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DEPT. OF MINES
REF. No. 6565/86

CHAT NO. 1

WELL COMPLETION REPORT

Prepared by B.C. Furr of
J. M. BLUMER & ASSOCIATES
M. HANZALIK AND H.HUIZINGA
for BRIDGE OIL LIMITED
521/112/92/BCF/MH/HH/pb

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A.1 WELL SUMMARY

A1.1 Well History

Chat No. 1 is located in the south-eastern portion of the Bass Basin, offshore from northern Tasmania in permit T-15-P. It was the first well drilled in this permit since Bridge Oil Limited assumed the operatorship from Weaver Oil and Gas on January 1st 1985.

Chat No. 1 was drilled on a turnkey basis by Triton Engineering Services. It was spudded on January 15, 1986, using Atwood Oceanics' semi-submersible drilling rig Margie, and it reached a total depth of 3104m on February 1, 1986, a total drilling time of 18 days. The well did not encounter any significant hydrocarbons and was plugged and abandoned on February 3, 1986.

The participants in the well were as follows:

Bridge Oil Limited (Operator)	25.50
Belco Petroleum Aust. Inc (NY)/Houston Natural Gas	11.00
Champlin International Petroleum Co.	21.00
Cluff Oil (Pacific) Ltd.	2.75
Winton Oil NL	2.75
Weaver Oil & Gas Corporation (Kaneb)	21.00
Peko Oil Limited	11.00
Kimberley Oil & Gas N.L.	5.00
Total	100.00

Geologically Chat No. 1 is located in the south-eastern part of the Bass Basin. Stratigraphic control was obtained mainly from the Squid No. 1 well approximately 35km to the west and Durroon No. 1 approximately 65km to the south-east. The Chat prospect was originally recognised on the HB75A -218A line. In April 1985 a one kilometre grid was shot over the Chat area and confirmed fault-dependant closure at Paleocene to Eocene levels.

The well was drilled to test the hydrocarbon potential of the Upper Cretaceous to Oligocene section in this part of the basin, the Paleocene being the primary objective. It was also hoped that the well would provide information on the sealing qualities of the bounding faults, the source rock quality of the sediments and maturation levels in the area.

The stratigraphic sequence penetrated in Chat No. 1 was close to that prognosed except for the Top Upper Cretaceous boundary. See Table No. 1 and the 'Stratigraphy of Chat No. 1' section of this report.

No significant hydrocarbon shows were seen during the drilling of Chat No. 1, nor from subsequent log analysis. No full hole cores were cut. One gun of sidewall cores was run, but the resultant recovery was poor (see section on Sidewall Core Descriptions for further explanation).

TABLE NO. 1

Actual vs Prognosed Formation Tops

Formation Name	Prognosed Depth(mKB)	Actual Depth(mKB)
Torquay Group	605.3	570.0
Oligocene Sand	1061.3	1071.0
Eastern View Group	1247.3	1181.3
Top Upper Cretaceous	3027.3	2328.0
Basement	3085.3	3010.0

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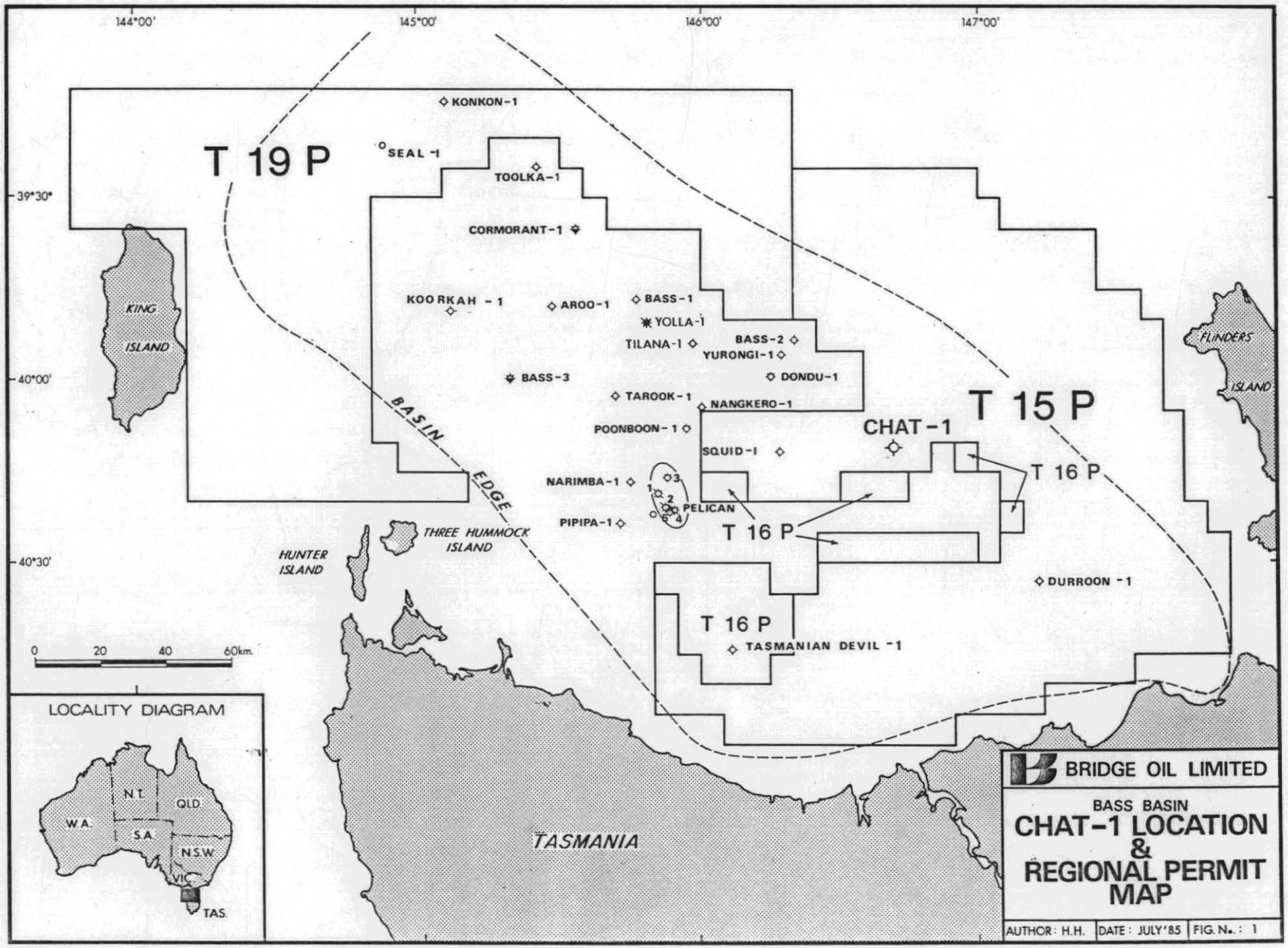

5 cm
144°00'
145°00'
146°00'
147°00'
39°30'
40°00'
40°30'
T 19 P
KONKON-1
SEAL-1
TOOLKA-1
CORMORANT-1
KOORKAH - 1
AROO-1
BASS-1
YOLLA-1
TILANA-1
BASS-2
YURONGI-1
BASS-3
DONDU-1
TAROOK-1
NANGKERO-1
POONBOON-1
CHAT-1
T 15 P
SQUID-1
T 16 P
NARIMBA-1
PELICAN
PIPIPA-1
T 16 P
T 16 P
DURROON -1
TASMANIAN DEVIL -1
KING ISLAND
FLINDERS ISLAND
BASIN EDGE
THREE HUMMOCK ISLAND
HUNTER ISLAND
TASMANIA
0 20 40 60km.
LOCALITY DIAGRAM
N.T.
QLD
W.A.
S.A.
N.S.W.
VIC.
TAS.
BRIDGE OIL LIMITED
BASS BASIN
CHAT-1 LOCATION & REGIONAL PERMIT MAP
AUTHOR: H.H.
DATE: JULY'85
FIG. No.: 1

A12
274007

SHEET #1

BRIDGE OIL LIMITED

WELL : CHAT NO. 1

LATITUDE: 40° 10' 53.43" K.B. ELEV: 25.3m (AMSL) 81.4m W.D.

LONGITUDE: 146° 41' 54.95" T.D.: 3107m LOGGER 3104m DRILLER

SEISMIC S.P. 170 ON LINE BB85-40 PROGRAMMED T.D.: 3078.5m K.B.

TARGET: EASTERN VIEW GROUP

STATUS : P & A SPUDDED 15/1/86 RIG. RELEASED 6/2/86

COMPLETION DETAILS: TWO CEMENT PLUGS. PLUG 1 375 sx cmt 964m - 864m
PLUG 2 275 sx cmt 247m - 147m

RIG TYPE: SEMI-SUB RIG/CONTACTOR: MARGIE/ATWOOD OCEANICS

MUD LOGGING: EXLOG ELECRTICAL LOGGING: SCHLUMBERGER

CASING SIZE: 20" shoe depth 255.91m driller 256m logger

SIZE: 13.3/8" shoe depth 917.65m driller 917.6m logger

SIZE: _____ shoe depth _____ driller _____ logger

FORMATION	AGE	ACTUAL DEPTH$_m$K.B.	ACTUAL DEPTH$_m$S.S.	PROGNOSED DEPTH$_m$K.B.	PROGNOSED DEPTH$_m$S.S.	THICKNESS ACTUAL m	THICKNESS PROGNOSED m
UNDIFF RECENT	RECENT	107.0	81.7	108	83	463	456
TORQUAY GROUP	OLIG-PLIO.	570.0	544.7	564	539	501	478
OLIGOCENE SAND	OLIG-EOCENE	1071.0	1045.7	1042	1017	61	147
DEMONS BLUFF	EOCENE	1132.0	1106.7	1189	1164	49.3	36
EASTERN VIEW GROUP	EOCENE	1181.3	1156.0	1225	1200	589.7	250
EASTERN VIEW GROUP	PALEO-CENE	1771.0	1745.7	1475	1450	557	1521
EASTERN VIEW GROUP	LATE CRET.	2328.0	2302.7	2996	2971	682	64
LATE CRETACEOUS VOLCANICS	LATE CRET.	3010.0	2984.7	3060	3035	94	19

274008

SHEET #2

BRIDGE OIL LIMITED

WELL: CHAT NO. 1

LOGGING SUITE 1 & 2

TYPE LOG	RUN No.	INTERVAL	REMARKS
DIL-LSS-GR-SP-CAL	1	256.0m - 928.5m	
DIL-LSS-GR-SP-CNL-MSFL	1	913.5m -3105.0m	Telemetry malfunction on DIL lost 1.0 hrs.
LDT-CNL-GR-CAL	2	913.5m -3106.0m	CST-C out of 30 bullets only 6 shot & 5 rec.
CST-C	3	1177.81m-3099.77m	Malfunction on GR with CST lost 3-5 hrs.

FULL HOLE CORES NO CORES CUT.

FORMATION TESTS NO TESTS PERFORMED.

TEST No.	INTERVAL	FORMATION	V.O. mins.	S.I. mins	H.P. psi	F.P. psi	S.I. psi	CHOKE ins./psi	RESULTS

BRIDGE OIL LIMITED

SHEET #3

WELL: CHAT NO. 1

LOG ANALYSIS

INTERVAL	FORMATION	Av. ø	Av.Sw.	INTERVAL	FORMATION	Av. ø	Av. Sw.
1050 - 1104 m	TORQUAY GROUP	29.2	93.2				
1150 - 1250 m	UPPER EASTERN VIEW	23.8	97.8				
1545 - 1650 m	MIDDLE EASTERN VIEW	23.7	88.9				
1700 - 1925 m	LOWER EASTERN VIEW	25.2	93.6				
2310 - 2775 m	LATE CRETACEOUS	21.8	89.6				
2900 - 3000	LATE CRETACEOUS	19.6	89.6				

Service Company Analyses Performed

Selected geochemistry by ANALABS; Selected palynology by Roger Morgan, ANALABS;

Attempted geochronology on S.W.C. AMDEL; Petrography of bottom hole sample, MINPET.

Summary:

Chat No. 1 tested the prognosed section and was a valid structural test. No hydrocarbons were encountered during the drilling and none were indicated by subsequent wireline log analysis.

Stratigraphically the thicknesses of the earlier sediments (Paleocene and older) were found to be different to the prognosed and the top of the Late Cretaceous was encountered higher than anticipated.

Source potential of the section penetrated is generally good to excellent.

Good reservoirs with adequate seals were drilled, however, the source rocks penetrated are immature to marginally mature and do not appear to have generated any appreciable amounts of hydrocarbons.

Prepared By: C. FURR/M. HANZALIK

Date: MAY 1986

274010

A1.3

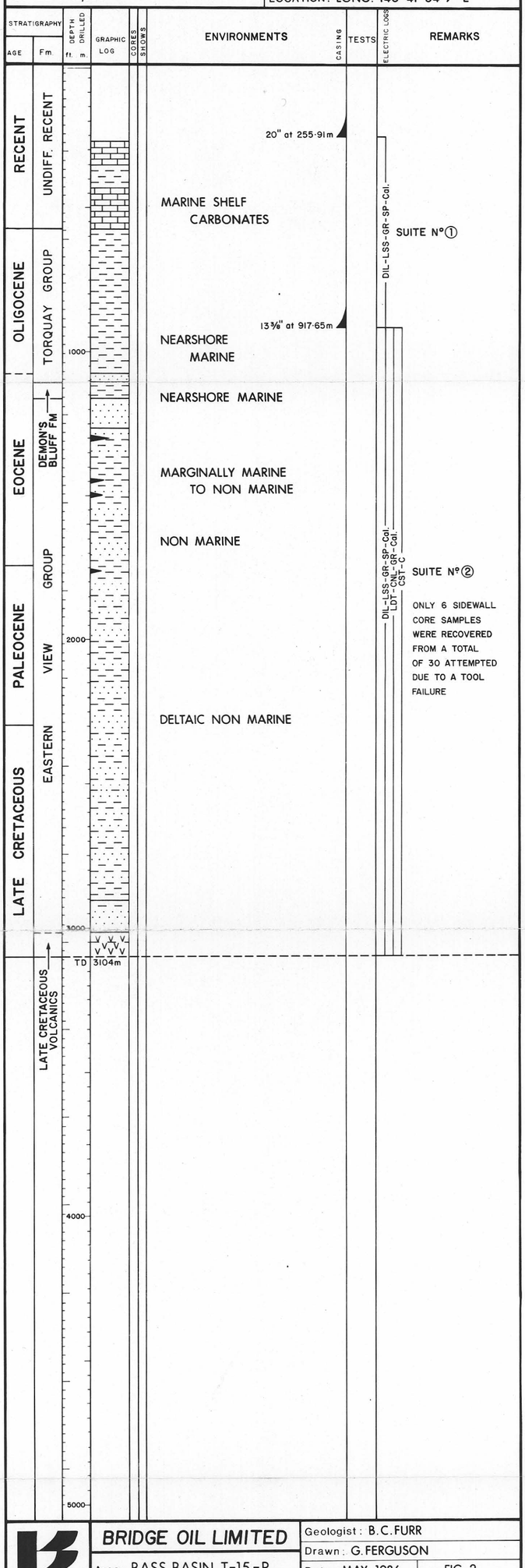
5 cm

Summarised Well Log

WELL : CHAT - 1

SCALE 1:10,000

LOCATION: LAT. 40° 10' 53·4" S
LONG. 146° 41' 54·9" E



BRIDGE OIL LIMITED

Area : BASS BASIN T-15-P

Geologist : B.C.FURR

Drawn : G.FERGUSON

Date : MAY, 1986

FIG. 2

A.2 GEOLOGICAL DATA

A2.1 Regional Geology

A2.1.1 Structure

The Bass Basin is an elongate offshore basin trending generally NW-SE. It covers an area of approximately 65,000 sq.km. and contains sediments which range in age from Late Jurassic/Early Cretaceous to Recent. It is bounded to the south by Tasmania and to the north by the coast of Victoria between Mornington Peninsula and Wilsons Promontory. The King Island High and the King Island/Mornington Peninsula Ridge to the west, and Flinders Island and the Bassian Rise to the east, separate the Bass Basin from the similarly aged Otway and Gippsland Basins respectively.

The basin is believed to have initially formed in response to a NE-SW tensional stress field associated with the rifting of the Antarctic Plate from the Australian Plate during the Late Jurassic. This produced a series of NW-SE trending down to the basin normal faults. In a regional sense this tensional stress field remained orientated to the NE-SW throughout the Tertiary. However, large scale N-S orientated normal faulting occurred within the southeastern part of T-15-P during the Mid-Cretaceous to Early Paleocene.

A2.1.2 Depositional History

Initial downwarping of the basin during the Late Jurassic/ Early Cretaceous is marked by the deposition of fine-grained, volcaniclastic sediments probably derived from the magmatic arc which extended along the eastern margin of the Australian Plate at this time. During the early Late Cretaceous, structuring occurred in the southeastern part of the basin while downwarping continued in the more centrally located areas of the Bass Basin, e.g. around Chat No 1. In the southeast, asymmetric rifting and rapid subsidence of half grabens took place. This led to the rapid erosion of active fault scarps and the deposition of coarse clastic sediments in alluvial fan to fluvial, deltaic, and lacustrine conditions. Tectonic activity lessened after the Late Cretaceous and this area conformed to the process of slower subsidence typical of the rest of the basin. Fluvial, deltaic and lacustrine sediments were deposited until the Eocene when structural readjustments and increased rates of sediment loading resulted in a marine transgression. Basal Oligocene coarse sediments were deposited followed by marine mudstones, marls and limestones during the remainder of the Oligocene and Miocene. Marine conditions have prevailed until the present.

A2.1.3 Stratigraphy

Late Jurassic(?) - Lower Cretaceous

Referred to as the Otway Group, these sediments have been intersected in the basin in only one well to date, namely Durroon No. 1 located on the southeastern margin of the basin. In Durroon No. 1 the sediments consisted of lithic sandstones

and slightly carbonaceous siltstones interbedded with minor conglomerates and thin coals. An altered olivine basalt of uncertain age occurs at the top of this sequence in Durroon No. 1.

Late Cretaceous to Late Eocene

Sediments of this age are known collectively as the Eastern View Group, and usually unconformably overlie the Otway Group, but in some instances rest directly on Palaeozoic basement, as in Bass No. 3. The Eastern View Group can be traced across the King Island/Mornington Peninsula Ridge from the Torquay Basin to the northwest and reaches a maximum thickness, interpreted from seismic, of 7.5km. It consists of a predominantly non-marine sequence of sandstones, claystones, siltsones and coals. The lower, pre-Maastrichtian component of this sequence was seen in Durroon No. 1 to be mainly carbonaceous shales overlain by coarse-grained sandstones interbedded with thin shales. The Maastrichtian and Paleocene parts of the Eastern View Group consist mainly of silty claystones with thin sandstones and rare coals. These typically pass upwards into a coal-rich sequence which is generally overlain by a sandier sequence of Mid to Late Eocene age. The Eastern View Group is overlain by the more or less extensive, thin, restricted marine shale of the Demons Bluff Formation, heralding the marine transgression of the Late Eocene.

Oligocene - Pliocene

Known as the Torquay Group, this section consists of marine sediments; mainly mudstones, marls and calcarenites of Lower Miocene to Oligocene age, and bioclastic limestones of Pliocene age and younger.

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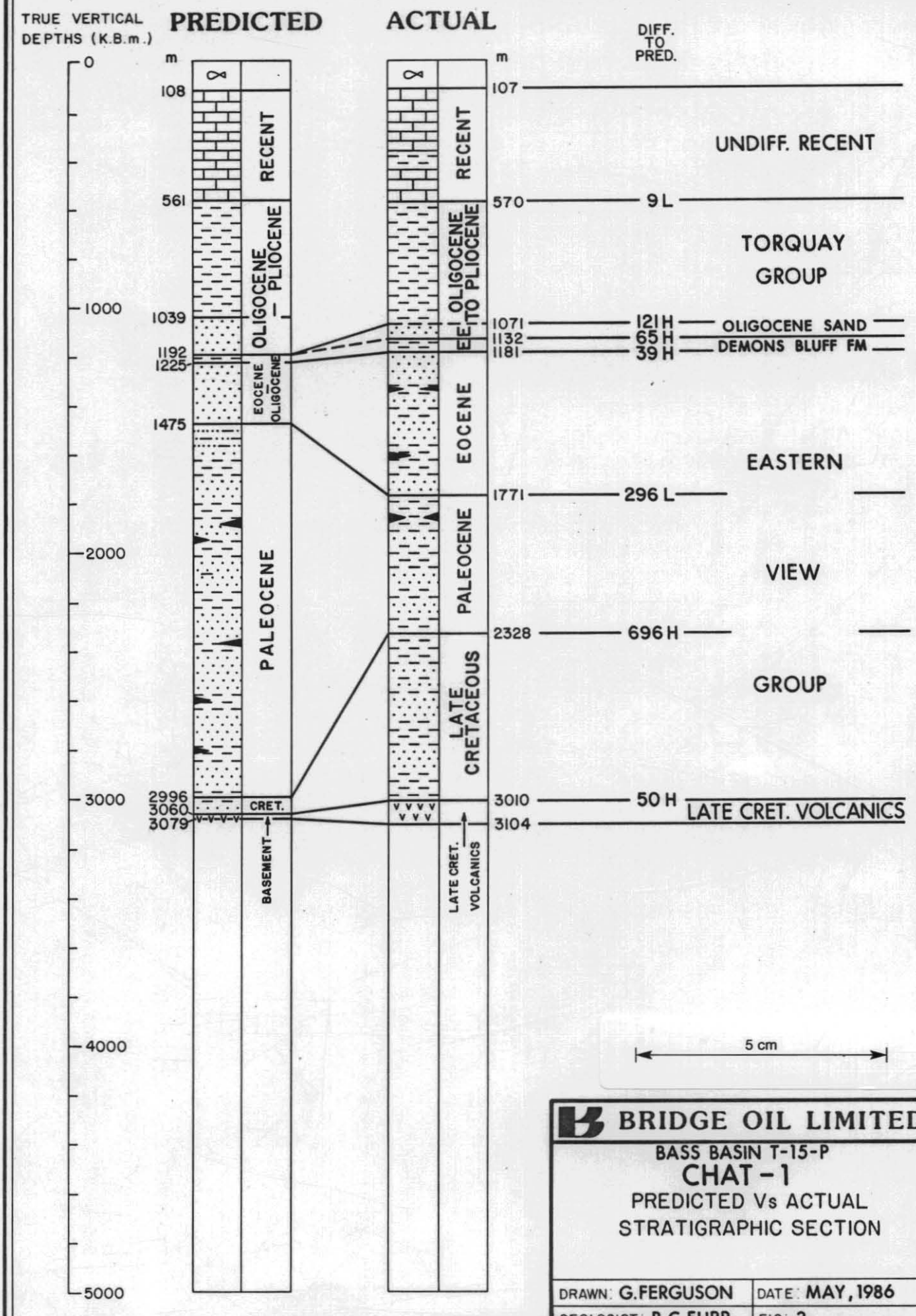

BRIDGE OIL LIMITED

BASS BASIN T-15-P

CHAT-1

PREDICTED Vs ACTUAL STRATIGRAPHIC SECTION

DRAWN: G.FERGUSON	DATE: MAY, 1986
GEOLOGIST: B.C.FURR	FIG: 3

A 2.2 Lithostratigraphic Units Recognised in Chat No. 1

All depths are in metres and related to the Kelly Bushing (mKB).

Recent; seabed to 570.0m; thickness 544.7m

As the riser was not connected until after the 26" hole had been drilled to 268.0m and the 20" casing had been set at 256.0m no samples were returned to the surface. Once cased, this section was not logged. It is assumed that the lithology is not very different from that of the samples collected after 268.0m.

The monotonous character of the electric log below 256.0m to the base of this section reflects the generally uniform lithologies seen while drilling.

This is essentially a carbonate section consisting of white, light grey, unconsolidated, bioclastic limestones above 480.0m and light to medium grey calcarenites below this to 570.0m. The bioclastic limestones are made up of coarse to very coarse fragments of shells, corals, bryozoans, echinoids, sponge spicules and foraminifera. These fragments are occasionally poorly cemented with a calcareous cement and there is probably a clay matrix in parts of this interval which was seen only rarely as it was mostly washing out of the sample during circulation. Although the bioclastic material persists after 480.0m it is subordinate to the light to medium grey, firm, predominantly fine-grained calcarenite. As well as varying ammounts of pyrite, quartz grains, glauconite and sparry calcite, the calcarenite also contains abundant fossil fragments.

Oligocene to Pliocene Torquay Group; 570.0m to 1071.0m; thickness 501.0m

The electric log curves show little variation at the top of the Torquay Group, which was picked as a change in lithology from the essentially carbonate sequence of the Recent sediments to a predominantly argillaceous lithology.

The lithology to a depth of 820.0m consists mainly of light to dark greenish grey, soft to very soft and dispersive, claystones. Throughout the interval 570.0m to 820.0m the clays are so dispersive that they were washing out of the sample. However where they firmed up enough they were seen to be predominantly amorphous, occasionally sub-fissile and very calcareous. Light buff, very thin, very hard, limestone interbeds are occasionally present. Below 820.0m the claystones become less dispersive and are light to medium grey, soft to firm, mainly amorphous but occasionally sub-fissile and variably calcareous. Throughout they are silty or fine sandy and occasionally grade to argillaceous, light grey, siltstones and fine sandstones. Discrete olive grey, firm, very fine moderately sorted sandstones are also present towards the base of this section.

Oligocene Sand; 1071.0m to 1132.0m; thickness 61m

The top of the Oligocene Sand was picked at the top of the first major sand. During drilling the rate of penetration curve shows a positve drilling break of about 150%. The rate of penetration remained high on average until 1128.0m.

The wireline logs show a gamma ray reading of around 30 API units at the top of the sand increasing to 40 to 45 API units after the top 15.0m suggesting that the top part of the section is cleaner or coarser. The SP curve essentially follows the character of the gamma ray curve indicating an increase in permeability which is borne out by the separation of the three resistivity curves.

Throughout the basin the top of the Eocene has been picked on the basis of micropalaeontology using foraminifera found in fine marine clastics. In coarse clastic sediments, such as are seen at this level in Chat No. 1, dating has to be done on the basis of spore pollen interpretation. Thus the boundary between the Oligocene and Eocene, based on foraminifera, falls within the N. asperus zone and therefore somewhere within the so called Oligocene Sand in the Chat No. 1 well. This sand is considered to be a basal sequence marking the transition from the essentially deltaic Eastern View Group to the marine Torquay Group and is considered to be diachronous from Eocene to Oligocene. However it is mainly regarded as Oligocene.

