fraible, rarely glauconitic, silt to fine grain size
	Tr	Pyrite, forams
	Tr	Marl - light grey, soft, very calcareous, sticky, silty

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7720-7730	75	Calcareous shale - as above
	25	Calcareous siltstone - as above
	Tr	Marl
	Tr	Pyrite, forams
7730-7740	70	Calcareous shale - dark grey, firm, fissile, pyritic
	30	Calcareous siltstone - light to medium grey, very calcareous, silt to fine subangular to subrounded grains, rarely glauconitic
	Tr	Marl - light grey, soft, sticky, silty, very calcareous
	Tr	Pyrite, forams
7740-7750	80	Calcareous shale - as above, rarely light apple green colour
	20	Calcareous siltstone - as above
	Tr	Marl - as above
	Tr	Pyrite, forams
7750-7760	75	Calcareous shale - as above
	20	Calcareous siltstone - as above
	5	Marl - as above
	Tr	Pyrite, forams
7760-7770	60	Calcareous shale - very dark grey, firm, fissile, moderately calcareous, slightly pyritic
	40	Calcareous siltstone - light to medium grey, friable to soft, very calcareous, clayey
	Tr	Marl - light grey, soft, sticky, silty, very calcareous
7770-7780	50	Shale - as above, some glauconitic
	50	Siltstone - as above
	Tr	Marl
	Tr	Forams
7780-7790	50	Shale - as above
	50	Siltstone - as above
	Tr	Calcarenite - sandy, silty, some glauconitic, light brown, hard
	Tr	Forams
7790-7800	60	Marl - soft, gooey
	30	Siltstone - sandy, light to medium grey, moderately firm, calcareous
	10	Shale - as above
	Tr	Siltstone/calcarenite - sandy, light green, glauconitic, firm, calcareous
7800-7810	50	Marl - soft, gooey, light grey
	30	Siltstone - sandy, light grey, greenish at times, rare glauconitic, very calcareous, soft
	20	Shale - dark grey, firm, very calcareous, fissile
	Tr	Forams
7810-7820	60	Shale - as above, some biotite, mica
	30	Siltstone - as above
	10	Marl - as above
	Tr	Forams, glauconite - foram infills ?
7820-7830	50	Marl - glauconitic, pellets to 0.5mm ? from forams
	30	Shale - as above
	20	Siltstone - as above, sandy
	Tr	Sandstone - fine, silty, calcareous, light grey to brown, glauconitic

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
7830-7840	30	Shale - as above
	40	Siltstone - as above
	30	Sandstone - fine sandstone, light grey to brown, glauconitic, rounded, calcareous
	Tr	Sandstone - pyrite, glauconite and quartz grains to 2mm
	Tr	Glauconite, pyrite
		Some mineral fluorescence
		Cut slow weak cut, dull yellow fluorescence, dull white fluorescence in mud
		7840 - C_1 54; C_2 14; C_3 15; C_4 18; C_5 40 Gas total: 3; Cuttings: 26
		12.4.77
7840-7850		Sandstone - brilliant white fluorescence Fast streaming white cut, spotty white fluorescence
	40	Sandstone - fine 0.05-1mm grains, glauconitic, light grey to brown, up to 0.2mm white and green glauconite, calcareous cemented, moderately hard
	Tr	Glauconite/pyrite - clusters, grains to 0.5mm, also single grains
	30	Shale - dark to medium grey, fissile, firm, calcareous
	30	Siltstone - medium grey, soft to firm, calcareous
	Tr	Marl - soft, light grey
		Gas - Total : 1.5 Cuttings: 56 → 28000ppm FID: C_1 34; C_2 14; C_3 28; C_4 27; C_5 40.
		Drill rate change at 7841' from 25-35 ft/hr to 40-50 ft/hr over 5 ft then back to 28-33ft/hr for 3 ft then 136 ft/hr over 1 ft
		Core-1 7851-7888' -2 7888-7929' -3 7929-7976'
		NB 6. HTC XDG 8½"
		14.5.77
7976-7980	40	Quartz - 0.2-1.5mm clear, angular to rounded with increase in size
	20	Sandstone - white to greenish, fine to medium grains, moderately sorted, calcareous, glauconitic
	40	Siltstone - light grey to brown, sandy, glauconitic, calcareous
	Tr	Glauconite - bright emerald green pellets
7980-7990	70	Quartz - 0.2-0.8mm grains, clear, angular to rounded with increase in size
	10	Siltstone - light grey to brown, sandy, glauconitic, calcareous, firm
	20	Coal - black, conchoidal fracture, firm
	Tr	Glauconite; fine sandstone
7990-8000	100	Quartz - 0.2-0.5mm grains, clear
	Tr	Siltstone - as above
	Tr	Coal - as above
	Tr	Glauconite - as above; pyrite
	Tr	Mica - muscovite flakes

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SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
8000-8010	80	Quartz - as above
	20	Siltstone - as above
	Tr	Glauconite, mica, pyrite
8010-8020	90	Quartz - as above, 0.2-1.5mm grains
	10	Siltstone - as above
	Tr	Glauconite, mica
8020-8030	70	Quartz - as above
	20	Siltstone - as above
	10	Sandstone - 0.2mm grains, moderate sorting, glauconitic, calcareous, firm
8030-8040	100	Quartz - 0.2-1.5mm grains, clear, normally rounded
	Tr	Sandstone - fine grains, calcareous, glauconitic, light brown, firm
	Tr	Siltstone - cole, light grey brown, glauconitic, sandy, caving
	Tr	Glauconite, mica
8040-8050	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, Pyrite, Mica
8050-8060	90	Quartz - as above
	10	Siltstone - as above, caving
	Tr	Sandstone - as above
	Tr	Glauconite, Pyrite, Mica
8060-8070	70	Quartz - as above, to 4mm
	30	Siltstone - as above, glauconitic, pyritic, caving
	Tr	Sandstone - as above
8070-8080	100	Quartz - as above
	Tr	Siltstone - as above
8080-8090	100	Quartz - as above
	Tr	Siltstone - as above
8080-8090	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, Pyrite, Mica
8090-8100	100	Quartz - clear, 0.4-1.5mm grains, rounded
	Tr	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, Pyrite, Mica
8100-8110	100	Quartz - as above, 0.2-2mm grains
	Tr	Siltstone - as above, calcareous, glauconitic
	Tr	Sandstone - as above, calcareous, brown
	Tr	Glauconite, Pyrite, Mica
8110-8120	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, Pyrite, Mica

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14.5.77

SAMPLE DESCRIPTIONS

COBIA-2

DEPTH	%	DESCRIPTION
8120-8130	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, pyrite, mica
8130-8140	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Glauconite, mica, coal
8140-8150	100	Quartz - as above, to 4mm
	Tr	Siltstone - as above
	Tr	Sandstone - as above, glauconite
	Tr	Glauconite, pyrite
8150-8160	100	Quartz - as above
	Tr	Siltstone - as above
	Tr	Sandstone - as above, glauconitic
	Tr	Glauconite, pyrite, coal, mica
8160-8170	70	Siltstone - very calcareous, light grey brown, sandy, firm, glauconitic, probably mainly cavings
	30	Quartz - clear, rounded to angular, 0.4-1.5mm grains
	Tr	Sandstone - fine grained, buff to white, glauconitic, slightly calcareous, slightly glauconitic, probably mainly cavings
	Tr	Glauconite, pyrite, mica, probably mainly cavings
8170-8180	80	Quartz - loose grains, clear to white, frosted, generally well rounded, subangular to well rounded, fine to very coarse, poorly sorted (0.2-1.7mm)
	20	Siltstone - as above
	Tr	Sandstone - as above, looks like Gurnard Formation
	Tr	Glauconite, pyrite, mica
8180-8190	60	Quartz - loose grains, as above
	40	Siltstone - as above
	Tr	Sandstone - as above
	Tr	Glauconite, pyrite, mica

APPENDIX 2

APPENDIX
2

WELL COMPLETION REPORT

COBIA-2

APPENDIX 2

VELOCITY SURVEY

VELOCITY SURVEY

Well COBIA - 2

Basin GIPPSLAND

INTRODUCTION

Esso personnel M. P. LYNN

Contractor VELOCITY DATA PTY. LTD.

Supplied (1) Instruments

(2) Personnel

Seismic Observer J. Larsen

Marine Shooter R. Doyle

Dynamite -

(3) Seismic Souce

Gas Gun

Gas Pressures

Oxygen 90 psi

Propane 45 psi

~~(3) Licenced Shooting Boat~~

~~name~~

~~date loaded~~

~~date released~~

~~Agent~~

~~amount of powder .... lbs~~

~~size of cans .... lbs~~

~~number of cans~~

~~number of caps~~

~~number of boosters~~

Personnel and Instruments

assembled at Bankstown, Sydney date 12.5.77

boarded (rig) Ocean Endeavour date 14.5.77

date of survey 14 & 15.5.77

casing depth 2866'

T.D. when shot 8195' FTD 8195

water depth 249'
K.B. 83'

SURVEY PROCEDURE

Weather: sea 14.5.77 - calm, slight swell 15.5.77 - choppy slight swell

rig movement slight

rig noise moderate

Hydrophones: number three

depth below sea level 35 ft

position 2 - 5' above bottom of gas gun
1 - in moon pool

~~Shot Positioning and Charges:~~

~~marker buoys (number~~
~~(distance~~
~~(direction~~

~~charge depth .... ft~~

~~number of shots .... charge size .... lbs.~~

~~number of shots .... charge size .... lbs.~~

~~number of misfires~~

~~amount of powder used .... lbs~~

Gas gun

Number of pops per level: 2 Except 3 at 7846 & 5 at 7942 amount of powder dumped ....-.......lbs.

Well-phone positioning :

T-bar ....-..........

number of depths ..19..........

Time: first shot 14.5.77 = 2226 . 15.5.77 = 0953

last shot 14.5.77 = 2344 15.5.77 = 1149

rig time 14.5.77 = 2 hrs. 45 mins.
15.5.77 = 2 hrs. 20 mins.
Total rig time = 5 hrs 5 mins.

RESULTS

Quality of records (good ....32..........
(fair .....8..........
(poor .....2..........
(not used ...-..........

Comparison of Interval Times with sonic log
/Δ/average ....5.2.......microsec/foot
/Δmax/ ....21.9.......microsec/foot

CONCLUSION

Reliability of T-D curve ....good..........

COMMENTS:

The well geophone was hooked up at 2200 hrs. and six levels were shot as the tool was lowered down the hole. At this stage an intermittent open circuit that had caused an occasional lapse in the well geophone sensor response became too much of a problem. The sensors went dead and the tool had to be withdrawn at 0005 hrs. with the last depth being shot at 7942'K.B. (3 shots).

The tool came out of the hole at 0045 hrs. and the FDC-CNL-GR log was commenced. A loose nut in the geophone package was the cause of the problem and repairs were completed by 0245 hrs. However, the tool was not hooked up again until 0940 hrs. on the completion of the FDC-CNL-GR logging.

The last depth of the previous run (7942' K.B.) was shot again (2 shots) to tie the survey together and to check the validity of the data. No further problems were encountered in shooting the other levels and the tool came out of the hole at 1200 hrs.

It was noted that in between withdrawing the first time and running in the second time (8 hrs. 55 mins.) the underwater current had become stronger and had pulled the seafloor phones along the bottom. To restore the seafloor phones to their original position of just resting on the bottom, 10' of cable had to be pulled in.

38°27'34·791"S
148°18'16·241"E

Shothole information:- Elevation, Distance & Direction from Well

Company
ESSO EXPLORATION AUSTRALIA INC.

Well
COBIA-2

Elevation (Derrick Floor): 83'

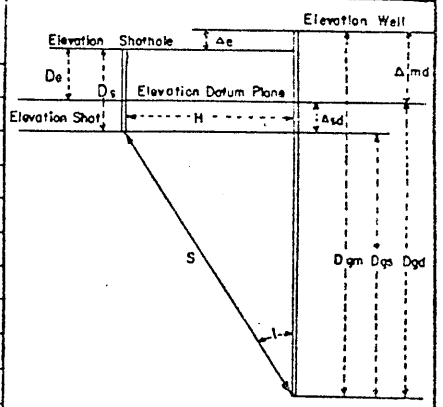
Total Depth: 8195'

LOCATION

Coordinates

Section, Township, Range / County / Area or Field
GIPPSLAND BASIN, VICTORIA
DATUM : M.S.L.

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Va Average Velocity
1		2226	2900	40	.008	.029	.366	D	G	2777	150	.0540	.9985	.366	40	.008	.374	.374	2817				7532
2		2227	2900	40	.008		.365	D	G					.365	40	.008	.373						
																				483	.049	9857	
15		0953	3383	40	.008		.415	D	G	Offset not significant							.423	.423	3300				7801
16		0954	3383	40	.008		.414	D	G								.422						
																				547	.055	9946	
41		1148	3930	40	.008		.470	D	G								.478	.478	3847				8048
42		1149	3930	40	.008		.470	D	G								.478						
																				366	.035	10457	
39		1140	4296	40	.008		.505	D	G								.513	.513	4213				8213
40		1141	4296	40	.008		.505	D	G								.513						
																				372	.032	11625	
3		2246	4668	40	.008		.536	D	G								.544	.545	4585				8413
4		2247	4668	40	.008		.537	D	G								.545						
																				385	.035	11000	
37		1127	5053	40	.008		.572	D	P-F								.580	.580	4970				8569
38		1128	5053	40	.008		.572	D	P								.580						
																				368	.034	10824	
35		1120	5421	40	.008		.606	D	P-F								.614	.614	5338				8694
36		1121	5421	40	.008		.606	D	G								.614						
																				229	.022	10409	
33		1112	5650	40	.008		.627	D	P-F								.635	.636	5567				8753
34		1113	5650	40	.008		.628	D	F-G								.636						
																				350	.037	9460	
31		1104	6000	40	.008		.664	D	G								.672	.673	5917				8792
32		1105	6000	40	.008		.665	D	G								.673						
																				360	.035	10286	
29		1057	6360	40	.008		.700	D	G								.708	.708	6277				8866
30		1058	6360	40	.008		.699	D	G								.707						
																				240	.025	9600	
27		1048	6600	40	.008		.725	D	G								.733	.733	6517				8891
28		1049	6600	40	.008		.725	D	G								.733						
																				498	.050	9960	
25		1040	7098	40	.008		.776	D	F-G								.784	.783	7015				8959
26		1041	7098	40	.008		.774	D	F-G								.782						
																				452	.049	9225	



Dgm = Geophone depth measured from well elevation
Dgs = " " " " shot "
Dgd = " " " " datum "
Ds = Depth of shot
De = Shothole elevation to datum plane
H = Horizontal distance from well to shotpoint
S = Straight line travel path from shot to well geophone
tus = Uphole time at shotpoint
T = Observed time from shotpoint to well geophone.
tr = " " to reference geophone.
Δe = Difference in elevation between well & shotpoint.
Δsd = " " " " shot & datum plane
Δsd = Ds - De
Dgs = Dgm - Ds ± Δe ; $\tan i = \frac{H}{D_{gs}}$
Tgs = cos i T = Vert. travel time from shot elev. to geophone
$T_{gd} = T_{gs} \pm \frac{\Delta sd}{V}$ = " " " " datum plane " "
Dgd = Dgm - Δmd
Vi = Interval velocity = $\frac{\Delta D_{gd}}{\Delta T_{gd}}$
Va = Average = $\frac{D_{gd}}{T_{gd}}$

Surveyed by: M.P. Lynn
Date: 14-15/5/77
Weathering Data:

Casing Record
2866' K.B.

DWG. 1107/OP/3

38° 21' 21·151"S
148° 18' 16·241"E

Shothole information:- Elevation, Distance & Direction from Well

Company	Well	Elevation (Derrick Floor)	Total Depth
ESSO EXPLORATION AUSTRALIA INC.	COBIA-2	83	8195

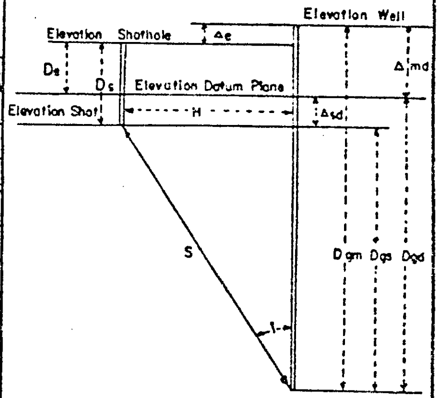
LOCATION

Coordinates

Section, Township, Range County Area or Field
GIPPSLAND BASIN, VICTORIA

DATUM : M.S.L.

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd	$\frac{\Delta sd}{V}$	Tgd	Tgd Average	Dgd	Δ Dgd	Δ Tgd	Vi Interval Velocity	Va Average Velocity
5		2305	7550	40	.008		.824	D	F-G								.832	.832	7467				8975
6		2306	7550	40	.008		.824	D	F-G								.832						
																				150	.014	10714	
23		1036	7700	40	.008		.838	D	G								.846	.846	7617				9004
24		1037	7700	40	.008		.838	D	G								.846						
																				122	.012	10167	
7		2324	7822	40	.008		.850	D	F-G								.858	.858	7739				9020
8		2325	7822	40	.008		.850	D	G								.858						
																				24	.002	12000	
9		2331	7846	40	.008		.852	D	G								.860	.860	7763				9027
10		2332	7846	40	.008		.853	D	G								.861						
11		2333	7846	40	.008		.852	D	P								.860			96	.010	9600	
12		2341	7942	40	.008		.862	D	F-G								.870	.870	7859				9033
13		2342	7942	40	.008		.863	D	P-F								.871						
14		2344	7942	40	.008		.862	D	P-F								.870						
19		1016	7942	40	.008		.862	D	G								.870						
20		1017	7942	40	.008		.862	D	P-F								.870			108	.010	10800	
21		1024	8050	40	.008		.872	D	G								.880	.880	7967				9053
22		1025	8050	40	.008		.871	D	P-F								.879						
																				145	.009	16111	
17		1010	8195	40	.008		.881	D	F-G								.889	.889	8112				9125
18		1011	8195	40	.008		.880	D	F								.888						



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tus = Uphole time at shotpoint
T = Observed time from shotpoint to well geophone.
tr = " " to reference geophone.
Δe = Difference in elevation between well & shotpoint.
Δsd = " " " " shot & datum plane
Δsd = Ds - De
Dgs = Dgm - Ds ± Δe ; $\tan i = \frac{H}{D_{gs}}$
Tgs = cos i T= Vert. travel time from shot elev. to geophone
$T_{gd} = T_{gs} \pm \frac{\Delta sd}{V}$ = " " " " datum plane " "
Dgd = Dgm - Δmd
Vi = Interval velocity = $\frac{\Delta D_{gd}}{\Delta T_{gd}}$
Va = Average = $\frac{D_{gd}}{T_{gd}}$

Surveyed by: M.P. Lynn
Date: 14-15/5/77
Weathering Data :

Casing Record
2866'K.B.