The lithology consists of clear, translucent, white and occasionally orange and pink, unconsolidated sands. The sands consist of fine to very coarse, predominantly medium-grained sub-angular to rounded, quartz grains which are moderately sorted. A sub-angular, medium fraction and a sub-rounded to rounded, coarse fraction is evident. Traces of pyrite, glauconite and rare mica occur throughout this section.

The top of the Oligocene Sand was prognosed at 1042.0m and was expected to be 147.0m thick. The actual top was at 1071.0m, 29.0m deep to prognosis and was only 61.0m thick.

Eocene Demons Bluff Formation; 1132.0m to 1181.3m; thickness 49.3m

A sharp decrease in the rate of penetration indicated the top of the Demons Bluff Formation while drilling and the lithology changed from mainly sandstone to claystones.

The gamma ray curve shows an increase in API units from 45 to 75 to 80 units over this interval which is essentially the shale baseline at this level. The SP and resistivity curves show poor permeability and the sonic delta T curve shows a decrease in the transit time.

The Demons Bluff as seen in Chat No. 1 is predominantly a light greyish brown, soft to firm, silty claystone with granules of glauconite, and is sandier than it is near the centre of the basin. In Chat it contains occasional light to dark brown, very hard, very fine to fine-grained, moderately sorted, micaceous sandstones with traces of pyrite.

The top of the Demons Bluff was prognosed at 1189.0m and was expected to be approximately 36m thick. The actual top is 57.0m high at 1132.0m and the thickness 49.3m thick.

Upper Cretaceous to Eocene Eastern View Group; 1181.3m to 3010.0m; thickness 1828.7m

The top of the Eastern View Group was marked by a 125% increase in the rate of penetration reflecting a lithology change from predominantly claystones to predominantly sandstone. The top was prognosed at 1225.0m and was expected to have a thickness of 1835.0m. In fact its top is at 1181.3m, 43.7m high, and it is 1828.7m thick.

The wireline logs show a decrease in the gamma ray and SP curves, separation of the three resistivity curves and a decrease in delta T.

The Eastern View Group consists of a sequence of sandstones, siltstones and claystones with coals which in Chat No. 1 can be subdivided on the basis of wireline logs, palynology, predominant lithologies and rate of penetration.

Eocene Sand; 1181.3m to 1269.0m

The top of the Eastern View Group is a massive sandstone of variable grainsize similar in character to the Oligocene Sand encountered higher in the hole.

The top part of the Eastern View Group consists of a massive sandstone or a series of sandstones with grainsizes ranging from fine to grit but which are predominantly medium to very coarse. They consist of clear and translucent, unconsolidated, angular and poorly sorted grains. The sandstones, due to their unconsolidated nature, have very good inferred porosities.

1269.0m to 1544.0m

The sandy top of the Eastern View Group gives way at 1269.0m to a more varied lithology. The rate of penetration shows a marked decrease at 1260.0m indicating an increase in the argillaceous fraction of the formation. The resistivity and delta T curves indicate that the bottom of the overlying massive sandstone is at 1269.0m, however the increase in shales and shalier sands can be seen best on the gamma ray and SP curves from 1305.0m. These show a sequence of interbedded claystones and variable quality sandstones with occassional coals.

The dominant lithologies present in this section are clear, translucent, unconsolidated, predominantly medium to coarse grained sandstones. Although only seen in minor amounts it is believed that the light to dark brown and light greenish grey, very soft and dispersive to occasionally firm and sub-fissile claystones form interbeds with the sandstones and that some of the sandstones have more or less argillaceous matrices.

Indications from the rate of penetration curve, the electric logs and from the unwashed samples show that the formation may

be somewhat more argillaceous than is seen in the washed samples. Most of the clay fraction, probably up to 60% in places, washed out of the samples into the drilling fluid before it reached the shakers. What clays remained were mainly seen in unwashed samples and were highly dispersed and few if any discrete cuttings could be seen after washing. This was true in varying degree throughout the Eastern View Group so the rate of penetration curve and the electric log responses have been used to interpret the more argillaceous sections as shown in the interpreted lithology column on the Composite Well Log.

Coals are present from about 1300.0m. They are black, firm to hard and brittle, massive with an irregular to subconchoidal fracture and a dull to resinous lustre. Apart from being silty and sandy in parts the coals also contain amber as translucent, soft, friable blebs and lenses. The amber can be identified by its bright blue white fluorescence.

1544.0m to 1771.0m

Palynological interpretation shows that there is an unconformity at around the 1550.0m level. A radioactive sand seen on the elecric logs at 1546.0m, with its base at 1549.0m, has been taken as the actual level of the unconformity between the lower N. asperus zone and the underlying P. asperopolus zone.

The rate of penetration, the sample descriptions and the electric logs indicate that the lithologies are basically the same over this interval as for the overlying sequence, essentially a predominantly sand-prone sequence of sandstones, claystones and coals.

1771.0m to 2328.0m

The top of the Paleocene has been defined by palynology which shows a change from the middle to lower M. diversus zone to the upper L. balmei zone between 1806.0m and 1842.0m. The electric logs show an increase in the claystone fraction in the sequence below 1771.0m, so the final top Paleocene has been placed there.

While the previously described unconsolidated sandstones persist below this depth the sandstones generally become more variable in character. Two additional sandstone types are present, white, soft to hard, fine to very fine occasionally medium-grained sandstones and light brown, very fine, moderately sorted sandstones with varying amounts of argillaceous matrix. Both grade locally into siltstones and are interbedded with light brown and greyish brown claystones throughout this section.

The Upper Paleocene was prognosed to be at 1889.0m it came in 118.0m high at 1771.0m.

Cretaceous; 2328.0m to 3104.0m (TD); thickness >776.0m

2328.0m to 2907.0m

There are no obvious indications on the rate of penetration curve or in the lithology descriptions for the top of the Cretaceous. Palynology shows that the lower L. balmei zone gives way to the T. longus zone somewhere between 2268.0m and 2370.0m. A major sand is indicated on the wireline logs at 2328.0m and this has been taken as the top of the Late Cretaceous.

Lithologies remain essentially the same as for the lower Paleocene, a sequence of sandstones, claystones and coals, with a predominance of claystones.

2907.0m to 3010.0m

The rate of penetration curve becomes quite flat and low through this section. Three sandstone drilling breaks are seen which correspond to sand indications on the electric logs, but apart from these the logs show that the lithologies are mainly claystones and siltstones.

The claystones are medium to dark brown, predominantly hard and brittle but occasionally soft to firm. They are silty, carbonaceous and contain swelling clays in varying amounts. Occasionally the claystones grade to siltstones and very fine sandstones. There are also light green soft to firm siltstones which grade into very fine to fine sandstones. The sandstones in this section vary from grey, friable to hard, fine-grained sandstones with occasional lithic fragments to brown, very fine-grained, firm, sandstones with argillaceous matrices which grade to siltstones. The brown sandstones contain variable amounts of carbonaceous material while calcareous cement is seen in the grey sandstones.

Cretaceous Volcanics; 3010.0m to 3104.0m (TD); thickness 94.0m

The rate of penetration curve shows little variation from 2980.0m to TD so the top of the volcanics has been picked from the lithology change. Electric logs show the top of the volcanics as a decrease in the delta T curve and a slight decrease in the gamma ray curve at 3010.0m. This corresponds on the lithology log to a change to a white siltstone which is probably a result of alteration of sediments associated with the weathering of the volcanics. Consequently the top of the volcanics has been put at 3010.0m.

The section consists of a sequence of weathered and fresh basalt. The weathered basalt is light green, soft and friable, with a translucent, clayey matrix with firmer, white and dark green grains in it. There are heavy traces of associated calcite. With depth the basalt becomes fresher and harder. At its freshest it is dark to very dark grey speckled with black and white, it is glassy, very hard and occasionally shows a sub-conchoidal fracture. Below 3063.0m the volcanics are interbedded with light greyish green soft to firm, slightly calcareous siltstones. These are clastic sediments

and samples from between 3000.0m and 3104.0m yielded a probable age of Upper Cretaceous (N. senectus) after palynological analysis.

A2.3 Lithological Descriptions of Cuttings

The wellsite geologist's strip log was drawn up separately from the mud loggers master log and the descriptions in this section are taken from the strip log. Wireline logs and sidewall core descriptions are also used and the depths are taken from wireline log depths. All depths are in metres below Kelly Bushing.

Seabed - 268m

NO SAMPLES

This interval was drilled prior to the setting of the riser and hence the cuttings were returned to the seabed. It is assumed that they were much the same lithology as described for the interval 268m 480m.

268m - 480m

BIOCLASTIC LIMESTONE

White, light grey, unconsolidated, consisting of coarse to very coarse fragments of; shells, bryozoans, corals, echinoids, plus sponge spicules and foraminifera. Traces of calcareous cement seen in places, possibly some clay matrix washing out.

CLAYSTONE

Light green grey, soft to very soft, amorphous and sticky, swelling and dispersive, very calcareous with bioclastic material.

480m -560m

CALCARENITE

Light to medium grey, firm, blocky, fine to medium-grained, predominately fine, subrounded to rounded, calcareous cement, occasionally argillaceous, traces of quartz, glauconite, pyrite and sparry calcite, abundant fossil fragments.

560m - 820m

CLAYSTONE

Light to dark grey green, very soft to soft, occasionally firm, predominantly amorphous, sticky and very dispersive (a moderate to high proportion of the clays washing out), when firm, blocky to occasionally sub-fissile, moderately to occasionally very calcareous, occasional to common fossil fragments, occasional very thin limestone interbeds.

820m - 990m

CLAYSTONE

Light to medium grey, soft to firm, blocky, occasionally sub-fissile, slightly calcareous, silty or with very fine sand, occasionally grading to a **SILTSTONE** or very fine argillaceous **SANDSTONE**. Traces of fossil fragments.

990m - 1190m

SANDSTONE

Light to medium grey, soft to firm, blocky, very fine, grading to **SILTSTONE** in parts, argillaceous, calcareous, with traces of fossil fragments and rare pyrite.

also;

Clear, translucent, white, occasionally pink and orange, unconsolidated, fine to very coarse, predominantly medium grained, sub-angular to sub-rounded, occasionally rounded, moderately sorted, rare mica.

CLAYSTONE

Light to medium grey, very soft to soft, blocky, occasionally sub-fissile, occasionally slightly calcareous, silty or with very fine sand, occasionally grading to a **SILTSTONE** or very fine argillaceous **SANDSTONE**. Traces of fossil fragments.

also;

Medium to dark grey, dark brown, soft to firm, blocky, sub-fissile in parts, calcareous, traces of fossil fragments, pyrite, carbonaceous in parts, occasionally silty to very fine sandy.

Occasional;
LIMESTONE

Buff, light brown, hard to very hard, blocky, crypto-crystalline, argillaceous, dolomitic, with traces of pyrite.

1190m - 1285m

SANDSTONE

Clear, translucent, unconsolidated, fine to grit, predominantly medium to very coarse, angular to sub-rounded, predominantly angular, poorly sorted due to unconsolidated nature, inferred visible porosity good to excellent, trace to 20% pyrite cement, trace to 10% mica. The highest content of pyrite cement occurred in the top 20m but was quite abundant thoughout this section.

also occasionally;

Brown, fine, friable, angular quartz and pyrite with a brown argillaceous matrix, micaceous, visible porosity poor to nil.

1285m - 2000m

SANDSTONE

Clear, translucent, white, unconsolidated, fine to grit, predominantly medium to coarse, angular to sub-rounded, predominantly angular, moderately to well sorted, occasional quartz overgrowths, inferred visible porosity good to excellent, trace pyrite cement and nodules, trace mica, trace to 10% **COAL** and carbonaceous material.

also;

White, off-white, light grey, firm to very firm, fine to very fine, predominantly fine, angular to sub-angular, moderately sorted, slightly calcareous cement, mainly siliceous, argillaceous matrix, trace pyrite occasionally as cement.

COAL

Black, firm to hard and brittle, occasionally very firm and friable, massive, irregular to sub-conchoidal occasionally conchoidal fracture, resinous to dull lustre, occasionally silty and sandy. Occasional associated resin, translucent orange, soft and friable, with a bright blue mineral fluorescence, occasional interlaminations of siltsone and fine sandstone imparting some fissility.

CLAYSTONE

Light to dark brown, light grey green, soft to firm, amorphous to occasionally sub-fissile, occasionally silty to very silty, occasionally micaceous, occasionally carbonaceous. With depth the claystones become firmer and more fissile occasionally showing carbonaceous partings.

also;

Chocolate brown, soft to firm, sub-fissile, silty with occasional sand grains, micaceous, carbonaceous, often associated with coals.

N.B. Most of the clays throughout this section were quite dispersive and were washing out of the sample on the way up the hole, as such they were difficult to evaluate properly.

From 1830m down to 2000m the claystones and coal become more common.

2000m - 2871m

CLAYSTONE

Light brown, light grey/brown, predominantly soft and dispersive but occasionally firm, massive, occasionally sub-fissile, in firmer cuttings coarse to medium 'floating' sand grains were observed, silty occasionally grading to;

SILTSTONE

Light brown, very soft, very argillaceous, occasionally slightly sandy occasionally grading to very fine to fine argillaceous **SANDSTONE**, slightly to very carbonaceous, occasionally interlaminated with;

COAL

Black, very firm and friable to hard, blocky to sub-conchoidal fracture, dull to resinous lustre.

SANDSTONE

Translucent, white, light grey, predominantly unconsolidated but occasionally well cemented grains with a siliceous cement, fine to very coarse, predominantly medium to coarse, angular, occasionally sub-angular, moderately sorted, trace pyrite, trace mica, visible porosity in the cemented grains is fair while that in the unconsolidated grains can be inferred as predominantly excellent.

also;

White, soft to hard, fine to very fine, occasionally very fine to medium, occasionally grading to **SILTSTONE**, angular to sub angular, poorly to moderately sorted, with white argillaceous matrix, visible porosity poor.

also;

Light brown, very fine, firm to hard, moderately sorted, sub-angular, with equal amounts of argillaceous matrix and siliceous cement.

2871m - 3010m

SANDSTONE

Grey, light brown, very fine to silt, occasionally fine, friable to hard, moderately sorted, sub-angular to angular, argillaceous matrix, occasional siliceous cement, carbonaceous specks, associated with coals, visible porosity poor to nil.

also;

Dark to medium brown, firm, very fine to occasionally silt, moderately sorted, angular, argillaceous matrix, abundant carbonaceous material, occasionally grading to **SILTSTONE**, visible porosity nil.

also;

Grey, occasionally pink, friable to hard, fine, occasionally very fine, angular to sub-angular, well sorted, calcareous cement in parts, lithic fragments and carbonaceous material, visible porosity poor.

CLAYSTONE

Medium to dark brown, hard and brittle, occasionally soft to firm, blocky to sub-fissile, occasionally swelling, carbonaceous, silty, occasionally grading to **SILTSTONE**, occasionally very fine **SANDSTONE.**

SILTSTONE

Green, soft to firm and friable, grading to very fine to fine **SANDSTONE,** well rounded green grains in a light green argillaceous matrix, visible porosity nil.

3010m - 3063m

WEATHERED BASALT

Light green, soft and friable , green translucent matrix with white and dark green grains, heavy trace of associated calcite.

BASALT

Dark to very dark grey, speckled with black and white, glassy, very hard to hard, occasional sub-conchoidal fractures, occasional silt sized grains.

3063m - 3088m

SILTSTONE

Light green/brown, soft to hard, occasionally grading to very fine sand and occasionally very fine sand grains in a silty matrix.

3088m - 3104m

WEATHERED BASALT

Light green, soft and friable , green translucent matrix with white and dark green grains, heavy trace of associated calcite.

BASALT

Dark to very dark grey, speckled with black and white, glassy, very hard to hard, occasional sub-conchoidal fractures, occasional silt sized grains.

A2.4 Sidewall Core Descriptions

SWC #1 3099.77m Rec.: 2.5cm

Basalt: dark grey, friable, hard in parts;
- friable parts; fine sand, grey, mainly clear, some grey and light brown, angular, probably crushed while removing the sample from the bullet.
- harder parts; dark brown, pinkish brown groundmass (very fine-grained), with larger (fine to occasionally coarse) green glassy crystals.

SWC #2 3072m Rec.: NIL

SWC #3 3050.95m Rec.: 1.5cm

Basalt: dark grey, hard, fractured, very fine-grained crystalline groundmass with fine black and green crystals, weathered in fractures, calcareous throughout. Trace dull yellow mineral fuorescence.

SWC #4 3005.06m Rec.: 3.0cm

Laminated Siltstone and Sandstone:
Siltstone; medium grey/brown, firm, very argillaceous, fine with sandy interlaminations approximately 1 to 2 mm wide and 'floating' very fine sand grains.
Sandstone; medium grey/brown, soft, very fine to fine, angular, very argillaceous with dark specks, visible porosity nil to trace, very dull mineral fluorescence.

SWC #5 2967.03m Rec.: 2.0cm

Sandstone: white, firm, fine, angular quartz and lithic fragments, poorly sorted, white argillaceous, calcareous matrix. Dull yellow mineral fluorescence.

SWC #6 2899.93m Rec.: 2.0cm

Sandstone: white, friable, very fine to fine, angular, poorly sorted, white clay and silt matrix, quartz and biotite mica grains, approximately 20% dark grains and biotite mica.

The remaining 24 sidewall core bullets failed to fire due to a broken arming wire and a faulty detonator. The former may have been the result of the extra handling the tool recieved firstly while reloading the gun with hardened bullets for shooting the basalt and then when the tool was pulled out of the hole to try and fix the gamma ray after it failed at about 2500m. The two bullets which failed to fire were adjacent in the gun and so prevented the arming of subsequent shots. Time constraints in the turnkey contract prevented the rerunning of the tool.

A2.5 Palynology/Biostratigraphy

Twelve (12) unwashed cuttings samples and two (2) sidewall cores were forwarded to Roger Morgan for palynological analysis. As can be seen from Figure No. 3 'Predicted vs Actual Stratigraphy' the major difference brought to light by the palynology is the higher than expected tops of the Late Cretaceous and Paleocene.

The following is a summary of the palynology and biostratigraphy of Chat No. 1. The full report from Roger Morgan is included as Appendix 4 in this Well Completion Report.

A2.6 Geochemistry

A total of seventy-nine (79) samples were sent to ANALABS for geochemical analysis, sixty-four (64) canned cuttings samples and fifteen (15) washed and dried cuttings samples, from between 970m and 3000m.

The canned samples were 30m composite samples which were treated with bacteriacide at the wellsite then sealed as soon as was possible. They were submitted to head space gas analysis by ANALABS. The dried samples were washed and sieved to remove any caved cuttings then air-dried in cloth bags. Due to the highly dispersive nature of the clays the samples were rather more arenaceous than would be expected from the rate of penetration and the readings from the wireline logs. However ANALABS hand-picked thirteen of the samples and used only the more argillaceous fraction. These picked samples were used for total organic carbon determination and Rock-Eval pyrolysis analysis. Thermal maturity was estimated using vitrinite reflectance measuresments done on five unpicked washed and dried samples.

The following are the summary pages from the ANALABS report. The full report is included in this Well Completion Report as Appendix 2.

A2.7 Thermal History

Five washed and air-dried samples were sent via ANALABS to Professor Alan Cook for vitrinite reflectance measurement and coal maceral description. The results, combined with the data from geochemical analysis, indicated that the sediments from the surface to 2000m are immature and at the pre-oil generative stage. The sediments from 2000m to 2709m are marginally mature and may be at the initial hydrocarbon generative stage. Details of the vitrinite reflectance measurements may be seen in the ANALABS report included in this Well Completion Report as Appendix 2. A summary of the ranges of the vitrinite reflectance measurements is given here.

Depth	Ro(mean)	Range	No. of readings
1740	0.38	0.27 - 0.48	22
2056	0.52	0.42 - 0.61	27
2454	0.48	0.38 - 0.59	33
2550	0.52	0.43 - 0.65	28
2709	0.57	0.49 - 0.65	30

Geothermal Gradient

The geothermal gradient was determined from temperatures obtained from two log runs only. The figure obtained is therefore not as reliable as it may be but it does compare with gradients from other wells in the basin. The geothermal gradient suggested by the available data is 31.7 deg. C. The gradient was obtained using the following data from logging suite number 2.

Depth(m)	Log	Time since	Temp.	T/(T + dt)
3107.0	DIL	8.00	98.9	0.833
3107.0	LDL	16.25	104.4	0.910

The results of the formula:

$$T/(T + dt)$$

where:

T = the time since the last circulation.
dt = the circulation time, taken as 96 minutes in both cases,

were plotted on a logarithmic scale against temperature readings on a linear scale and the resulting line between them was extrapolated to find the corrected bottom hole temperature (see accompanying graph - Figure No. 4). The corrected bottom hole temperature was then used in the formula:

$$G = \frac{ft - fbt}{md - KB - WD}$$

where:

- G = geothermal gradient corrected for water depth
- ft = formation temperature
- md = measured depth
- KB = kelly bushing
- WD = water depth
- fbt = sea bottom temperature. (This has been estimated as 14°C by average measurement from BMR oceanographic department)

to find the corrected geothermal gradient.

$$G = \frac{109 - 14}{3107 - 25.3 - 81.4} = 31.7 \text{ deg. C/kilometre}$$

The gradient in Chat No. 1 compares well with those seen in nearby wells in the Bass Basin.

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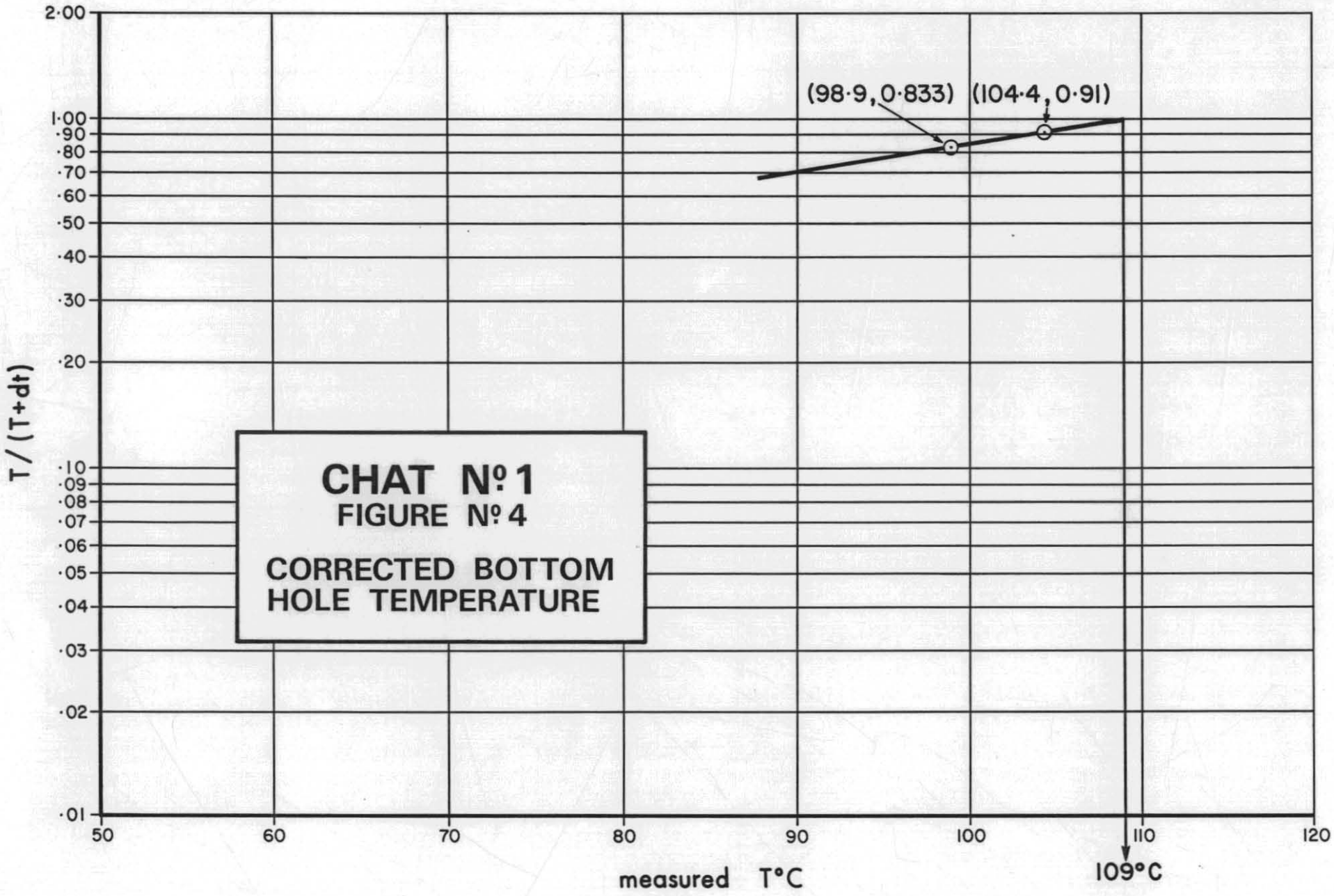

5 cm
(98·9, 0·833)
(104·4, 0·91)
2·00
1·00
·90
·80
·70
·60
·50
·40
·30
·20
·10
·09
·08
·07
·06
·05
·04
·03
·02
·01
T / (T+dt)
50
60
70
80
90
100
110
120
109°C
measured T°C
CHAT Nº 1
FIGURE Nº 4
CORRECTED BOTTOM
HOLE TEMPERATURE

FIG. 4

A2.8 Geophysics

Enclosure No. 4 of this report is the seismic line BB85-40 on which Chat No. 1 was drilled at shotpoint 170. It shows the post drilling interpretation which was based on information from a synthetic seismogram prepared from the sonic log by Schlumberger. The picks are:

Yellow	-	Top Eastern View Group
Orange	-	Near Top Paleocene
Brown	-	Top Upper Cretaceous
Green	-	Top Lower Cretaceous
Purple	-	Basement

The following pages are a summary of the parameters and methodology used by Schlumberger when preparing the synthetic seismogram included as Enclosure No. 5. (The Time Converted Velocity Report is not included here).

1.0 INTRODUCTION

A synthetic seismogram was computed from the sonic log for Chat - 1. No density or checkshot data was available, and hence the sonic log has not been calibrated with respect to the seismic travel time and the reference to datum is not absolute.

2.0 SURVEY PARAMETERS

Elevation SRD	Mean Sea Level
Elevation KB	25.3 metres AMSL
Elevation DF	25.0 metres AMSL
Elevation GL	-81.4 metres AMSL
Well Deviation	Nil
Total Depth	3109 metres below KB
Sonic log interval	255 to 3109 metres below KB

Recording was made on the Schlumberger Computerized Service Unit (CSU) using LIS format.