DWG. 1107/OP/3

VELOCITY SURVEY ERROR CHECK

epth el.S.L.	Av. Vertical Travel Time (check shots)	Ti Check Shots (sec.)	Ti Sonic Log (sec.)	Δ (Millisecs.) $T_{i\,Check} - T_{i\,Sonic}$	Depth Interval (ft.)	Error (Microsec per ft.)
2817	.374	.049	.0492	- 0.2	483	0.4
3300	.423					
3300	.423	.055	.0540	+ 1.0	547	1.8
3847	.478					
3847	.478	.035	.0330	+ 2.0	366	5.5
4213	.513					
4213	.513	.032	.0306	+ 1.4	372	3.8
4585	.545					
4585	.545	.035	.0328	+ 2.2	385	5.7
4970	.580					
4970	.580	.034	.0338	+ 0.2	368	0.5
5338	.614					
5338	.614	.022	.0213	+ 0.7	229	3.1
5567	.636					
5567	.636	.037	.0344	+ 2.6	350	7.4
5917	.673					
5917	.673	.035	.0349	+ 0.1	360	0.3
6277	.708					
6277	.708	.025	.0233	+ 1.7	740	2.3
6517	.733					
6517	.733	.050	.0487	+ 1.3	498	2.6
7015	.783					
7015	.783	.049	.0459	+ 3.1	452	6.9
7467	.832					
7467	.832	.014	.0146	- 0.6	150	4.0
7617	.846					
7617	.846	.012	.0120	0.0	122	0.0
7739	.858					
7739	.858	.002	.0020	0.0	24	0.0
7763	.860					
7763	.860	.010	.0079	+2.1	96	21.9
7859	.870					

VELOCITY SURVEY ERROR CHECK

Depth [redacted]el.S.L.	Av. Vertical Travel Time (check shots)	Ti Check Shots (sec.)	Ti Sonic Log (sec.)	Δ (Millisecs.) $T_{i\,Check} - T_{i\,Sonic}$	Depth Interval (ft.)	Error (Microsec per ft.)
[redacted] 7859	.870	.010	.009	+ 1.0	108	9.3
[redacted] 7967	.880					
7967	.880	.009	.0117	- 2.7	145	18.6
[redacted] 8112	.889					
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						
[redacted]						

COBIA - 2

DATA USED IN CONSTRUCTION OF CALIBRATION CURVE

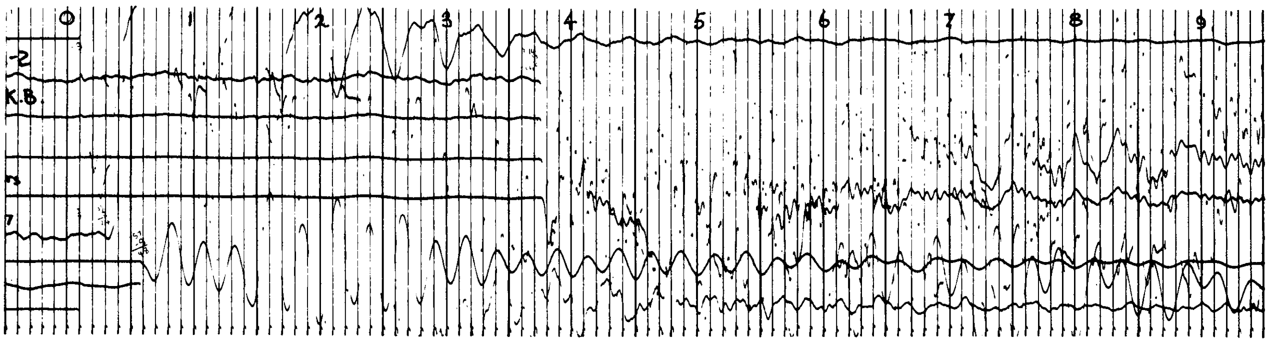
DEPTH (ft.) KB	DEPTH (ft) MSL	TIME SONIC (SECS)	TIME CHECKSHOT (SECS)	ΔT T_L-Tcs (MSecs)
2900	2817	.3895	.374	+15.5
3383	3300	.4387	.423	+15.7
3930	3847	.4927	.478	+14.7
4296	4213	.5257	.513	+12.7
4668	4585	.5563	.545	+11.3
5053	4970	.5891	.580	+ 9.1
5421	5338	.6229	.614	+ 8.9
5650	5567	.6442	.636	+ 8.2
6000	5917	.6786	.673	+ 5.6
6360	6277	.7135	.708	+ 5.5
6600	6517	.7368	.733	+ 3.8
7098	7015	.7855	.783	+ 2.5
7550	7467	.8314	.832	- 0.6
7700	7617	.8460	.846	0.0
7822	7739	.8580	.858	0.0
7846	7763	.8600	.860	0.0
7942	7859	.8679	.870	- 2.1
8050	7967	.8769	.880	- 3.1
8195	8112	.8886	.889	- 0.4

COBIA - 2

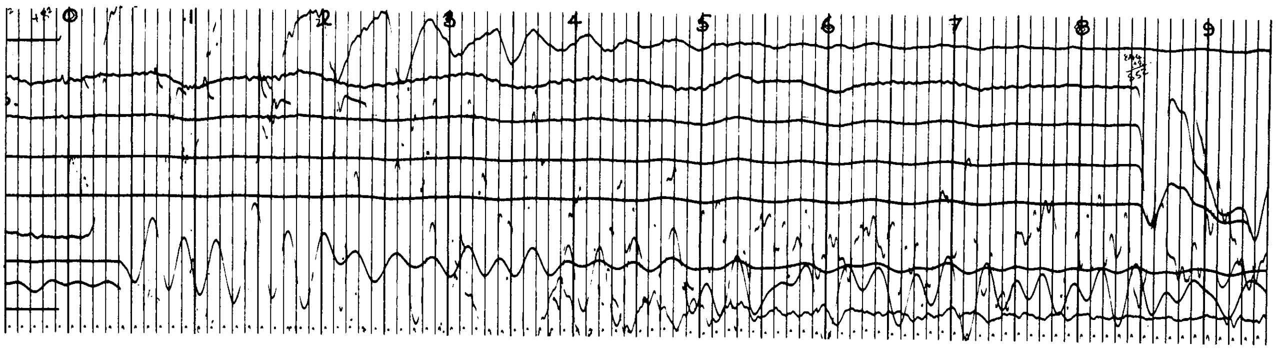
WELL VELOCITY RECORD

14 - 5 - 1977
&
15 - 5 - 1977

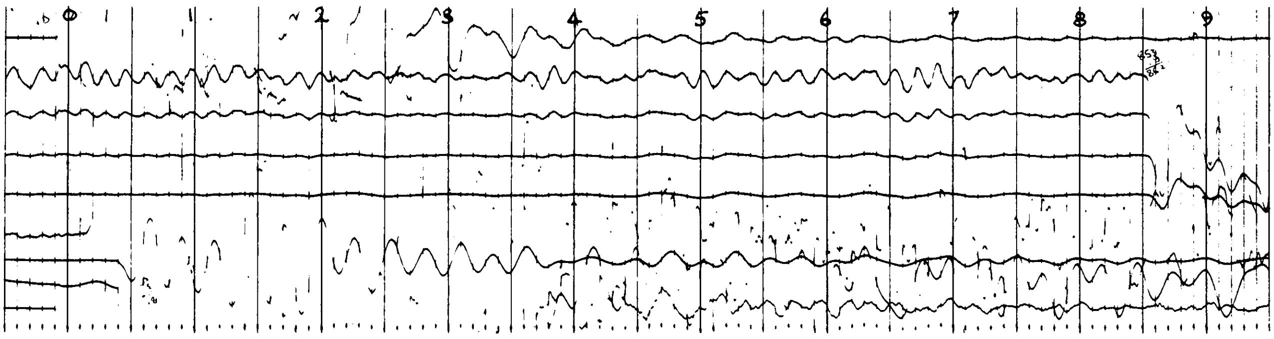
Rec. No. 2
2900' K.B.
T 2227 hrs.



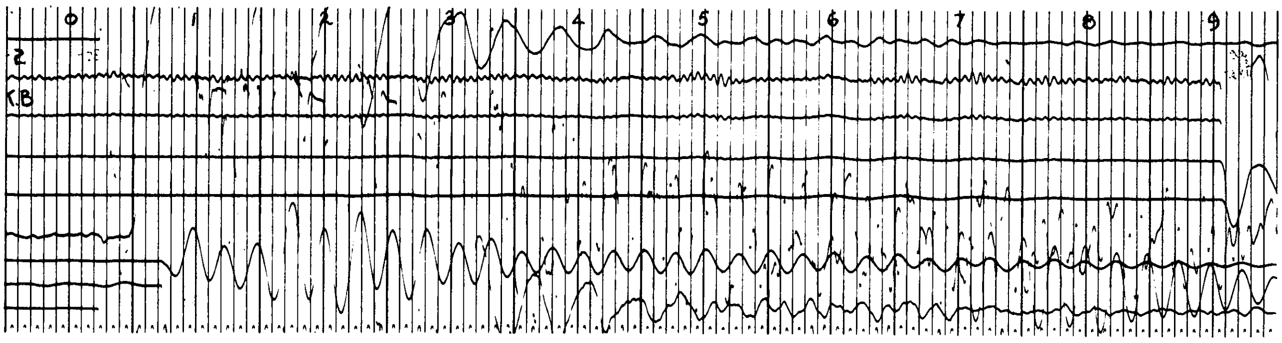
Rec. No. 9
7846' K.B.
T 2331 hrs.



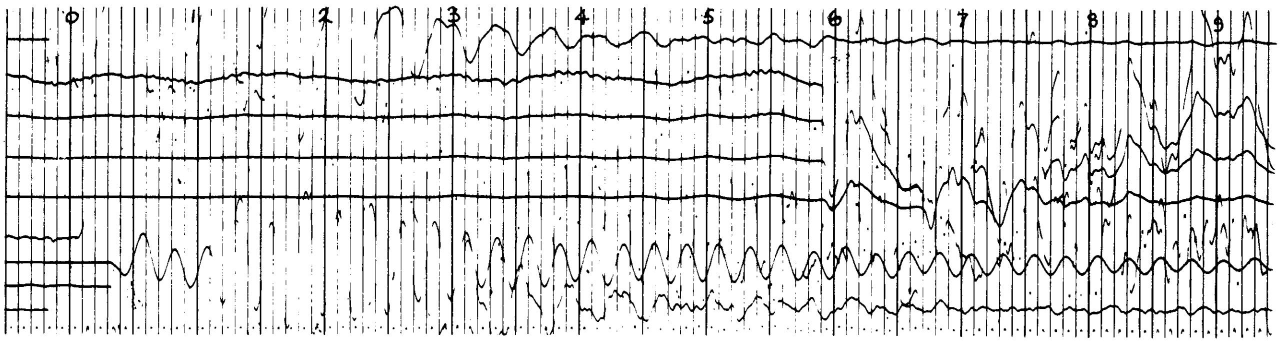
Rec. No. 12
7942' K.B.
T 2341 hrs.



Rec. No. 17
8195' K.B.
T 1010 hrs.



Rec. No. 36
5241' K.B.
T 1121 hrs.



DWG. 1842/OP/3

APPENDIX
3

APPENDIX 3

WELL COMPLETION REPORT

COBIA-2

APPENDIX 3

FORMATION INTERVAL TESTS RECORD

F.I.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 F.I.T. No. 1 @ 7940 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Yes Oil test

FIRING METHOD Normal CHOKE SIZES Single 0.030

TIMES : Tool Set 18 hrs 27 mins.32sec Tool Open 18 hrs 29 mins.31 secs Open 14 mins. 14 secs. Full After 12 mins 04 secs.

Shaped Charge Shot: No at

Segregator Open 18 hrs 43 mins. 45 secs. Mins. Open 8 mins. 01 secs. Full After 9 secs.

Tool Closed 18 hrs.51 mins 46 secs. Tool Off 18 hrs.53 mins.42 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

175	p.s.i. SURFACE PRESSURE	6750	cc MUDDY/FILTRATE
36.6	cft. GAS		cc MUD
13350	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	C_6	CO_2
FID Gas	128819	108062	160013	86640	30720	> 9	5167	2%
Oil	4787	25244	119713	89856	40960	> 9	9340	~1%

OIL 46 °API @ 72 °F; Pour Point - °F

Black Colour; White Fluorescent Colour

\- G.O.R.

WATER Rrf 0.589 @ 70 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 7000 ppm NO_3^- 400 ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	3350			Min. 3169 psig
Final Shut-in (psi)	3375			3367.01 psig
Hydrostatic (psi)	-			Initial 4079.22
Sampling Time (Min)	12 mins.04 secs.			Final 4071.5
Shut-in Time (Min)	2 mins.10 secs.			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 202 °F, 202 °F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 1700 Hrs.

REMARKS :

Mud weight equiv. 9.90 ppg from initial hydro.

F.I.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 F.I.T. No. 1 @ 7940 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE Monel NUMBER 2911 DATE OPENED

RECOVERY - SEGREGATOR

150 p.s.i. SURFACE PRESSURE

2000cc fluid transferred

cft. GAS

cc MUD

cc. OIL

cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	3375			3367.7 psig
Hydrostatic (psi)	4075			Initial 4079.22 Final 4071.5
Sampling Time (Min)	9 secs.			
Shut-in Time (Min)	7 mins. 52 secs.			

(*Corrected for Atmospheric pressure)

REMARKS :

Performed BU on seg.

Final shut in pressure extrapolated from

Horner plot = 3368 psig

Pressure Gradient 0.4206 psi/ft

based on Basin Gradient = $\frac{\text{pressure}}{\text{subsurface depth + 150}}$

F.I.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 F.I.T. No. 2 @ 7916 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Yes Oil test

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 21 hrs. 31 mins. 23 secs. Tool Open 21 hrs. 32 mins. 53 secs. Open 14 mins. 15 secs. Full After 12 mins. 01 secs.

Shaped Charge Shot: No at

Segregator Open 21 hrs. 47 mins. 08 secs. Open 11 mins. 08 secs. Full After 6 secs.

Tool Closed 21 hrs. 58 mins 16 secs. Tool Off 21 hrs. 58 mins. 16 secs.

MUD DATA :

Rmf 0.643 @ 64 ^{0}F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

75 p.s.i. SURFACE PRESSURE - cc WATER

55.7 cft. GAS Tr cc MUD

20250 cc. OIL - cc SAND

PROPERTIES - MAIN CHAMBER

GAS		C_1	C_2	C_3	C_4	C_5	H_2S	C_6	CO_2
FID	Gas (1)	95744	84147	114972	57600	20480	> 9	5327	2%
	Gas (2)	116633	49602	71116	36864	20480	> 9	2668	2%
	Oil	6863	31001	102898	79488	32256	> 9	7339	2%

OIL 46 ^{0}API @ 67 ^{0}F; Pour Point ^{0}F

Black Colour; Yellow/White Fluorescent Colour

G.O.R.

WATER Rrf @ ^{0}F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	3300			3272
Final Shut-in (psi)	3400			3357
Hydrostatic (psi)	-			Initial 4073
Sampling Time (Min)	12 mins. 01 secs.			Final 4083
Shut-in Time (Min)	2 mins. 14 secs.			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 203 ^{0}F, 204 ^{0}F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 20.5 Hrs.

REMARKS :

Hydrostatic MW equivalent = 9.91 ppg

F.I.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 F.I.T. No. 2 @ 7916 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE Monel NUMBER 2909 DATE OPENED

RECOVERY - SEGREGATOR

2800 p.s.i. SURFACE PRESSURE 1600cc fluid transferred

cft. GAS cc MUD

cc. OIL cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	3400			3361.75
Hydrostatic (psi) Final	4250			4067
Sampling Time (Min)	6 secs.			
Shut-in Time (Min)	11.02			

(*Corrected for Atmospheric pressure)

REMARKS : Final shut in pressure extrapolated from

Horner plot = 3361 psig

Pressure gradient = 0.4210 psi/ft

F.I.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 F.I.T. No. 3 @ 7896 ft. (G.R. Depth) DATE 16/17.5.77

VALID TEST : Yes Oil test

FIRING METHOD Normal CHOKE SIZES Single 0.030"

TIMES : Tool Set 00 hrs.19 mins 34 secs. Tool Open 00 hrs. 20 mins. 35 secs. Open 14 mins. 00 secs. Full After 12 mins 25 secs.

Shaped Charge Shot: No at

Segregator Open 00 hrs. 34 mins. 35 secs. Open 6 mins.46secs Full After 13 secs.

Tool Closed 00 hrs.41 mins. 21 secs. Tool Off 00 hrs. 42 mins. 50 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm , NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

100	p.s.i. SURFACE PRESSURE	6850	cc MUD/FILTRATE
42.3	cft. GAS	Tr	cc MUD
13400	cc. OIL	-	cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	CO_2	C_6	C_4^{iso}
Gas (1)	137523	80604	116157	55296	16384	>9	1.75%	1468	
Gas (2)	118374	57574	90081	46080	16384	>9	1.5%	2135	
Oil	8704	29230	104304	66816	30720	>9	~1.0%	6672	62208

OIL 46 °API @ 69 °F; Pour Point - °F

Black Colour; Yellow/White Fluorescent Colour

G.O.R.

WATER Rrf 0.550 @ 68 °F, Equiv. Cl^- 11200 ppm (Resistivity)

Cl^- 9000 ppm NO_3^- 350 ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	3075			Erratic ~3156 psig
Final Shut-in (psi)	3275			3348.6 psig
Hydrostatic (psi)	-			Initial 4053.2 psig
Sampling Time (Min)	12 mins. 25 secs.			
Shut-in Time (Min)	1 min. 35 secs.			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 202 °F, 204 °F

MAX. DEPTH TOOL REACHED: 7950 Ft.

TIME SINCE CIRCULATION : 23 Hrs.

REMARKS :

Hydrostatic MW equivalent = 9.89 ppg

F.I.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 F.I.T. No. 3 @ 7896 ft.(G.R. Depth) DATE 16/17.5.77

SEGREGATOR TYPE Monel NUMBER 2907 DATE OPENED

RECOVERY - SEGREGATOR

2600 p.s.i. SURFACE PRESSURE

1870cc fluid transferred

cft. GAS

cc MUD

cc. OIL

cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ^{o}API @ ^{o}F; Pour Point ^{o}F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ ^{o}F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada	Agnew Amerada		Hewlett Packard*
Sampling (psi)	-				-
Final Shut-in (psi)	3275				3351.4 psig
Hydrostatic (psi)	4032				Final 4047 psig
Sampling Time (Min)	13 secs				
Shut-in Time (Min)	6 mins.3 secs.				

(*Corrected for Atmospheric pressure)

REMARKS : Final shut in pressure extrapolated from

Horner plot = 3351.6 psig

Pressure Gradient: 0.4209 psi/ft

F.I.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 F.I.T. No. 4 @ 7877 ft. (G.R. Depth) DATE 17.5.77

VALID TEST : Yes Oil test

FIRING METHOD Normal CHOKE SIZES Single 0.030"

TIMES : Tool Set 03 hrs. 10 mins. 40 secs. Tool Open 03 hrs. 12 mins.09 secs Open 24 mins. 01 secs. Full After 12 mins. 14 secs.

Shaped Charge Shot: No at

Segregator Open - Open Full After

Tool Closed 03 hrs. 36 mins.10secs Tool Off 03 hrs.37 mins.36 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

75	p.s.i. SURFACE PRESSURE	4500	cc OILY/MUD FILTR.
43.5	cft. GAS	Tr	cc MUD
15500	cc. OIL	-	cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	C_4 iso	C_6	CO_2
Gas	191488	168294	284467	107136	30720	>9	55296	2669	1.5%
Oil	7834	23030	81784	48384	25600	>9	48384	10675	1.5%

OIL 45 °API @ 70 °F; Pour Point °F

Black Colour; Yellow/White Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	3325			~3163 psig
Final Shut-in (psi)	3500			3331.3 psig
Hydrostatic (psi)	-			Initial 4033.3 psig

Sampling Time (Min) 12 mins.14 secs.

Shut-in Time (Min) 11 mins.47 secs.

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 202 °F, 204 °F

MAX. DEPTH TOOL REACHED: 7940 Ft.

TIME SINCE CIRCULATION : 26 Hrs.

Final shut in Pressure extra-polated from Horner plot = 3333.8 psig.

REMARKS : Pressure gradient = 0.4196 psi/ft

Hydrostatic MW equivalent = 9.865 ppg

Resistivity measurement of oily/mud filtrate unsuccessful as very oily and flocculant.

F.I.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 F.I.T. No. 4 @ 7877 ft.(G.R. Depth) DATE 17.5.77

SEGREGATOR TYPE Monel NUMBER 2908 DATE OPENED 17.5.77

RECOVERY - SEGREGATOR Did not open.

- p.s.i. SURFACE PRESSURE

____ cft. GAS

- cc. OIL

____ cc WATER

____ cc MUD

____ cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			3334.5
Hydrostatic (psi)	4250			Final 4034
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

F.I.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 F.I.T. No. 5 @ 7866 ft. (G.R. Depth) DATE 17.5.77

VALID TEST : Yes Oil test

FIRING METHOD Normal CHOKE SIZES Single 0.030"

TIMES : Tool Set 06 hrs. 09 mins. 12 secs. Tool Open 06 hrs. 10 mins. 11 secs. Open 14 mins. 45 secs. Full After 12 mins. 07 secs.

Shaped Charge Shot: No at

Segregator Open 06 hrs. 24 mins. 58 secs. Open 8 mins. 59 secs. Full After 7 secs.

Tool Closed 06 hrs. 33 mins. 57 secs Tool Off 06 hrs. 35 secs. 21 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

50	p.s.i. SURFACE PRESSURE	-	cc WATER
56.1	cft. GAS	4000	cc MUDDY OIL FLOCCULATED MUD
15850	cc. OIL	-	cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	C_6	C_4 iso	CO_2
Gas (1)	130560	47831	71116	34560	20480	>9	2669	34560	~1%
Gas (2)	137523	100977	144604	69120	20480	>9	2669	64512	~1%
Oil	7834	31887	131566	85248	35840	>9	10675	80640	~1%

OIL 44 °API @ 70 °F; Pour Point - °F

Black Colour; Yellow/white Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	3250			~3200 psig
Final Shut-in (psi)	3270			3326.21 psig
Hydrostatic (psi)	-			Initial: 4023.6 psig

Sampling Time (Min) 12 mins. 07 secs.

Shut-in Time (Min) 2 mins. 38 secs.

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 201 °F, 203 °F

MAX. DEPTH TOOL REACHED: 7919 Ft.

TIME SINCE CIRCULATION : 29 Hrs.

REMARKS :

Hydrostatic MW Equivalent = 9.85 ppg

F.I.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 F.I.T. No. 5 @ 7866 ft.(G.R. Depth) DATE 17.5.77

SEGREGATOR TYPE SFAB NUMBER 24 DATE OPENED

RECOVERY - SEGREGATOR

2900 p.s.i. SURFACE PRESSURE 2150cc fluid transferred

cft. GAS cc MUD

cc. OIL cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			126-180
Final Shut-in (psi)	3300			3328.3 psig
Hydrostatic (psi)	4030			Final: 4014.2 psig
Sampling Time (Min)	7 secs			
Shut-in Time (Min)	8.52			

(*Corrected for Atmospheric pressure)

REMARKS :

Final shut in pressure extrapolated from

Horner plot = 3329 psig

Pressure Gradient = 0.4195 psi/ft

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 1 @ 7965 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Yes Water test

FIRING METHOD Normal CHOKE SIZES Single 0.020"

TIMES : Tool Set 7 hrs. 10 mins.16s. Tool Open 7 hrs. 13 mins 23 secs. Open 23 mins. 37 secs. Full After 12 mins. 21 secs.

Shaped Charge Shot: No at

Segregator Open 7 hrs. 37 mins.30 secs. Open 11 mins.16secs Full After 17 secs

Tool Closed 7 hrs. 48 mins.46 secs Tool Off 7 hrs. 48 mins. 46 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

-	p.s.i. SURFACE PRESSURE	21200	cc WATER & Mud Filtrate
-	cft. GAS		cc MUD
-	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf 0.303 @ 71 °F, Equiv. Cl⁻ >25000 ppm (Resistivity)

Cl⁻ 16000 ppm NO_3^- 90 ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest (psig)	3388			3379.5
Sampling (psig)	~2600			~2600
Final Shut-in (psig)	3380			3379.81
Hydrostatic (psig)	Init. 4117 Final			4131.8

Sampling Time (Min) 12 mins. 21 secs.

Shut-in Time (Min) 11 mins. 16 secs.

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 208 °F, 211 °F

MAX. DEPTH TOOL REACHED: 8014 Ft.

TIME SINCE CIRCULATION : 7.25 Hrs.

REMARKS :

Final shut in pressure extrapolated from graph = 3380.4 psig

Calculated formation pressure gradient = 0.4208 psi/ft

Hydrostatic MW equivalent = 9.99 ppg

Sampling pressure erratic due to plugging flowline.

Temperatures appeared to be anomalously high.

R.F.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 R.F.T. No. 1 @ 7965 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE SFAB NUMBER 28 DATE OPENED 16.5.77

RECOVERY - SEGREGATOR

300	p.s.i. SURFACE PRESSURE	2100	cc WATER & Mud Filtrate
-	cft. GAS		cc MUD
-	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf 0.283 @ 71 °F, Equiv. Cl^- >25000 ppm (Resistivity)

Cl^- 16000 ppm NO_3^- 150 ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	~2025			~2000
Final Shut-in (psi)	3383			3380.2
Hydrostatic (psi) Final	4105			4122.7
Sampling Time (Min)	17 secs.			
Shut-in Time (Min)	11 mins.01 secs.			

(*Corrected for Atmospheric pressure)

REMARKS :

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 2 @ 8014 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Yes Pressure test only.

FIRING METHOD NORMAL CHOKE SIZES SINGLE 0.020"

TIMES : Tool Set 7 hrs. 59 mins. 45 secs. Tool Open - Min. Open - Full After -

Shaped Charge Shot: No at

Segregator Open - Mins. Open - Full After -

Tool Closed 8 hrs. 11 mins. 04 secs Tool Off 8 hrs. 11 mins. 05 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

p.s.i. SURFACE PRESSURE

cc WATER

cft. GAS

cc MUD

cc. OIL

cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl^- ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - PRETEST CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			~3395.12
Final Shut-in (psi)	3406			3401.83
Hydrostatic (psi)	Init. 4137 Final 4135			Initial 4163 Final 4168
Sampling Time (Min)	-			
Shut-in Time (Min)	11 mins. 19 secs.			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 208 °F, 210 °F

MAX. DEPTH TOOL REACHED: 8014 Ft.

TIME SINCE CIRCULATION : 7.25 Hrs.

REMARKS : Pressure Test Only.

Pressure gradient = 4209 psi/ft

Hydrostatic MW equivalent (4163) = 10.00 ppg

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 3 @ 7945 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Yes Water test

FIRING METHOD Normal CHOKE SIZES Single 0.02"

TIMES : Tool Set 10 hrs. 49 mins. 52 secs. Tool Open 10 hrs. 54 mins.37 secs Open 19 mins. 9 secs. Full After 16 mins.

Shaped Charge Shot: No at

Segregator Open 11 hrs. 14 mins.37 secs. Open 6 min.23 secs. Full After Plugged

Tool Closed 11 hrs. 21 mins. Tool Off 11 hrs.21 mins.

MUD DATA :

Rmf 0.643 @ 64 ^{o}F, Equiv. Cl$^-$ 10000 ppm (Resistivity)

Cl$^-$ 5500 ppm NO$^-$3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

-	p.s.i. SURFACE PRESSURE	20550	cc WATER & Mud Filtrate
0.7	cft. GAS	-	cc MUD
300	cc. OIL	750	cc AMBER OILY FROTH

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	C_6
	6310	9300	35558	30528	16640	-	5334

OIL <40 ^{o}API @ 85 ^{o}F; Pour Point - ^{o}F

Black Colour; White Fluorescent Colour

G.O.R.

WATER Rrf 0.349 @ 72 ^{o}F, Equiv. Cl$^-$ > 25000 ppm (Resistivity)

Cl$^-$ 12000 ppm NO_3^- 150 ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Pre test	3393			3378.2
Sampling (psig)	1100-1400			1100-1300
Final Shut-in (psig)	3386			3376.24
Hydrostatic (psig) Init. Final	4108 -			4125
Sampling Time (Min)	16 mins.			
Shut-in Time (Min)	3 mins. 9 secs.			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 191 ^{o}F, 192 ^{o}F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 9 hrs.25 mins.

REMARKS : Sampling pressure erratic due to flowline plugging.
Initial hydrostatic pressure on HP is anomalously high.

Pressure gradient at = 0.4212 psi/ft
Hydrostatic MW equivalent (4108psig) = 10.00 ppg

Final shut in pressure from Horner plot = 3375 psig.

R.F.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 R.F.T. No. 3 @ 7945 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE SFAB NUMBER 28 DATE OPENED 16.5.77

RECOVERY - SEGREGATOR None, Flowline plugged.

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	6-7			Max. 27 psig
Final Shut-in (psi)	-			-
Hydrostatic (psi)	Final 4103			4125 psig
Sampling Time (Min)	6 mins. 23 secs.			
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 4 @ 7945 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.02"

TIMES : Tool Set 11 hrs. 25 mins. 53 secs. Tool Open - Min. Open - Full After -

Shaped Charge Shot: No at ______

Segregator Open - Mins. Open - Full After -

Tool Closed ______ Tool Off 11 hrs.26 mins. 23 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada ______	Agnew Amerada ______	Hewlett Packard*
Sampling (psi)				
Final Shut-in (psi)				
Hydrostatic (psi) Init.				
Hydrostatic (psi) Final				
Sampling Time (Min)				
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 191 °F, 192 °F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 9 mins. 25 secs.

REMARKS : Main chamber filled on RFT-3 (7945').
Attempted to fill segregator.

R.F.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 R.F.T. No. 4 @ 7945 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE SFAB NUMBER 28 DATE OPENED 16.5.77

RECOVERY - SEGREGATOR

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)				
Final Shut-in (psi)				
Hydrostatic (psi)	Initial 4101 Final 4102			Initial 4107 Final 4108
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

REMARKS : Attempted to fill segregator, pad did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 5 @ 7945.5 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. Attempted to fill segregator, flowline plugged.

FIRING METHOD Normal CHOKE SIZES Single 0.02"

TIMES : Tool Set 11 hrs. 31 mins. 33 secs. Tool Open - Min. Open - Full After -

Shaped Charge Shot: ~~Yes~~/No at

Segregator Open 11 hrs. 32 mins.40 secs. Open 6 mins.26 secs Full After -

Tool Closed Tool Off 11 hrs.39 mins.06 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl⁻ ppm (Resistivity)

Cl⁻ ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)				
Final Shut-in (psi)				
Hydrostatic (psi) Init.				
Final				
Sampling Time (Min)				
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 191 °F, 192 °F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 9 hrs.25 mins.

REMARKS :

Main chamber filled on RFT-3 (7945').

R.F.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 R.F.T. No. 5 @ 7945.5 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE SFAB NUMBER 28 . DATE OPENED 16.5.77

RECOVERY - SEGREGATOR

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - SEGREGATOR

		Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest (psig)		3389.5			3374.5
Sampling (psi)		117			63
Final Shut-in (psi)		124			65.02
Hydrostatic (psi)	Initial	4103			4095
	Final	4103			~~4094~~
Sampling Time (Min)		6 hrs. 26 mins.			
Shut-in Time (Min)		-			

(*Corrected for Atmospheric pressure)

REMARKS : Plugged flowline caused test to fail.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 6 @ 7944.5 ft. (G.R. Depth) DATE 16.5.77

VALID TEST :No Miss run. Attempted to fill segregator, segregator did not open.

FIRING METHOD Normal CHOKE SIZES Single 0.02"

TIMES : Tool Set 11 hrs. 42 mins. 23 secs. Tool Open - Min. Open - Full After -

Shaped Charge Shot: No at

Segregator Open 11 hrs. 43 mins. 34 secs. Open 6 min. 21 secs. Full After -

Tool Closed 11 hrs. 49 mins. 55 secs. Tool Off 11 hrs. 49 mins. 57 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

p.s.i. SURFACE PRESSURE

cft. GAS

cc. OIL

cc WATER

cc MUD

cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl⁻ ppm (Resistivity)

Cl⁻ ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)				
Final Shut-in (psi)				
Hydrostatic (psi) Init. Final				
Sampling Time (Min)				
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 191 °F, 192 °F

MAX. DEPTH TOOL REACHED: 8020 Ft.

TIME SINCE CIRCULATION : 9 hrs. 25 mins.

REMARKS :

Main chamber was filled on RFT-3 (7945').

R.F.T. SEGREGATOR REPORT

GEOLOGIST BELLIS/ELLIOTT

WELL : COBIA-2 R.F.T. No. 6 @ 7944.5 ft.(G.R. Depth) DATE 16.5.77

SEGREGATOR TYPE SFAB NUMBER 28 DATE OPENED 16.5.77

RECOVERY - SEGREGATOR Segregator did not open.

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - SEGREGATOR

			Agnew			
	Schlumberger	Amerada		Amerada		Hewlett Packard*
Pretest (psig)	3391					3375.5
Sampling (psi)	-					-
Final Shut-in (psi)	3388.5					3375.33
Hydrostatic (psi) Initial	4103					4092.2
Final	4101					4106.7
Sampling Time (Min)	-					
Shut-in Time (Min)	6 mins. 21 secs.					

(*Corrected for Atmospheric pressure)

REMARKS : Segregator appeared to fill almost instantaneously but upon opening it, it was empty.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 7 @ 7916.5 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 20 mins. 19 secs. Tool Open - Min. Open - Full After -

Shaped Charge Shot: XXX/No at

Segregator Open - Mins. Open - Full After -

Tool Closed - Tool Off 14 hrs. 20 mins. 51 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO⁻3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

p.s.i. SURFACE PRESSURE cc WATER

cft. GAS cc MUD

cc. OIL cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL °API @ °F; Pour Point °F

Colour; Fluorescent Colour

G.O.R.

WATER Rrf @ °F, Equiv. Cl⁻ ppm (Resistivity)

Cl⁻ ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4079			4088.2
Final	4077			4089
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS :

The sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 8 @ 7917 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. Flowline plugged.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 26 mins. 59 secs. Tool Open 14 hrs. 29 mins. 39 secs Open 3 mins. 13 secs. Full After -

Shaped Charge Shot: XXX/No at ______

Segregator Open - Mins. Open - Full After -

Tool Closed 14 hrs. 32 mins. 52 secs. Tool Off 14 hrs. 32. mins 52 secs.

MUD DATA :

Rmf 0.643 @ 64 ^{o}F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO$^-$3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ ^{o}API @ ______ ^{o}F; Pour Point ______ ^{o}F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ ^{o}F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest (psig)	3393			3388.5
Sampling (psig)	51			~5
Final Shut-in (psig)	57			7.84
Hydrostatic (psig)	Init. 4076 Final 4073			4086 4088
Sampling Time (Min)	3 mins. 13 secs.			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 ^{o}F, 196 ^{o}F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : Flowline plugged

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 9 @ 7916 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 37 mins. 42 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 14 hrs. 38 mins. 30 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-_3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4074			4079
Final	4076			4072
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : The sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 10 @ 7896 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. Partial plugging of flowline.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 43 mins. 23 secs. Tool Open 14 hrs. 47 mins. 12 secs. Open 3 mins. 45 secs. Full After -

Shaped Charge Shot: ~~Yes~~/No at

Segregator Open - Mins. Open Full After

Tool Closed 14 hrs. 50 mins. 57 secs. Tool Off 14 hrs. 50 mins. 57 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

-	p.s.i. SURFACE PRESSURE	1250	cc MUD FILTRATE
-	cft. GAS		cc MUD
250	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S	C_6
FID	12403	10407	35558	31104	19200	-	5333

OIL <40 °API @ 68 °F; Pour Point °F

Black Colour; White Fluorescent Colour

G.O.R.

WATER Rrf 0.672 @ 74 °F, Equiv. Cl^- 8500 ppm (Resistivity)

Cl^- ppm NO_3^- ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew	Amerada		Hewlett Packard*
Pretest (psig)	3364					3362
Sampling (psig)	100-800					100-700
Final Shut-in (psig)	125					97.4
Hydrostatic (psig) Init.	4063					4065
Final	4059					4073
Sampling Time (Min)	3.45					
Shut-in Time (Min)	-					

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : Flowline plugged.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 11 @ 7897 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 56 mins. 20 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: XXXX/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed - Tool Off 14 hrs. 59 mins. 55 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4063			4088
Final	4062			4080
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs 75 mins.

REMARKS : The sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 12 @ 7896.5 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 15 hrs. 97 mins. 08 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: XXX/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed - Tool Off 15 hrs. 07. mins 51 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew	Amerada		Hewlett Packard*
Sampling (psi)	-					-
Final Shut-in (psi)	-					-
Hydrostatic (psi) Init.	4065					4101
Final	4064					4100
Sampling Time (Min)	-					
Shut-in Time (Min)	-					

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : The sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 13 @ 7895.5 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. No recovery flowline plugged.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 15 hrs. 15 mins. 29 secs. Tool Open 15 hrs. 19 mins. 14 sec Open 1 min. 54 secs. Full After -

Shaped Charge Shot: XXXX/No at ____

Segregator Open - Mins. Open - ____ Full After ____

Tool Closed 15 hrs. 21 mins. 08 secs. Tool Off 15 hrs. 21 mins. 08 secs.

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 10000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada ____	Hewlett Packard*
Pretest (psig)	3371			3433.5
Sampling (psig)	64			9.7
Final Shut-in (psig)	75			9.7
Hydrostatic (psig) Init.	4062			4088
Final	4059			4088
Sampling Time (Min)	1 mins 54 secs.			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : Flowline plugged.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 14 @ 7896 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 15 hrs. 26 mins. 41 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: XXXX/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 15 hrs 28 mins. 15 secs.

MUD DATA :

Rmf 0.643 @ 64 ^{o}F, Equiv. Cl^{-} 10000 ppm (Resistivity)

Cl^{-} 5500 ppm NO^{-}3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ ^{o}API @ ______ ^{o}F; Pour Point ______ ^{o}F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ ^{o}F, Equiv. Cl^{-} ______ ppm (Resistivity)

Cl^{-} ______ ppm NO$_3^{-}$ ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4061			4110
Final	4061			4105
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 ^{o}F, 196 ^{o}F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 15 @ 7965 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run, had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set ______ Tool Open ______ Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open ______ Mins. Open ______ Full After ______

Tool Closed ______ Tool Off ______

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl⁻ 10000 ppm (Resistivity)

Cl⁻ 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4103			-
Final	4102			
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs 75 mins.

REMARKS : Sampling probe did not seal.

This RFT was run to test the tool.

HP gauge was not used.

R.F.T. RECORD

GEOLOGIST BELLIS/ELLIOTT

WELL: COBIA-2 R.F.T. No. 16 @ 7964 ft. (G.R. Depth) DATE 16.5.77

VALID TEST : Miss run. Had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set ______ Tool Open ______ Min. Open ______ Full After ______

Shaped Charge Shot: Yes/No at ______

Segregator Open ______ Mins. Open ______ Full After ______

Tool Closed ______ Tool Off ______

MUD DATA :

Rmf 0.643 @ 64 °F, Equiv. Cl^- 1000 ppm (Resistivity)

Cl^- 5500 ppm NO^-3 350 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi)	Init. 4101 Final 4099			-
Sampling Time (Min)				
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 194 °F, 196 °F

MAX. DEPTH TOOL REACHED: 8000 Ft.

TIME SINCE CIRCULATION : 12 hrs. 75 mins.

REMARKS : Sampling probe did not seal.

This RFT was run to test the tool.

HP gauge was not used.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 17 @ 7853 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. Had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 04 mins. 24 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: Yes/~~No~~ at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 14 hrs. 06 mins. 40 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4011			4017.5
Final	4011			4016
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 18 @ 7853.5 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. Had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 08 mins. 08 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: XXXX/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed - Tool Off ____

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl⁻ ____ ppm (Resistivity)

Cl⁻ ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4012			4009
Final	4011			4010
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 19 @ 7852.5 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. Had no seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 12 mins. 10 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: ~~Yes~~/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed ____ Tool Off 14 hrs. 12 mins. 54 secs.

MUD DATA :

Rmf 0.668 @ 72 ^{o}F, Equiv. Cl$^-$ 9000 ppm (Resistivity)

Cl$^-$ 4500 ppm NO$^-$3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ ^{o}API @ ____ ^{o}F; Pour Point ____ ^{o}F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ ^{o}F, Equiv. Cl$^-$ ____ ppm (Resistivity)

Cl$^-$ ____ ppm NO$_3^-$ ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4011			4015.3
Final	4011			4018
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 ^{o}F, 170 ^{o}F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 20 @ 7906 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 20 mins. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off -

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4037			4090
Final	4034			4091
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 21 @ 7917 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. Tool did not open.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 26 mins. 33 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: ~~Yes~~/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed ____ Tool Off 14 hrs. 36 mins. 05 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl⁻ ____ ppm (Resistivity)

Cl⁻ ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest (psig)	3398			3380
Sampling (psig)	-			-
Final Shut-in (psig)	3399			3384.57
Hydrostatic (psig) Init.	4044			4088
Final	4041			4102
Sampling Time (Min)	-			
Shut-in Time (Min)	9.32			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS :

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 22 @ 7906 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 39 mins. 06 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - ______ Mins. Open ______ Full After ______

Tool Closed ______ ______ Tool Off 14 hrs. 40 mins. 11 secs.

MUD DATA :

Rmf 0.668 @ 72 ^{0}F, Equiv. Cl^{-} 9000 ppm (Resistivity)

Cl^{-} 4500 ppm NO^{-}3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ ^{0}API @ ______ ^{0}F; Pour Point ______ ^{0}F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ ^{0}F, Equiv. Cl^{-} ______ ppm (Resistivity)

Cl^{-} ______ ppm NO_3^{-} ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	-			4098
Final	-			
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 ^{0}F, 170 ^{0}F

MAX. DEPTH TOOL REACHED: 7907 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 23 @ 7905 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. Tool did not open.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 14 hrs. 54 mins. 24 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 14 hrs. 56 mins. 13 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl^- 9000 ppm (Resistivity)

Cl^- 4500 ppm NO^-3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest (psig)	Unstable			3378 (Unstable)
Sampling (psig)	-			-
Final Shut-in (psig)	3426			3413.6
Hydrostatic (psig) Init.	4032			4066 (Erratic)
Final	4033			4048
Sampling Time (Min)	-			
Shut-in Time (Min)				

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Invalid test. Believe tool settling into wall and causing pressure increase.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 24 @ 7854 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 15 hrs. 00 mins. 51 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: Xxx/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 15 hrs. 02 mins. 11 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4009			4085
Final	4011			4085
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7901 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : The sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 25 @ 7852 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Mud run. Tool did not set properly, but retained intermittant seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 15 hrs. 10 mins. 23 secs. Tool Open 15 hrs. 13 mins. 31 secs Open 31 mins. ~~14 secs.~~ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open 15 hrs. 45 mins 47 secs. . Open 9 mins. 44 secs. Full After 18 secs.