3.0 PRELIMINARY PROCESSING

3.1 Open Hole Logs

The sonic log has been edited for cycle skipping prior to input into the GEOGRAM chain. A constant density of 2.3 gm/cc has been used along the entire logged interval.

3.2 Correction to Datum

Seismic Reference Datum (SRD) is at Mean Sea Level. An average velocity of 1993 metres/sec has been used from the sea floor to the top of the sonic log. Using a water of 1500 metres/sec from datum to sea floor, a transit time of 128.7 millisecs was calculated from datum to the top of the sonic log. The initial value for the integrated sonic log has been set to this value. No drift corrections were attempted on the sonic log.

The 'Time Converted Velocity Report' appended to this report gives a complete listing of depth and two way travel time sampled every two millisecs.

4.0 GEOGRAM PROCESSING

GEOGRAM plots were generated using 10-40 hertz and 15-55 hertz Butterworth filtered zero phase ricker wavelets. The presentations include both normal and reverse polarity at 3.75 in/sec.

GEOGRAM processing produces synthetic seismic traces based on reflection coefficients generated from sonic and density measurements in the well-bore. The steps in the processing chain are the following:

Time to depth conversion
Generate reflection coefficients
Generate attenuation coefficients
Choose a suitable wavelet
Convolution
Output.

4.1 Time to Depth Conversion

Open hole logs are recorded from the bottom to top with a depth index. This data is converted to a two-way time index and flipped to read from the top to bottom in order to match the seismic section.

4.2 Primary Reflection Coefficients

Sonic and density data are averaged over chosen time intervals (normally 2 or 4 millisecs). Reflection coefficients are then computed using:

$$R = \frac{\rho_2.\nu_2 - \rho_1.\nu_1}{\rho_2.\nu_2 + \rho_1.\nu_1}$$

where

ρ_1 = density of the layer above the reflection interface
ρ_2 = density of the layer below the reflection interface
ν_1 = compressional wave velocity of the layer above the reflection interface
ν_2 = compressional wave velocity of the layer below the reflection interface

This computation is done for each time interval to generate a set of primary reflection coefficients without transmission losses.

4.3 Primaries with Transmission Loss

Transmission loss on two-way attenuation coefficients are computed using:

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

A set of primary reflection coefficients with transmission loss is generated using:

$$Primary_n = R_n.A_{n-1}$$

4.4 Primaries plus Multiples

Multiples are computed from these input reflection coefficients using the transform technique from the top of the well to obtain the impulse response of the earth. The transform outputs primaries plus multiples.

4.5 Multiples Only

By subtracting previously calculated primaries from the above result we obtain multiples only.

4.6 Wavelet

A theoretical wavelet is chosen to use for convolution with the reflection coefficients previously generated. Choices available include:

Klauder wavelet
Ricker zero phase wavelet
Ricker minimum phase wavelet
User defined wavelet.

All wavelets can be chosen with or without butterworth filtering and with user defined centre frequencies. Polarity conventions are shown in Figure 1. These GEOGRAMS were generated using butterworth filtered zero phase ricker wavelets.

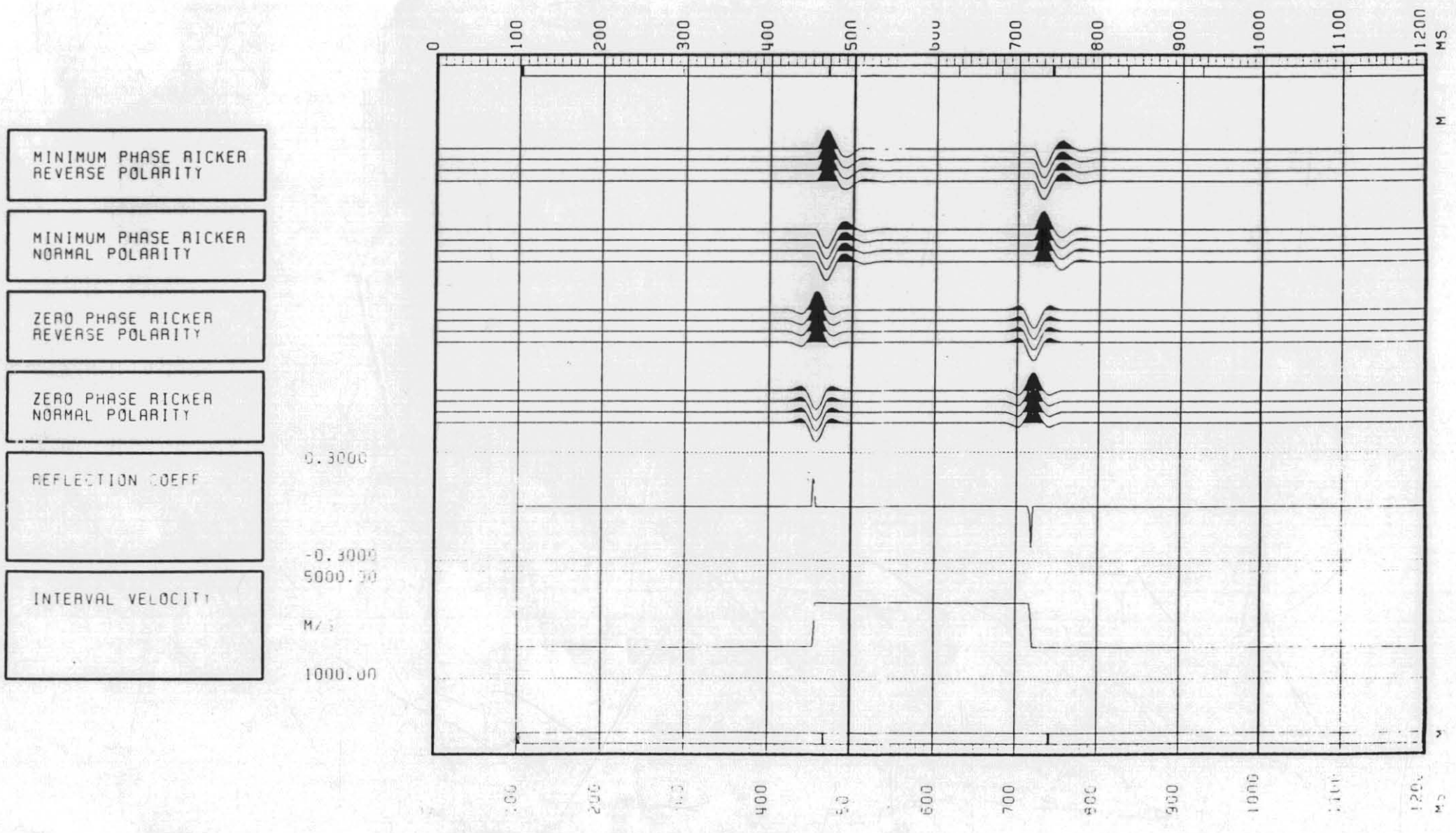
4.7 Convolution

Standard procedure of convolution of wavelet with reflection coefficients. The output is the synthetic seismogram.

5 cm

SCHLUMBERGER (SEG-1976) WAVELET POLARITY CONVENTION

Figure 1



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A3 - LOG ANALYSIS

A3.1 Introduction

Quicklook log analysis was initially carried out at the rig site using Bridge Oil Ltd's HP41CV calculator system. It was intended to transmit the log data from the rig site to the Schlumberger centre in Sydney immediately after the logs were run and log analysis was to be done on the computer there. This was not possible due to poor telephone communication links from the rig. As a consequence tapes were made of each run and sent, via helicopter, into the nearest Schlumberger centre, in Sale, for transmission via land line to Sydney where Schlumberger Cyberlook evaluation was carried out as soon as the data had arrived. Subsequently, a full edit tape of the logs was sent to Sydney and a more detailed Cyberlook evaluation was carried out. Finally, a full edit tape of both logging suites was forwarded to Bridge Oil Ltd, and selected zones were analysed in more detail on the in-house HP9000 computer using the Terralog analysis system.

Log Suite 1 was programmed to run in the 17-1/2" open hole below the 20" casing shoe from 243.0m KB to 914.0m KB and consisted of the following:

Run	Programmed	Actual	Interval
1	DIL-LSS-CAL-GR-SP	DIL-LSS-CAL-GR-SP	256.0m-928.5m

There was no significant lost time during this log run. The hole was slightly over-gauge throughout this section with severe washouts over the interval 700.0m to 710.0m. The hole is up to 1-1/2" under-gauge between 510.0m and 537.0m and some severe cycle skipping of the sonic log is seen between 507.0m and 517.0m.

Log Suite 2 was programmed to run in the 12-1/2" open hole from 914.0m KB to total depth and was to consist of the following:

Run	Programmed	Actual	Interval
1	DIL-LSS-CAL-GR-SP	DIL-MSFL-LSS-CAL-SP-GR	913.5m-5103.0m
2	LDT-CNL-GR-CAL	LDL-CNL-GR-CAL	913.5m-3106.0m
3	CST	CSTC-GR	1177.0m-3099.0m

This logging suite suffered from telemetry and equipment failures. An hour was lost during Run 1 due to the telemetry failing, while three and a half hours were lost during Run 3 as a result of a Gamma Ray tool failure due to overheating at depths greater than 2500m. Only five cores were recovered out of a total of 30 attempted on the CST run. The following is a time breakdown of the second logging suite.

2nd February, 1986

02:30 hrs Rig up and run in hole with DIL-MSFL-LSS-GR-SP-CAL to 100m, attempt a calibration and fail. Pull out of hole to repair tool and calibrate.

04:10 hrs Run in hole to bottom and log up.

11:35 hrs Rig down Run 1. Rig up Run 2.

12:10 hrs Run in hole to bottom with LDL-CNL-GR-CAL and log up.

19:00 hrs Rig down Run 2. Rig up Run 3.

20:00 hrs Run in hole with CSTC-GR to below 2500m GR stopped working. Pull up tool, above 2500m GR starts working, run back to below 2500m, GR stops working. Pull tool out of hole to repair.

23:00 hrs Out of hole with CSTC-GR for repair.

3rd February, 1986

01:30 hrs Run in hole to bottom and shoot sidewall cores.

05:30 hrs CSTC-GR tool to surface. Due to a broken firing wire and an adjacent faulty detonator, out of the 30 shots attempted 24 were misfires, one of those fired was lost down the hole and only five sidewall cores were recovered.

06:30 hrs Schlumberger rigged down.

A3.2 In-house Analysis

A print of the Cyberlook interpreted log is included here along with a listing of the in-house interpretation performed on Bridge Oil's HP 9000 using the Terralog analysis programme.

To perform the Terralog analysis, an LIS edit tape was read in and the following logs were normalised for borehole effects:

Gamma Ray
Neutron
ILD-ILM
MSFL
SFL

The ILD-ILM logs were also corrected for mud filtrate invasion and the MSFL was corrected for mudcake effects to get R_T and R^{XO}. All calculations were then performed on the environmentally corrected logs.

Water resistivities (Rw) were approximated from SP deflections in clean, wet sands (where no shows occurred and resistivities were low). Rw was also estimated by the Rwa method in wet sands where porosity is known and Vsh is low.

Shale fractions (VSH) were estimated from the borehole corrected gamma ray and porosities were calculated from several methods. The preferred porosity is the shale corrected neutron/density crossplot porosity (N-D POR) although the shale corrected Hunt/Raymer porosity (PORSON, SC) correlates very well.

The well was zoned for formation changes, obvious Rw changes and shale parameter changes. Within these zones, the cleanest, highest resistivity sands were analysed using optimistic parameters. Where these such sands showed no evidence of hydrocarbons, then it was inferred that all other sands of lower resistivity and similar porosities were also water saturated.

The water saturations (Sw) were calculated using the Indonesia equation as shown below. The constants a, m and n were kept as 0.81, 2.0 and 2.0 respectively:

$$Sw = (Vsh^{0.5(2-Vsh)}/(Rsh/Rt)^{0.5} + (Rt/Ro)^{0.5}) - 2/n$$

The anomolously high water salinities calculated cannot be ignored as all evidence suggests extremely high NaC1 equivalent concentrations. If lower salinities (higher Rw's) are used, the water saturations calculated are in the 200% to 300% range. The deep resistivity values are so low (0.3 to 3.0 ohm/m) that is is impossible to suggest less saline formation waters, athough salinity does decrease to a more reasonable range with depth.

Despite using what appear to be very optimistic Rw values, no evidence of hydrocarbons is seen in any zone throughout the well. All potential reservoirs (some of which have excellent porosity and permeability) are interpreted to be fully water saturated as no shows were observed while drilling.

B1.1 Drilling Diary

CHAT #1 TIME BREAKDOWN

Activity	Hours
Drill Actual	258.50
Reaming	4.75
Condition Mud & Circ.	6.25
Trips	89.00
Lubricate Rig	7.50
Repair Rig	1.00
Cut Drilling Line	4.00
Dev. Survey	9.75
Wireline Logs	33.00
Run Csg & Cement	32.50
Nipple up & run B.O.P.	14.00
Test B.O.P. & Csg	8.50
Plug Back	6.50
Run T.G.B.	2.00
Union Meetings	0.75
Drill Cement	2.50
Leak off Tests	1.00
Total Hours	481.50

5 cm

FIG. 6

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DEPTH–TIME CURVE

WELL SECTION	FORMATION	K.B.(m.)
	RECENT	107·0
	OLIGOCENE	570·0
		1071·0
		1132·0
	EOCENE	1181·3
	PALEOCENE	1771·0
	LATE CRETACEOUS	2328·0
	LATE CRET. VOLCANICS	3010·0
		3104·0

REMARKS

DEPTH K.B.(m.): 200, 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400, 2600, 2800, 3000, 3200

DAYS FROM SPUD: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

MUD LINE

PLUG Nº 2 247m–147m

20" CASING SET AT 256·0m

DRILL 17½" HOLE

PLUG Nº 1 964m–864m

LOGGING

13⅜" CASING SET AT 917·6m
BIT Nº 3

DRILL 12¼" HOLE

BIT Nº 4

BIT Nº 5

BIT Nº 6

BIT Nº 7

BIT Nº 8

BIT Nº 9

LOGGING

P & A

TD 3104m driller
3107m logger

DATE: JANUARY 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | FEBRUARY 1 2 3 4 5 6 7 8 9 10 11 12 13

Well: CHAT-1

K.B.: 25·3m AMSL	Long: 146°41' 54·95" E
W.D.: 81·4m	Contractor: ATWOOD OCEANICS
Shot point: 170	Rig: MARGIE
Lat: 40°10' 53·43" S	Type: SEMI SUBMERSIBLE

DRILL STEM TESTS

No.	DETAILS
	NO DRILL STEM TESTS WERE PERFORMED

CORES

No.	DETAILS
	NO FULL DIAMETER CORES CUT LOG SUITE Nº 2 RUN 3 30 SWC SHOT 5 RECOVERED

PRELIMINARY LOG ANALYSIS

LOG ANALYSIS INDICATED NO HYDROCARBONS WERE PRESENT IN THE SECTION DRILLED.

BRIDGE OIL LIMITED

274041

BRIDGE OIL LIMITED

DRILLING REPORT SUMMARY
AND MUD REPORT

WELL : CHAT NO. 1 **Page :** 1

Date	Depth 2400	Mud Wt	Mud Vis	Mud WL	Operations Summary
1986					
15-1	263				Chat No. 1 spudded 17:30hrs. Drilled to 263m using seawater spotted with 20bbl slugs when required to clean hole.
16-1	268				Drilled 26" hole to 268m. Displaced hole to high viscosity mud. Ran survey, result on 3rd attempt 1/4deg. Ran and cemented 20" pile joint and casing with 850sacks of class "G" cement with 12% gel slurry at 13ppg followed by 480 sacks of neat class "G" cement at 16ppg. Displaced 20" casing with 158bbls water. Made up Ball Joint on B.O.P. Hung off B.O.P.
17-1	704	8.9	51	n.c	Ran B.O.P. on riser, testing choke and kill line every 2nd joint. Ran slip joint, connected choke and kill lines and riser tensioners. Landed B.O.P. and pull tested with 50,000lbs overpull. Closed shear rams and tested casing to 500psi. Made up 17.1/2" BHA RIH and tagged cement at 249m. Broke circulation, tested Hydril to 500psi. Drilled cement, casing shoe and rat hole and 10m of new formation. Performed formation leak off test to 180psi with 8.7 ppg mud (equivalent to 12.5ppg). installed diverter. Drilled 17.1/2" hole to 416m, ran deviation survey, 1/2deg. Drilled to 568m, ran deviation survey, misrun, only one mark, 1/4deg. Drilled to 704m.
18-1	934				Drilled 17.1/2" hole to 714m, ran deviation survey, 0deg Drilled to 934m reaming each jont from 742m. Maximum drag 25,000lbs. Ran wiper trip to 20" shoe, experienced maximum drag of 40,000 lbs and 1m of fill. POOH. Rigged up and ran Schlumberger logs, DIL-LSS-GR-SP-CAL. from 255.9m to 934m. Ran in hole for wiper trip circulated and conditioned hole.
19-1	934	9.4	46	23.5	POOH. Ran and cemented 13.3/8" casing at 917m with 600sx class "G" cement with 10% gel followed by 550sx class "G" neat. Bump plug with 1500psi. Cleaned out wellhead B.O.P. and riser with seawater. Made up and ran seal assembly
20-1	1195	9.2	35	20.0	Pressure tested B.O.P. stack and choke manifold to 5000psi and the Hydril to 3500psi. Used Halliburton pumps to test B.O.P., upper and lower Kelly cocks. Made up and ran in hole with 12.1/4" BHA and tagged cement at 887m. Drilled cement to 891m, pressure tested 13.3/8" casing to 1500psi. Drilled casing shoe, rathole and 10m of new formation, closed Hydril and ran leak off test with Halliburton unit on formation to 925psi with a mud weight of 9.2ppg, (equivalent to 15.1ppg). Drilled 12.1/4" hole to 1109m, ran deviation survey 1/2deg. Drilled to 1195, tight hole indicated by fluctuating rotary torque at 1122m.
21-1	1600	9.2	46	12.8	Drilled 12.1/4" hole to 1441m, continued tight hole indicated on rotary torque Deviation survey at 1275m (1.3/4deg), POOH to change bit, maximum drag 60,000lbs. Drilled 12.1/4" hole to 1600m.
22-1	1861	9.3	43	6.2	Drilled 12.1/4" hole to 1742m, deviation surveys at 1619m (3/4deg) and 1742m 1.1/4deg). POOH to change bit. Drilled 12.1/4" hole to 1861m.
23-1	2017	9.3	42	6.0	Drilled 12.1/4" hole to 1893m. Deviation survey at 1893m (1.1/4deg). POOH to change bit. Wash and ream 1862m to 1893. Drilled 12.1/4" hole to 2017m.
24-1	2254	9.3	44	6.2	Drilled 12.1/4" hole to 2254m. Deviation survey at 2092m (1.1/4deg).
25-1	2414	9.3	40	6.3	Drilled 12.1/4" hole to 2414m. Deviation surveys at 1164m (1.1/4deg) and 2414m (2.1/4deg). POOH to change bit.
26-1	2548	9.3	40	5.2	RIH with new bit to 2401m wash down to 2424m. Drilled 12.1/4" hole to 2548m.
27-1	2693	9.3	39	5.0	Drilled 12.1/4" hole to 2693m. Deviation surveys at 2596m (4deg) and 2693m (3.1/4deg).
28-1	2811	9.4	45	5.1	Drilled 12.1/4" hole to 2811m.

BRIDGE OIL LIMITED

DRILLING REPORT SUMMARY
AND MUD REPORT

WELL : CHAT NO. 1 Page : 2

Date	Depth 2400	Mud Wt	Mud Vis	Mud WL	Operations Summary
29-1	2898	9.4	42	4.7	Drilled 12.1/4" hole to 2845m. Deviation survey at 2845m (5.1/2deg). POOH to change bit. RIH to 2831m. Ream from 2831m to 2845m. Drilled 12.1/4" holeto 2898m. Deviation survey at 2893m (4.1/2deg).
30-1	2950	9.5	47	4.7	Drilled 12.1/4" hole to 2934m. Deviation survey at 2934m (4.1/2deg). POOH to change bit. RIH to 2757m, was and ream to 2777m, RIH to 2912m wash and ream to 2934m. Drilled 12.1/4" hole to 2950m.
31-1	3049	9.6	46	4.3	Drilled 12.1/4" hole to 3049m. Deviation survey at 3013m (5deg).
1-2	3104	10.3	53	4.5	Drilled 12.1/4" hole to 3104m. Circulated out a sample for the geologist. POOH.
2-2	3104				POOH. Schlumberger ran DIL-MSFL-LSS-GR-SP-Cal 3107m - 917m (loggers depths) LDT-CNL-GR-Cal 3107m-917m (loggers depths) CSTC-GR 1177.81m to 3099m. Problems with the GR tool at 2500m so POOH and attempted to fix GR tool. 3.1/2 hrs lost.
3-2	3104 (PB 147)				Schlum. reran CSTC-GR. 30 shots were fired 6 went off only 5 were recovered. Rigged down Schlumberger and RIH with open ended drill pipe to 964m, circulated and set abandonment plugs using Halliburton unit; Plug No. 1, 375 sx of class "G" cement neat from 964m to 864m. Lay down drill pipe. Break circulation and test plug no. 1 against shear rams to 1200 psi for 15 mins. RIH with open ended drill pipe to 247m. Set second plug using Halliburton unit; Plug No. 2, 275sx cement 247m to 147m Rig released 24:00hrs 3.2.86.

B1.2 Chat No. 1 Bit Record

NO.	SIZE	MAKE	TYPE	JETS	DEPTH IN	DEPTH OUT	TOTAL METRES	TOTAL HOURS	T:B:G
1	26"	Varel	L3A	22:22:22	106	263	157	6.5	2:2:I
2	17.1/2"	HTC	R1	16:16:16	268	934	666	16.5	na
3	12.1/4"	HTC	J1	12:12:16	934	1441	507	21.0	1:7:I
4	12.1/4"	HTC	J1	12:12:16	1441	1742	301	16.5	7:4:1/8
5	12.1/4"	HTC	J2	14:14:14	1742	1893	151	12.0	8:3:1/8
6	12.1/4"	HTC	J22	15:15:14	1893	2414	521	55.75	4:8:I
7	12.1/4"	Smith	F2	14:14:14	2414	2845	431	69.75	1:4:I
8	12.1/4"	HTC	JD3	14:14:15	2845	2934	89	14.5	7:3:I
9	12.1/4"	Smith	F2	14:14:14	2934	3104	170	47.5	7:7:I

B1.3 Deviation Surveys

DEVIATION SURVEYS
CHAT NO. 1

Depth = mKB	Angle Degrees
268	1/4°
416	1/4°
568	(1/4°) one mark only
714	0
930	1/4°
1109	1/2°
1275	1.3/4°
1441	1/2°
1619	3/4
1742	1.1/4°
1893	1.1/4°
2092	1.1/4°
2264	1
2414	2.1/4°
2596	4
2693	3.1/4°
2845	5.1/2°
2893	4.1/2°
2934	4.1/2°
3015	5

B1.4 Water Supply

Drill water and potable water were both shipped by work boat to the rig from Welshpool. A reverse osmosis watermaker Distillation Unit on board the rig was also used to produce potable water.

B1.5 Mud Summary

CHAT #1 INVENTORY OF MUD MATERIALS USED

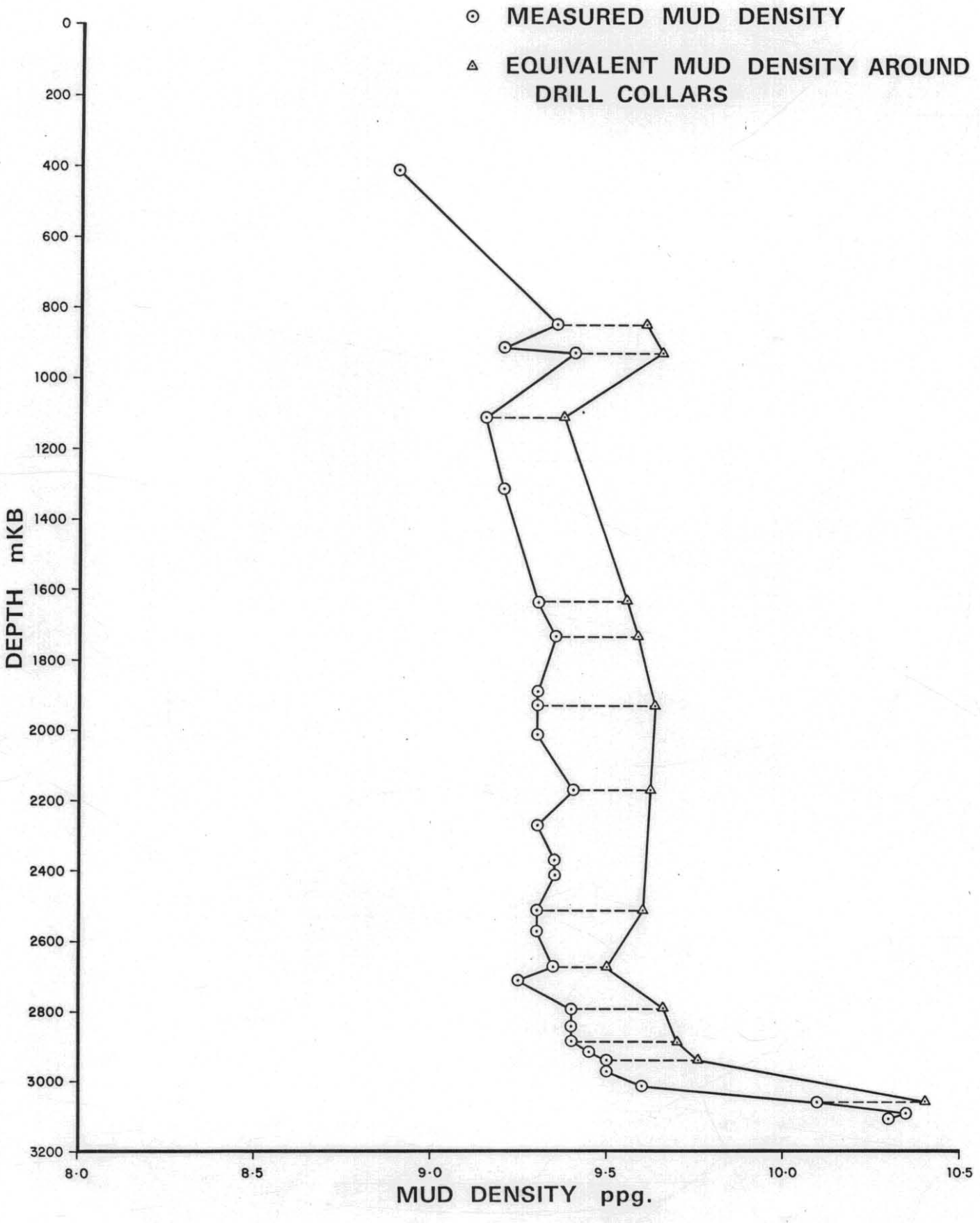
Material	Total Usage
Bulk Barite	1401 sacks
Bulk Gel	610 sacks
Sack Gel	582 sacks
Sack Barite	136 sacks
Caustic	158 drums
Bicarb	40 sacks
CC-1b	385 sacks
Lime	25 sacks
Dextrid	283 sacks
Soltex	236 sacks
Al Sterate	4 sacks
Nitrate	14 sacks
Caustic 70kg	8 drums
Spersene	61 sacks
Desco.	80 sacks
Q-Broxin	120 sacks

274047

5 cm

FIG. 5

CHAT Nº 1
MUD DENSITY vs. DEPTH



B1.6 Rig Equipment Listing

The following is an inventory for the Atwood Oceanics semi-submersible rig 'Margie'.