Tool Closed 15 hrs. 55 mins. 31 secs. Tool Off 15 hrs. 55 mins. 31 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

-	p.s.i. SURFACE PRESSURE	19900	cc MUD FILTRATE
0.27	cft. GAS		cc MUD
800	cc. OIL		cc SAND

PROPERTIES - MAIN CHAMBER

	GAS	C_1	C_2	C_3	C_4	C_5	H_2S	CO_2	C_6
FID	(Gas	48742	26982	43571	18432	5120	Tr	0.25%	1334
	(Oil	11315	13926	65945	54169	27200	Tr	0.25%	7339

OIL 44 °API @ 70 °F; Pour Point ______ °F

Black Colour; White Fluorescent Colour

______ G.O.R.

WATER Rrf 0.65 @ 70 °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ 5100 ppm NO_3^- 80 ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Pretest	4003			4085 ?
Sampling (psig)	Erratic			Erratic
Final Shut-in (psig)	3344			3351
Hydrostatic (psig) Init.	4006			4087
Final	-			
Sampling Time (Min)	12.34			
Shut-in Time (Min)	18.40			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : HP gauge pressures very erratic.

Lost some gas. Balloon was about 1 ft. diam. ~½ ft.^{3}

R.F.T. SEGREGATOR REPORT

GEOLOGIST ELLIOTT

WELL : COBIA-2 R.F.T. No. 25 @ 7853 ft.(G.R. Depth) DATE 18.5.77

SEGREGATOR TYPE SFAB NUMBER 28 DATE OPENED

RECOVERY - SEGREGATOR Segregator probably had some partially seal transfer was unsuccessful and sample was dumped.

	p.s.i. SURFACE PRESSURE		cc WATER
	cft. GAS		cc MUD
	cc. OIL		cc SAND

PROPERTIES - SEGREGATOR

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - SEGREGATOR

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psig)	~1365			-
Final Shut-in (psig)	3342			3341.7
Hydrostatic (psig) Final	4000			~4062
Sampling Time (Min)	18 secs.			
Shut-in Time (Min)	9 mins. 26 secs.			

(*Corrected for Atmospheric pressure)

REMARKS :

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 26 @ 7905.5 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 16 hrs. 04 mins. 13 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 16 hrs. 04 mins. 29 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl⁻ 9000 ppm (Resistivity)

Cl⁻ 4500 ppm NO⁻3 ~ 50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl⁻ ______ ppm (Resistivity)

Cl⁻ ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4052			4050
Final	4034			4047
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 27 @ 7904.5 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 16 hrs. 08 mins. 45 secs. Tool Open - Min. Open ____ Full After ____

Shaped Charge Shot: ~~Yes~~/No at ____

Segregator Open - Mins. Open ____ Full After ____

Tool Closed - Tool Off 16 hrs. 09 mins. 06 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl^- 9000 ppm (Resistivity)

Cl^- 4500 ppm NO^-3 ~50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

____ p.s.i. SURFACE PRESSURE ____ cc WATER

____ cft. GAS ____ cc MUD

____ cc. OIL ____ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ____ °API @ ____ °F; Pour Point ____ °F

____ Colour; ____ Fluorescent Colour

____ G.O.R.

WATER Rrf ____ @ ____ °F, Equiv. Cl^- ____ ppm (Resistivity)

Cl^- ____ ppm NO_3^- ____ ppm (Titration)

PRESSURES - MAIN CHAMBER

	Schlumberger	Amerada Agnew	Amerada	Hewlett Packard*
Sampling (psi)	-			-
Final Shut-in (psi)	-			-
Hydrostatic (psi) Init.	4028			~ 4050 (Erratic)
Final	4028			~ 4048 (Erratic)
Sampling Time (Min)	-			
Shut-in Time (Min)	-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

R.F.T. RECORD

GEOLOGIST ELLIOTT

WELL: COBIA-2 R.F.T. No. 28 @ 7905 ft. (G.R. Depth) DATE 18.5.77

VALID TEST : Miss run. No seal.

FIRING METHOD Normal CHOKE SIZES Single 0.03"

TIMES : Tool Set 16 hrs. 12 mins. 54 secs. Tool Open - Min. Open ______ Full After ______

Shaped Charge Shot: ~~Yes~~/No at ______

Segregator Open - Mins. Open ______ Full After ______

Tool Closed - Tool Off 16 hrs. 13 mins. 25 secs.

MUD DATA :

Rmf 0.668 @ 72 °F, Equiv. Cl^- 9000 ppm (Resistivity)

Cl^- 4500 ppm NO^-3 ~ 50 ppm (Titration)

SAMPLE TAKEN AT END OF LAST CIRCULATION

RECOVERY - MAIN CHAMBER

______ p.s.i. SURFACE PRESSURE ______ cc WATER

______ cft. GAS ______ cc MUD

______ cc. OIL ______ cc SAND

PROPERTIES - MAIN CHAMBER

GAS	C_1	C_2	C_3	C_4	C_5	H_2S

OIL ______ °API @ ______ °F; Pour Point ______ °F

______ Colour; ______ Fluorescent Colour

______ G.O.R.

WATER Rrf ______ @ ______ °F, Equiv. Cl^- ______ ppm (Resistivity)

Cl^- ______ ppm NO_3^- ______ ppm (Titration)

PRESSURES - MAIN CHAMBER

		Schlumberger	Amerada	Agnew Amerada	Hewlett Packard*
Sampling (psi)		-			-
Final Shut-in (psi)		-			-
Hydrostatic (psi)	Init.	4030			4080
	Final	4030			~ 4075
Sampling Time (Min)		-			
Shut-in Time (Min)		-			

(*Corrected for Atmospheric pressure)

TEMPERATURES : (max recorded) 170 °F, 170 °F

MAX. DEPTH TOOL REACHED: 7917 Ft.

TIME SINCE CIRCULATION : 5 Hrs.

REMARKS : Sampling probe did not seal.

COBIA-2 F.I.T. DATA (16.5.1977)

F.I.T. No.	Depth* (ft.ss)	Sand Unit	Recoveries			Estimated Static Pressure (psig)	Estimated kh** (md-ft.)	Remarks
			Gas (cu.ft.)	Oil (cc)	Mud/Filtrate (cc)			
1	7857	M-1.4	35.6	13,350	6,750	3,369	600	
2	7833	M-1.4	55.7	20,250	Trace	3,359	930	
3	7813	M-1.4	42.3	13,400	6,850	3,355	240	
4	7794	M-1.3	43.5	15,500	4,500	3,333	824	
5	7733	M-1.3	56.1	15,850	4,000	3,329	665	

* ft.KB = ft.ss + 83 ft. for Ocean Endeavour

** For Schlumberger Tool recommended h = 1 ft.

TEMPERATURE RECORD

WELL NAME: COBIA-2 GEOLOGIST: BELLIS/ELLIOTT DATE: 14/15-5-77 LOGGING RUN NUMBER: 2 T.D. 8195'

DRILLING STOPPED (date and hour): 1130 14.5.77

CIRCULATION START (date and hour): 0700 14.5.77

CIRCULATION FINISH (date and hour): 1300 14.5.66

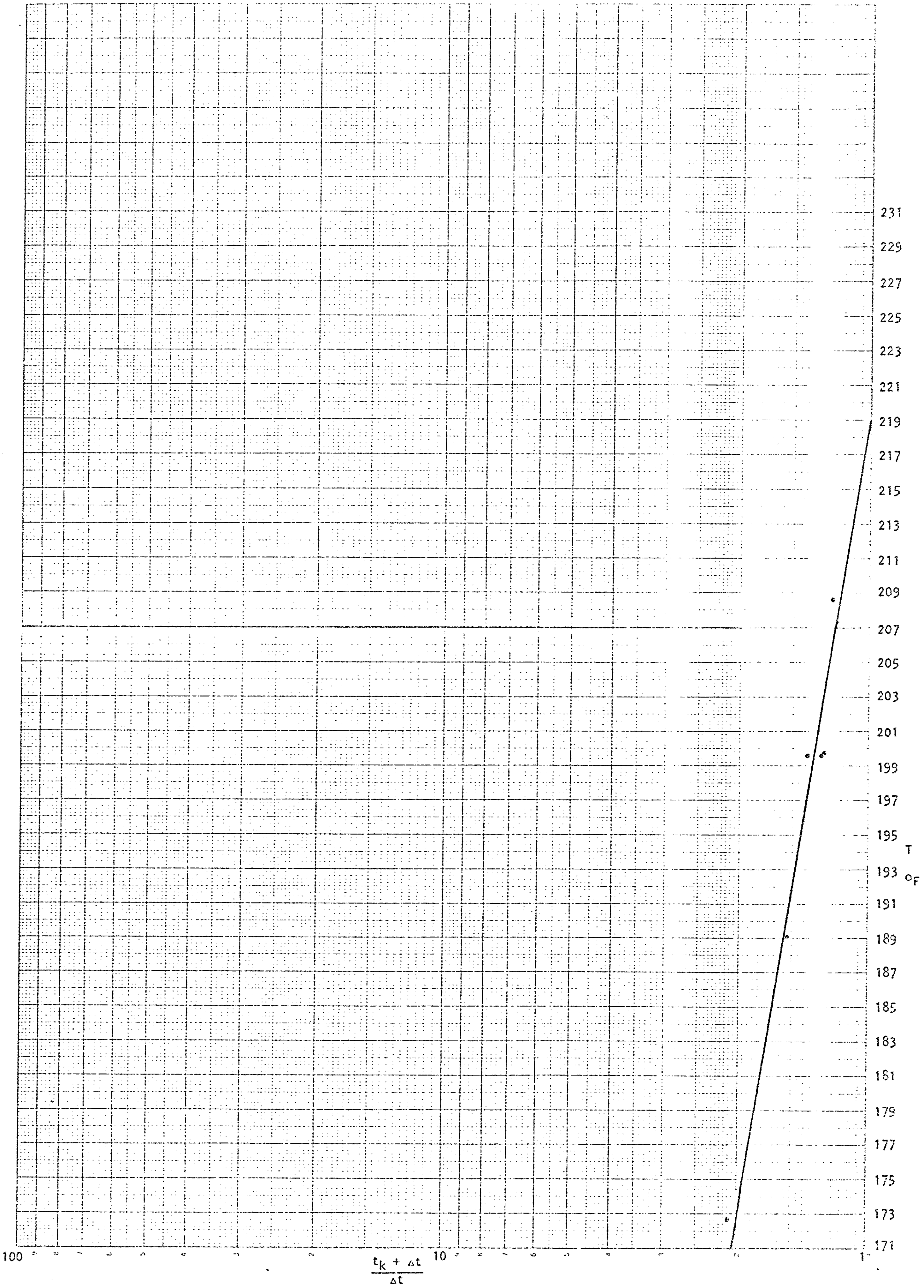
CIRCULATION TIME (hours): 6 (t_k)

TOOL	THERMOMETER DEPTH	OFF BOTTOM (time and date)	TIME SINCE CIRCULATION STOPPED (Δt)	TEMPERATURE (°F)	
				1.	2.
ISF/SONIC	8205	1840 14.5.77	5.7	172	174
FDC/CNL/GR	8205	0500 15.5.77	16.0	198	202
HDT	8205	1330 15.5.77	24.5	208	210
F.I.T. 1					
2					
3					
4					
CIS (1)	8205	2400 14.5.77	11.0	187	192
CIS (2)	8195	1030 15.5.77	21.5	195	204

PLOT OF TEMPERATURE (linear axis) AND $(t_k + \Delta t)/\Delta t$ ON LOGRATHMIC AXIS SHOULD GIVE A STRAIGHT LINE. EXTRAPOLATION OF THIS LINE TO A TIME RATIO OF UNITY WILL GIVE STATIC FORMATION TEMPERATURE.

REMARKS OF ABNORMAL CONDITIONS WHICH MAY INFLUENCE TEMPERATURE ESTIMATES: Static Formation temp. at 8205' - 219°F

COBIA-2 TEMPERATURE RECORD 16.5.77



TEMPERATURE RECORD

WELL NAME: COBIA-2 GEOLOGIST: BELLIS/ELLIOTT DATE: 16.5.77 LOGGING RUN NUMBER: 2 T.D. 8195'

DRILLING STOPPED (date and hour): 1130 14.5.77

CIRCULATION START (date and hour): 2030 15.5.77

CIRCULATION FINISH (date and hour). 0045 16.5.77

CIRCULATION TIME (hours): 4.25 (t_k)

TOOL	THERMOMETER DEPTH	OFF BOTTOM (time and date)	TIME SINCE CIRCULATION STOPPED (△t)	TEMPERATURE (°F) 1.	2.
ISF/SONIC					
FDC/CNL/GR					
HDT				Spurious - may not have been wound down	
R.F.T. 1 & 2	8014	0800 16.5.77	7.25	208	211
R.F.T. 3	8020	1000 16.5.77	9.25	191	192
R.F.T. 4 & 5	8000	1330 16.5.77	12.75	194	196
F.I.T. 1	8020	1745 16.5.77	17.00	202	202
F.I.T. 2	8020	2120 16.5.77	20.5	203	204
F.I.T. 3	7950	2400 16.5.77	23.1	202	204
F.I.T. 4	7940	0250 17.5.77	25.9	202	204
F.I.T. 5	7919	0552 17.5.77	29.0	201	203

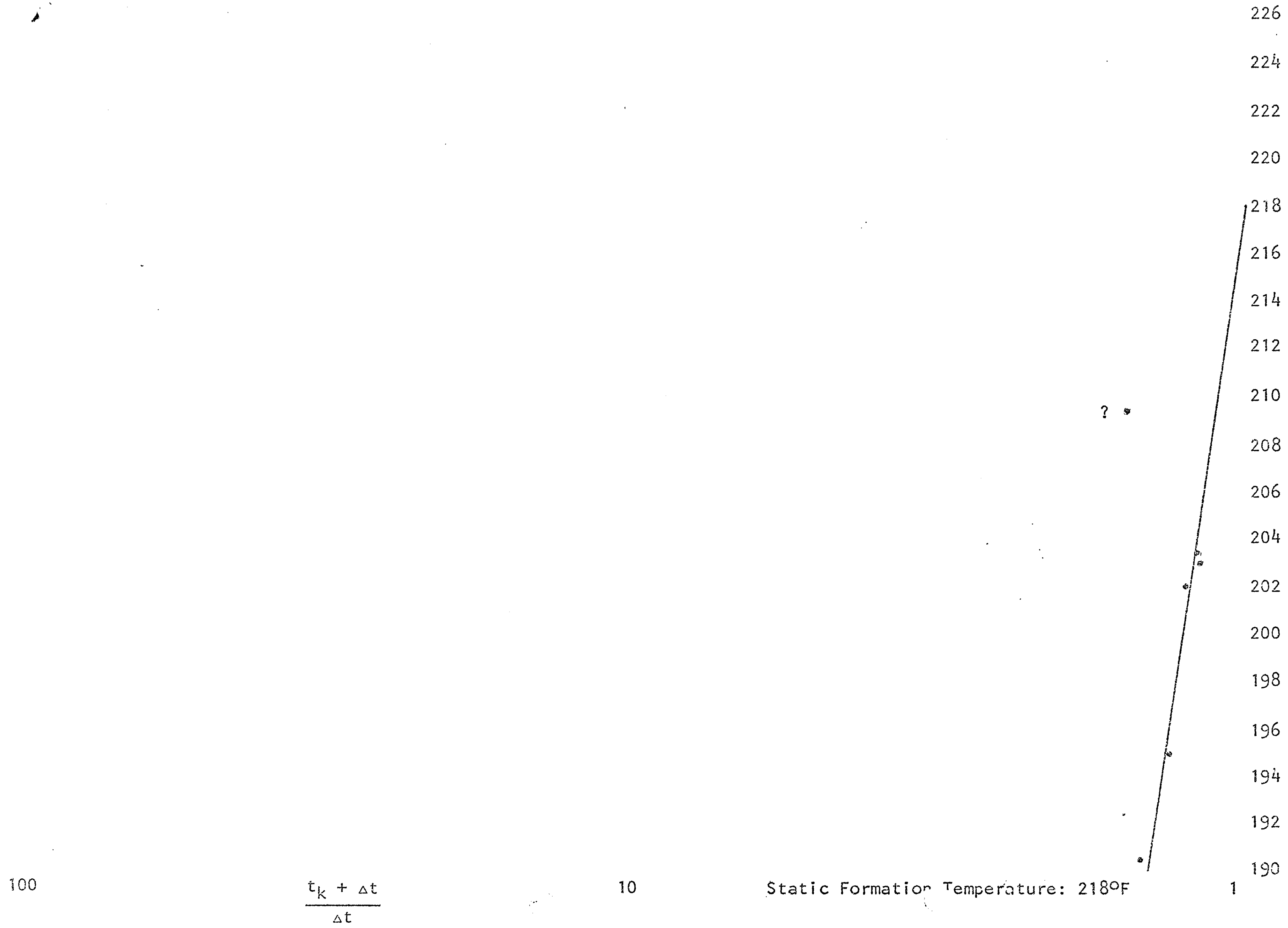
PLOT OF TEMPERATURE (linear axis) AND (t_k +△t)/△t ON LOGRATHMIC AXIS SHOULD GIVE A STRAIGHT LINE. EXTRAPOLATION OF THIS LINE TO A TIME RATIO OF UNITY WILL GIVE STATIC FORMATION TEMPERATURE.

REMARKS OF ABNORMAL CONDITIONS WHICH MAY INFLUENCE TEMPERATURE

ESTIMATES: Static formation temp. ~ 218°F

NOTE: Temperature recorded for RFT-1&2 is anomalously high - thermometers may not have been wound down fully.

COBIA-2 TEMPERATURE RECORD (Testing Run)



Static Formation Temperature: 218°F

APPENDIX
4

APPENDIX 4

WELL COMPLETION REPORT

COBIA-2

APPENDIX 4

SIDEWALL CORE DESCRIPTIONS

ESSO AUSTRALIA LTD.
SIDEWALL CORE DESCRIPTIONS

PAGE 1 OF 6
ATT 90 REC 89
DATE 17.5.77
SWC RUN NO 1
IES RUN NO 2
WELL COBIA-2
GEOLOGIST BELLIS/ELLIOTT
SERVICE CO. SCHLUMBERGER

NO. 1 a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE (mm)	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE % RK	FLOURESCENCE DISTR 14	FLOURESCENCE INTEN 15	FLOURESCENCE COLOR 16	CUT FLUOR. INTEN 17	CUT FLUOR. COLOR 18	CUT RESIDUE QUAN 19	CUT RESIDUE COLOR 20	SHOW 21	PROB PROD 22	REMARKS - GAS 23
1	8188	½	Sst.	Mica, rnded	N	lt gy	fri.	.2-.5	f-p	sa-													
				chert.						wr													
2	8180	3/4	Sst.	Mica, rnded	N	"	fri.	.4-.7	f-p	"													
				chert																			
3	8170	½	Sst.	" " "	N	"	fri.	.5-2	p	"													
4	8160	½	Sst.	" " "	N	"	"	.4-2	p	r													
5	8140	½	Sst.	Gl, mica, rn	N	"	"	.1-1	p	r													
				-ded chert																			
6	8125	3/4	Sst.	Py, mica,	N	"	"	.1-.5	f	sa-													
				mag, ch.						r													
7	8109	3/4	Sst.	Mica, rnd ch	N	"	"	.1-2	p	sr-													
										r													
8	8088	1	Sst.	Gl, mica	N	"	"	.1-1	f-g	sr-													
										r													
9	8069	½	Sst.	Py, mica	N	"	"	.4-2	f	r													
10	8047	½	Sst	Py, mag,rut.	N	"	"	.3-1	f	r													
				mica																			
11	8020	3/4	Sst.	Py,mica,ch.	N	"	"	.3-1	f	sa-													
										r													
12	7995	3/4	Sst.	Py,mica,ch.	N	"	"	.1-.3	f-g	sa-													
										sr													
13	7986	3/4	Sst	Py, mica	N	"	"	.1-4	v.p	sa-													Bimodal
										r													
14	7854	3/4	Sst.	Rut,gl,mica	V	lt gy	"	.1-.2	g	r				spotty	strng	yel-	strmng	bl-					Calc. may be mud
				py.		- m gy										wh	-strng	wh					
15	7852	½	Sst.	Gl, py	V	med gy	"	.1-.2	g	r				"	"	"	"	"					Calc. may be mud
16	7850	½	Sst.	Py, gl	F	med gy	"	.1-.2	g	r				"	"	"	"	"					Calc. may be mud
17	7848	3/4	Sst.	Gl, py, mica	F	lt gy	"	.1-.3	g	r				even	v.str.	bl-wh	strng	bl-wh					

FORM R 257 3/72

ESSO AUSTRALIA LTD.
SIDEWALL CORE DESCRIPTIONS

WELL COBIA-2
GEOLOGIST BELLIS/ELLIOTT
SERVICE CO. SCHLUMBERGER
IES RUN NO 2
SWC RUN NO 1 & 2
PAGE 2 OF 6
ATT 90 REC 89
DATE 17.5.77

NO. 1 a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE (mm)	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE % RK	FLOURESCENCE DISTR 14	FLOURESCENCE INTEN 15	FLOURESCENCE COLOR 16	CUT FLUOR. INTEN 17	CUT FLUOR. COLOR 18	CUT RESIDUE QUAN 19	CUT RESIDUE COLOR 20	SHOW 21	PROB PROD 22	REMARKS - GAS 23
18	7846	3/4	Sst.	V.gl,v.py, mica	Sl	gr-gy	friab.	.1-.3	f	sr- r	cl												
19	7844	½	Sst.	v.py,gl.	V	dk gr- gy	"	.1-.2	f-g	sa- r	cl												
20	7842	½	Sst.	Py,gl,mica	V	dk gr- gy	"	.1-.2	f-g	sa- sr	cl												
21	7840	1½	Sst.	Gl,mica	V	dk gr- gy	mod fm	.1-.2	f-g	sa	cl												
22	7838	1¼	Calc.	V. gl	V	dk gr- gy	firm	.1-.2	f-g	sa	cl												Acid has to be ho
23	7836	1 3/4	Sst.	V.gl, py, silty mica	M-V	" "	fm-fri	.1-.2	f	sa- sr	cl												" " " " "
24	7834	1½	Slst.	Gl, sandy	M-V	" "	firm	vf	p														" " " " "
25	7832	1 3/4	Shale	Gl,py,silty mica	M	dk gy	firm																" " " " "
26	7830	1½	Shale	Gl,py,silty	M	lt gn- gy	firm	slt- vf	p	sa- sr	v												" " " " "
27	7827	2	Silty Calc.	Gl, silty	M	" " "	mod fm	slt- vf	p	sa- sr	V												Interbedded
28	7826	1 3/4	Slty Calc.	Gl,mica, silty	M	lt gy	fm-sft	slt- vf	p	sa- sr	v												Interbedded
29	7824	2	Calc. Slst.	Mica,gl,slt	M	lt gy	fm-sft	cl-slt	p	sa	v												Could be 7829'
30	7822	1½	Slty Calc.	Mica, gl.	V	lt gy	firm	slt-f	p	sa- sr	v												Could be 7826'
31	7820	1 5/8	Calc. Shale	Mica	V	lt-m. gy	firm	cl.	-	-	V												Fissile
32	7818	1 1/8	Calc. Slst.	Mica	V	lt gy	firm	cl-slt	p	sa	v												

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ESSO AUSTRALIA LTD.
SIDEWALL CORE DESCRIPTIONS

SWC RUN NO 2
IES RUN NO 2

WELL COBIA-2
GEOLOGIST BELLIS/ELLIOTT
SERVICE CO. SCHLUMBERGER

NO. 1 a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE 8	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE % RK	FLOURESCENCE DISTR 14	FLOURESCENCE INTEN 15	FLOURESCENCE COLOR 16	CUT FLUOR. INTEN 17	CUT FLUOR. COLOR 18	CUT RESIDUE QUAN 19	CUT RESIDUE COLOR 20	SHOW 21	PROB PROD 22	REMARKS - GAS 23
33	7816	2	Calc.	Mica	V	m-dk.	firm	clay	-	-	V												Fissile
			Shale			gy																	
34	7814	1½	Calc.	Qtz, mica	V	m ol	"	cl-slt	p	sa	V												
			Slst.			gy																	
35	7812	2	Calc.	Mica	V	dk gy	"	clay	-	-	V												
			Clyst																				
36	7810	1½	Calc.	Pyr, mica	V	m gy	fm-hd	cl-slt	p	sa	v												
			Slst.																				
37	7808	1 3/8	Calc.	Mica, slty	V	m gy	firm	clay	-	-	V												
			Clyst																				
38	7806	1½	Calc.	Mica, slty	V	m gy	"	"	-	-	V												
			Clyst																				
39	7804	1 3/8	Calc.	Mica	V	m - dk	fm-hd	"	-	-	V												
			Shale			gy																	
40	7802	1 1/8	Calc.	Mica	V	buff	soft	cl-slt	p	-	V												
			Clyst																				
41	7800	2	Calc.	Mica	V	lt ol	firm	cl-slt	p	sa	V												
			Slst			gy																	
42	7795	1½	Calc.	Mica	V	lt gy	"	clay	-	-	V												
			Clyst																				
43	7790	1 3/8	Calc.	Mica	V	lt gy	"	"	-	-	V												
			Clsy																				
44	7784	1½	Calc.	Mica, gl,qtz	V	m gy	"	"	-	-	V												Fissile
			Shale																				
45	7776	1½	Calc.		V	m gy	"	"	-	-	V												
			Clyst																				
46	7768	1 3/4	Calc.	Qtz gr,mica	V	m gy	"	"	-	-	V												
			Clyst																				

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ESSO AUSTRALIA LTD.
SIDEWALL CORE DESCRIPTIONS

WELL COBIA-2
GEOLOGIST BELLIS/ELLIOTT
SERVICE CO. SCHLUMBERGER
IES RUN NO 2
SWC RUN NO 2 & 3
PAGE 4 OF 6
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NO. 1a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE 8	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE				CUT FLUOR.		CUT RESIDUE		SHOW 21	PROB PROD 22	REMARKS - GAS 23
													% RK	DISTR 14	INTEN 15	COLOR 16	INTEN 17	COLOR 18	QUAN 19	COLOR 20			
47	7736	1¾	Calc. Slst		V	lt gy	firm	cl-slt	-	sa	V												
48	7698	1½	Calc. Clyst		V	dk gy	"	clay	-	-	V												
49	7662	1⅝	Calc. Clyst		V	m-dk gy	"	"	-	-	V												
50	7631	1¾	Calc. Clyst		V	dk gy	"	"	-	-	V												
51	7595	2	Calc. Shale		V	dk gy	"	"	-	-	V												Sl. Fissile
52	7560	1½	Calc. Clyst		V	dk gy	hard	"	-	-	V												
53	7540	1⅜	Calc. Slst	Mica	V	dk gy	firm	cl-slt	p	sa	V												
54	7454	1⅞	Calc. Shale	Mica	V	dk gy	fm-hd	clay	-	-	V												
55	7370	1⅛	Calc. Clyst	Mica	V	m-dk gy	firm	clay	-	-	V												
56	7270	1⅛	Calc. Clyst	Mica	V	m gy	fm-hd	clay	-	-	V												
57	7225	2	Clyst	Calc,py,mica	V	dk gy	hard	clay															
58	7170	1¼	Clyst	" " "	V	dk gy	firm	clay															
59	7130	1½	Shale	Calc, mica	V	m gy	hard	clay															
60	7110	1¼	Clyst	Calc, mica	V	m gy	hard	clay															
61	7824	1	Calc.	Gl, fossil, mica, calc.	V	m-dk gy	friab.	vf-slt	f														
62	7822	1½	Calc.	Gl, fossils calc.	V	m gy	firm	vf-slt	f														

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ATT 90 REC 89
DATE 17.5.77

SWC RUN NO 3

ESSO AUSTRALIA LTD.
SIDEWALL CORE DESCRIPTIONS

IES RUN NO 2

WELL COBIA-2
GEOLOGIST BELLIS/ELLIOTT
SERVICE CO SCHLUMBERGER

NO. 1 a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE 8	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE				CUT FLUOR.		CUT RESIDUE		SHOW 21	PROB PROD 22	REMARKS - GAS 23
													% RK	DISTR 14	INTEN 15	COLOR 16	INTEN 17	COLOR 18	QUAN 19	COLOR 20			
63	7090	1½	Clyst	Calc,mica	V	dk gy	firm	clay															
64	7070	2	Clyst	Calc,mica	V	dk gy	firm	clay															
65	7025	1½	Shale	Calc,mica	V	m gy	hard	clay															
66	7008	1½	Clyst	Calc,mica	V	dk gy	hard	clay															
67	6970	3/4	Clyst	Calc,gl,py mica	V	dk gy	hard	clay															
68	6870	½	Clyst	Calc,py,mica	V	dk gy	firm	clay															
69	6760	3/4	Clyst	Calc,py,mica	V	dk gy	hard	clay															
70	6550	3/4	Clyst	Calc,mica, fossils	V	dk gy	firm	clay															
71	6350	1	Clyst	Calc,silty, mica	V	dk gy	firm	clay															
72	6150	3/4	Clyst	Calc,mica	V	dk gy	firm	clay															
73	5950	3/4	Clyst	Mica,calc	V	m gy	hard	clay															
74	5750	3/4	Clyst	Mica,calc.	V	m gy	hard	clay															
75	5550	3/4	Clyst	Mica,calc.	V	m gy	hard	clay															
76	5350	3/4	Clyst	Mica,calc	V	m gy	firm	clay															
77	5150	½	Clyst	Mica,calc.	V	m gy	firm	clay															
78	4950	½	Clyst	Mica,calc	V	m gy	firm	clay															
79	4750	½	Shale	Gl,mica,calc	V	m gy	sft-fm	clay															
80	4550	3/4	Shale	Gl,silty, calc,mica.	V	m gy	sft-fm	clay															
81	4360	3/4	Calc.	Calc,mica	V	m gy	friab.	silt															
82	4340	3/4	Clyst	Calc,mica	V	m gy	firm	clay															
83	4150	3/4	Clyst	Calc,mica, silty	V	m gy	firm	clay															
84	3950	½	Clyst	Calc,mica, silty	V	m gy	firm	clay															

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DATE 17.5.77

ESSO AUSTRALIA LTD.

SIDEWALL CORE DESCRIPTIONS

SWC RUN NO 3

IES RUN NO 2

WELL COBIA-2

GEOLOGIST BELLIS/ELLIOTT

SERVICE CO. SCHLUMBERGER

NO. 1 a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE 8	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE % RK	FLOURESCENCE DISTR 14	FLOURESCENCE INTEN 15	FLOURESCENCE COLOR 16	CUT FLUOR. INTEN 17	CUT FLUOR. COLOR 18	CUT RESIDUE QUAN 19	CUT RESIDUE COLOR 20	SHOW 21	PROB PROD 22	REMARKS - GAS 23
85	3750	3/4	Calc	Calc,mica	V	m gy	hard	silt	f														
86	3550	3/4	Clyst	Calc, mica fossils	V	lt gy	firm	clay															
87	3350	1¼	Calc.	Calc, mica	V	lt gy	firm	silt	f														
88	3190	1¼	Clyst	Calc,mica, pyrite	V	lt gy	firm	clay															
89	-	NR	-	-																			Washed out.
90	2912	1¼	Calc.	Calc, mica fossils	V	lt gy	hard	silt	f														

FORM R 257 3.72

APPENDIX
5

WELL COMPLETION REPORT

COBIA-2

APPENDIX 5

CORE DESCRIPTIONS

ESSO AUSTRALIA LTD.

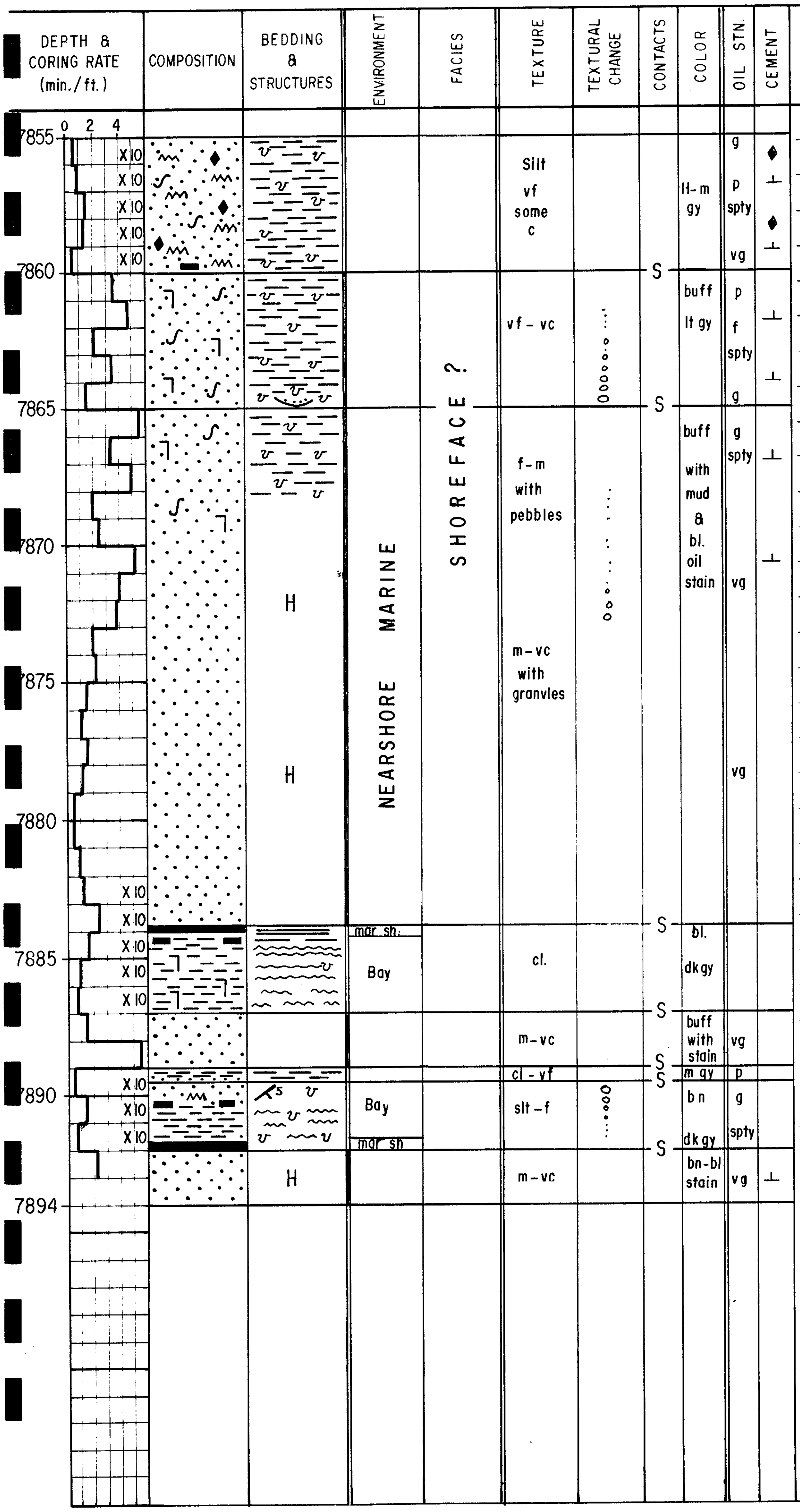
CORE DESCRIPTION

WELL : COBIA - 2

CORE No. 1

Interval Cored 7855-7894 ft., Cut 39 ft., Recovered 39 ft., (100 %) Fm. LATROBE

Bit Type C-20 , Bit Size 8-15/32 in., Desc. by BELLIS/ELLIOTT Date 13.5.77



Tight, finely laminated, bioturbated non net

Possible net effective bioturbated, very poorly sorted, strong white fluorescence, centred in burrow fills.

Bioturbated, spotty white fluorescence mainly in coarse burrow fills.

Good friable sand, high porosity and permeability, whole mud invasion, strong white fluorescence.

Net effective.

Non-net.

Good sand, whole mud invasion, net effective

Non-net.

Good friable sand, whole mud invasion, net effective.

▌ Section Seal-Peeled

Core depth have been corrected from 7851'-7888' to 7855'-7894'

Dwg. 1107/OP/82

ESSO AUSTRALIA LTD.

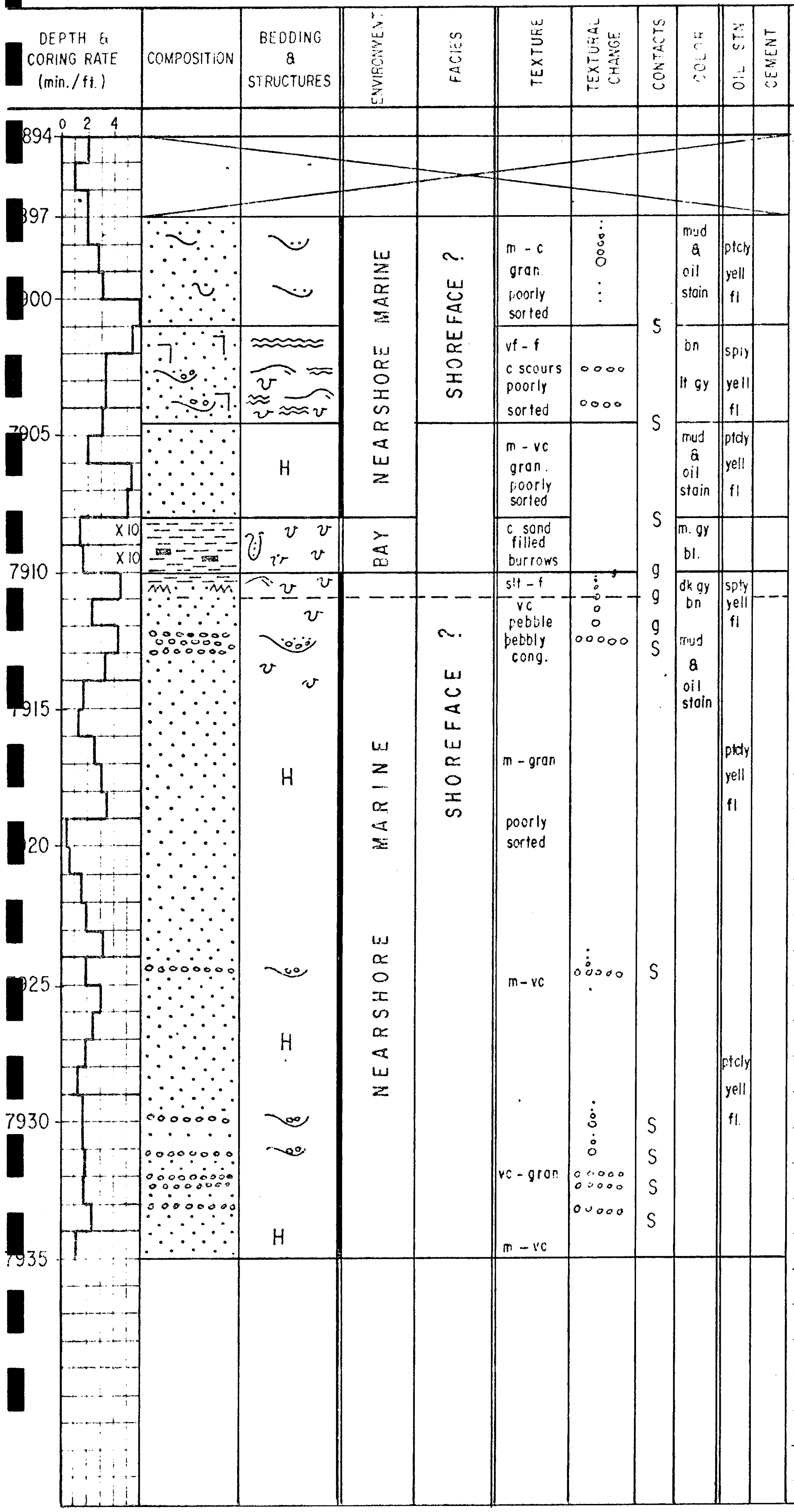
CORE DESCRIPTION

WELL: COBIA - 2

CORE No. 2

nterval Cored 7894-7935 ft., Cut 41 ft., Recovered 39 ft., (95 %) Fm. LATROBE

t Type C20, Bit Size 8-15/32 in., Desc. by BELLIS/ELLIOTT Date 13.5.77



REMARKS

Very friable, high porosity and permeability sand. Whole mud invasion.