MARGIE

DRILLING RIG EQUIPMENT

I. VESSEL DESCRIPTION

A. General

1. The MARGIE is a twin hull, column stabilized, semisubmersible, non-self-propelled drilling vessel with the capability of conducting safe and efficient drilling operations in 100 to 600 feet of water.

B. Principal Characteristics

1. Year built: 1974
2. Non-self-propelled
3. Minimum tug/tow horsepower required for ocean tow:-
   a) Single ocean tug of minimum 7,500 BHP
   b) Tug/supply vessels of combined minimum 9,000 BHP
4. Average tow speed:-
   a) With 7,500 BHP: 3.6 knots
   b) With 10,000 BHP: 4.2 knots
5. Water depth capability: 600 feet
6. Minimum water depth: 100 feet
7. Country of registry: Panama
8. Gross registered tonnage 6,353 admeasurement tons (100 cu. ft.)

C. Classification

1. The vessel is classed by American Bureau of Shipping as a "Maltese Cross" A-IM Column Stabilized Drilling Unit.

II. PRINCIPAL DIMENSION

A.	Length	202 ft.
B.	Breadth	182 ft.
C.	Height to Main Deck	110 ft.
D.	Lower Hull (each)	L/202' x W/32' x D/30'
E.	Upper Platform	L/186' x W/150' x D/14'
F.	Stabilizing Columns, Diameter	
	1. Principal	32 ft.
	2. Intermediate	10 ft.
G.	Operating Draft	50 ft.
H.	Air Gap	41 ft.
I.	Displacement at 50'	13,100 ft.
J.	Ocean Towing Draft	29' 3"
K.	Displacement at 28 ft.	10,450 L.T.
L.	Location Move Draft	35 ft.
M.	Displacement at 35 ft.	11,300 L.T.

III. VARIABLE CAPACITIES

A.	Variable Load, Upper Platform	1,603 L.T.
B.	Fuel	9,600 BBLS
C.	Drill Water	9,600 BBLS
D.	Potable Water	700 BBLS
E.	Bulk Tanks	11,200 CU. FT. (7 tanks, 1600 cu.ft. ea.)
F.	Liquid Mud	1,850 BBLS
G.	Sack Storage	2,000 SQ. FT.
H.	Tubulars Stowage	8,500 SQ. FT.
I.	Storerooms	800 SQ. FT.
J.	Lube Oil	7 L.T.

IV. LIVING QUARTERS

A. Airconditioned quarters for 100 men

B. Two (2) galleys and mess room facilities

C. Hospital with four (4) berths

V. HELIPORT

A.	Dimensions	72 ft. diameter
B.	Load Capacity	Capable of supporting an S-61 helicopter

VI. COMMUNICATIONS EQUIPMENT AND METEOROLOGICAL INSTRUMENTS

A. Communications Equipment

1. Single side band radio
2. VHF-FM transceiver
3. Aeronautical VHF-FM transceiver
4. Sound powered telephone
5. PA system
6. Lifeboat radio (portable)

B. Meteorological Instruments

1. Anemometer
2. Barometer
3. Thermometer

VII. POWER SYSTEM

A. Diesel

1. 6625 total HP five (5) Caterpillar D-399 TA, 1325 HP each.

B. Generators

1. Two (2) 1750 EW, 600 volt AC, one (1) 930 KW, 600 volt AC.

C. D.C. Distribution

1. Six (6) GE 1200 AMP SCR Units for D.C. drilling motors and D.C. mooring windlass motors.

D. A.C. Distribution

1. Two (2) 1,000 KVA 600/480 V. transformers with 480 V. distribution boards and motor control centers for ship service.

E. Emergency Generator

1. One (1) 250 KW, 480 volt diesel generator set.

VIII. VESSEL MOORING SYSTEM

A. The mooring system is an eight (8) point chain arrangement comprised of the following equipment:-

1. Four (4) National Model D-506-E double wildcat windlass units, for 2-3/4" stud link anchor chain.

a) Each unit driven by a G.E. Model 752 D.C. motor.

b) Line pull approximately:-

(1) 500,000 lbs at 40 ft. per min.

(2) 120,000 lbs at 90 ft. per min.

(3) 760,000 lbs max. brake cap.

B. Eight (8) mooring lines, each 3,500 ft. of 2-3/4" diameter flashwelded stud link oil rig quality mooring chain with ABS certification.

C. Eight (8) 33,000 lbs. BALDT LWT anchors, modified for enlarged flukes.

D. Eight (8) National 2-3/4" rotating chain fairleaders.

E. Eight (8) sectionalized pendant lines, 2-1/4" diameter wire rope, 6 x 25IPS, IWRC, of required length for 600 ft. water depth.

F. Eight (8) pendant line buoys, each approximately 58" diameter, 10' length.

G. One Martin Decker Dynaline mooring line tensioning and indicating system, with eight (8) channel recorder.

H. Spares

1. Two (2) spare 33,000 lbs. LWT anchors.

2. Pendant wires and sockets as required.

3. Two (2) spare pendant buoys.

I. Emergency release for brake and chain stopper: A system comprising hydraulic units and fitted to each windlass and chain stoppers allowing the vessel to be released and moved off location, located in the toolpusher's office.

IX. ENVIRONMENTAL CONSERVATION EQUIPMENT

X. MISCELLANEOUS VESSEL EQUIPMENT

A. Survival Equipment

1. Lifeboats - two (2) Watercraft 44 man and one (1) Watercraft 23 man self-propelled enclosed lifeboat.

2. Liferafts - six (6) R.F.D. 25 man.

B. Pedestal Mounted Cranes

1. Two (2) Link Belt Model ABS 238 revolving cranes with 100 ft. booms.

2. Typical lift capacity: 42,500 lb. at 60 ft. radius

C. Water Distillation Units

1. Rochem Reverse Osmosis Watermaker to produce 13,000 gallons per day.

D. Vessel System

1. Piping

a) Fire and washdown systems.

b) Bilge and ballast systems.

c) Sanitary system.

d) Portable water system.

e) Drilling water system.

f) Fuel oil system.

g) Engine exhaust systems.

h) Compressed air system.

i) Salt water supply.

j) Sanitary drain.

k) Airconditioning circ. water.

l) Bulk mud and cement storage piping.

m) Brake cooling water.

n) Lube oil system.

o) Two (2) centrifugal fuel oil systems.

p) High and low-pressure mud system.

q) Heliport fixed foam fire system.

r) Fixed CO_2 fire system.

s) Hydraulic systems.

t) Helicopter refueling system.

2. Ventilation in Hull Compartments

a) All machinery force draft ventilation.

b) All mud pit spaces exhaust ventilation.

c) Pump room exhaust ventilation.

d) Cementing and chemical room force draft.

e) Shops force draft.

3. Lighting

a) All mud pit spaces provided with explosion-proof lighting system.

b) All machinery spaces provided with marine-type lighting system.

c) All deck areas provided with marine lighting system.

E. Instrumentation

1. The vessel is equipped with instrumentation required to measure the following:-

a) Wind speed and direction indicator.

b) Vessel roll, pitch and heave.

c) Mooring line tensions.

d) Riser ball joint angle.

e) Hole position indication.

f) Stability/Helm Computer: Compaq Portable 256K with single disc drive 360 KB, single hard disc 10 MB, memory 384 KB.

XI. DERRICK AND SUBSTRUCTURE

A. Derrick and Accessories

1. Continental-Emsco Beam Leg Derrick 157' high, 40' x 40' base, 15' x 15' top, completely bolted with A325 and Anco Lock Nuts, having two (2) 70' high "V" doors, 1,000,000# hook load capacity with 12 lines (1,400,000# gross nominal capacity). Derrick includes legs, lacing, header beams, base plate assembly, ladder, bolts, gin pole.

2. Derrick designed with low temp steel (A572 normalized) in water table beams, racking fingers and intermediate racking fingers.

3. Derrick galvanized or zinc rich primer.

4. Crown platform with flooring and handrails. Galvanized.

5. Gin pole platform with flooring and handrails and ladder. Galvanized.

6. Racking platform, heavy duty, for 15,000' of 5' drill pipe and 10 stands 8" OD drill collars. Platform includes hinged fingers, provisions for locking individual stands in positions, and derrickman's working platform. Galvanized.

7. Traveling block guide system, consisting of guide beams extending from crown to 10' above floor, stabilizing beam bracing to guide beams, Dolly (skate) and material for attachment to travelling block. Galvanized and zinc rich primer.

8. Intermediate platform with hinged fingers for locking each row of drill pipe in position and working platforms. Galvanized.

XII. DRILLING EQUIPMENT

A. Drawworks: National 1320-UE driven by 2-GE 752 DC motors with Dretech Brake Model 9650 and Model 6300 control. Complete with Crown-a-matic.

B. Drill Line: 7500' x 1-3/8", 6 x 19, IPS, IWRC.

C. Sandline: 20,000 x 9/16", 6 x 7 galvanized wire rope.

D. Wireline Unit: Mathey MCL 2-325-00 wireline unit w/20,000 ft. of .092 wire.

E. Mud Pumps and Prime Movers: Two (2) National 12-P-160 triplex, 1600 HP each driven by two (2) GE-752, 700 HP DC motors.

F. Rotary Table: National Model C-375, 37-1/2" independent drive rotary complete with GE 752R drive motor.

G. Master Bushings: Varco "MPCH" hinged pin drive master bushing, P/N 6600, complete with API No. 1, 2 and 3 split insert bowls.

H. Split Bushings: Varco 20" CB split casing bushing for 37-1/2" National rotary.

I. Kelly Bushing: Varco "27 HDP" Kelly bushing for 6" square kelly.

J. Crown Block: National Model 750-5, 550 ton capacity, seven (7) sheaves grooved for 1-3/8" line.

K. Traveling Block: National Model 660-G-500 Block, with six (6) sheaves grooved for 1-3/8" line, 500 ton capacity with B.J. 6500 Dynaplex hook with positioner.

L. Motion Compensator: N.L. Shaffer Model 18/400 with 18 ft. compensation stroke. 400,000 lb. compensation hook capacity of 2,300 psi, over 300 ft. per min. response speed. Locked capacity of 1,000,000 lbs.

M. Swivel: National P-500, capacity 500 ton.

N. Rotary Hose: Two (2) each, installed in derrick, 3-1/2" E.D., 65' wire braid, 7,500 psi test with 4" male thread coupling.

O. Weight Indicator: One (1) Martin Decker AWE 6-20 complete with E-80 sensator for use with 1-3/8" drill line.

P. Pipe Handling System: B.J. Hughes Telescopic Racker Arm.

Q. Spinning Wrench: Varco Model 10, with rollers for 5" O.D. and 3-1/2" O.D.

R. Kelly Spinner: International.

S. "Ezy Torq": Drilco unit with 10 HP motor.

T. Recorder: One (1) Totco drilling recorder. Six (6) pens for penetration, weight, pump pressure, torque (electricity) rotary rpm and pump rated for two (2) pumps alternately.

U. Control Valves:-

1. Inside BOP: Flocon, with 6-1/2" O.D. and 4-1/2" I.F. connections, P/N 700053-H trimmed for hydrogen sulphide.

2. Lower Kelly Valves: Two (2) Hydril P/N 10088.80-1, 7" O.D. x 3-1/4" bore - 7,500 psi test, 5,000 psi working pressure w/4-1/2" I.F. connections Box X pin trimmed for hydrogen sulphide service.

3. Upper Kelly Valves: Two (2) each Omsco 15,000 psi test, 10,000 psi working pressure.

4. Drop-in Back Pressure Valve: One (1) Hydril 3-1/4" I.D. x 6-1/2" O.D. sub with 4-1/2" I.F. tool joints and No. 13 plug.

V. Circulating Head:-

1. One (1) Model 4-SC King Super "C" with 4" P.T. up and 4-1/2" I.F. pin down.

W. Wireline Stripper:-

1. One (1) Model 4-AR King for 9/16" wire.

XIII. DRILL STRING HANDLING TOOLS

A. Tongs, slips, elevators, links for 5" O.D. drill pipe, 9-1/2", 8-1/4" and 6-1/2" O.D. drill collars (including zip lift accessories) as listed below:-

1. Tongs

a) One (1) set (2) B.J. type "SDD" tongs complete with jaws - range 4-1/2" - 12".

b) One (1) set (2) Web Wilson "AAX" tongs complete with jaws - range 3-1/2" - 21".

2. Slips

a) Two (2) Varco "SDX-L" slips for 5" O.D. drill pipe.

b) One (1) Varco "DCS-R" drill collar slips, range 5-1/2" - 7".

c) One (1) Varco "DCS-L" drill collar slips, 9-1/2".

d) One (1) Varco "DCS-L" drill collar slips, range 8" - 8-1/2".

3. Elevators

a) Two (2) B.J. type "GG" elevators for 5" O.D. drill pipe.

b) Two (2) B.J. type "SLA-100" elevator for 8-1/4" O.D. zip groove drill collars.

c) Two (2) B.J. type "SLA-100" elevator for 6-1/2" O.D. zip groove drill collars.

d) Two (2) B.J. type "SLA-100" elevator for 9-1/2" O.D. zip groove drill collars.

4. Safety Clamps

a) One (1) Varco "MP-R" safety clamp, range 5-1/2" - 7".

b) One (1) Varco "MP-R" safety clamp, range 8" - 9-1/4".

c) One (1) Varco "MP-R" safety clamp, range 9-1/4" - 10-1/2".

5. Links

   a) One (1) set 2-3/4" x 132" B.J. weldless links.

   b) One (1) set 3-1/2" x 144" B.J. weldless links.

6. Zip Life Accessories

   a) One (1) B.J. drill collar adapter with 4-1/2" shank.

   b) One (1) set (2) B.J. 1-3/4" x 36" perfection links.

B. Bit Breakers

1. Bit breakers for bit sizes 26", 17-1/2", 12-1/4", 8-1/2" and 6".

C. Air Tuggers

1. Two (2) K6UL and two (2) K4UL on drill floor: Four (4) Model K4UL around drill well.

XIV. MUD EQUIPMENT

A. Mud Tanks

1. Active and reserve tanks, with 50-barrel slugging pit.

2. Sand trap, approximately 200-barrel capacity.

3. Trip tank, 20-barrel capacity.

B. Mud Mixing Pumps - Two (2) Mission 6 x 8R centrifugal pumps, driven by 75 HP explosion-proof electric motors.

C. Shaleshaker - Brandt dual solids control package consisting of one (1) Model 102, dual separator.

D. Desander - One (1) Demco Model 123 with three (3) 12" cones.

E. Desander Pump - One (1) Mission 6 x 8R centrifugal pump driven by 75 HP explosion-proof electric motor.

F. Desilter - One (1) Demco Model 414-H with twelve (12) 4" cones.

G. Desilter Pump - One (1) Mission 6 x 8R centrifugal pump driven by 75 HP explosion-proof electric motor.

H. Degasser - Wellco Model 5200. Mounted on sand trap.

I. Degasser Pump - One (1) Mission 6 x 8R with 75 HP AC motor.

J. Equalizing line with valves between degasser and desander pits.

K. Mud Gas Separator - Tank 30" diameter x 23' in height.

L. Mud Agitators:-

1. Four (4) lightnin mud mixers, Model 75-Q-5, driven by 20 HP explosion-proof electric motor. Mounted on active and reserve tanks.

2. One (1) Lightnin mud mixer, Model 72-Q-5, 5 HP, mounted on slugging tank.

M. Pit Level Indicator - Martin Decker 4-float with alarm recorder and pit volume totalizer.

N. Mud Testing Facilities - Baroid Model 821 Mud Lab. Basic kit for viscosity, filtration, weight and titration.

O. Flowline from slip joint.

P. Manifolding to cement surge tank to permit mixing barite plug at cementing unit.

Q. Gas Detection - Mines Safety Appliance Model 1-500 with four (4) terminal sensors.

R. Mud Saver Bucket - MG-600 Oteco for 5" DP.

S. Two (2) Demco 0612 Model 612B Mud Hoppers.

T. Bulk transfer system by Automated Valve Specialities. Controlled by panel in sack storage room with air-operated valves.

U. Surge Tanks - One (1) 220 cu. ft. and two (2) 70 cu. ft. and one (1) 160 cu. ft. bulk loading tank.

XV. DRILL STRING

A. Drill Pipe:-

1. 10,000' - 5" O.D. Grade E, 19.5 lb./ft. Range 2 drill pipe with 4-1/2" I.F. x 6-3/8" O.D. 18-degree taper, non-hard banded, tool joints.

2. 5,500' - 5" O.D. Grade G, 19.5 lb./ft. Range 2 drill pipe, with 4-1/2" I.F. x 6-3/8" O.D. 18-degree taper, non-hard banded, tool joints.

3. 3,000' - 3-1/2" O.D., Grade E, drill pipe; with 4-3/4" O.D. tool joints with 3-1/2" I.F. box and pin connections.

4. Twenty-five (25) joints 5" O.D. x 30' length x 48 lb./ft. Drilco Hevi-wate drill pipe.

B. Drill Pipe Pump Joints:-

1. One (1) each 5" drill pipe pup joints 7', 12' and 20' long.

2. Two (2) each 5" grade G105 drill pipe pump joints 5' and 10' long.

C. Drill Collars:-

1. Three (3) 9-1/2" O.D. x 3" I.D. x 31' long collars with 7-5/8" API regular box and pin connectors. Zip grooved for slips and elevators.

2. Twenty-four (24) 8-1/4" O.D. x 2-13/16" I.D. x 31' long collars with 6-5/8" I.F. box and pin connections. Zip grooved for slips and elevators.

3. Thirty (30) 6-1/2" O.D. x 2-13/16" I.D. x 31' long collars with 4-1/2" I.F. box and pin connections. Zip grooved for slips and elevators.

4. Twenty-five (25) 4-3/4" x 2-1/4" I.D. x 31' long drill collars w/3-1/2" I.F. connections with zip groove slip and elevator recess.

D. Kelly: Two (2) 6" square x 54' overall length.

E. Subs and Bit Subs:-

1. Two (2) Drilco type NS Lift Subs for 9-1/2" collars, 9-1/2" O.D. 36" long, 7-5/8" API regular pin down and top end to fit 5" O.D. 18-degree taper elevators.

4. Two (2) Drilco Bit Subs, 9-1/2" O.D. x 3" I.D., 7-5/8" API reg. box x 6-5/8" API reg. box, bored for 5FGR float x 48" long.

5. Two (2) Drilco Bit Subs, 9-1/2" O.D. x 3" I.D. x 48" long 7-5/8" API reg. box up x box down, bottom bored for 5FGR float.

6. Two (2) Bit Sub for 8" O.D. collars, 8" O.D. x 36" long, 6-5/8" API regular box each end with one end bored for Baker 5F6R float valve.

7. Two (2) Bit Sub for 6-1/2" O.D. drill collars, 6-1/2" O.D. x 36" long, 4-1/2" I.F. box up and 4-1/2" API regular box down bored for Baker 4R float valve.

8. Two (2) Bottleneck Crossover sub, 8" O.D. collars to 9-1/2" O.D. collars, 8" x 9-1/2" x 48" long, 6-5/8" API regular box up to 6-5/8" API regular pin down.

9. Two (2) Bottleneck Crossover Sub, 6-1/2" O.D. collars to 8" O.D. collars, 6-1/2" O.D. x 8" O.D. x 48" long, 4-1/2" I.F. box up to 6-5/8" API regular pin down.

10. Two (2) Drilco Crossover Subs (from 8" drill collars to 5" drill pipe) 8" O.D. x 2-13/16" I.D. x 48" long, 6-5/8" I.F. box up x 4-1/2" API pin down, 6-3/8" O.D. fishing neck.

11. Two (2) Bottleneck Crossover Sub, 6-1/2" O.D. collars or pipe to 9-1/2" O.D. drill collars, 6-1/2" O.D. x 9-1/2" O.D. x 48" long, 4-1/2" I.F. box up to 7-5/8" API regular pin down.

12. Three (3) Throwaway Kelly Saver Subs, 6-1/4" O.D. x 12" long, 4-1/2" I.F. box and pin connections.

F. Bumper Subs:-

1. Two (2) Baash Ross, 8-1/4" O.D. 60" long stroke splined bumper subs, with 6-5/8" API regular connections.

2. Two (2) Baash Ross, 6-1/2" O.D. 60" long stroke splined bumper sub, with 4-1/2" I.F. connections.

3. One (1) Bowen fishing bumper sub each for contractor's 8-1/4" and 6-1/2" O.D. drill collar strings.

XVI. BLOWOUT PREVENTERS, SUBSEA EQUIPMENT AND CONTROL EQUIPMENT

A. Diverter System:-

1. Regan KFDS diverter system with two (2) 12" outlets capable of containing 100 psi pressure and equipped with hydraulically operated seals. Diverter lines will be 12" with line blind/air-operated valves to divert well returns to lines that extend to the port and starboard.

   The diverter is controlled by a hydraulic diverter control to supply hydraulic pressure to KFD bag, insert latch and riser support latch, all being controlled from the master control panel.

2. Thirty-inch (30") Cameron hydraulic pin connector with 20-3/4" x 2,000 psi No. 18 clamp hub with extra deep RX-73 ring groove.

B. 18-3/4" 10,000 psi WP blowout preventer stack enclosed in a four (4) post guide frame, arranged as shown in the schematic "Blowout Preventer Arrangement" inserted as "Figure 1" and consisting of the following:-

1. Riser adapter, 20" Vetco, MR4B box up x No. 16 clamp hub down with RX-73 ring groove.

2. Two (2) Vetco 20" nom. single ball flex joint, pressure balanced, 10 degrees maximum deflection, with No. 16 clamp hubs top and bottom, RX-73 stainless steel ring grooves and 18-3/4" I.D. replaceable wear bushings.

3. Riser connector, Cameron, 20-3/4" 2,000 psi collet connector with No. 16 clamp hub top with RX-73 ring groove.

4. Connector Mandrel, 20-3/4", 2,000 psi AX hub top and 18-3/4", 5,000 psi flange bottom, BX-163 ring groove.

5. Hydril, 18-3/4", 5,000 psi type "GL" dual annular blowout preventer trimmed for hydrogen sulphide service. 18-3/4" 5,000 psi 6BX studded top, BX-163 groove, and No. 27 clamp hub bottom BX-164 groove.

6. Cameron triple type "U" ram type 18-3/4", 10,000 psi blowout preventer trimmed for hydrogen sulphide service with No. 27 clamp hubs top and bottom and two (2) 3-1/8" 10,000 psi No. 5 clamp hub outlets below each ram. Upper ram equipped with shear rams and lower two with 5" pipe and 3-1/2" to 7-5/8" variable pipe rams.

7. Cameron single type "U" blowout preventer, 18-3/4" 10,000 psi trimmed for hydrogen sulphide service with No. 27 clamp hubs top and bottom and two (2) 3-1/8" 10,000 psi No. 5 clamp hub outlets, (equipped with 4" pipe rams).

C. BOP Kill and Choke Line System Trimmed for Hydrogen Sulphide Service:-

1. Master Valves: Three (3) McEvoy 10,000 psi WP 3-1/16" valves with fail safe closed operators and 6BX flange connections.

2. Operating Valves: Three (3) McEvoy 10,000 psi WP 3-1/16" valves, with double acting operators and 6BX flange connections.

3. Outlet Location: Choke Line outlet under middle pipe and bottom pipe rams.

   Kill Line outlet below shear rams.

   All other outlets to be non-machine bored and capped with blind flanges with hub clamps and BX-154 ring grooves.

4. BOP Choke and Kill Lines: 10,000 psi WP 3-1/8" spools.

5. Ball Joint Jumper Connections: WECO 3", 10,000 psi WP Chiksan all welded steel hose assembly with style 50-10-50 long sweep Tri-Race Swivel joints or equivalent flex hose.

D. BOP Guidance System:-

1. Four-post and funnel section BOP frame on 6" radius centers complete with reinforcement and guide funnels as required. Funnels and posts slotted for guide wire installations, internally ground and complete with retaining doors. Frame attachment at lower Hydril and lower Cameron connector.

2. Four-funnel upper section BOP frame on 6" radius centers complete with reinforcement as required. Funnels slotted for guide wire installation, internally ground and complete with retaining doors. Frame attachment at upper Cameron connector.

3. Two arm guide frame for remote stabbing of BOP hydraulic pods.

E. Miscellaneous Equipment Items:-

1. Installed in BOP:-

a) Two (2) sets 5" rams complete with long life ram rubbers certified for hydrogen sulphide service.

b) One (1) set shear rams complete, certified for hydrogen sulphide service.

c) One (1) set 3-1/2" - 7-5/8" variable bore rams for CIW 10,000 psi WP 18-3/4" type "U" BOP.

d) Two (2) Hydril dual bag elements.

F. BOP Drillwell Guidance System:-

1. Four (4) Air Tuggers on drillwell deck.

G. BOP Cart System:-

1. One (1) cart skid system to facilitate stowage of BOP in one section and designed to transport BOP over the drillwell.

H. Marine Conductor:-

1. Riser: Vetco 20" O.D. x 0.50" wall, x-52 52,000 psi yield, steel with Vetco MR4B connectors. Integral choke and kill lines, 4" O.D., x-52 or equivalent, 10,000 psi WP, permanently attached to riser joints. Integral choke and kill lines certified for hydrogen sulphide service. Fourteen (14) 50' lengths and one (1) each pup joints or 5', 15', 20' and 30'.