Net effective

Mud invasion

Possible net effective

Friable, high porosity and permeability sand. Whole mud invasion. Net effective.

Giant sand filled burrows

Non-net.

Possible net effective

Friable, high porosity and permeability. Whole mud invasion

Net effective

Section
Seal-
Peeled

Core depth have been corrected from 7888'-7929' to 7894'-7935'

Dw; 1027/OP/82

ESSO AUSTRALIA LTD.

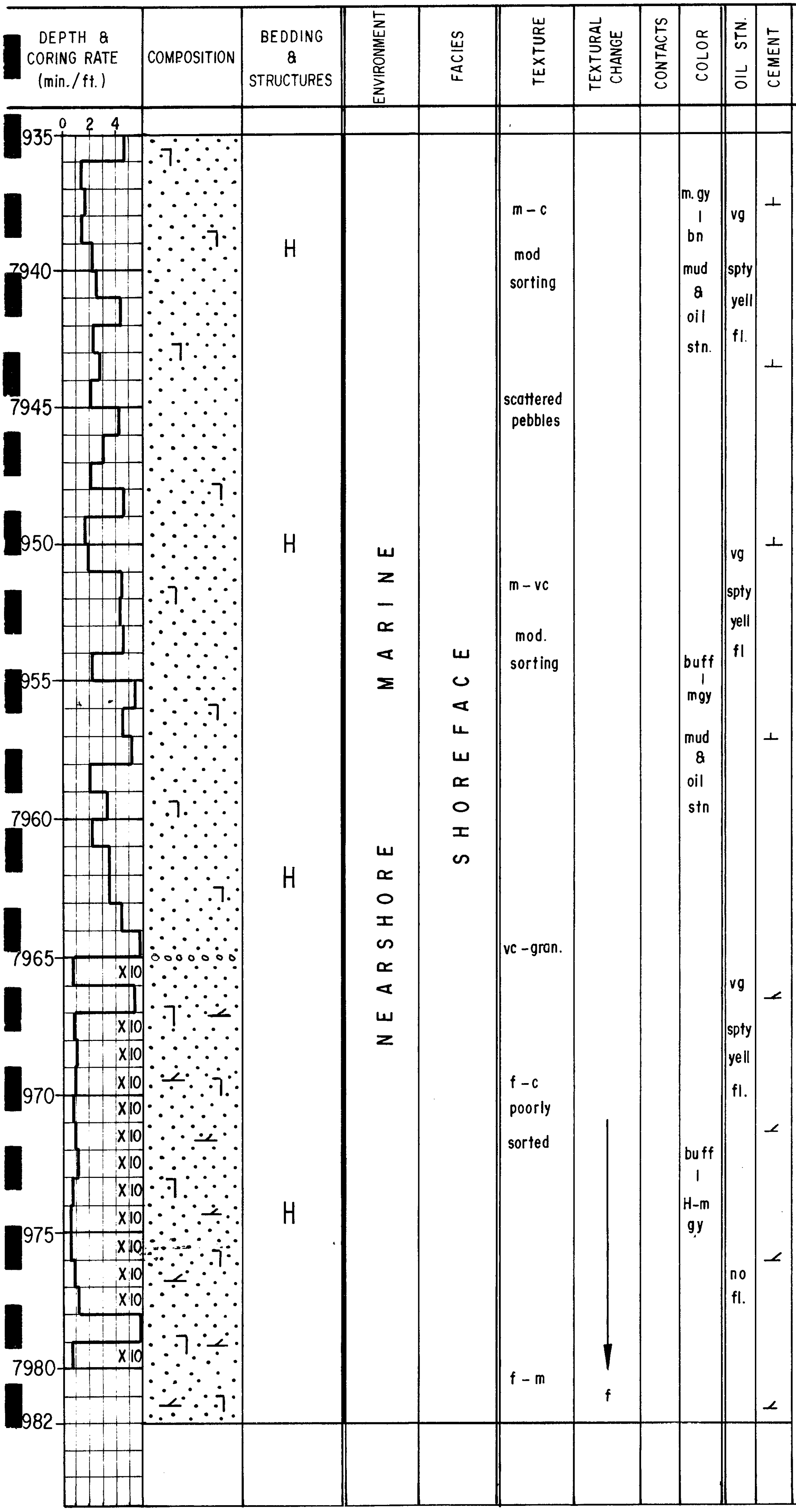
CORE DESCRIPTION

WELL: COBIA-2

CORE No. 3

Interval Cored 7935-7982 ft., Cut 47 ft., Recovered 47 ft., (100 %) Fm. LATROBE

it Type C20, Bit Size 8-15/32 in., Desc. by BELLIS/ELLIOTT Date 14.5.77



REMARKS

Friable, high porosity and permeability sand.

Whole mud invasion

Outer 1" of core flushed

Strong HC odour

Mud invasion

Outer 1" of core flushed.

Patchy dolomitic

Banded zones

Approx. 5-10% core

Dol. zones have good porosity and permeability

unaffected sand is very friable, high porosity and permeability

Core depth have been adjusted from 7929'-7974' to 7935'-7982'

Whole core is Seal-Pealed

APPENDIX
6

APPENDIX 6

WELL COMPLETION REPORT

COBIA-2

APPENDIX 6

PALYNOLOGICAL ANALYSIS OF COBIA-2, GIPPSLAND BASIN

by

A.D. Partridge

PALYNOLOGICAL ANALYSIS

COBIA-2, GIPPSLAND BASIN

by

ALAN D. PARTRIDGE

Esso Australia Ltd.

Esso Australia Ltd.
Palaeontological Report: 1977/16

July 22, 1977

SUMMARY

Ten sidewall cores and five conventional core samples were processed for palynomorphs in Cobia-2. Examination of the samples gave the following subdivision:

Unit	Zone	Depth(in feet)	Age
Lakes Entrance Formation	P. tuberculatus	7836 to 7844	Early Oligocene
Top of Latrobe	UNCONFORMITY in 8 feet barren interval		
Latrobe Group Coarse Clastics	Lower M. diversus and W. hyperacantha*	7852 to 7855	Early Eocene
	DISCONFORMITY		
	Upper L. balmei (W. homomorpha*)	7883 to 7995	Late Paleocene

*Dinoflagellate Zones T.D. 8200

All samples examined are listed on Table-1. The spore, pollen and dinoflagellate species identified in the samples are given on the attached distribution charts while the confidence ratings for the zone intervals are given on the attached Data Sheet. A revised Data Sheet for Cobia-1 is also attached.

GEOLOGICAL COMMENTS

The key horizon in Cobia-2 is in Core-1 between 7853 to 7856 feet (drilled depth). Samples from this interval although giving only low yields contain diagnostic species of the Wetzeliella hyperacantha Dinoflagellate Zone and can be correlated with the assemblage from the sidewall core at 8012 feet in Cobia-1 (Partridge 1972). The assemblage from this sample in Cobia-1 has been revised and is also referred to the W. hyperacantha Zone. Previously the sample had been referred to the L. balmei Zone based on the presence of several specimens of Lygistepollenites balmei. However, on re-examination the mangrove pollen Spinozonocolpites prominatus and the dinoflagellate Wetzeliella hyperacantha were found. These species are diagnostic of and do not range below the W. hypercantha Zone. The presence of L. balmei pollen (which is not considered to range above the zone of that name) at 8012 feet is therefore interpreted as reworking (see Partridge 1976, p. 76).

This correlation is supported by the identification of the top of the Upper L. balmei Zone in core-1 at 7883-84 feet in Cobia-2 and in coal from cutting between 8110-8170 feet in Cobia-1. The coals in Cobia-1 have a corrected E-log depth of 8080-8086 feet and would correlate with the coals in Cobia-2 in core-1 at 7884 feet and 7892 feet.

The above correlations mean that there is an additional 190 feet of section, of Lower M. diversus Zone age in Cobia-1 which is missing at the unconformity at the top of the Latrobe Group in Cobia-2. In this extra section in Cobia-1 spore-pollen assemblages were only recovered from between 7821 to 7882 feet which lies within the gross oil column of that well. The assemblages are characterised by the very common occurrence of the pollen Proteacidites grandis. This species is not recorded in any of the samples from Cobia-2.

.....2/

The initial E-log correlation between Cobia-1 and Cobia-2 was to correlate the section in the oil column as essentially flat between the two wells and to invoke a facies change to account for the differences in detail. Although this correlation is no longer maintained it is important to stress that a facies change over the short distance between Cobia-1 and Cobia-2 would not be sufficient to explain the dominance of Proteacidites grandis in the Cobia-1 section and its absence in Cobia-2. Especially given that P. grandis is common in the Lower M. diversus Zone throughout the rest of the basin at levels above the W. hyperacantha Zone. (e.g. Morwong-1, Swordfish-1).

DISCUSSION OF ZONES

Upper Lygistepollenites balmei Zone 7883 to 7995 feet.

The common occurrence of the gymnosperm pollen Lygistepollenites balmei and presence of Polycolpites langstonii, Gambierina rudata are diagnostic of the L. balmei Zone. The Upper subdivision of this zone is indicated by presence of Banksieaeidites elongatus, Cyathidites gigantis and Verrucosiporites kopukuensis. The dinoflagellates present support the Upper L. balmei age. Although the zone indicator Wetzeliella homomorpha was only identified in two samples the whole L. balmei Zone is most likely referrable to the dinoflagellate zone of that name, based on a consideration of the sections in adjacent wells.

The lowest 205 feet intersected in Cobia-2 remains undated. Although eleven sidewall cores were shot in this interval none were suitable for palynology.

Lower Malvacepollis diversus Zone 7852-7855 feet.

This zone is identified on the presence of the pollen Spinizonocolpites prominatus and Intratriporopollenites notabilis and the common occurrence of the dinoflagellate Wetzeliella hyperacantha which also indicates the presence of the dinoflagellate zone of that name. The assemblages are not particularly diverse because of the low yield recovered from the samples. The presence of Lygistepollenites balmei at 7855 feet in interpreted as reworking.

Proteacidites tuberculatus Zone 7836 to 7844 feet.

The P. tuberculatus Zone is identified on presence of the spores Cyatheacidites annulatus and Foveotriletes lucunosus associated with undescribed Oligocene dinoflagellates. The sample from the sidewall core at 7844 feet contained a small and somewhat unusual assemblage which lacks Cyatheacidites annulatus. However, the dominant form present, which is tentatively referred to the dinoflagellate Operculodinium solarum is also found at the base of the P. tuberculatus Zone in Kingfish-7 (sidewall core at 7410 feet) where it is common and associated with C. annulatus.

REFERENCES

Partridge, A.D.	1972,	The palynology of Cobia-1, Gippsland Basin: Esso Aust. Palae. Rept. 1972/17
Partridge, A.D.	1976,	The Geological expression of Eustacy in the Early Tertiary of the Gippsland Basin: APEA J., v. 16, pt. 1, p. 73-79.

TABLE - 1: SUMMARY OF PALYNOLOGICAL ANALYSES, COBIA-2, GIPPSLAND BASIN

SAMPLE AND DEPTH		ZONE	AGE	CONFIDENCE RATING	YIELD	DIVERSITY	COMMENTS
SWC 23	7836'	P.tuberculatus	Early Oligocene	0	Moderate	Moderate	Cyatheacidites annulata present
SWC 21	7840'	"	" "	0	Low	Moderate	" "
SWC 20	7842'	"	" "	1	Very low	Low	" "
SWC 19	7844'	P.tuberculatus	" "	2	Low	Low	
SWC 18	7846'	Barren		-			
SWC 16	7850'	Indeterminant		-	Very low	Very low	
SWC 15	7852'	Lower M.diversus	Early Eocene	2	Low	Low	
Core-1	7853'5"	Lower M.diversus	Early Eocene	0	Low	Moderate	Wetzeliella hyperacantha Dinoflagellate Zone
Core-1	7855'6"	Lower M.diversus	Early Eocene	0	Low	Moderate	W.hyperacantha Zone
Core-1	7883'	Upper L.balmei	Late Paleocene	2	Low	Low	Coal lithology
Core-1	7884'	" "	" "	1	Moderate	Moderate	
Core-2	7900'	" "	" "	0	Moderate	High	Wetzeliella homomorpha Dinoflagellate Zone
SWC 13	7986'	" "	" "	0	Moderate	Moderate	W.homomorpha Zone
SWC 12	7995'	" "	" "	1	Moderate	Moderate	
SWC 8	8088'	Barren		-			

BASIN GIPPSLAND BASIN

DATE JULY 20, 1977

WELL NAME COBIA-2

ELEVATION K.B. + 83 feet

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
OLIG-MIO.	P. tuberculatus	7836	0				7844	2	7842	1	
EOCENE	U. N. asperus										
	M. N. asperus										
	L. N. asperus										
	P. asperopolus										
	U. M. diversus										
	M. M. diversus										
	L. M. diversus	7852	2	7853	0		7855	0			
PALEOCENE	U. L. balmei	7883	2	7884	1		7995	1			
	L. L. balmei										
	T. longus										
LATE CRETACEOUS	T. lilliei										
	N. senectus										
	C. trip./T.pach.										
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS											
PRE-CRETACEOUS											

COMMENTS: Wetzeliella hyperacantha Dinoflagellate Zone 7853 to 7855 feet

Wetzeliella homomorpha Dinoflagellate Zone 7900 to 7986 feet

RATINGS:
- 0; SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.
- 1; SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.
- 2; SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.
- 3; CUTTINGS, FAIR CONFIDENCE, assemblage with zone species of either spore and pollen or microplankton, or both.
- 4; CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If a sample cannot be assigned to one particular zone, then no entry should be made. Also, if an entry is given a 3 or 4 confidence rating, an alternate depth with a better confidence rating should be entered, if possible.

DATA RECORDED BY: Alan Partridge

DATE July 20, 1977

DATA REVISED BY:

DATE

FORM No R 315 12/72

BASIN GIPPSLAND DATE

WELL NAME COBIA-1 ELEVATION K.B. + 32'

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
OLIG-MIO.	P. tuberculatus	7817	1				7817	1			
EOCENE	U. N. asperus										
	M. N. asperus										
	L. N. asperus										
	P. asperopolus										
	U. M. diversus										
	M. M. diversus										
	L. M. diversus	7821	1				8012	2	7882	1	
PALEOCENE	U. L. balmei	8110	3	8150	0		8150	0			
	L. L. balmei										
	T. longus										
LATE CRETACEOUS	T. lilliei										
	N. senectus										
	C. trip./T.pach.										
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS											
PRE-CRETACEOUS											

COMMENTS: Wetz. hypercacantha Zone at 8012 feet (rating 2)

Wetz. homomorpha Zone at 8150 feet (rating 1)

RATINGS:
0; SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.
1; SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.
2; SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.
3; CUTTINGS, FAIR CONFIDENCE, assemblage with zone species of either spore and pollen or microplankton, or both.
4; CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If a sample cannot be assigned to one particular zone, then no entry should be made. Also, if an entry is given a 3 or 4 confidence rating, an alternate depth with a better confidence rating should be entered, if possible.

DATA RECORDED BY: A.D. Partridge DATE September, 1972; January, 1975

DATA REVISED BY: A.D. Partridge DATE July 20, 1977

FORM No R 315 12/72

Well Name COBIA-2 **Basin** GIPPSLAND **Sheet No.** 1 **of** 4

SAMPLE TYPE *	S	S	S	S	S	S	C	C	C	C	C	S	S
DEPTHS PALYNOMORPHS	7836'	7840'	7842'	7844'	7850'	7852'	7853'	7855'	7883'	7884'	7900'	7986'	7995'
A. qualumis													
A. acutullus													
A. luteoides													
A. oculatus													
A. sectus													
A. triplaxis													
A. obscurus													
B. disconformis												/	
B. arcuatus													
B. elongatus				/							/		
B. mutabilis													
B. otwayensis													
B. elegansiformis													
B. trigonalis													
B. verrucosus													
B. bombaxoides													
B. emaciatus													
C. bullatus													
C. heskermensis													
C. horrendus													
C. meleosus													
C. apiculatus													
C. leptos													
C. striatus													
C. vanraadshoovenii													
C. orthoteichus/major													
C. annulatus	/	/A	/										
C. gigantis										/	/		
C. splendens								/					
D. australiensis											/		/
D. granulatus	/						/A	/				/	/
D. tuberculatus													
D. delicatus													
D. semilunatus													
E. notensis													
E. crassiexinus													
F. balteus		/											
F. crater	/								cf				
F. lucunosus	/												
F. palaequetrus													
G. edwardsii													
G. rudata											/		
G. divaricatus													
G. gestus													
G. catathus													
G. cranwellae													
G. wahooensis													
G. bassensis													
G. nebulosus													
H. harrisii	/	/		/			/	/	/A	/	/	/	/
H. astrus													
H. elliottii		/											
I. anguloclavatus													
I. antipodus										/	/		
I. notabilis							/						
I. gremius			/										
I. irregularis		/											
J. peiratus													
K. waterbolkii													
L. amplus													
L. crassus				/									
L. ohaiensis													
L. bainii													
L. lanceolatus													
L. balmei								RW		/A	/A	/A	/A
L. florinii	/	/		/					/	/	/	/	/
M. diversus							/A	/A	/A	/	/		
M. duratus													
M. grandis													
M. perimagnus													

*C= core; S= sidewall core; T= cuttings.

Well Name COBIA-2 Basin GIPPSLAND Sheet No. 2 of 4

SAMPLE TYPE *	S	S	S	S	S	S	C	C	C	C	C	S	S
PALYNOMORPHS / DEPTHS	7836'	7840'	7842'	7844'	7850'	7852'	7853'	7855'	7883'	7884'	7900'	7986'	7995'
M. subtilis				/	/	/	/				/		
M. ornamentalis	/	/	/										
M. hypolaenoides													
M. homeopunctatus													
M. parvus/mesonesus				/								/	
M. tenuis													
M. verrucosus													
M. australis													
N. asperus				/									
N. asperoides													
N. brachyspinulosus													/
N. deminutus													
N. emarcidus/heterus	/	/									/		/
N. endurus											/	/	/
N. falcatus	/		/										
N. flemingii												/	/
N. goniatus													
N. senectus													
N. vansteenisii													
O. sentosa													
P. ochesis													
P. catastus													
P. demarcatus												/	
P. magnus													
P. polyoratus											/		/
P. vesicus													
P. densus											/		
P. velosus													
P. morganii/jubatus													
P. mawsonii	/	/	/					/		/	/	/	/
P. reticulosaccatus													
P. verrucosus													
P. crescentis													
P. esobalteus													
P. langstonii											/A		
P. reticulatus													
P. simplex													
P. varus													
P. adenanthoides (Prot.)								/			/		
P. alveolatus													
P. amolosexinus													
P. angulatus													
P. annularis										/	/		
P. asperopolus													
P. biornatus													
P. clarus													
P. cleinei													
P. confragosus													
P. crassis													
P. delicatus													
P. formosus													
P. grandis													
P. grevillaensis													
P. incurvatus													
P. intricatus													
P. kopiensis													
P. lapis													
P. latrobensis													
P. leightonii													
P. obesolabrus													
P. obscurus													
P. ornatus													
P. otwayensis													
P. pachypolus													
P. palisadus													
P. parvus													
P. plemmelus													
P. prodigus											/		/
P. pseudomoides													
P. recavus													

*C= core; S= sidewall core; T= cuttings.

Well Name COBIA-2 **Basin** GIPPSLAND **Sheet No.** 3 **of** 4

SAMPLE TYPE *	S	S	S	S	S	S	C	C	C	C	C	S	S
DEPTHS PALYNOMORPHS	7836'	7840'	7842'	7844'	7850'	7852'	7853'	7855'	7883'	7884'	7900'	7986'	7995'
P. rectomarginis													
P. reflexus													
P. reticulatus													
P. reticuloconcavus													
P. reticuloscabratus													
P. rugulatus													
P. scitus													
P. stipplatus													
P. tenuiexinus										/	/		/
P. truncatus													
P. tuberculatus													
P. tuberculiformis													
P. tuberculotumulatus													
P. xestoformis (Prot.)													
O. brossus													
R. boxatus													
R. stellatus													
R. mallatus													
R. trophus													
S. cainozoicus													
S. rotundus													
S. digitatoides													
S. marlinensis													
S. rarus													
S. meridianus											/		
S. prominatus							/	/					
S. uvatus													
S. punctatus												/	
S. regium													
T. multistrixus (CP4)									/A		/		/
T. textus							/		/				
T. verrucosus													
T. securus													
T. confessus (C3)													
T. gillii							/						
T. incisus													
T. longus													
T. phillipsii											/	/	
T. renmarkensis													
T. sabulosus													
T. simatus													
T. thomasii													
T. waiparaensis													
T. adelaidensis (CP3)				/							/		
T. angurium													
T. delicatus													
T. geraniodes													
T. leuros													
T. lilliei													
T. marginatus													
T. moultonii													
T. paenestriatus							cf						
T. retequetrus													
T. scabratus													
T. sphaerica													
T. magnificus (P3)													
T. spinosus													
T. ambiguus													
T. chnosus													
T. helosus													
T. scabratus													
T. sectilis													
V. attinatus													
V. cristatus													
V. kopukuensis		/		/									/
A. cruciformis								/					

*C = core; S = sidewall core; T = cuttings.

Well Name COBIA-2 **Basin** GIPPSLAND **Sheet No.** 4 **of** 4

SAMPLE TYPE *	S	S	S	S	S	S	C	C	C	C	C	S	S
DEPTHS / PALYNOMORPHS	7836'	7840'	7842'	7844'	7850'	7852'	7853'	7855'	7883'	7884'	7900'	7986'	7995'
Nemat. balcombiana	/												
Spinif. cingulata	/												
Emsl. australiensis	/												
Dinosph. mamilatus	/	/											
Polysp. fibrosum	/	/											
Dinosph. scabroellipticus	/	/	/										
Operc. centrocarpum	/	/	/					/				/	
Spiniferites spp.	/											/	/
H/kolpoma rigaudae		/											
Crasso. concinnia		/											
Lingul. machaerophorum		/											
Dinosph. simplex		/	/	/									
Penta. laticinctum			/										
Operc. solarum				A									
Wetz. hyperacantha						/	A	A					
Achomo. crassipellis								/				/	
Prae. indentata								/				/	/
Defl. pachyceros											/		
Defl. dilwyensis											/	/	
Defl. medcalfi											/	/	
Wetz. homomorpha											A	A	
Spinidinium spp.												/	/

*C=core; S=sidewall core; T=cuttings.

APPENDIX
7

APPENDIX 7

WELL COMPLETION REPORT

COBIA-2

APPENDIX 7

FORAMINIFERAL SEQUENCE - COBIA-2

by

David Taylor

FORAMINIFERAL SEQUENCE

COBIA # 2

by DAVID TAYLOR
Consultant

Esso Australia Ltd.
Paleontology Report 1977/21 August 24, 1977.

SUMMARY

The Cobia # 2 is a normal sequence in deeper water locations in the Gippsland Basin. However the sequence contained a proven hiatus within the Oligocene with Zone I-2 and part of I-1 missing. This is designated "The Cobia Event" and it is now realized it was present in many other Gippsland sequences. It corresponds to three linked events of worldwide significance which were the result of a drastic reorganization of the oceanic systems. The precise cause of "The Cobia Event" cannot be ascertained at present.

Once again it is interpreted that there was an environment shift in the early Oligocene from a shallow restricted sea to a deep water oceanic situation. This is controversial as it implies a sudden drop, of at least 1200 feet, of the sea floor.

INTRODUCTION

Seventy one side wall cores were examined between 7844 and 2912 in COBIA # 2. No foraminifera were found in samples at 7844, 7842, 7840 and 7838. The thirteen side wall cores at and above 5150 contained very small indeterminate planktonic foraminifera and very few benthonic foraminifera so the contents of these samples were omitted from the distribution charts. All depths cited in this report and accompanying data sheets are in feet as labelled on the side wall core jars.

The following data sheets accompany this report:-

Distribution Chart Sheet 1	- showing distribution of planktonic foraminifera and the basis of biostratigraphic breakdown.
Distribution Chart Sheet 2	- giving the distribution of benthonic foraminifera and relative specimen count.
Three Sample Data Sheets	- listing all samples, giving zonal entity and quality and summarizing residue grain character.
Biostratigraphic Data Sheet	

BIOSTRATIGRAPHY

? LATE EOCENE to EARLY OLIGOCENE - 7836 to 7824:- The side wall cores contained only arenaceous foraminiferal faunas. Specifically these faunas are identical with those of the late Eocene to early Oligocene Demons Bluff Formation and similar lithofacies in the Bass and Otway Basins (Raggatt & Crespin, 1952, Crespin, 1950 and Taylor, 1965a).

EARLY OLIGOCENE - 7822 to 7810:- SWC 62 at 7822 (but not SWC 30) contained a numerically large planktonic fauna dominated by *Subbotina angiporoides* and containing *Globigerina brevis*, *Tenuitella gemma* and *T. munda*. This is the association of Zone J-2 and probably represents the upper portion of the *G. brevis* Zone in New Zealand (Jenkins, 1974), which would infer the Basal Oligocene.

The top of the early Oligocene is placed at the highest appearance of *Subbotina angiporoides* and *Globoquadrina tripartita tapuriensis* at 7810; this is Zone J-1 and equates with the *S. angiporoides* Zone in New Zealand (Jenkins, l.c.)

MID OLIGOCENE HIATUS "THE COBIA EVENT" - 7810 to 7808:- Two feet above the highest appearance of *Subbotina angiporoides* there was an abrupt faunal change with the range base of *Globoquadrina dehiscens* (S.L.) and *Globorotalia opima opima*. This fauna represents Zone I-1 and correlates with the *G. dehiscens* Zone in New Zealand (Jenkins, l.c.), if the initial cryptogenic appearance of the *G. dehiscens* Group was coeval across the Tasman. Taylor (1977, p. 29-30) summarizes the evidence and concludes that there were apparent dispersal delays due to oceanographic circulation during the mid Oligocene (Kennett et al, 1975). Be that as it may, there is evidence of a gap in the Cobia # 2 sequence as Zone I-2 (as defined by Taylor, 1977, p.28) was definitely absent and much, if not all, of the New Zealand *G. euapertura* Zone (Jenkins, 1974) cannot be equated into the Cobia sequence. This sequence of faunal events is apparent in numerous other deep water Oligocene sequences in Gippsland, but inadequacies of the sampling intervals and of faunal qualities made it inappropriate to propose a regional non-depositional or erosive event at this biostratigraphic level in Gippsland. However, now the evidence for a hiatus is regarded as equitable and is designated "THE COBIA EVENT".

The causal mechanisms of "The Cobia Event" are difficult to discern at this stage, but sub-aerial or sub-aqueous erosion is dismissed immediately because:-

(1) The faunas at both 7810 and 7808 accumulated in deep water situation on the continental slope or rise and certainly not on the continental shelf. By analogy with modern distribution of the primitive arenaceous benthonic faunas, the minimum depth limit was at least 1200 feet and probably more than 2000. (Refer to section on "Environment" in this report). Thus the requisite tectonic or eustatic sea level movements would have been too great to be accomodated in light of current geological evidence.

(2) The incoming of *Globoquadrina dehiscens* immediately succeeds the disappearance of *Subbotina angiporoides* in deep water sequences. No intermediate planktonic fauna has been recorded between the two events. The faunal events below and above the hiatus were always the same, and never appear to be older below or younger above. The consistency of the biostratigraphic span of the hiatus rules out sub-aqueous erosion which would have been haphazard, especially regarding the surface immediately below the hiatus.

The "Cobia Event" falls within the biostratigraphic time span of three events of considerable regional and worldwide significance, These are:-

(1) A deep sea unconformity in the Tasman and Coral Seas, attributed by Kennett et al (1975) to a major reorganization of the oceanographic systems in the Southern Ocean.

(2) A worldwide paleotemperature decline (Savin, in press) which is expressed clearly in the Southern Ocean (Kennett & Shackleton, 1976) and New Zealand (Jenkins, 1973) and apparently in the Gippsland Basin (Taylor, 1977, fig. 12).

(3) A profound eustatic event of low sea level, corresponding with the top of Zone J-1 (refer chart by Hardenbol, 1976).

Firstly, Kennett et al (1975) invoke an erosive western boundary current, flowing northwards and creating the regional unconformity. The time span of this unconformity varied (Kennett et al, l.c. fig. 4) and thus the effects were haphazard. They were not haphazard in Gippsland and an erosive mechanism is not accepted as the cause of "The Cobia Event". This also dismisses the possibility that the event was purely due to eustatic low sea level. The effects are inconsequential to the argument, but the cause was obviously linked with paleoceanographic reorganization which caused cool Antarctic waters to flow north and thus have a worldwide paleotemperature decline. At the same time there was a marked reduction in the water budget of the oceans expressed by the low sea level eustatic cycle. It is argued that all this was linked with the formation of Antarctic sea ice but a paleotemperature drop to a mere 5°C for Sub-Antarctic bottom water (Kennett & Shackleton, 1976) implies neither sea ice nor Antarctic Bottom Water Current analgous to the present day (less than 2°C).

The paleoceanographic reorganization, the stage of continental drift, the paleotemperature decline and reduction in the water budget were probably interrelated.

The simultaneous combination of the above events would have caused environmental consequences of considerable magnitude, especially to water chemistry. A strong possibility was that the Southern Ocean suddenly became undersaturated in calcium carbonate and silica dioxide which would result in a dramatic raising of various lysoclines. In the predominantly carbonate sedimentation of the Gippsland Basin Oligocene,this would result in complete sediment starvation, as even what little silica (biogenic or terrestial) was in the system would have been destroyed. Thus "The Cobia Event" could have marked a raising of the lysocline. The flaws in the argument are:-

(1) That a reduction in the water budget would increase and not decrease concentration of various chemicals.

(2) There was a sharp return to normal carbonate sedimentation and no evidence of a gradual readjustment of the system as would be expected from the fact that a paleotemperature rise was very gradual and by no means sudden (Savin, in press).

LATE OLIGOCENE - 7808 to 7595:- As explained above the sample at 7595 represents Zone I-1. The incoming of *Globerigina woodi woodi* marks the base of Zone H-2.

EARLY MIOCENE - 7560 to 7070:- The early Miocene sequence is normal for the Gippsland Basin in terms of Taylor's (1977). The top of the early Miocene can not be picked accurately as Zone E-2 was not recorded due to a sample gap between 7070 and 7025. Zone E-2 is a very thin sediment interval and extremely short time interval in Gippsland (Taylor, l.c., p.38).

MID MIOCENE - 7025 to 5350:- The base was picked on the *Orbulina* Datum, with the initial appearance of *O. suturalis*.

The fauna of 7008 appears to be on the Zone E/D boundary from the development stage of the *Orbulina* form and has been designated Zone E-1. Zone D-2 could only be positively identified in one sample at 6970, though because of sample gaps could extend from 7008 to just below 6870. Even so, the Zone D-2 interval was anomalously thin and it is noted that the quality of the lowest D-1 fauna at 6870 was high.

? MID to LATE MIOCENE - 5150 to 2912:- The majority of planktonic specimens in this interval are generally too small to identify whilst the occasional large specimens belong to such biostratigraphically non-diagnostic species as *Globigerina woodi woodi* and *G. decoraperta*. Taylor (1977, p.44 & fig. 12) has postulated a paleoclimatic down turn in Zone D-1 which corresponds to a marked worldwide oceanic paleotemperature decline (Savin, in press). This would no doubt explain the depauperate planktonic fauna. At this point in the Gippsland Basin, there is evidence that there was further changes in water chemistry with the sudden abundance of biogenic silica in the form of sponge spicules. These events may mark the development of the modern Antarctic Bottom Water and its penetration into the Gippsland Basin.

No samples were examined above 2912, so it cannot be ascertained if there were any depositional break between the basal mid Miocene and the Quaternary.

Despite the fact that there is a proven hiatus within the Oligocene, the Cobia # 2 sequence is regarded as normal for the deep water Gippsland Basin. The Oligocene hiatus is now apparent in other Gippsland deep water sequences due to the close side wall core spacing in Cobia # 2.

ENVIRONMENT

Although basically environmental, most of the discussion on Oligocene and mid Miocene paleoceanography was outlined in the Biostratigraphy section where it seemed more appropriate to immediately explain biostratigraphic problems.

The environmental interpretation for the late Eocene to early Oligocene is dependant on the precise classification of the architecturally primitive arenaceous foraminifera. A definite pattern emerges on Distribution Chart Sheet 2 over the interval between 7836 to 7810 in that the faunas fall into two groups. These groups are:-

GROUP A - 7836 to 7824 - NO PLANKTONICS
Ammodiscus parri, Bathysiphon angleseaensis, Ammosphaeroidina sphaeroidiniformis, Ammobaculites sp?, Haplophragmoides cf. paupera, H. cf. incisa and *H. rotundata.*

GROUP B - 7822 to 7810 - PLANKTONICS
Ammodiscus anguillae, A. mestayeri, Discammina compressa, Bathysiphon sp. *A* (= ? *B. filiformis*), *B.* sp. *B, Brachysiphon corbiformis, "Cyclammina" cf. paupera, "C". cf. incisa* and *Rhabdammina abyssorum.*

Specifically the two groups are distinct apart from the fact that exteriorally architecturally identical *Haplophragmoides* forms in Group A have developed internal aveloli in Group B. These avelolid forms should be classified in the genus *Cyclammina* although they differ from the accepted diagnosis of *Cyclammina.* The development of aveloli appears to be an adaption for deep water conditions (Taylor, 1965).

Comparing the paleogeographic distribution of the two groups it is apparent that Group A was endemic to Southern Australia whilst Group B was and is cosmopolitan in the ocean deeps and on continental slopes. Most species in Group A were first recorded in the Demons Bluff Formation or in the equivalent facies at Browns Creek (Crespin 1950, Raggatt & Crespin 1952, and Taylor 1965a & b). Some of these Group A species also occur in the early Eocene Dilwyn Formation of the Otway Basin. (Taylor, 1965a). Therefore, purely by geological comparison and not by analogy with modern distributions, Group A were shallow water forms and could have inhabited shallow "barred basin" conditions as were evident during Demons Bluff times in the Bass Basin (Taylor, 1965b). The absence of planktonics and the endemicity of the benthonic fauna supports the suggestion of both shallow water and of environmental stress and restriction. However this absence of planktonics and calcareous benthonics with the complete dominance of arenaceous forms can indicate a very deep water situation at or below the C.C.D. Deep water species of most benthonic organisms were and are cosmopolitan, but Group A species were endemically confined to shallow water sediments of Southern Australia. The conclusion must be that the sediment from 7836 to 7824 was a shallow water deposit in a restrictive environment. It is emphasized that this interpretation is a comparative one and not one using analogy by the thesis of uniformity between the present and the past.

It has already been stated that the arenaceous species of Group B (7822 to 7810) are and were distributed in deep water deposits and are seldom reported from continental shelf sediments. Off Gippsland these species were not found in depths less than 1200 feet and were concentrated below 2000 feet on the continental shelf and rise (Taylor & Mee, 1970)/ The few calcareous benthonic species present, especially *Cibicides wvellerstorfi* and *Melonis barleeanum,* support such water depths. The high percentage of planktonic specimens (above 95%) is indicative of sediment deposited beyond the continental rise. S.E.M. examination revealed that the side wall core at 7820 should be classified as a nannoplankton ooze. The sediment between 7822 and 7810 is thus believed to have been deposited in depths greater than 1200 feet by analogy with modern distribution.

It is realised that the sudden change from shallow water to deep water sedimentation between 7824 and 7822 is a controversial interpretation. A criticism of the argument is that comparative methods were used for the shallow water interpretation whilst analogy with the present had to be used for the deep water interpretation. But analogy with the modern Gippsland Lakes (Apthorpe, 1977) could be applied for the faunas at and below 7824 and an euryhaline situation similar to Lake Wellington would be envisaged. By comparison with early Oligocene faunas in wells in the vicinity of Cobia # 2, the sediment between 7822 to 7810 was certainly deep water. Another fact is there was a change in sediment grain character from quartz sand and silt at 7824 to a carbonate siltstone with some inorganic silica at 7822 to a nannoplankton ooze at 7820. Whether faunal or sediment characters are considered a dramatic environment shift was evident in the early Oligocene between 7824 and 7822.

The next question is whether this apparent shift was not a matter of dramatic deepening but one of sediment starvation and drastic changes in water chemistry. The complete absence of quartz, sand silt and clay at 7820 certainly indicates starvation of all sediment save biogenic pelagic carbonate. The inorganic silica and the siliceous replacement of planktonic specimens at 7822 (SWC 30 but not SWC 62) could indicate that the bottom water was silica rich and probably cold, though a minimal temperature of 5°C would follow from Kennett & Shackleton's (1976) reading on core from D.S.D.P. site 277 (sub-Antarctic). Kennett & Shackleton (l.c. fig. 1) graph a steep paleotemperature drop of 5°C in the early Oligocene. This rapid decline would have greatly influenced benthonic faunas and would have raised the C.C.D. A flaw is immediately apparent in that such a model would require abundant biogenic pelagic carbonate at and below 7824 and a complete absence of it at and above 7822. The reverse situation was true so an alternate proposition has to be proposed for Cobia # 2 and other Gippsland sequences.

The late Oligocene sediment above the hiatus of "The Cobia Event" (7810 to 7808) was a deep water biogenic pelagic carbonate with similar faunas to those below the hiatus. Planktonic percentages were greater than 95%.

This situation continued into Zone H-1 (early Miocene), but at 7454 there was a sudden decline in planktonic percentage from 98% to 20%. The sample at 7454 marks the upper limit in the section of many deep water benthonic species such as *Bathysiphon sp. B, Eggerella bradyi, Karreriella bradyi* and *Epistiminella exigua*. An environmental disruption is evident as planktonic percentages return to 98% in the next sample at 7830. The benthonic component in 7454 would today inhabit depth greater than 1200 feet on the Gippsland continental slope (Taylor & Mee, 1970). So with the gradual filling a particular point, analagous to 1200 feet water depth was reached at 7454. It may be significant that Pflum & Frerichs (1976) report that *Eggerella bradyi* and *Karereiella bradyi* are "delta depressed" on the slope of the Gulf of Mexico immediately off the Mississipi River. What is implied is that stream discharge depressed the upper depth limit of these two species. Stream discharge with resultant decline in salinity and clouding of the water would inhibit planktonic foraminifera. Therefore the environmental disruption at 7370 may have been the result of a short period of stream discharge. A similar happening at this biostratigraphic level was probable in other wells in the vicinity.

Early Miocene sedimentation at and above 7370 was evidently on the upper slope and a paleobathymetric estimate of between 1200 and 700 feet is proposed.

The base of the mid Miocene (Zone E-1) appears to have been deposited at the very top of the slope (= 800 to 700 feet) as this is the cut off point of all arenaceous species. The mid Miocene between 6970 and 5350 (Zones D-2 and D-1) maintains the high percentage of planktonics and contains a fairly sparse calcarcous benthonic assemblage which could have inhabited the upper slope, and shelf edge at approximately 700 feet. The sediment at and above 6870 is a micritic limestone in contrast with the calcarcous shales and pelagic sediments below. Above 5350 the pelagic elements were obviously size sorted as most planktonic foraminiferal specimens were of very small size. This size sorting in the absence of benthonic foraminifera points to high energy conditions, so that sediment above 5350 is thought to have been deposited as a canyon fill on the upper slope break. The high proportion of siliceous sponge spicules in samples between 3750 and 2912 is another characteristic of Gippsland canyon sedimentation below the shelf edge (Taylor & Mee, 1970).

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Form R 193 3/71

BASIN GIPPSLAND BY David Taylor

WELL NAME COBIA # 2 DATE August 17, 1977 ELEV. ______

Foram Zonules

		Highest Data	Quality	2 Way Time	Lowest Data	Quality	2 Way Time
MIOCENE	A						
	Alternate						
	B						
	Alternate						
	C						
	Alternate						
	D_1	5350*	1		6870	1	
	Alternate						
	D_2	6970	1		6970	1	
	Alternate						
	E	7008	1		7025	0	
	Alternate						
	F	7070	0		7110	1	
	Alternate				7090	0	
	G	7130	1		7225	1	
	Alternate				7170	0	
	H_1	7270	1		7560	0	
	Alternate						
	H_2	7595	1		7698	1	
	Alternate						
OLIGOCENE	I_1	7736	1		7808	0	
	Alternate						
	I_2						
	Alternate						
	J_1	7810	1		7816	0	
	Alternate						
	J_2	7820	1		7822	0	
	Alternate						
EOC.	K						
	Alternate						
	Pre K						

*Thirteen SWCs between 5150 and 2912 contained biostratigraphically non diagnostic planktonic fauna.