2. Complete set riser handling tools.

3. One (1) spare riser connector.

I. Slip Joint:-

1. One (1) each Vetco 20" slip joint, 45' stroke. Material of slip joint x-52 inner and outer barrel with 4" XX x-52 kill and choke lines certified for hydrogen sulphide service.

Packing gland will be of dual packoff design and be capable of element replacement without cutting inner barrel. Rotating tensioner support ring and provide 6-point suspension.

2. One (1) replacement slip joint with kill and choke lines certified for hydrogen sulphide service.

J. Choke and Kill Hoses Certified for Hydrogen Sulphide Service:-

1. Three (3) each 2-1/2" I.D. x 45' long, 15,000 psi test pressure, 10,000 psi WP, rotary hose. Two (2) hoses installed and one (1) hose will be maintained in inventory as spare equipment.

K. Marine Riser Tensioning System:-

1. Six (6) Rucker Model XL tensioner units, each 60,000 lbs. line load capacity, 30' line travel.

2. Six (6) 42" diameter sheaves for 1-1/2" wire line.

3. Nine (9) 275 gallon air receivers and one (1) 140 gallon air receiver (for supply also to guideline tensioners).

4. Control Panel.

5. Wire line, size 1.1/2".

L. Guideline Tensioning System:-

1. Six (6) Rucker Model RED-6-7.5-A/B-.75 tensioner unit, each 14,000 lbs. line load capacity, 30' line travel.

2. Six (6) 24" diameter sheaves for 3/4" wire line.

3. Compressed air system incorporated in riser tensioning system.

4. Control Panel.

5. Wire line, size 3/4".

M. BOP Control Pod Tensioning System:-

1. Two (2) Rucker - 14,000 lbs. tensioner units.

2. Two (2) 24" diameter sheaves for 3/4" wire lines.

3. Compressed air system incorporated in riser tensioning system.

4. Control Panel incorporated in guideline control panel.

5. Wire line, size 3/4".

N. BOP Accumulator Unit:-

Valcon air-electric powered accumulator unit comprising:-

1. Two (2) air-operated pumps (5.1 gpm. each @ 3,000 psi with 120 psi air pressure).

2. Two (2) electric-driven 20 HP triplex pumps each with 8.85 gpm output at 3,000 psi.

3. 250 gallon fluid reservoir with automatic fluid control, warning whistle, and sight glass.

4. Hydraulic fluid mixing system capable of mixing fluid at rate equivalent to combined output of all pumps.

5. Hydraulic fluid concentrate reservoir of 100 gallons capacity, equipped with sight glass.

6. Low-level alarms for fluids reservoirs.

7. BOP surface accumulator, capacity of 796 gallons consisting of four (4) 100 gallon and thirty-six (36) 11 gallon 3,000 psi WP accumulators.

8. BOP subsea accumulator, capacity of 160 gallons on the BOP stack, consists of four (4) 40 gallon 3,000 psi accumulators.

9. Four (4) 15 gallon accumulator bottles for surge dampening installed on open and closed line of Hydril bag preventers.

10. Hydraulic supply to diverter control system.

O. Blowout Preventer Control Panels:-

1. Remote driller control (explosion-proof) panel located on rig floor adjacent to driller's console. All electric.

2. Remote Control Panel located in toolpusher's console.

3. Master manual control at accumulator unit.

4. Master and remote driller control panels to be graphically illustrated.

P. Hydraulic Control Hose:-

1. Two (2) each Multiflex hoses, 750' long, containing one (1) each 1" power lines, forty-three (43) 3/16" pilot lines.

2. Two (2) each self-powered live hose reels of sufficient capacity to store 750' hose bundle with selected live functions for running BOP stack.

Q. Two (2) Valvcon Retrievable Hydraulic Control Pods.

XVII. CASING TOOLS

A. Casing tools for 20", 13-3/8", 9-5/8" and 7" casing as listed below:-

1. Two (2) B.J. 350 ton elevator/spiders complete with slips for 5", 7", 9-5/8" and 13-3/8" casing.

2. Casing Slips:-

a) One (1) Varco type "CMS-XL" casing slip for 20" casing.

b) One (1) Varco type "CMS-XL" casing slip for 13-3/8" casing.

c) One (1) Varco type "CMS-XL" casing slip for 9-5/8" casing.

d) One (1) Varco type "CMS-XL" casing slip for 7" casing.

3. Side Door Casing Elevators:-

a) Two (2) B.J. type H-200, 200 ton side door casing elevators for 20" casing.

b) Two (2) B.J. type XXX-H 150 ton side door casing elevators for 13-3/8" casing.

c) Two (2) B.J. type XXX-H 150 ton side door casing elevators for 9-5/8" casing.

d) Two (2) B.J. type XX-H 125 ton side door casing elevators for 7" casing.

e) Two (2) B.J. type SX-150 side door elevators, P/N 33632-146 for 18-5/8" casing.

4. Single Joint Casing Elevators:-

a) One (1) Web Wilson type "B" single joint elevator for 20" casing.

b) One (1) B.J. type "J" single joint elevator for 13-3/8" casing.

c) One (1) B.J. type "J" single joint elevator for 9-5/8" casing.

d) One (1) B.J. type "J" single joint elevator for 7" casing.

4. Klamp-on Casing Protectors:-

   a) Three (3) Klamp-on Casing Protectors for 20" casing.

   b) Three (3) Klamp-on Casing Protectors for 13-3/8" casing.

   c) Three (3) Klamp-on Casing Protectors for 9-5/8" casing.

   d) Three (3) Klamp-on Casing Protectors for 7" casing.

B. Casing Tongs:-

1. Lamb, Model, 16,000 hydraulic casing tongs with jaws for 13-3/8", 9-5/8", 7", 5" and 4-1/2" O.D. casing.

2. Lamb, Model LP 326 electric powered hydraulic unit permanently installed.

XVIII. FISHING TOOLS

A. Overshots:-

1. One (1) 11-1/4" O.D. Bowen Series 150, type F.S. overshot with standard lipped guide for operation in 12-1/4" hole. Complete with spiral grapples and packers to catch and pack off 9-1/2" O.D. and 8-1/4" O.D. drill collars.

2. One (1) 15" O.D. oversize guide for above, for operation in 17-1/2" hole.

3. One (1) 8-1/8" O.D. Bowen Series 150, type F.S. overshot with standard lipped guide for operation in 8-1/2" hole. Complete with grapples and packers to catch and pack off 6-1/2" O.D. drill collars, 6-1/2" O.D. drill collars, 6-3/8" O.D. tools joints, and 5" O.D. drill pipe.

4. One (1) 8-1/8" O.D. x 33" long extension sub for above.

5. One (1) 11" O.D. oversize guide for above, for operation in 12-1/4" hole.

6. One (1) 15" O.D. oversize guide for above, for operation in 17-1/2" hole.

B. Junk Catchers:-

1. Junk Basket, Bowen reverse circulating type, 11" O.D. with 11-3/4" O.D. type "A" mill shoe for 12-1/4" hole.

2. Junk Basket, Bowen reverse circulating type, 7-7/8" O.D. with 8-1/4" O.D. type "A" mill shoe for 8-1/2" hole.

C. Jars:-

1. One (1) Jar, Bowen, 8-1/4" O.D. type "Z" with 6-5/8" API regular connections.

2. One (1) Jar, Bowen, 6-1/2" O.D. type "Z" with 4-1/2" I.F. connections.

D. Junk Subs:-

1. One (1) Bowen Junk Sub, with 6-5/8" API regular connections for 12-1/4" hole, 9-5/8" O.D. x 8-17/32" I.D. cup, 3-1/2" bore.

2. One (1) Bowen Junk sub, with 4-1/2" regular connections for 8-1/2" hole, 6-5/8" O.D. x 5-15/16" I.D. cup, 2-1/4" bore.

E. Safety Joints:-

1. One (1) safety joint, Bowen 6-1/8" O.D., 4-1/2" I.F. connections.

2. One (1) safety joint, Bowen 7-3/4" O.D. with 6-5/8" API regular connections.

F. Taper Taps:-

1. One (1) #19494 Bowen 6-1/8" O.D. rotary taper tap. Tapered from 2-1/2" O.D. to 4-3/4" O.D.F. w/4-1/2" I.F. box up.

2. One (1) #4864 Bowen 7-7/8" O.D. removable skirt for above.

3. One (1) #4668 Bowen 10-3/4" O.D. oversize lip guide for above.

4. One (1) #57020 Bowen 11" O.D. removable skirt for above.

G. Fishing Magnets:-

1. One (1) #32370 11" O.D. Bowen K. & G. Magnet complete with flush guide for operation in 12-1/4" hole, w/6-5/8" API regular pin up.

2. One (1) each #32310 8" O.D. Bowen K. & G. Magnet complete with flush guide for operation in 8-1/2" hole w/4-1/2" API regular pin up.

H. Junk Mills:-

1. One (1) each 12" O.D. Bowen with 6-5/8" API regular pin connections dressed with Itcoloy crushed sintered tungsten carbide for use in 12-1/4" hole.

2. One (1) each 8-1/4" O.D. Bowen with 4-1/2" API regular pin connections dressed as above for use in 8-1/2" hole.

I. Spears:-

1. One (1) Bowen releasing spear, Itco type, P/N 17246, complete with packoff #9625 for 9-5/8" casing and grapple assembly #17248 for 13-3/8" casing.

2. One (1) Bowen releasing spear, Itco type, complete for 7" casing, P/N 9266.

J. Subs for matching Contractor's fishing tools with Contractor's drill string.

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XIX. A.C. ELECTRICAL LIGHTING

XX. AUXILIARY

A. Two (2) Lincoln 400 amp welding machines.

B. Two (2) air receivers, 100 cu. ft. capacity.

C. One (1) Ingersoll-Rand air-drying automatic unit, refrigeration type.

Capacity	:	100 SCFM
Working Pressure	:	125 PSI
Electric Power	:	440 Volts - 3 Phases 60 Cycles

D. One (1) air compressor unit, diesel driven, with air receiver.

This unit delivers starting air for main diesel engines.

XXI. MISCELLANEOUS

A. All necessary galley and quarters equipment.

B. Underwater TV system - Underwater Survey Inc. consisting of:-

1. Two (2) cameras, Model CM-3.

2. One (1) monitor, Model CMS-3.

3. One (1) TV winch, Model MG 3626 VNS.

4. Two (2) TV cables, 750 ft. each.

5. Pan tilt, Model A50-1B, with control unit.

6. Underwater lamp.

7. TV frame, telescopic.

XXII. AUXILIARY PUMPS AND EQUIPMENT

A. Fuel:-

1. Two (2) 2" Roper, 7-1/2" HP fuel oil transfer pumps in lower pump room.

2. Two (2) 2" Roper, 7-1/2" HP fuel oil service pumps in engine room.

3. One (1) Fram dual-mounted filter/separator.

4. One (1) Delaval Model 65-03 fuel oil purifier.

5. One (1) Roper 1-1/4" waste oil pump.

B. Salt Water Cooling and Ballast Pumps:-

1. Four (4) vertical turbine pumps, 1,500 gpm @ 250' TH, each driven by 125 HP, 1800 rpm motor (located two in lower pump room).

2. Two (2) vertical turbine pumps, 900 gpm @ 250' TH, each driven by 75 HP, 1800 rpm motor (located one in each lower hull pump room).

These pumps supply salt water for all requirements including:-

a) Diesel generators cooling.

b) Airconditioning.

c) Distillation units.

d) Sanitary system.

C. Drillwater Pump:-

1. One (1) vertical turbine, 900 gpm, driven by 75 HP motor, located in starboard lower hull pump room.

Additionally, the 75 HP ballast pump functions as the alternate drillwater pump.

D. Fire Pumps:-

1. Two (2) 2 x 3R Mission 50 HP with AC motor.

E. Potable Water Pressure Set:-

1. One (1) set consisting of 220 gallon tank, two (2) 5 HP pumps and miscellaneous gauges, switches, etc.

F. One (1) Model EP-48 Ellner Ultra Violet Purification Unit.

G. Air Compressors:-

1. Three (3) Ingersoll-Rand Model PA-100, 125 psi air compressors, total 1,200 SCFM. One (1) refrigerated air dryer.

2. Two (2) regulating valves for reduction of 40 psi for bulk air.

3. Two (2) Reavell HP Compressors with 30 CFM @ 3,000 psi. (For motion compensator and riser tensioning system).

4. One (1) refrigerated air dryer.

XXIII. ADDITIONAL EQUIPMENT

A. Choke Manifold (see schematic "Standard Choke Manifold" inserted as "Figure 2" on page C-24).

1. 3-1/16", 10,000 psi WP choke manifold trimmed for hydrogen sulphide service includes two (2) Cameron adjustable chokes, one (1) Cameron positive choke and one (1) remote manual Cameron drilling choke.

   Choke and Kill line piping from moon pool area to manifold, designed to 10,000 psi WP.

   All downstream manifolding from choke manifold will be minimum 5,000 psi WP, 3-1/3" Cameron type F.

   Permanent piping from manifold to test equipment to be 5,000 psi WP.

2. Bow and stern flare lines, 2,500 psi WP.

B. Totco drift indicator, 0-8 degrees and 0-16 degrees.

C. Cementing Unit:-

Halliburton SKD-4 skid unit with recirculating mixer 10,000 psi and 20 BPM.

If service company other than Halliburton is used, equipment rental and maintenance shall be reimbursable by the Company.

D. Fire Fighting and Safety Equipment:-

1. CO_2 System for engine room, mud pits and paint locker.

2. Fire hydrant system.

3. Portable CO_2 fire extinguisher.

4. Portable dry chemical extinguishers.

5. Foam system for helicopter refueling area.

MARGIE

ADDITIONAL EQUIPMENT

I. VESSEL MOORING SYSTEM

A. Two (2) spare 33,000 lbs. LWT anchors.

B. Pendant wires and sockets as required.

C. Two (2) spare pendant buoys.

II. DRILL STRING HANDLING TOOLS

A. Slips:-

1. Two (2) Varco type "DCS-S" drill collar slips, P/N 2573, for 4-3/4" drill collars.

2. Two (2) Varco type "SCX-L" rotary slips, P/N 15515, for 3-1/2" drill pipe.

3. One (1) Varco type "SDS" tubing slips, P/N 19326 for 2-7/8" to 3-1/2" drill pipe.

B. Elevators:-

1. Two (2) Webb Wilson type T-150 center latch elevators, P/N 8536-5182 for 3-1/2" O.D. 18-1/2" taper drill pipe.

2. One (1) B.J. type "YT" center latch elevators, P/N 23105 C/W.

One (1) 3-1/2" slip assembly, P/N 23108-5, and

One (1) 2-7/8" slip assembly, P/N 23108-4 for 3-1/2" and 2-7/8" tubing.

III. DRILL STRING

A. Drill Pipe:-

1. 3,000' - 3-1/2" O.D., Grade E, drill pipe; with 4-3/4" O.D. tool joints with 3-1/2" I.F. box and pin connections.

B. Drill Collars:-

1. Twenty-five (25) 4-3/4" x 2-1/4" I.D. x 31' long drill collars w/3-1/2" I.F. connections with zip groove slip and elevator recess.

C. Subs and Bit Subs:-

1. Two (2) Drilco Bit Subs, 4-3/4" O.D. x 48" long, 3-1/2" I.F. box up x 3-1/2" API reg. box down for 2F3R drill pipe.

2. Two (2) Crossover subs, 36" long, 6-3/8" O.D. top section with 4-1/2" I.F. box connection x 4-3/4" O.D. bottom section with 3-1/2" I.F. pin connection.

3. Two (2) Crossover sub from 4-3/4" drill collar to 6-1/2" drill collar 6-1/2" O.D. x 2-13/16" I.D. x 36" long, 3-1/2" I.F. box up x 4-1/2" I.F. pin down, 4-3/4" O.D. x 18" long fishneck box end.

D. Stabilizers:-

1. Two (2) 25-1/2" O.D. welded blade stabilizer with 7-5/8" reg. connections, pin x box.

2. One (1) 17-1/4" O.D. welded blade stabilizer with 7-5/8" reg. connections, pin x box.

3. Two (2) 8-1/4" O.D. sleeve stabilizers, near bit type with 6-5/8" reg. connections, box x box.

4. Seven (7) 8-1/4" O.D. sleeve stabilizers string type with 6-5/8" reg. connections.

5. Two (2) 6-1/2" O.D. sleeve stabilizers, near bit type with 4-1/2" I.F. connections.

6. Five (5) 6-1/2" O.D. sleeve stabilizers, string type with 4-1/2" I.F. connections.

7. One (1) 17-1/4" O.D. welded blade stabilizer with 6-5/8" API reg. box and pin connections, 8-1/4" O.D. body x 2-3/4" I.D.

E. Holes Openers and Reamers:-

1. One (1) 12-1/4" Drilco roller reamer P/N 201393 with 6-5/8" reg. connections pin x box, 8" O.D. x 2-7/8" I.D.

2. One (1) 8-1/4" Drilco roller reamer P/N 23895 with 4-1/2" I.F. connection pin x box, 6-1/4" O.D. x 2-7/8" I.D.

3. One (1) 36" Smith hole opener - GTA36, 9-1/2" O.D. with 7-5/8" reg. pin up x 7-5/8" reg. box down.

4. One (1) 17-1/2" Security hole opener, 9-1/2" O.D. with 6-5/8" reg. pin up x 6-5/8" reg. box down.

IV. FISHING TOOLS

A. Overshots:-

1. One (1) 5-3/4" O.D. Bowen series 150 overshot, P/N 8975 maximum catch 4-3/4", W 3-1/2" full hole box up.

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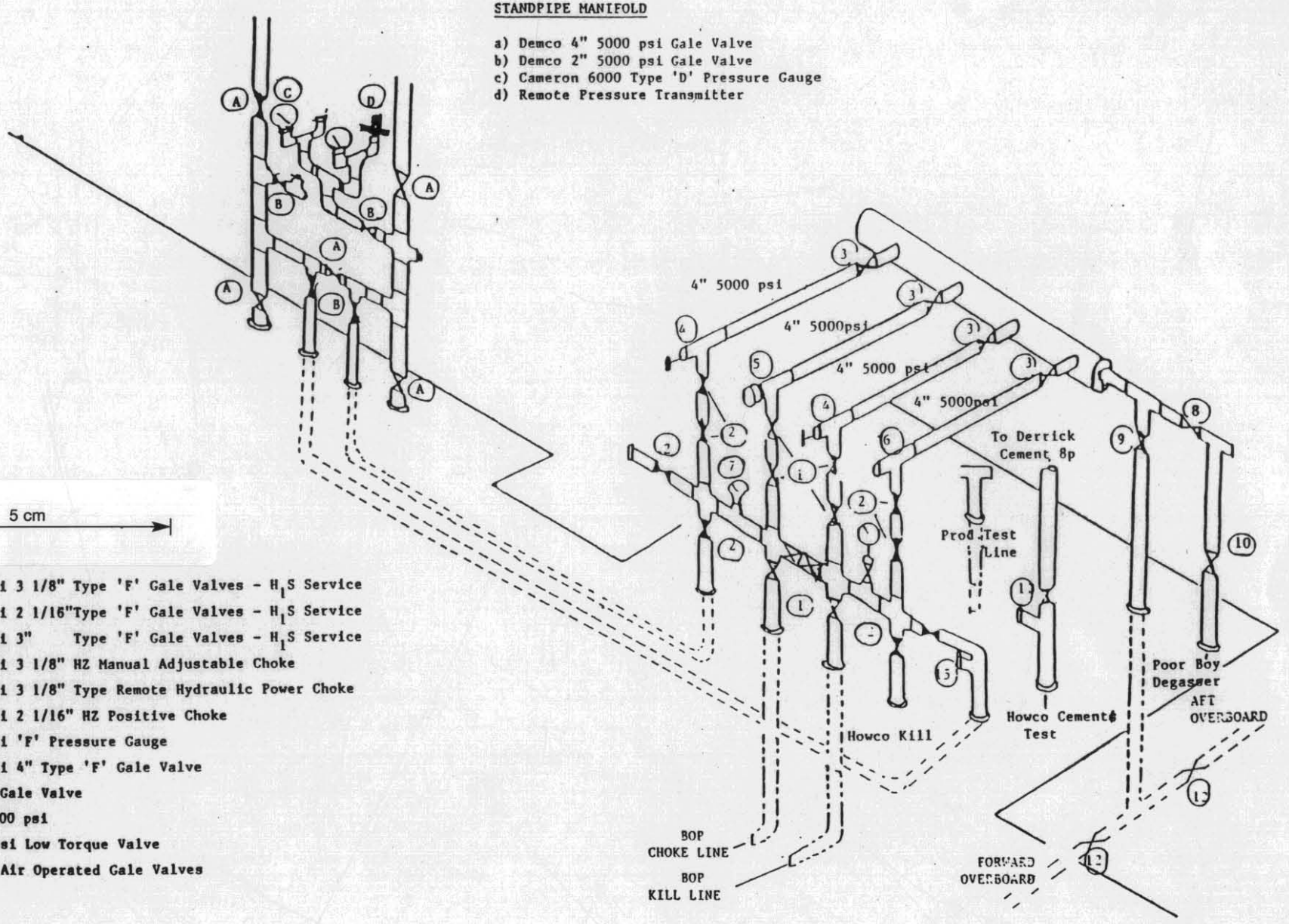
ATWOOD MARGIE

CHOKE & STANDPIPE MANIFOLD

STANDPIPE MANIFOLD

a) Demco 4" 5000 psi Gale Valve
b) Demco 2" 5000 psi Gale Valve
c) Cameron 6000 Type 'D' Pressure Gauge
d) Remote Pressure Transmitter

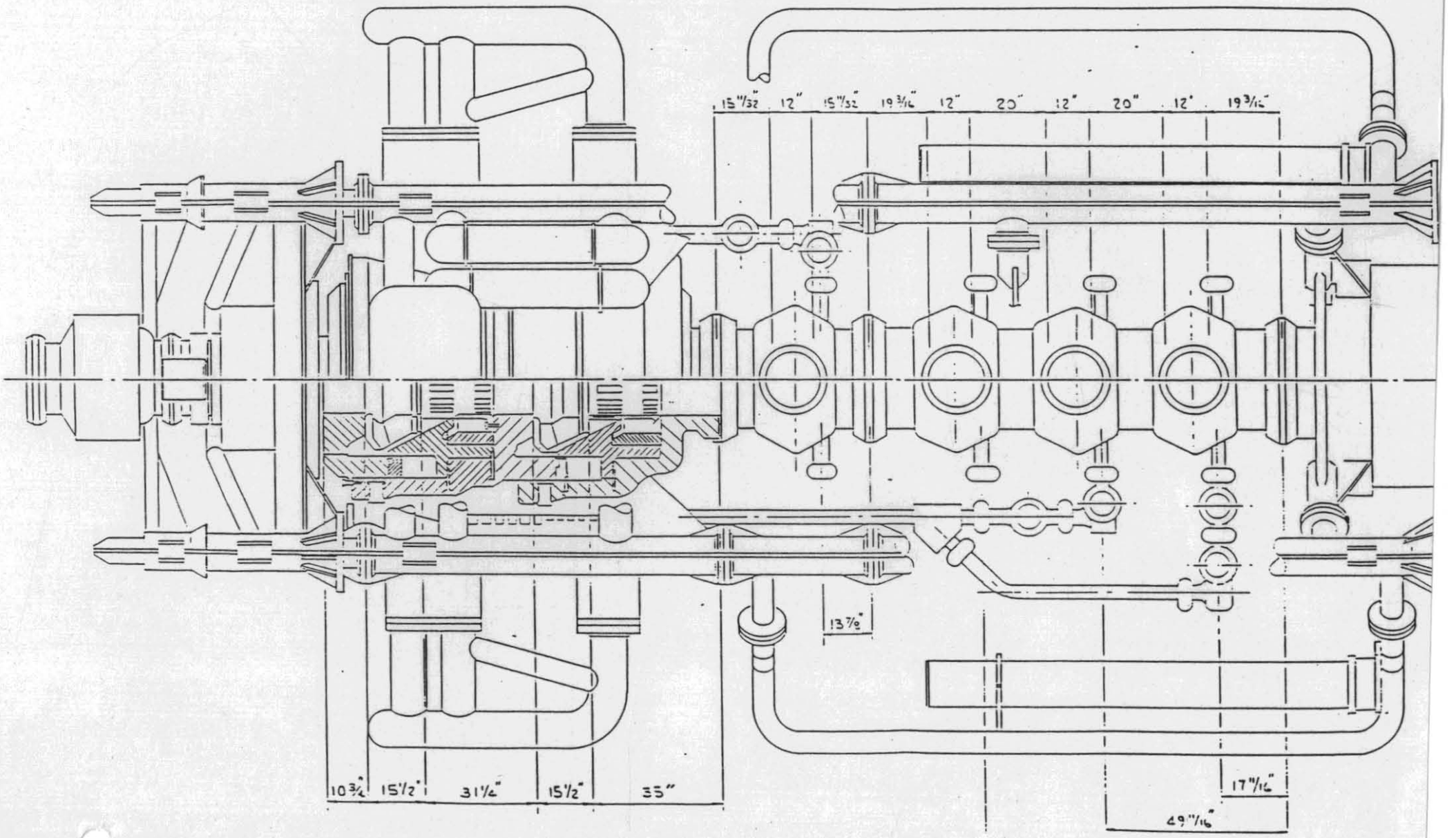


1. Cameron 10 000 psi 3 1/8" Type 'F' Gale Valves - H_1S Service
2. Cameron 10 000 psi 2 1/16"Type 'F' Gale Valves - H_1S Service
3. Cameron 5 000 psi 3" Type 'F' Gale Valves - H_1S Service
4. Cameron 10 000 psi 3 1/8" HZ Manual Adjustable Choke
5. Cameron 10 000 psi 3 1/8" Type Remote Hydraulic Power Choke
6. Cameron 10 000 psi 2 1/16" HZ Positive Choke
7. Cameron 10 000 psi 'F' Pressure Gauge
8. Cameron 5 000 psi 4" Type 'F' Gale Valve
9. Kitz ansi 600 6" Gale Valve
10. 4" Gate Valve 5 000 psi
11. Howco 2" 10 000 psi Low Torque Valve
12. Kitz Ansi 600 6" Air Operated Gale Valves

2740390

Figure 1

"MARGIE" 18 3/4" x 10,000 psi BOP



B1.7 Final Well Location

The pre-spud well location was determined by Offshore Navigation (Australia) P/L (ONA) using the Maxiran radio-positioning system. Its final location, post-spud, was determined using both the Maxiran and the Navstar Global Positioning System (GPS). The final coordinates used in this report are those obtained from the GPS measurements, i.e.:

Latitude: 40° 10' 53.430" S
Longitude: 146° 41' 54.955" E

The final report from ONA is included with this Well Completion Report as Appendix 1.