COMMENTS: Non depostional event between 7810 & 7808.
Zone I-2 and early portion of I-1 definitely absent.

Note: If highest or lowest data is a 3 or 4, then an alternate 0, 1, 2 highest or lowest data will be filled in if control is available.

If a sample cannot be interpreted to be one zonule, as apart from the other, no entry should be made.

0	SWC or Core	- Complete assemblage (very high confidence).
1	SWC or Core	- Almost complete assemblage (high confidence).
2	SWC or Core	- Close to zonule change but able to interpret (low confidence).
3	Cuttings	- Complete assemblage (low confidence).
4	Cuttings	- Incomplete assemblage, next to uninterpretable or SWC with depth suspicion (very low confidence).

Date Revised ______

By ______

MICROPALEONTOLOGICAL MATERIAL

WELL NAME AND NO: COBIA # 2

DATE: 17.8.77

PREPARED BY: DAVID TAYLOR

SHEET NO: 1 of 3

DRAW:

DEPTH	*SAMPLE TYPE*	*SLIDES*	*ADDITIONAL INFORMATION*
7844	SWC 19	U.C. - N.F.F.	Dom f ang qtz sdst, r pellet glauc
7842	SWC 20	U.C. - N.F.F.	Dom f ang qtz sdst, r pellet glauc
7840	SWC 21	U.C. - N.F.F.	Dom f-m ang qtz, c pellet glauc
7838	SWC 22	N.F.F.	Dom f-m ang qtz, c pellet glauc
7836	SWC 23	aren only,	residue *ibid*
7834	SWC 24	*ibid*	
7832	SWC 25	aren only.	Dom f ang qtz sdst
7830	SWC 26	*ibid*	
7827	SWC 27	aren only.	Dom f-c ang qtz sdst, r glauc
7826	SWC 28	*ibid*	
7824	SWC 61	aren only.	50-50 siltst & f ang qtz sdst
7824	SWC 29	aren only.	Dom f ang qtz sdst, lim
7822	SWC 30	?	indet planks - totally replaced by silica
7822	SWC 62	J-2 (0)	Dom plank replaced by silica all texture destroyed
7820	SWC 31	J-2 (1)	Dom calc sh - plank somewhat corroded
7818	SWC 32	J (2)	Dom ?mic
7816	SWC 33	J-1 (0)	Dom calc sh, r ang qtz.
7814	SWC 34	J-1 (1)	Dom planks
7812	SWC 35	J-1 (1)	Dom planks
7810	SWC 36	J-1 (1)	Dom planks
7808	SWC 37	I-1 (0)	Dom planks ang qtz
7806	SWC 38	I-1 (0)	Dom planks 20% calc sh
7804	SWC 39	I-1 (1)	Dom calc sh
7802	SWC 40	U.C. I-1 (1)	Dom calc sh, r c ang qtz
7800	SWC 41	I-1 (0)	50-50 planks & calc sh, r c ang qtz
7795	SWC 42	I-1 (1)	Dom calc sh, r c ang qtz

MICROPALEONTOLOGICAL MATERIAL

WELL NAME AND NO: COBIA # 2

DATE: 17.8.77 ~~20.12.74~~

PREPARED BY: DAVID TAYLOR

SHEET NO: 2 of 3

DRAW:

DEPTH	*SAMPLE TYPE*	*SLIDES*	*ADDITIONAL INFORMATION*
7790	SWC 43	I-1 (1)	Dom calc sh, lim
7784	SWC 44	I-1 (2)	Dom calc sh
7776	SWC 45	I-1 (1)	70-30 planks calc sh, r c ang qtz
7768	SWC 46	I-1 (1)	Dom calc sh
7736	SWC 47	I-1 (1)	Dom planks
7698	SWC 48	H-2 (1)	Dom planks
7662	SWC 49	H-2 (1)	Dom calc sh
7631	SWC 50	H-2 (1)	80-20 planks & calc sh
7595	SWC 51	H-2 (1)	Dom calc sh
7560	SWC 52	H-1 (O)	Dom planks
7540	SWC 53	H-1 (O)	70-30 planks & calc sh, lim, r c ang qtz
7454	SWC 54	H-1 (2)	Dom calc sh, r c ang qtz
7370	SWC 55	H-1 (1)	50-50 planks & calc sh
7270	SWC 56	H-1 (1)	Dom calc sh, r c ang qtz
7225	SWC 57	G (1)	calc sh & planks
7170	SWC 58	G (O)	80-20 planks & calc sh, r c ang qtz
7130	SWC 59	G (1)	Dom calc sh, r c ang qtz
7110	SWC 60	F (1)	Dom planks
7090	SWC 63	F (O)	Dom planks, r c ang qtz
7070	SWC 64	F (O)	Dom planks, r c ang qtz
7025	SWC 65	E-1 (O)	60-40 planks & calc sh + r c ang qtz
7008	SWC 66	E-1 (1)	Dom calc sh
6970	SWC 67	D-2 (1)	Dom planks, lim, r c ang qtz
6870	SWC 68	D-1 (1)	Dom mic, r c ang qtz
6760	SWC 69	D-1 (2)	Dom mic, r c ang qtz
6550	SWC 70	D-1 (O)	Dom mic
6350	SWC 71	D-1 (2)	Dom mic
6150	SWC 72	D-1 (2)	Dom mic, r c ang qtz

MICROPALEONTOLOGICAL MATERIAL

WELL NAME AND NO: COBIA # 2

DATE: 17.8.77 ~~20.12.74~~

PREPARED BY: DAVID TAYLOR

SHEET NO: 3 of 3

DRAW:

DEPTH	*SAMPLE TYPE*	*SLIDES*	*ADDITIONAL INFORMATION*
5950	SWC 73	U.C. D-1 (1)	Dom mic
5750	SWC 74	U.C. D-1 (O)	Dom planks & mic, r c ang qtz, py
5550	SWC 75	U.C. D-1 (2)	Dom mic, r c ang qtz
5350	SWC 76	D-1 (1)	Dom mic, r c ang qtz
5150	SWC 77	U.C. indet planks	Dom mic
4950	SWC 78	U.C. indet small planks,	Dom mic
4750	SWC 79	U.C. Small indet planks,	Dom mic,r c ang qtz
4550	SWC 80	U.C. small indet planks,	Dom mic,r c ang qtz
4360	SWC 81	U.C. small indet planks,	Dom mic
4340	SWC 82	U.C. small indet planks,	Dom mic,r c ang qtz
4150	SWC 83	U.C. small indet planks,	Dom mic
3950	SWC 84	U.C. small indet planks,	Dom mic, r c ang qtz
3750	SWC 85	small indet planks,	Dom mic, 20% spic, r c ang qtz
3550	SWC 86	small indet planks,	Dom mic, 10% spic
3350	SWC 87	small indet planks,	Dom mic, 10% spic
3190	SWC 88	washed in "Quaternary O" small indet planks	Dom mic, 20% spic
2912	SWC 90	small indet planks,	Dom mic, 20% spic

ABBREVIATION KEY used by David Taylor on summary date sheets.

R.C. = rotary cuttings
S.W.C. = side wall core
C.C. = conventional core
U.C. = unable to clean sample of drilling mud before washing, thus result may be spurious.

N.F.F. = no fauna found
indet = specifically indeterminate and/or biostratigraphically non diagnostic
J-2 (0) = Zone J-2 planktonic fauna present and identification is of highest level of confidence.
B-1 (4) = Zone B-1 suspected but lowest confidence indicated

Dom = Dominant grain type - at least 90% of washed sample
r = rare - less than 10 grains
60-40 = proportion of components

qtz = quartz
py = pyrite
glauc = glauconite
lim = limonite
sdst = sandstone
siltst = siltstone
mdst = mudstone
calc sh - calcareous shale
lst = limestone
mic = micritic limestone
calcar = calcarenite
bio = biogenic
bry = bryozoa
moll = molluscan fragments
plank = planktonic foraminifera
calc benth = calcarcous benthonic foraminifera
aren = arenaceous foraminifera
ost = ostracods
spic = siliceous sponge spicules
ech = echnioid spines

...2/

f = fine grade
m = medium grade
c = coarse grade
f-c = whole spectrum of grades
ang = angular shape
subrd = subround shape
rd = round shape

ibid = sample identical to that listed immediately above.

COBIA # 2

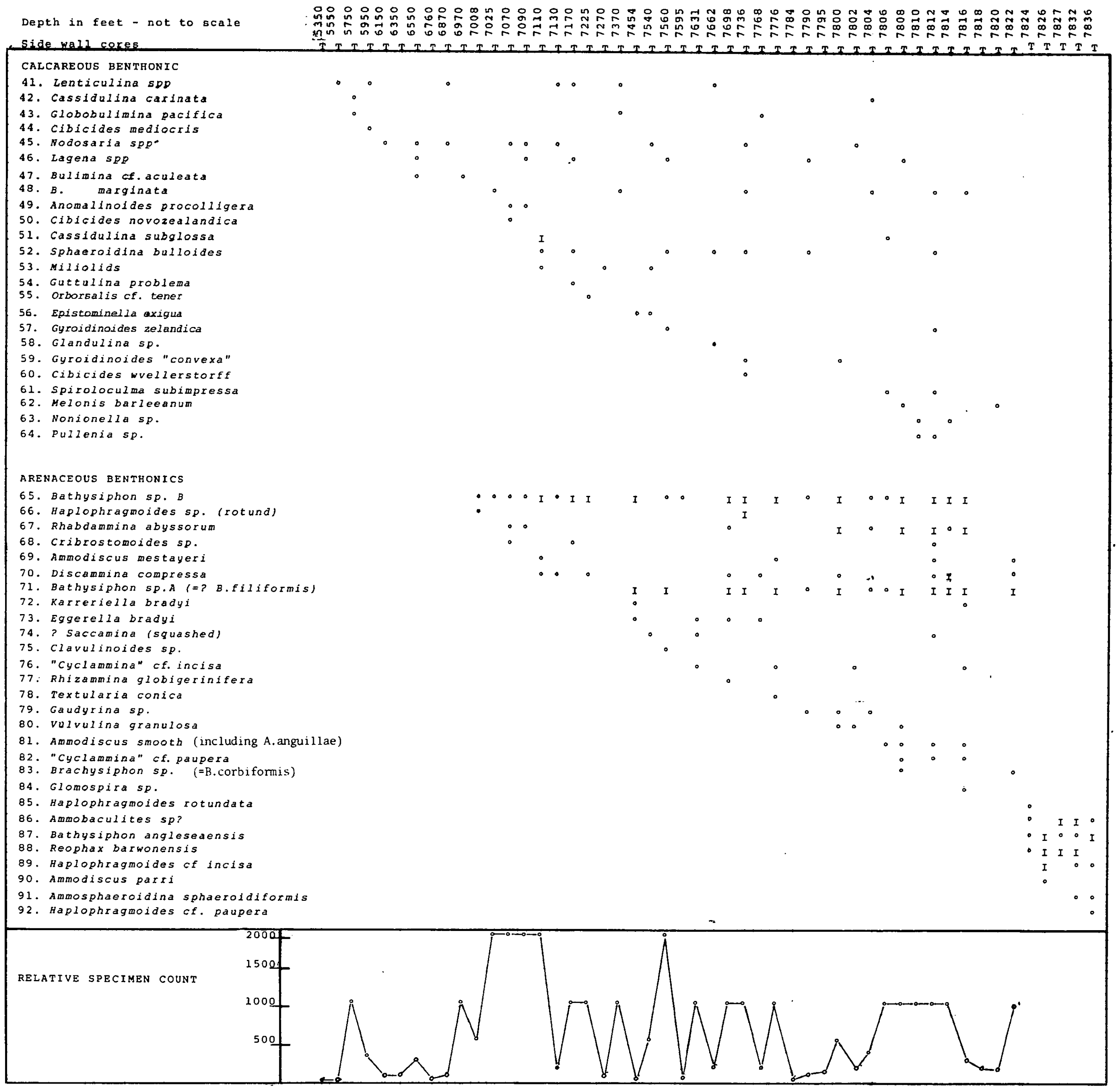
Sheet 1 of 2 sheets

Depth in feet - not to scale	5350	5550	5750	5950	6160	6350	6550	6760	6870	6970	7008	7025	7070	7090	7110	7130	7170	7225	7270	7370	7454	7540	7560	7595	7631	7662	7698	7736	7768	7776	7784	7790	7795	7800	7802	7804	7806	7808	7810	7812	7814	7816	7818	7820	7822	7824
Side wall cores	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
PLANKTONICS																																														
1. *Orbulina universa*	°	I	I	I	°	I	I	I	I	I																																				
2. *Globorotalia conica*	°		°				°		°		°	°																																		
3. *G. miozea conoidea*	°	°	I	°	°		°		I																																					
4. *Globigerina woodi woodi*		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	°	I	I	I	I	I	I																			
5. *G. decoraperta*		°	I	I																																										
6. *G. bulloides*			I		I	I				I	I	I																																		
7. *Globorotalia mayeri*			I	°		°	°																																							
8. *G. miozea miozea*			°				°		°	I	I	I	I	I	I	I	I																													
9. *Globigerinoides trilobus*									°		I	I	I	I	I	I	I	I																												
10. *Globorotalia peripheroronda*										°																																				
11. *Orbulina Suturalis*											I	I																																		
12. *Globigerinoides bisphericus*											I	I																																		
13. *Praeorbulina glomerosa glomerosa*											I	I	I	I	I																															
14. *P. glomerosa curva*												°																																		
15. *Globorotalia praemenardii*												°																																		
16. *G. praescitula*												I	I	I	I		I		I	I		I	I																							
17. *Globoquadrina advena*												I													I		I	°		I																
18. *Globigerina ciperoensis*													I	I																																
19. *G. woodi connecta*													I	I	I	I	I	I		I		I	I																							
20. *G. praebulloides*													I	I	I	I	I	I	I	I		I	I			I				I	°	I	I	I	I	I	I	I			I					
21. *Globigerinoides trilobus* elongate													I	I																																
22. *Globorotalia bella*													I		I			I	°																											
23. *Globoquadrina dehiscens (S.S.)*																I	I																													
24. *Globorotalia zealandira*																				I																										
25. *G. kugleri*																						°																								
26. *Globoquadrina dehiscens (S.L.)*																						I	I		I	I	I	I	°	I		I		I		I	I	I								
27. *Globigerina angisuturalis*																						I	I	°		I	I	I	°									I								
28. *G. apertura*																							I	°	I	I	I	I																		
29. *Globorotalia opima nana*																							°			°			°																	
30. *Globigerina evapertura*																												I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	
31. *Catapsydrax unicavus*																													°		°									°						
32. *Globorotalia opima opima*																																	°	°			°	°								
33. *G. obesa*																																						°								
34. *Globoquadrina tripartita tripartita*																																						I				I				
35. *G. tripartita tapuriensis*																																							°	°	I	I				
36. *Subbotina angiporoides*																																							I	I	I	I	I	I	I	
37. *Globorotalia testarugosa*																																										°				
38. *Globigerina brevis*																																												I	I	
39. *Tenuitella gemma*																																													°	
40. *T. munda*																																													°	

Depth in feet to base of ZONE ?	6870 D - 1	6970 D-2	7025 E	7110 F	7225 G	7560 H-1	7698 H-2	7808 I-1			7816 J-1		7820 J-2

COBIA # 2

Sheet 2 of 2 Sheets



APPENDIX
8

APPENDIX 8

WELL COMPLETION REPORT

COBIA-2

APPENDIX 8

WELL LOG ANALYSIS

WELL LOG ANALYSIS REPORT

Form R167 6/70
Page 1

Well File
c. B.R. Griffith, A.J. Rigg, B.G. McKay

ERATOR Esso Australia Ltd. **WELL** Cobia #2 **DATE** 27th June 1977

STATE Victoria **ELEV.** 83'KB

DEPTH INTERVAL	POROSITY ESTIMATE	WATER SAT. ESTIMATE	REMARKS
7846-56(10	19-21	23-34	Oil productive
7861-71(10	18-22	15-25	Oil productive
7871-83(12	23-25	8-14	Oil productive
7888-90(2	13.5-15.5	30?	Oil productive
7893-99(6	19-21	21-26	Oil productive
7899-7908(9	15-17	25-32	Oil productive
7911-14(3	19.5-20.5	20-22	Oil productive
7914-44(30	24-26	15-18	Oil productive
7944-48(4	24-26	65-100	Formation water productive
7948-58(10	19.5-21	100	Formation water productive
7958-77(19	24-26	70-100	Formation water productive
7977-93(16	21-24	100	Formation water productive
8000-89(89	24-26.5	100	Formation water productive
8089-8111(22	20.5-22.5	100	Formation water productive
8111-46(35	21-23.5	100	Formation water productive

ISF Measured Depths

STS:

See FIT results

MATION:

Latrobe Group

LOGS:
ISF-SCT
GR-CNL-FDC

MENTS:

R B King

BY R.B. King

ENCLOSURES

PE902264

This is an enclosure indicator page.
The enclosure PE902264 is enclosed within the container PE902263 at this location in this document.

The enclosure PE902264 has the following characteristics:

ITEM_BARCODE = PE902264
CONTAINER_BARCODE = PE902263
NAME = Average Velocity Top of Latrobe Group
BASIN = GIPPSLAND
PERMIT =
TYPE = SEISMIC
SUBTYPE = VELOCITY_CONTOUR
DESCRIPTION = Average Velocity Top of Latrobe Group for Cobia-2
REMARKS =
DATE_CREATED = 31/07/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902265

This is an enclosure indicator page.
The enclosure PE902265 is enclosed within the container PE902263 at this location in this document.

The enclosure PE902265 has the following characteristics:

ITEM_BARCODE = PE902265
CONTAINER_BARCODE = PE902263
NAME = Structure Map Top of Latrobe Group (Post Cobia 2)
BASIN = GIPPSLAND
PERMIT =
TYPE = SEISMIC
SUBTYPE = STRUCTURE_MAP
DESCRIPTION = Structure Map Top of Latrobe Group (Post Cobia 2)
REMARKS =
DATE_CREATED = 31/07/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902266

This is an enclosure indicator page.
The enclosure PE902266 is enclosed within the container PE902263 at this location in this document.

The enclosure PE902266 has the following characteristics:
ITEM_BARCODE = PE902266
CONTAINER_BARCODE = PE902263
NAME = Structure Map Base of M-1.1/2 Seismic Marker (Post Cobia 2)
BASIN = GIPPSLAND
PERMIT =
TYPE = SEISMIC
SUBTYPE = STRUCTURE_MAP
DESCRIPTION = Structure Map Base of M-1.1/2 Seismic Marker (Post Cobia 2)
REMARKS =
DATE_CREATED = 31/07/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902267

This is an enclosure indicator page.
The enclosure PE902267 is enclosed within the container PE902263 at this location in this document.

The enclosure PE902267 has the following characteristics:
ITEM_BARCODE = PE902267
CONTAINER_BARCODE = PE902263
NAME = East-West Structural Cross Section Cobia Field
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = CROSS_SECTION
DESCRIPTION = East-West Structural Cross Section Cobia Field
REMARKS =
DATE_CREATED = 04/07/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE904821

This is an enclosure indicator page.
The enclosure PE904821 is enclosed within the container PE902263 at this location in this document.

The enclosure PE904821 has the following characteristics:
ITEM_BARCODE = PE904821
CONTAINER_BARCODE = PE902263
NAME = Cobia 2 Time Depth Curve
BASIN = GIPPSLAND
PERMIT = VIC/L5
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Cobia 2 Time Depth Curve
REMARKS = Original Copy
DATE_CREATED = 15/05/77
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR =
CLIENT_OP_CO = Esso Australia Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

PE902268

This is an enclosure indicator page.
The enclosure PE902268 is enclosed within the container PE902263 at this location in this document.

The enclosure PE902268 has the following characteristics:

ITEM_BARCODE = PE902268
CONTAINER_BARCODE = PE902263
NAME = Sonic Calibration Curve
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Sonic Calibration Curve for Cobia-2
REMARKS =
DATE_CREATED = 15/05/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601423

This is an enclosure indicator page.
The enclosure PE601423 is enclosed within the container PE902263 at this location in this document.

The enclosure PE601423 has the following characteristics:

ITEM_BARCODE = PE601423
CONTAINER_BARCODE = PE902263
NAME = Well Completion Log
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = COMPLETION_LOG
DESCRIPTION = Well Completion Log for Cobia-2
REMARKS =
DATE_CREATED = 24/05/1977
DATE_RECEIVED =
W_NO = W689
WELL_NAME = Cobia-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)