274092

WELL CHAT No.1 ——— AUSTRALIA

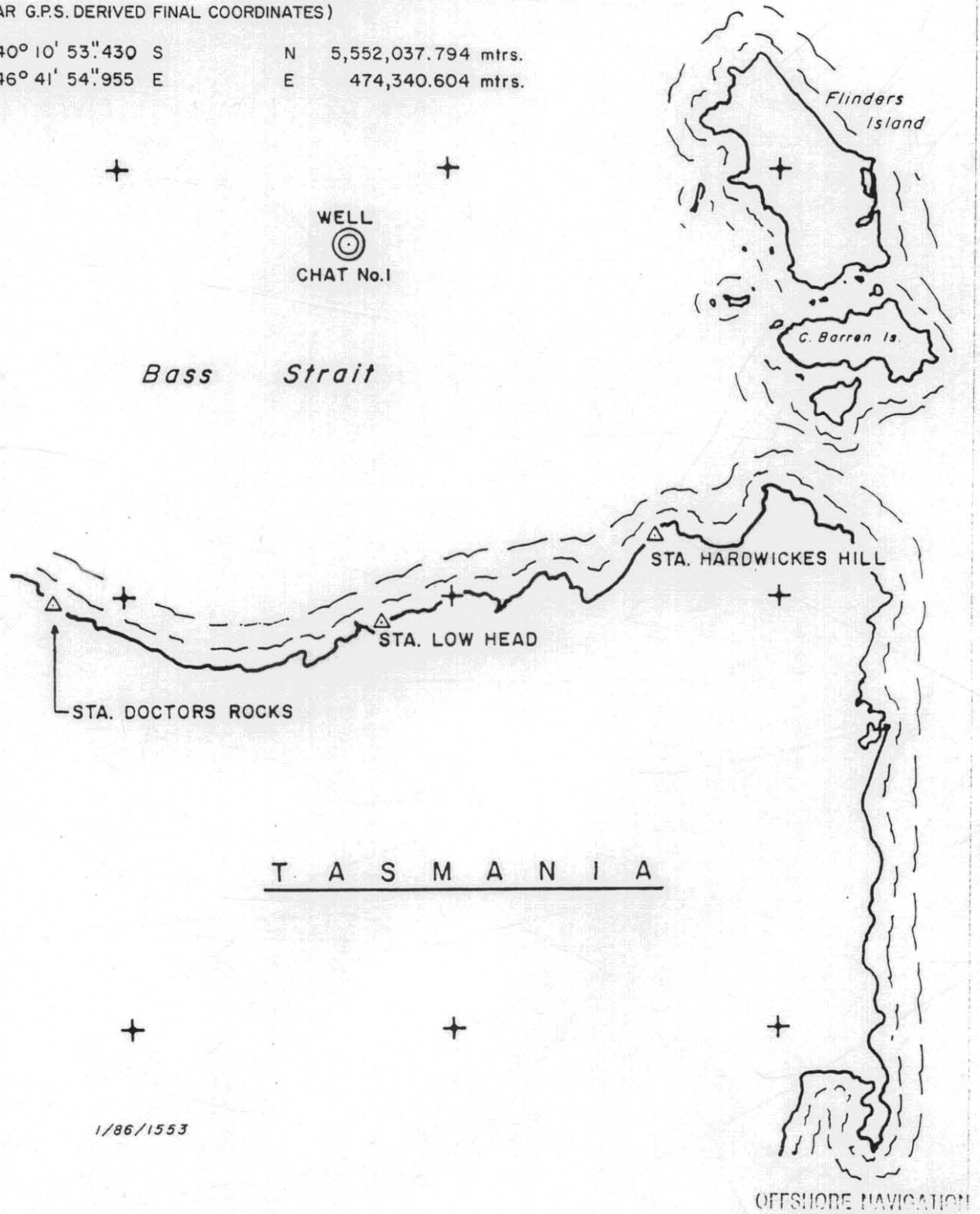
(MAXIRAN DERIVED FINAL COORDINATES)

LAT. 40° 10' 53".157 S N 5,552,046.214 mtrs.
LONG. 146° 41' 54".991 E E 474,341.426 mtrs.

UTM PROJ. ——— AUST. NAT. SPHEROID
ZONE 55, C.M. 147° E ——— A.G.D.

(NAVSTAR G.P.S. DERIVED FINAL COORDINATES)

LAT. 40° 10' 53".430 S N 5,552,037.794 mtrs.
LONG. 146° 41' 54".955 E E 474,340.604 mtrs.



1/86/1553

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

5 cm

APPENDIX 1

274093

FINAL REPORT
OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.
PROJECT 1553

FOR
TRITON INTERNATIONAL LTD.
BRIDGE OIL

TASMANIA, AUSTRALIA
JANUARY 1986

WELL LOCATION CHAT #1

ONA

OFFSHORE NAVIGATION,
(AUSTRALIA) PTY. LTD.

274094

FINAL REPORT

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

PROJECT 1553

FOR

TRITON INTERNATIONAL LTD.

BRIDGE OIL

WELL LOCATION CHAT #1

TASMANIA, AUSTRALIA

JANUARY 1986

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

274095

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APPENDIX A - Daily Operations Logs

FIGURES

1. Typical Maxiran System
2. System with Two Beacons
3. Uncertainty with Two Beacons
4. System with Three Beacons
5. Uncertainty with Three Beacons

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

I. INTRODUCTION

Offshore Navigation (Australia) Pty. Ltd. (ONA), under contract to Triton International Ltd. (TRITON) provided a Maxiran Radiopositioning System and Tremble Model 4000A GPS receiver to a well location operation conducted off the coast of Tasmania, Australia, in Bass Strait. The survey consisted of positioning the Drilling Vessel (D/V) MARGIE on a location designated as Well Location CHAT #1. This site was located approximately 115 kilometers north-northeast of Devonport, Tasmania. The survey was conducted for Bridge Oil.

The ONA base of operation for this survey was established at Devonport, Tasmania, on 9 January 1986.

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

II. FIELD OPERATIONS RECAP

ONA personnel and equipment necessary for this survey arrived in Melbourne on 1 January 1986. A short range calibration of the Maxiran system was made on 2 January. However, this calibration was discounted because of the uncertainty of the survey markers and client representative, Mr. D. Scott's request to calibrate the system in Tasmania.

Personnel and equipment arrived in Devonport on 4 January 1986. The Maxiran system was calibrated on 7 January with the base station equipment installed at Station Doctors Rock and the Maxiran mobile equipment installed at Station Low Head. See "Maxiran Calibration" of this report for details. On completion of the Maxiran system calibration, one complete base station remained installed at Station Doctors Rock, and the remaining two base installations were transported to Stations Hardwickes Hill and Low Head. The three Maxiran base stations were erected and operational on 8 January 1986.

II. FIELD OPERATIONS RECAP (continued)

ONA personnel and equipment went on board the M/V BASS TIDE at Launcheston at 0600 hours 8 January 1986, and installation of the mobile Maxiran equipment began. The vessel departed Launcheston at 1000 hours and proceeded to Bell Bay, arriving at 1300 hours. Installation of the Maxiran mobile equipment on board the vessel was completed at 1800 hours 8 January 1986.

The M/V BASS TIDE departed Bell Bay at 0025 hours 9 January 1986. Maxiran baselines were crossed between 0737 and 1625 hours. Baseline crossings are detailed in "Maxiran Calibration" of this report. The M/V BASS TIDE dropped anchor off Sorrel Point at 1650 hours 9 January 1986 and stood by for gale warnings and the arrival of the D/V MARGIE.

The M/V BASS TIDE departed Sorrel Point at 1510 hours 10 January 1986 and proceeded to Welshpool, passing over the proposed location at 2020 hours that date. Maxiran signals were reported good, and three-way fixes recorded were within plus or minus one meter. The vessel arrived at the Welshpool dock at 0620 hours 11 January and took

II. FIELD OPERATIONS RECAP (continued)

on cargo for the rig. The vessel departed Welshpool at 1125 hours and proceeded to the D/V MARGIE, which was located in the vicinity of Rabbit Island. The M/V BASS TIDE arrived near the rig and anchored at 1820 hours 11 January 1986 to await cargo transfer.

Transferring of cargo to the rig began at 0830 hours 12 January 1986. The M/V BASS TIDE and M/V LADY VERA began towing the rig to Well Location CHAT #1 at 2230 hours 12 January. The vessels were at Well Location CHAT #1, and the first marker buoy was dropped at 2220 hours 13 January 1986. The rig was secured on location, and the final Maxiran ranges were recorded at 1330 hours 15 January 1986.

The Maxiran system was used between 1615 and 1730 hours 16 January 1986 to obtain transit fixes on the rig. This was accomplished by steaming around the rig in a circle and recording fixes when the rig's legs lined up. Two circles were made. The readings were plotted on board the M/V BASS TIDE, and results obtained agreed with the

II. FIELD OPERATIONS RECAP (continued)

positioning fix recorded at 1330 hours 15 January. The Maxiran system was secured at 1800 hours 16 January 1986 and personnel were instructed to dismantle the base stations.

The TRITON representative, Mr. Dave Scott, ONA mobile operator, and GPS receiver were transferred from the M/V BASS TIDE to the D/V MARGIE at 0800 hours 17 January 1986. The GPS receiver was operational and parameters loaded at 1100 hours. Four-satellite constellation fixes were recorded from 1314 to 1740 hours. Mr. Scott, the ONA mobile operator, and GPS receiver were transferred to the M/V BASS TIDE that evening.

The M/V BASS TIDE departed the well site at 0015 hours 18 January 1986 and proceeded to Welshpool, arriving at the Welshpool dock at 0830 hours. All ONA electronics were removed from the vessel and stored, along with the Maxiran base stations, at TRITON's warehouse by 1330 hours that date. ONA personnel were released from this survey on 20 January 1986.

III. GENERAL INFORMATION

Maxiran frequency used was:

Mobile Transmitter	441 MHz.
Base Transmitter	429 MHz.

B. Satisfactory radiotelephone communications between the mobile and base installations were maintained on the frequencies of 4637.5 and 7840.0 (SSB) kilocycles.

C. Three Maxiran base station installations were provided by ONA for this survey.

D. Three base station sites were occupied during this operation. They were:

STATION DOCTORS ROCKS

STATION HARDWICKES HILL

STATION LOW HEAD

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III. GENERAL INFORMATION (continued)

E. The Maxiran field data accumulated during this survey was turned over to Mr. Dave Scott, the TRITON representative, on 19 January 1986. The final Maxiran ranges recorded were transmitted to the ONA office in Perth, W.A. for final computation.

F. The maximum usable range observed during this survey was 150 miles. Signal quality was reported as best between 0500 and 2100 hours.

IV. MAXIRAN CALIBRATION

The Maxiran system was calibrated between 1800 and 1930 hours 7 January 1986, prior to the commencement of the Well Location CHAT #1 survey. For this calibration, the Maxiran mobile equipment was installed at Station Low Head, and the base station equipment was installed at Station Doctors Rocks. The computed slope range of 84.676 kilometers between the two markers was used to calibrate the system.

Maxiran baselines were crossed between 0737 and 1625 hours 9 January 1986. Results of the crossings are as follows:

0737 - 0750 hours:
Stations Low Head/Doctors Rocks Baseline:
(Heading 180°)
Observed Range 84,671 meters
Antenna Separation = 3 meters
Computed Range 84,676 meters
Reads 5 meters short

0800 - 0814 hours:
Stations Low Head/Doctors Rocks Baseline:
(Heading 000°)
Observed Range 84,671 meters
Antenna Separation = 3 meters
Computed Range 84,676 meters
Reads 5 meters short

IV. MAXIRAN CALIBRATION

1335 - 1348 hours:
Sta. Hardwickes Hill/Doctors Rocks Baseline:
(Heading 353°)
Observed Range 156,281 meters
Antenna Separation = 3 meters
Computed Range 156,277 meters
Reads 4 meters long

1425 - 1440 hours:
Sta. Hardwickes Hill/Doctors Rocks Baseline:
(Heading 173°)
Observed Range 156,276 meters
Antenna Separation = 3 meters
Computed Range 156,277 meters
Reads 1 meter short

1450 - 1504 hours:
Sta. Hardwickes Hill/Doctors Rocks Baseline:
(Heading 353°)
Observed Range 156,275 meters
Antenna Separation = 3 meters
Computed Range 156,277 meters
Reads 2 meters short

1610 - 1625 hours:
Stations Low Head/Doctors Rocks Baseline:
(Heading 183°)
Observed Range 84,670 meters
Antenna Separation = 3 meters
Computed Range 84,676 meters
Reads 6 meters short

The following pages consist of field reports of the calibration.

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OFFSHORE NAVIGATION, INC.

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MAXIRAN CALIBRATION REPORT

DATE: JAN 7th 1986

MOBILE STATION			BASE STATION		
LOCATION: LOW HEAD			LOCATION: DOCTORS ROCK		
OPERATOR: BERGSTROM / MANUEL			OPERATOR: PERKINS / GAIR		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01B	041	BEACON		064 CODE 5
INTERROGATOR	NTM 01	050	CONTROL BOX		024
AMPLIFIER	20 KW	026	AMPLIFIER	3.5 KW	054
AMPLIFIER P/S	20 KW	026	AMPLIFIER P/S		
PREAMP			PREAMP		
COAX	TYPE: ANDREWS RG 58	LENGTH: 78' 82'	COAX	TYPE: ANDREWS RG 58	LENGTH: 74' 82'
ANTENNA	TYPE: 2+2 LPL	HEIGHT: 40'	ANTENNA	TYPE: 2+2 LPL	HEIGHT: 20'
INPUT VOLTAGE	115		INPUT VOLTAGE	115	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	AGC		RX. GAIN SETTING	AGC	
WEATHER CONDITIONS	FAIR		WEATHER CONDITIONS	FAIR	

OBSERVED RANGE IN CALIBRATE: ..... KM

COMPUTED SLANT RANGE: 84.676 KM

∴ MOBILE ZERO SETTING IS: 5.007 KM

OBSERVED RANGE IN OPERATE: 84.682 ADJ TO 84.676 KM TIME: 1800

SIGNED: Mike Bergstrom

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

274106

OFFSHORE NAVIGATION, INC.

11

MAXIRAN CALIBRATION REPORT

DATE: JAN 7th 1986

MOBILE STATION			BASE STATION		
LOCATION: LOW HEAD			LOCATION: DOCTORS ROCK		
OPERATOR: BERGSTROM / MANUEL			OPERATOR: PEARKINS / GAIR		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 013	041	BEACON		036 CODE 5
INTERROGATOR	NTM 01	050	CONTROL BOX		024
AMPLIFIER	20KW	026	AMPLIFIER	3.5 KW	054
AMPLIFIER P/S	20 KW	026	AMPLIFIER P/S		
PREAMP			PREAMP		
COAX	TYPE: ANDREWS RG 58	LENGTH: 74' 82'	COAX	TYPE: ANDREWS RG 58	LENGTH: 74' 82'
ANTENNA	TYPE: 2+2 LPL	HEIGHT: 40'	ANTENNA	TYPE: 2+2 LPL	HEIGHT: 20'
INPUT VOLTAGE	115V		INPUT VOLTAGE	115V	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	AGC		RX. GAIN SETTING	AGC	
WEATHER CONDITIONS	FAIR		WEATHER CONDITIONS	FAIR	

OBSERVED RANGE IN CALIBRATE: ..... KM

COMPUTED SLANT RANGE: 84.676 KM

∴ MOBILE ZERO SETTING IS: 5007 KM

OBSERVED RANGE IN OPERATE: 84.676 KM TIME: 1830

SIGNED: Mike Bergstrom

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

274107

OFFSHORE NAVIGATION, INC.

MAXIRAN CALIBRATION REPORT

DATE: JAN 7TH 1986

MOBILE STATION			BASE STATION		
LOCATION: LOW HEAD			LOCATION: DOCTORS ROCK		
OPERATOR: BERGSTROM / MANUEL			OPERATOR: PERKINS / GAIR		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01B	041	BEACON		067 CODE 3
INTERROGATOR	NTM 01	050	CONTROL BOX		024
AMPLIFIER	20 KW	026	AMPLIFIER	3.5 KW	054
AMPLIFIER P/S	20 KW	026	AMPLIFIER P/S		
PREAMP			PREAMP		
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG 58	74' 82'		ANDREWS RG 58	74' 82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	2+2 LPL	40'		2+2 LPL	20'
INPUT VOLTAGE	115 V		INPUT VOLTAGE	115 V	
TX. FREQUENCY	441 MHZ		TX. FREQUENCY	429 MHZ	
RX. FREQUENCY	429 MHZ		RX. FREQUENCY	441 MHZ	
RX. GAIN SETTING	AGC		RX. GAIN SETTING	AGC	
WEATHER CONDITIONS	FAIR		WEATHER CONDITIONS	FAIR	

OBSERVED RANGE IN CALIBRATE: ..... KM

COMPUTED SLANT RANGE: 84.676 KM

∴ MOBILE ZERO SETTING IS: 5007 KM

OBSERVED RANGE IN OPERATE: 84.682 ADJ TO 84.676 KM TIME: 1900

SIGNED: Mike Bergstrom

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

274108

OFFSHORE NAVIGATION, INC.

MAXIRAN CALIBRATION REPORT

DATE: JAN 7th 1986

MOBILE STATION			BASE STATION		
LOCATION: LOW HEAD			LOCATION: DOCTORS ROCK		
OPERATOR: BERGSTROM / MANUEL			OPERATOR: PERKINS / GAIR		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 013	041	BEACON		006 CODE 3
INTERROGATOR	NTM 01	050	CONTROL BOX		024
AMPLIFIER	20 KW	026	AMPLIFIER	3.5 KW	054
AMPLIFIER P/S	20 KW	026	AMPLIFIER P/S		
PREAMP			PREAMP		
COAX	TYPE: ANDREWS RG 58	LENGTH: 74', 82'	COAX	TYPE: ANDREWS RG 58	LENGTH: 74', 82'
ANTENNA	TYPE: 2+2 LPL	HEIGHT: 40'	ANTENNA	TYPE: 2+2 LPL	HEIGHT: 20'
INPUT VOLTAGE	115 V		INPUT VOLTAGE	115V	
TX. FREQUENCY	441 MHZ		TX. FREQUENCY	429 MHZ	
RX. FREQUENCY	429 MHZ		RX. FREQUENCY	441 MHZ	
RX. GAIN SETTING	AGC		RX. GAIN SETTING	AGC	
WEATHER CONDITIONS	FAIR		WEATHER CONDITIONS	FAIR	

NOTE: THIS BEACON SET TO CODE 2 AS BOTH BEACONS #010 AND #075 ON CODE 2 WAS FOUND INOPERATIVE

OBSERVED RANGE IN CALIBRATE: ..... KM

COMPUTED SLANT RANGE: 84.676 KM

∴ MOBILE ZERO SETTING IS: 5007 KM

OBSERVED RANGE IN OPERATE: 84.678 ADJ TO 84.676 KM TIME: 1930

SIGNED: Mike Bergstrom

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

V. WELL LOCATION INFORMATION

The following information pertains to the positioning of the D/V MARGIE on Well Location CHAT #1.

Coordinates of the desired location were obtained from TRITON as:

(Line BB-85-40, Shotpoint 170):
Latitude 40°10'53"200 S N = 5,552,044.881 mtrs.
Longitude 146°41'54"900 E E = 447,339.279 mtrs.

The D/V MARGIE was secured on location, and the following final Maxiran ranges were recorded at 1330 hours 15 January 1986, with the Maxiran mobile equipment installed on board the M/V BASS TIDE:

Sta. Hardwickes Hill to mob. antenna	109.496 kilometers
Sta. Low Head to mobile antenna	97.441 kilometers
Sta. Doctors Rocks to mobile antenna	120.824 kilometers

At the time these final Maxiran ranges were recorded, the drill stem was 89 meters, at a bearing of 347° True, from the Maxiran mobile antenna.

V. WELL LOCATION INFORMATION (continued)

FINAL COMPUTED COORDINATES - WELL LOCATION CHAT #1
(Drill stem)

Latitude 40°10'53".157 S N = 5,552,046.214 mtrs.
Longitude 146°41'54".991 E E = 474,341.426 mtrs.

RMS of three-way fix = 1.69 meters
Distance from desired location = 3.14 m. @ 043.25° True

The final coordinates of the drill stem were derived by applying the reported offset and bearing to the final Maxiran ranges recorded.

Transit fixes were obtained on the rig between 1615 and 1730 hours 16 January 1986. The readings obtained were plotted on board the M/V BASS TIDE, and results obtained agreed with the final Maxiran readings reported.

The GPS receiver was installed on board the D/V MARGIE on 17 January 1986. Four-satellite constellation fixes were recorded from 1314 to 1740 hours. At the time that the GPS position was being derived, the drill stem was 31.7 meters, at a bearing of 082° True, from the GPS antenna.

V. WELL LOCATION INFORMATION (continued)

The following GPS antenna coordinates were obtained from 63 continuous satellite counts, and are expressed in the WGS-72 Datum:

Latitude 40°10'48".204 S
Longitude 146°41'57".606 E

The WGS-72 coordinates were converted to Australian Geodetic Datum coordinates using tables from the National Mapping dated 3 January 1984:

Delta x = 127.4 meters
Delta y = 28.9 meters
Delta z = -139.2 meters

Final Australian Geodetic Datum coordinates of CHAT #1 drill stem as derived by GPS are:

Latitude 40°10'53".430 S N = 5,552,037.794 mtrs.
Longitude 146°41'54".955 E E = 474,340.604 mtrs.

Distance from desired location = 7.2 m. @ 169.6° True

The difference from the Maxiran final position and the GPS position is 8.5 meters, at a bearing of 185.775° True.

Australian Geodetic Datum coordinates listed are expressed in the Universal Transverse Mercator Projection, Australian National Spheroid of Reference, Zone 55, Central Meridian 147° East.

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

274112

VI. BASIC CONTROL

Coordinates of the three Maxiran base stations occupied to control this survey were obtained from Western Geophysical Company of America basic control sheets.

Universal Transverse Mercator Projection
Australian National Spheroid
Zone 55
Central Meridian 147° East
AUSTRALIAN GEODETIC DATUM

STATION DOCTORS ROCKS:

Latitude	41°01'00".497 S	N = 5,458,648.35 mtrs.
Longitude	145°46'58".705 E	E = 397,670.76 mtrs.
Elevation	50 meters	

STATION HARDWICKES HILL:

Latitude	40°52'02".073 S	N = 5,475,774.40 mtrs.
Longitude	147°37'41".927 E	E = 552,948.35 mtrs.
Elevation	111.9 meters	

STATION LOW HEAD:

Latitude	41°03'25".194 S	N = 5,454,878.20 mtrs.
Longitude	146°47'18".839 E	E = 482,233.37 mtrs.
Elevation	28.03 meters	

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

VII. PERSONNEL

NAME	POSITION
Perkins, M.	Party Chief
Bergstrom, K.	Mobile Operator
Gair, M.	Base Operator
Manuel, F.	Base Operator
Rounds, R.	Base Operator

VIII. DISTRIBUTION

Triton International Ltd.
Post Office Box 13
Welshpool, Victoria
AUSTRALIA

Attention: Mr. L. Lipscombe — Seven copies

Offshore Navigation, Inc.
Post Office Box 23504
Harahan, Louisiana 70183
U.S.A. — Two copies

Offshore Navigation (Australia) Pty. Ltd.
Post Office Box 291
Cloverdale, W.A. 6105
AUSTRALIA — One copy

STATION: DOCTORS ROCKS

LOCATED: Station Doctors Rocks is located on the north coast of Tasmania, Australia, approximately 6 kilometers southeast of Wynyard, Tasmania, and approximately 12 kilometers northwest of Burnie. The station marker is in a pasture, atop a hillock of mostly rock. The terrain to the east, south and west of the station is hilly to mountainous rural country varying from sparsely wooded pasture land to fairly dense woods. A sparsely timbered rocky point, some 15 meters high, juts into Bass Straight approximately 150 meters northwest of the site. A railway line runs close and parallel to Bass Highway, some 20 meters below and 8 to 10 meters to seaward of the marker. The high water mark is within meters of the railway line. Bass Strait is clearly visible to the north of the station.

ACCESS: From Burnie, follow the Bass Highway through Cooee and Somerset some 12 kilometers to a point where 2 gates (actually ramps) can be seen on the left side of the road. A large sign, saying "Wynyard A/2" is approximately 50 meters past these two gates. The second gate has an elevated wrought iron sign "Doctors Rock". Turn into the first gate and follow the track for approximately 100 meters up a short steep rise. At this point, a prominent rocky knob can be seen at a distance of approximately 100 meters across the paddock on the boundary fence. Drive towards the rocky knob and station marker.

During wet weather conditions, a four-wheel drive vehicle will be required to reach the station from the track. Care should be taken to avoid damage to the pasture.

To reach this station from the Shell Station in Wynyard, proceed east on the Old Bass Highway for approximately 4 kilometers to the intersection with the New Bass Highway. Turn left onto the New Bass Highway and drive on this highway for approximately 300 meters to two gates on the righthand side, and a small cape to the left.

STATION: DOCTORS ROCKS (continued)

Turn right and drive through the second gate. Drive on the track to the station site, as described above.

MARKER: The station marker is located 1.8 meters from the north boundary of the fence which surrounds the grazing paddock. (Exercise caution near this fence since an electrified wire is attached - look for insulators). The station marker consists of a small brass plaque embedded in an 20cm square concrete structure that sits at ground level. The 15cm high letters "SM" are inscribed in the concrete. A cross with the approximate diameter of 25mm is cut in the brass plaque.

A blue Lands & Surveys mark indicator, measuring approximately 125mm by 100mm, is affixed to the fence and is located approximately to the north of the station marker. This indicator shows the details of the marker (SPM 430). The top of a 50mm round galvanized fence post, located approximately 30cm to the right of the survey mark indicator, has been painted red.

GENERAL: Labor, food, and camping equipment can be obtained in Somerset, Burnie or Wynyard. Fuel, oil, rental vehicles, and drivers can be obtained at the Wynyard Shell Station, whose address is 13 Bass Highway East, Wynyard, Tasmania 7325; telephone number is 004-422240. Vehicles can also be obtained through Transline, located on Green Road in Dandenone, Victoria. Their telephone number is 7922900.

A caravan with heater is essential at this site. A tent is difficult to erect due to difficulty in locating star stakes in the rocky ground and strong winds that prevail. The winter months, June to September, can be very wet and cold. Temperatures can range from several degrees below zero to a daily maximum of as low as 4°C. (The weather at this station during April is mild, with occasional high winds.). The Shell Station in Wynyard or the BP Service Station, 93 Bass Highway, Somerset, telephone number

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STATION: DOCTORS ROCKS (continued)

004-351413, may be able to assist in the hiring of a caravan.

The station site is on property owned by Mr. Busby. Mr. Busby's brother lives in a house near the station site (See Sketch). Permission to occupy the station must be obtained from the owner, telephone 004-422045, Burnie, Tasmania, or from his brother at the station site. No rent was paid for the use of the site. Drinking water can be obtained from the home of Mr. Busby's brother. He has also indicated that toilet and bath facilities at his home are available to the operator if required.

A 20-foot tower was erected at this station, the minimum height required to clear surrounding obstructions. Clear vista is from 330° to 130°. Star stakes were used to secure the tower. However, since the hillock on which the station site is located is almost solid rock, the star stakes were difficult to locate requiring additional time to secure the tower.

ELEVATION: 50 meters

SKETCH: See next page.

Coordinates of this station were obtained from Western Geophysical Company of America basic control sheets.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

Lat.	41°01'00".497 S	N = 5,458,648.35 m.
Long.	145°46'58".705 E	E = 397,670.76 m.

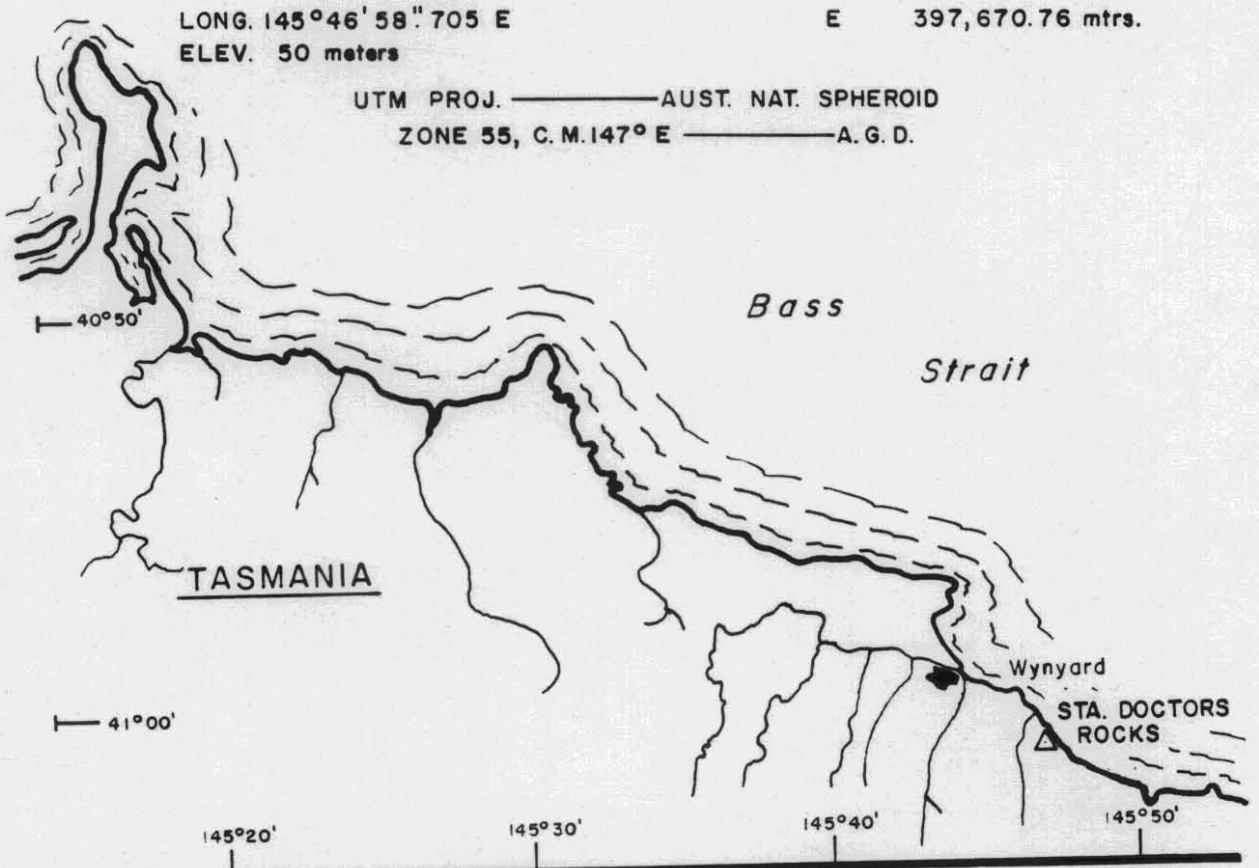
274117

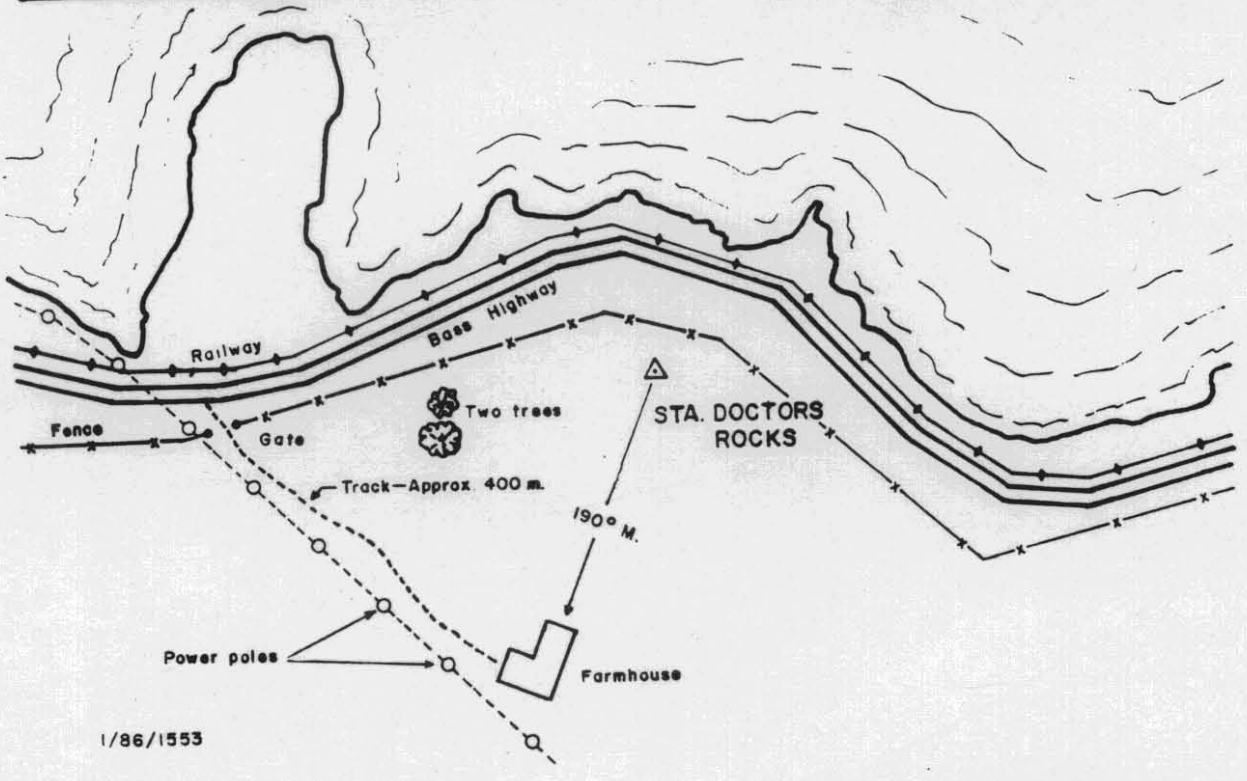
STA. DOCTORS ROCKS ——————— AUSTRALIA

LAT. 41° 01' 00".497 S
LONG. 145° 46' 58".705 E
ELEV. 50 meters

N 5,458,648.35 mtrs.
E 397,670.76 mtrs.

UTM PROJ. ——————— AUST. NAT. SPHEROID
ZONE 55, C.M. 147° E ——————— A.G.D.





1/86/1553

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

5 cm

STATION: HARDWICKES HILL

LOCATED: The station is located on Hardwickes Hill, which is on the north coast of Tasmania, Australia, approximately 90 kilometers northeast of Launceston.

ACCESS: Access to this station is by two-wheel drive vehicle. Equipment can be unloaded directly on the site.

From Bridport, drive east for approximately 24 kilometers to a road which turns to the right and is signposted "Scottdale 33". From this point, travel a further 3 kilometers and cross a bridge. A track will be found on the left side of the road, 100 meters after crossing the bridge. Turn onto this track and drive 8 kilometers to a "Y" junction. Veer left at this junction. This track will bring you to the telecom station where the station marker is located, approximately one kilometer from the "Y" junction.

MARKER: The station marker is located on the outside of the fenced in telecom compound. The marker consists of a 30 cm concrete disc with a star picket protruding 5 cm in the center. The marker is 7.5 meters, at a bearing of 00° Magnetic, from the second fence post to the right of the compound gate, and 10.5 meters from the edge of the road. This marker is referred to as "Maxiran Marker WG 85". The Maxiran tower was erected adjacent to this marker.

A second marker, referred to as "S.T. 357", is located 49.107 meters, at a bearing of 11°06'40", from the Maxiran marker. No further description on this marker was made available.

STATION: HARDWICKES HILL (continued)

GENERAL: All food and water must be brought to this site. All star pickets and rubbish must be taken when leaving this site.

A 50-foot tower was erected at this site.

ELEVATION: 111.9 meters

SKETCH: See next page.

Coordinates of this station were obtained from Western Geophysical Company of America basic control sheets.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

Lat.	40°52'02".073 S	N = 5,475,774.40 m.
Long.	147°37'41".927 E	E = 552,948.35 m.

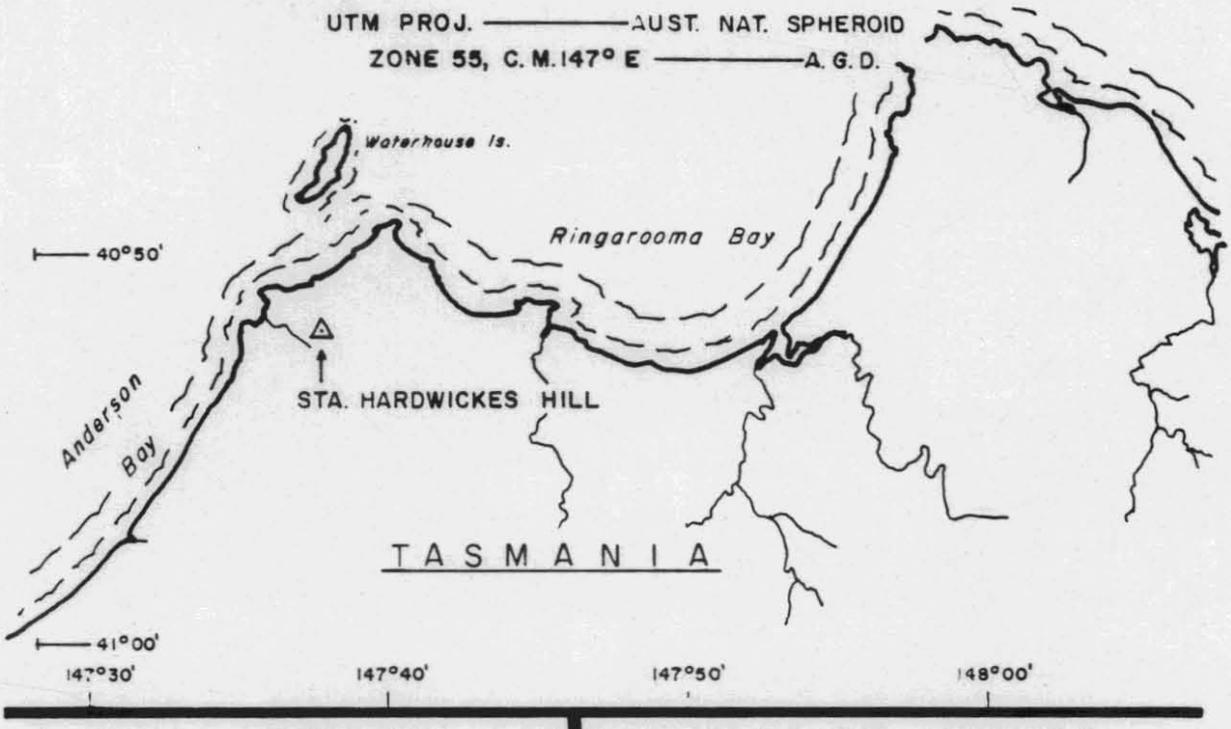
274120

STA. HARDWICKES HILL ——— AUSTRALIA

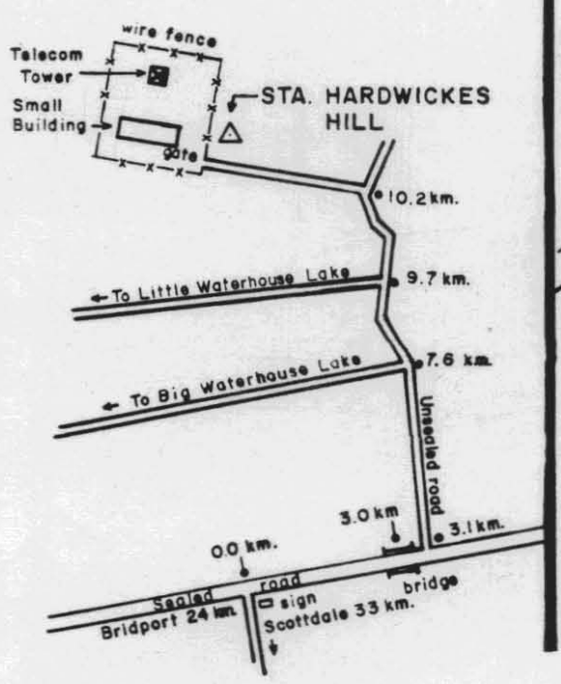
LAT. 40° 52' 02".073 S
LONG. 147° 37' 41".927 E
ELEV. 111.9 meters

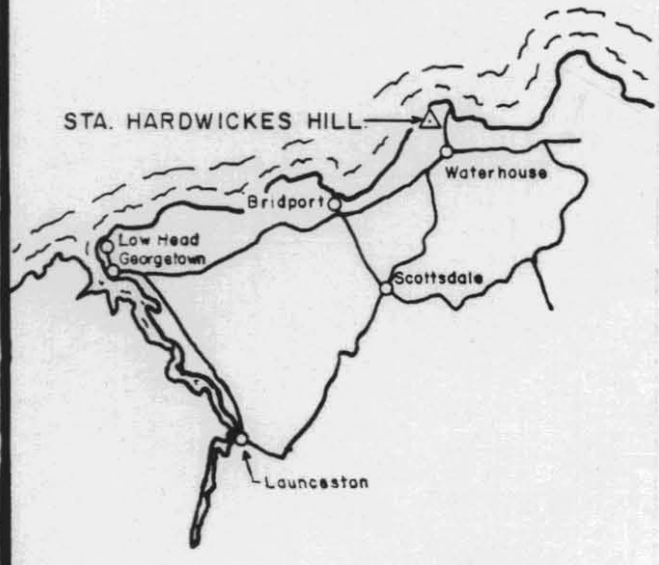
N 5,475,774.40 mtrs.
E 552,948.35 mtrs.

UTM PROJ. ——— AUST. NAT. SPHEROID
ZONE 55, C.M. 147° E ——— A.G.D.



STATION DETAILS





1/86/1553

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

5 cm

STATION: LOW HEAD

LOCATED: The station is located in the Load Head Lighthouse compound, north of Georgetown, Tasmania, Australia.

ACCESS: From Launceston, drive on the East Taman Highway to Georgetown. Continue straight through Georgetown along Highway A8, which becomes Low Head Road. This road leads directly to the lighthouse along a bitumen road. The lighthouse is painted red and white.

MARKER: The trig point at this site is on the ground floor of the lighthouse. An offset marker was surveyed in. However, the offset marker was too close to the cliff to erect a tower. This required that the tower be erected 4.73 meters, at a bearing of 130°, from the offset marker. A marker was established at the tower location. It consists of concrete with the words "W.G. OFFSET 85" inscribed.

GENERAL: The lighthouse compound is under the authority of the Department of Transport, Hobart. Telephone 002-205288. Contact is Mr. Derrick Walter. Permission to occupy the site must be obtained from the Department. It is preferred that request to occupy the site be made in writing. The letter is to mailed to:

Regional Director,
Department of Transport
GPO Box 854J
Hobart, Tasmania 7001

If advance notice was not possible, permission to occupy the site may be obtained by Telex. The Department's Telex number is 58067.

STATION: LOW HEAD (continued)

Other contacts are:

Capt. Murray Brahan
Telephone 022-205309

Mr. Griffits (Lighthouse keeper)
Telephone 003-821422

Food and fuel can be purchased in Georgetown. Water can be obtained at the lighthouse.

A caravan and chemical toilet is required on this site.

ELEVATION: 28.03 meters

SKETCH: See next page

Coordinates of this station were obtained from Western Geophysical Company of America basic control sheets.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

Lat. 41°03'25"194 S N = 5,454,878.20 m.
Long. 146°47'18"839 E E = 482,233.37 m.

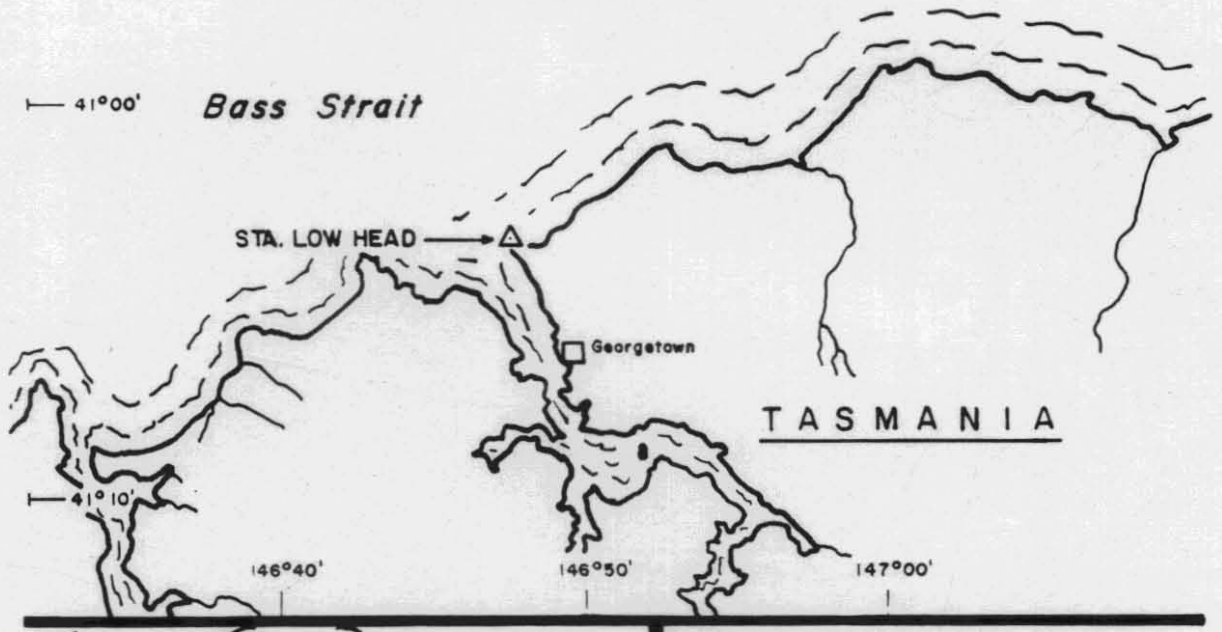
274123

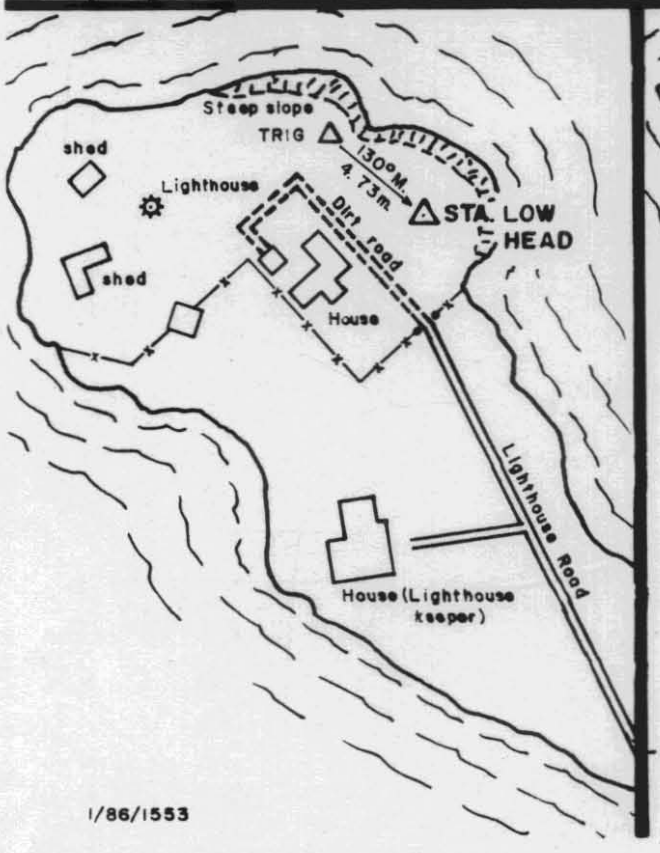
STA. LOW HEAD ——————— AUSTRALIA

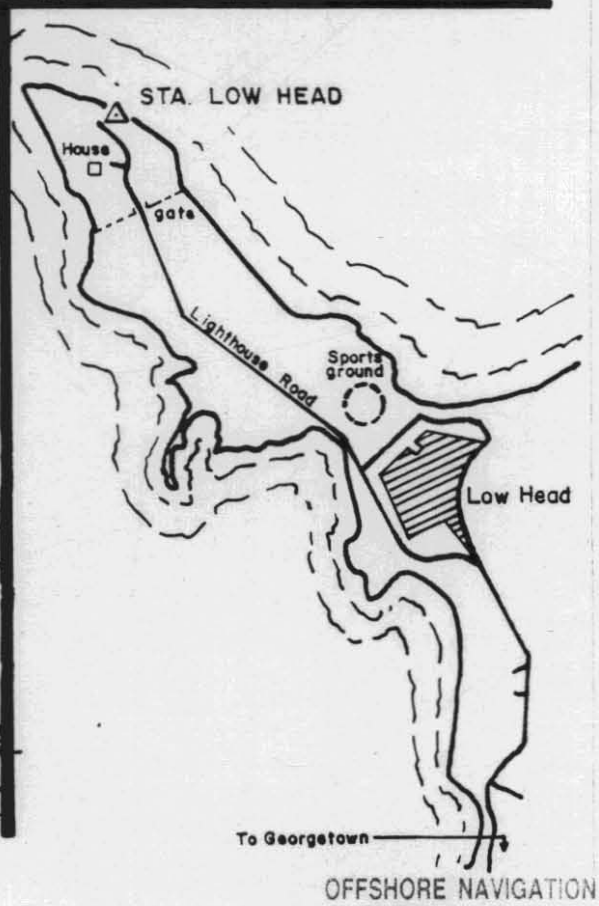
LAT. 41°03'25".194 S
LONG. 146°47'18".839 E
ELEV. 28.03 meters

N 5,454,878.20 mtrs.
E 482,233.37 mtrs.

UTM PROJ. ——— AUST. NAT. SPHEROID
ZONE 55, C.M. 147° E ——— A.G.D.







1/86/1553

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

5 cm

274124

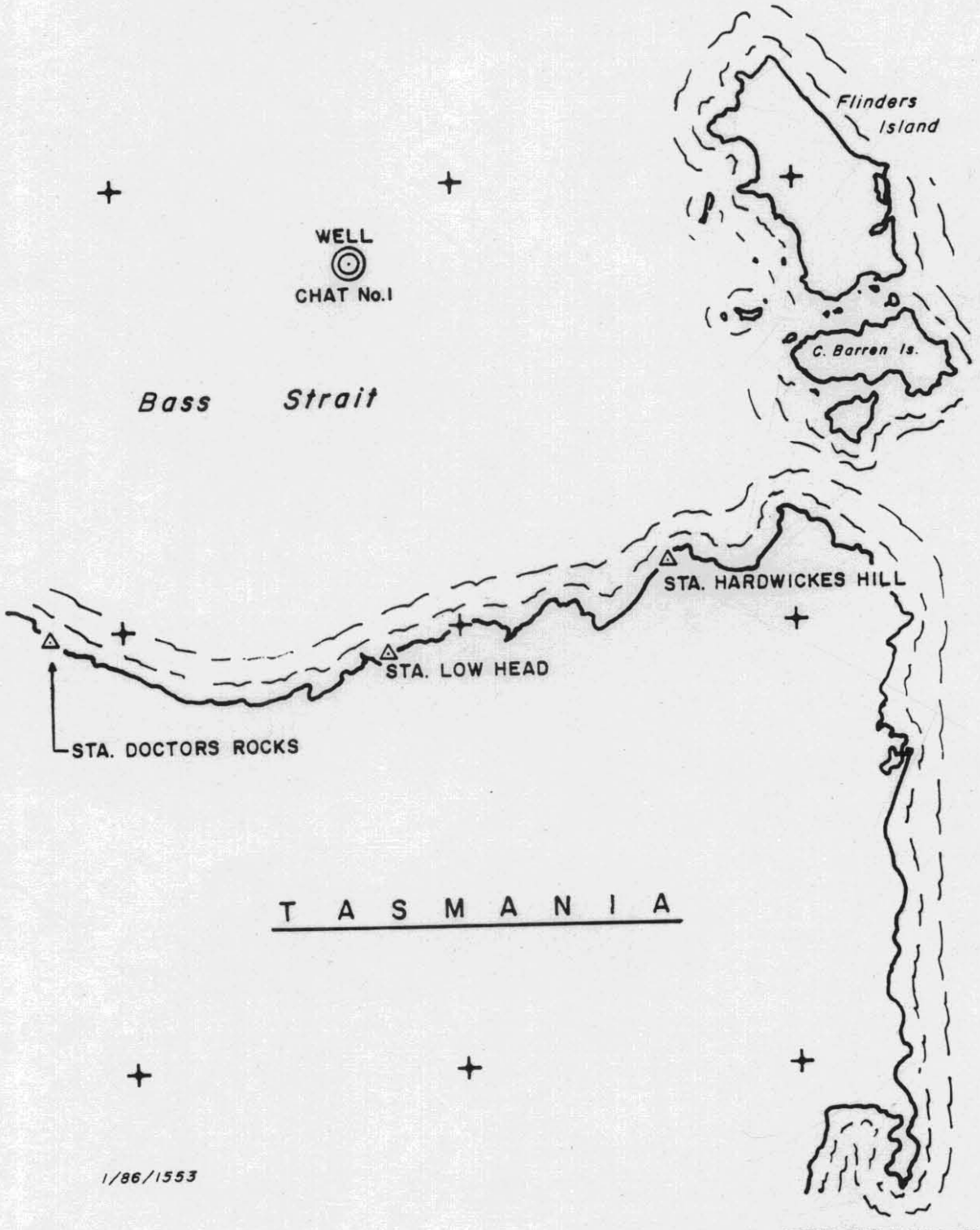
WELL CHAT No.1 ——— AUSTRALIA

(MAXIRAN DERIVED FINAL COORDINATES)

LAT. 40° 10' 53".157 S
LONG. 146° 41' 54".991 E

N 5,552,046.214 mtrs.
E 474,341.426 mtrs.

UTM PROJ. ——— AUST. NAT. SPHEROID
ZONE 55, C.M. 147° E ——— A.G.D.



1/86/1553

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

5 cm

THE MAXIRAN RADIOPOSITIONING SYSTEM

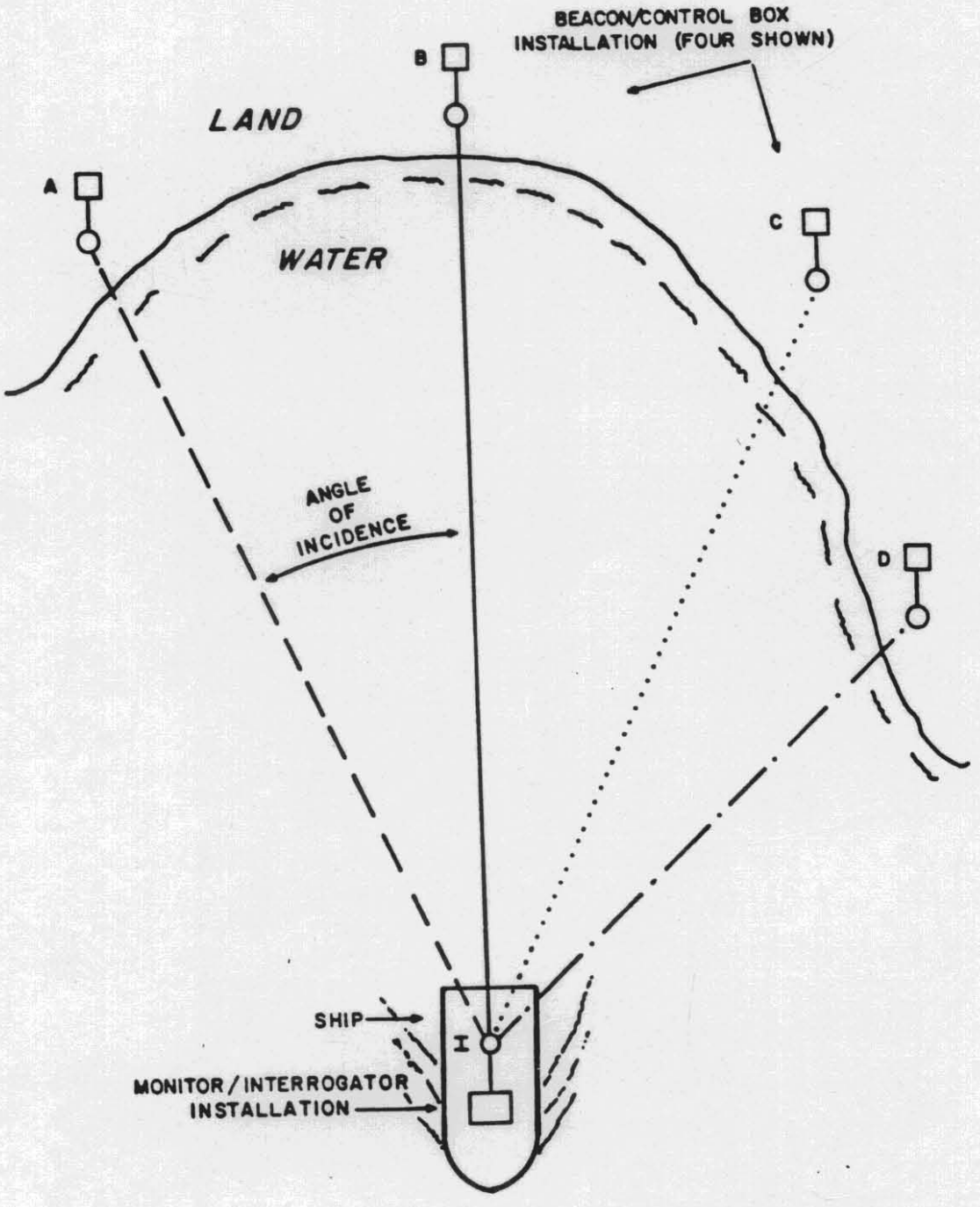
The Maxiran Radiopositioning System is a precision electronic ranging system, capable of both manual and automatic tracking of range. It is especially useful for measuring distances across bodies of water.

The use of the Maxiran requires three or more electronic installations. For the purposes of this discussion, one of these installations is assumed to be aboard a ship (see Figure 1). This installation consists of the Maxiran Monitor and Interrogator. The other installations are located onshore. Each of these installations consist of a Maxiran Beacon and a Control Box. There are two or more of the Beacon Control Box installations situated at appropriate locations onshore.

In operation, the Monitor/Interrogator installation transmits a radio signal (containing a Beacon-Select code which addresses a selected Beacon) which is picked up by all of the Beacon/Control Box installations. Each Beacon decodes the received signal and decides whether the Beacon-Select code transmitted corresponds to that Beacon. If the Beacon-Select code is correct for a

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

FIGURE-1. TYPICAL MAXIRAN SYSTEM



OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

Beacon, it responds by transmitting a radio signal reply. The Monitor measures the amount of time elapsed between the Interrogator's transmission and the received reply sent by the Beacon. Since, for all practical purposes, radio signals travel at a known speed, the time elapsed between transmission and response is a measure of the distance the radio signal travelled. The elapsed time is converted by the Monitor into distance and then displayed. Knowing the location of the land stations and the current distance from the ship to each of them, the position of the ship can be readily calculated.

For the purposes of this discussion, let us first assume that only two Beacons are being utilized. They are the Beacons marked "A" and "B" in Figure 1. Since the distance from Beacon "A" to the Interrogator (call it distance A1), and the distance from Beacon "B" to the Interrogator (call it distance B1) are now known (these distances are the distances displayed on the Monitor front panel), we can use some geometry to calculate the position of the ship with reference to Beacons "A" and "B".

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

As illustrated in Figure 2, the distances of A1 and B1 define two intersecting circles, one with a radius of length A1 centered about Beacon "A", the other with radius of length B1 centered about Beacon "B". The two circles intersect at two points (marked I and I' in Figure 2). Obviously, the ship can only be located at one of the points. Since point I' happens to be located on land, we can safely assume that the ship is located at Point I.

There is always some uncertainty associated with the exact measurements of the Beacons. This is illustrated in Figure 3. Figure 3 illustrates an enlarged view of the intersection of the circles shown in Figure 2. If the tolerance of the measurements of Beacon "B" is plus-or-minus 5 meters, then the two solid lines in Figure 3 are 10 meters apart. The tolerance of the measurements of Beacon "A" should be the same as that of Beacon "B", but this is not always the case due to differences in geographical location. Under the above conditions, we only know that the ship is located somewhere in the shaded area of Figure 3.

FIGURE-2. SYSTEM WITH TWO BEACONS

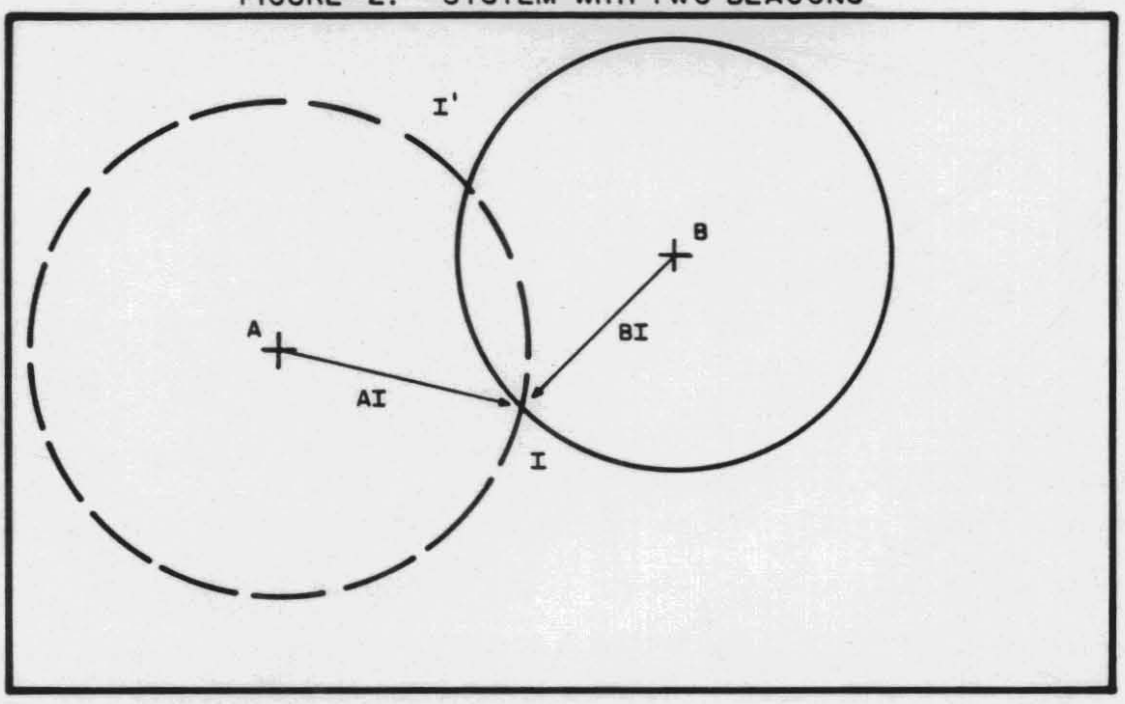
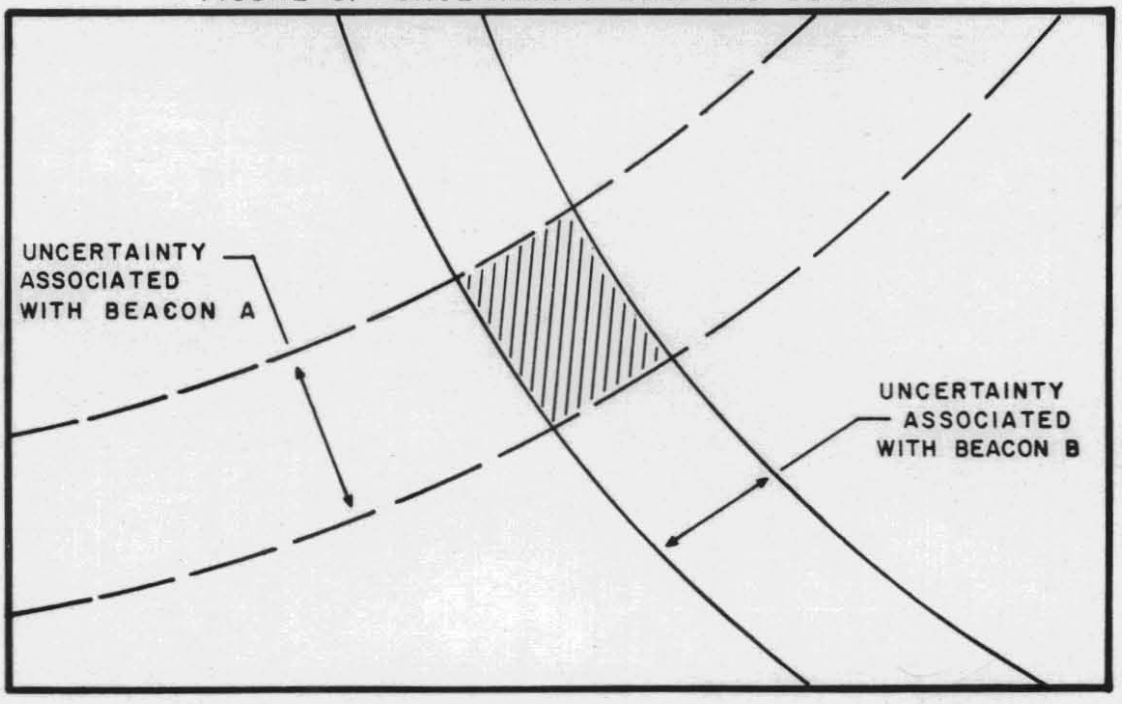


FIGURE-3. UNCERTAINTY WITH TWO BEACONS



THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

For the purposes of the following discussion, it is assumed that there are now three Beacons utilized. Now three circles are defined, instead of the two from the discussion above. The third distance, from Beacon "C" to the Interrogator (call it distance C1), defines a circle of radius length C1 centered about Beacon "C". The new situation is illustrated in Figure 4. Notice that with the three circles, there is only one location where all three circles can intersect. This eliminates the ambiguity associated with using only two Beacons. Now there is no I' to worry about. An additional advantage of using three Beacons is illustrated in Figure 5. Now the area of uncertainty has been reduced even though the tolerance of Beacon "C"'s measurement isn't any better than that of the other Beacons.

As the ship moves along, one or more of the Beacons may become unusable for various reasons; out of range, too small or too great an operating angle, etc. If additional Beacons are situated on shore, they may be interrogated, as desired, to greatly expand the range and usability of the system.

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

FIGURE-4. SYSTEM WITH THREE BEACONS

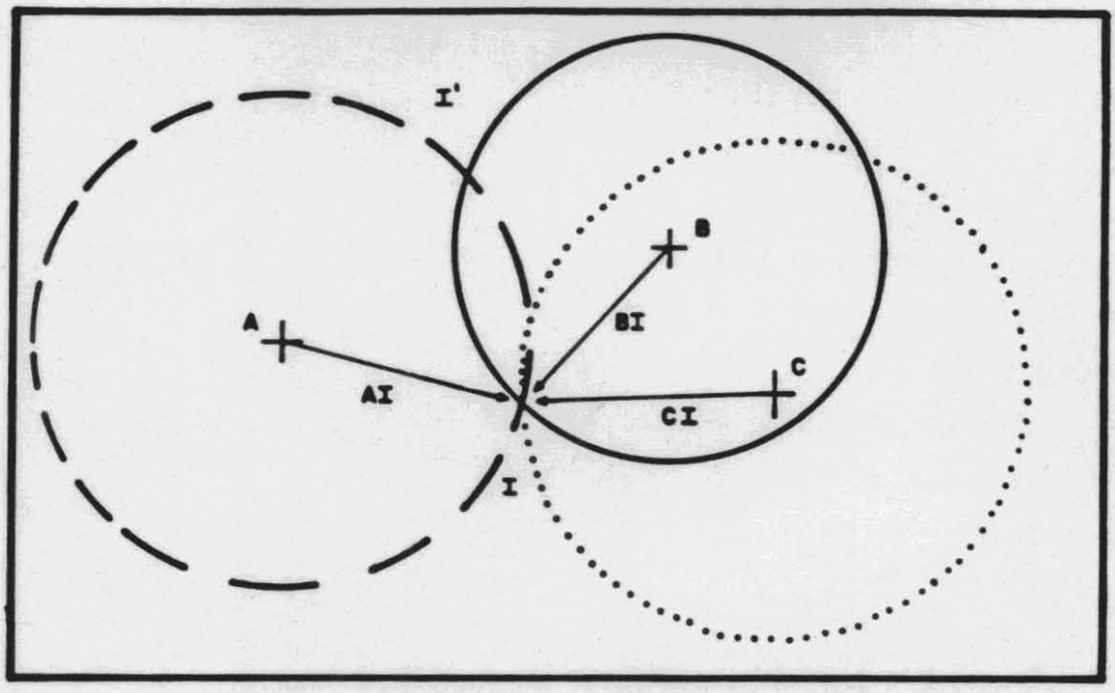
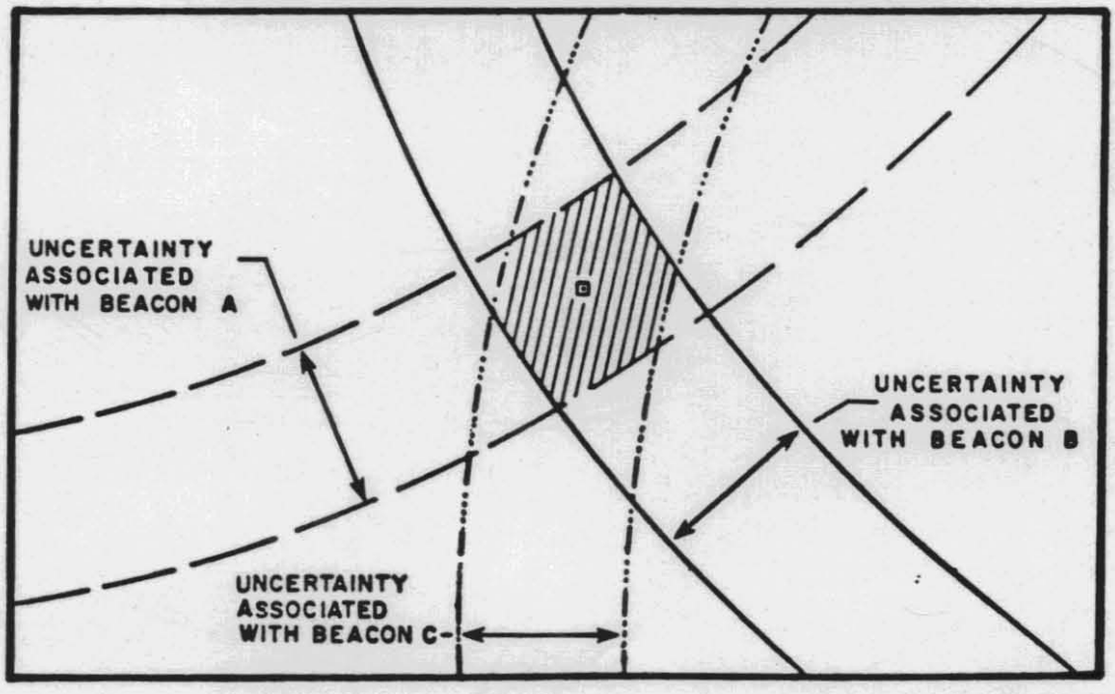


FIGURE-5. UNCERTAINTY WITH THREE BEACONS



THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

As many as three different Beacons may be selected at one time by the proper setting of the Monitor's Beacon-Select switches.

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

274133

THE NAVSTAR GLOBAL POSITIONING SYSTEM

The Navstar Global Positioning System (GPS) is being developed and deployed by the U.S. Government. The system will beam continuous and precise radio signals to users anywhere on earth, at sea or in space.

Each navstar, an octagonal aluminum structure with wing-like solar array panels, is built to function for at least 7.5 years. Each contains a radio system that broadcasts continually on two frequencies. The heart of the system is a set of atomic clocks so precise that they would gain or lose just one second in 70,000 years. These clocks are the advanced technology which make Navstar's precise accuracy possible.

Ground receivers can be installed in ships, planes, and ground vehicles. Some are light enough to be back packed.

THE NAVSTAR GLOBAL POSITIONING SYSTEM (continued)

The receiver translates satellite signals into navigation information so that the user will know where he is within 30 feet, anywhere in the world, day or night, 24 hours a day.

General system description

The navstar GPS is a space-based radio positioning, navigation and time-transfer system. When fully operational (1988) the system will be composed of 18 satellites in 20,000 Km orbits arranged so that any spot on earth will will always have a minimum of 4 satellites in view. Each satellite transmits on two L-band frequencies, 1575.42 Mhz (L_1) and 1277.6 MHz (L_2). L_1 will carry a precise (P) signal and a clear/acquisition (C/A) signal. L_2 will carry either a P or C/A signal. Superimposed on these signals will be navigation and system data including satellite ephemeris, atmospheric propagation correction data, and satellite clock bias information.

274135

THE NAVSTAR GLOBAL POSITIONING SYSTEM (continued)

Once tracking of the satellite signals begins, delays and offsets become the measurement variables from which position and velocity information is calculated. By measuring the difference between transmission and reception times of the satellite signal and multiplying those values by the speed of light, the apparent range to the satellite may be determined. By measuring the frequency difference between the satellite's clock and the user's clock, the line-of-sight velocity (range rate) between the two may also be determined. Because of the biases in time and frequency of the user's clock, the measured range and range rate contain a bias error and are therefore referred to as pseudorange and pseudorange rate. For this reason, four satellites are required to establish the user's position, velocity and time by removing the residual user equipment clock errors.

It should be noted that if the antenna elevation is known, i.e., antenna mounted on a ships mast, then only three satellites are necessary to obtain a position.

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

274136

THE NAVSTAR GLOBAL POSITIONING SYSTEM (continued)

Furthermore, if the user has an accurate clock (cesium) available, then only two satellites are necessary for a position.

For improved accuracy in either fixed point or dynamic positioning, two receivers may be used in the differential mode to remove systematic errors.

OFFSHORE NAVIGATION
(AUSTRALIA) PTY. LTD.

TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASED 6/2/86

APPENDIX A

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1074.750	12.93	36.09	42.63	.28	.38	.33	.25	.73
1075.000	13.18	33.80	40.49	.25	.39	.34	.25	.85
1075.250	13.58	35.12	43.05	.28	.40	.28	.25	.81
1075.500	13.03	33.90	40.28	.25	.40	.26	.26	.89
1075.750	12.96	31.55	37.34	.21	.39	.26	.26	.92
1076.000	12.89	32.20	37.96	.22	.38	.26	.27	.93
1076.250	12.79	28.83	33.80	.17	.36	.31	.28	.84
1076.500	12.71	33.89	39.54	.24	.33	.26	.25	.97
1076.750	13.21	32.42	38.91	.23	.32	.22	.25	1.00
1077.000	13.91	26.53	33.12	.16	.32	.25	.27	1.00
1077.250	14.14	27.86	35.24	.19	.32	.25	.26	1.00
1077.500	13.87	29.81	37.12	.21	.31	.25	.26	1.00
1077.750	13.89	28.22	35.19	.19	.30	.28	.30	.99
1078.000	13.92	28.94	36.14	.20	.28	.32	.32	.90
1078.250	13.90	28.32	35.33	.19	.27	.35	.32	.87
1078.500	13.80	27.22	33.77	.17	.27	.33	.31	.93
1078.750	14.20	31.57	40.05	.25	.26	.28	.26	1.00
1079.000	14.12	30.58	38.64	.23	.26	.28	.26	1.00
1079.250	13.80	29.43	36.52	.20	.26	.30	.28	.99
1079.500	13.91	33.70	42.07	.27	.28	.27	.26	.99
1080.500	13.90	34.91	43.56	.29	.41	.27	.22	.82
1081.750	12.95	35.13	41.54	.26	.28	.30	.27	.93
1082.000	13.29	32.67	39.39	.24	.28	.30	.28	.94
1082.250	13.23	35.47	42.63	.28	.28	.26	.26	1.00
1082.500	12.92	37.01	43.70	.29	.28	.26	.25	1.00
1083.250	13.64	32.21	39.61	.24	.28	.30	.26	.93
1083.500	12.99	26.67	31.62	.14	.27	.34	.31	.91
1083.750	13.23	28.14	33.82	.17	.26	.31	.34	.99
1084.000	12.66	30.00	34.91	.18	.26	.29	.35	1.00
1084.250	12.70	32.73	38.16	.22	.26	.27	.34	1.00
1084.500	12.94	33.34	39.42	.24	.26	.26	.33	1.00
1084.750	13.17	28.06	33.60	.17	.26	.30	.33	1.00
1085.000	13.16	27.05	32.38	.15	.27	.32	.30	.95
1085.250	12.74	30.70	35.87	.19	.28	.33	.26	.90
1085.500	12.71	32.55	37.99	.22	.28	.33	.25	.87
1085.750	12.81	37.17	43.62	.29	.28	.31	.22	.87
1086.250	12.86	34.26	40.32	.25	.28	.34	.26	.85
1086.500	12.84	32.54	38.24	.22	.28	.33	.31	.89
1087.500	13.08	36.91	43.98	.29	.30	.29	.27	.90
1092.750	12.37	38.06	43.57	.29	.32	.28	.23	.91

display limited to Vsh (30% for 1050 - 1104m
used Rw = 0.04 ohm @ 41.4 deg C
used N-D shale corr. porosity
used Vsh from GR-RESBHC,Rsh = 1.0 ohm

274137

TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASED 6/2/86

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1195.250	13.05	34.25	40.73	.23	.26	.25	.25	1.00
1195.500	13.19	34.82	41.75	.24	.25	.22	.24	1.00
1196.250	13.66	37.72	46.42	.29	.29	.19	.22	1.00
1197.500	13.52	36.02	43.99	.26	.31	.22	.24	.98
1197.750	13.50	33.50	40.88	.23	.32	.22	.25	.94
1198.000	13.57	34.79	42.60	.25	.32	.21	.24	.95
1198.250	13.51	34.24	41.79	.24	.31	.22	.25	.95
1198.500	13.45	35.90	43.67	.26	.30	.21	.24	.99
1198.750	13.40	34.43	41.75	.24	.29	.22	.25	.99
1199.000	13.52	32.39	39.55	.21	.27	.24	.26	1.00
1199.250	13.48	32.38	39.45	.21	.27	.24	.25	1.00
1199.500	13.51	31.26	38.15	.20	.26	.24	.26	1.00
1199.750	13.43	35.46	43.07	.25	.25	.21	.24	1.00
1200.000	13.40	35.55	43.13	.25	.25	.21	.24	1.00
1200.250	13.43	33.42	40.61	.22	.26	.24	.25	1.00
1200.500	13.56	37.54	45.96	.28	.27	.21	.22	1.00
1200.750	13.47	37.36	45.51	.28	.27	.21	.23	1.00
1201.000	13.52	35.61	43.47	.26	.27	.22	.23	1.00
1201.250	13.65	37.01	45.52	.28	.28	.22	.22	1.00
1202.000	13.59	35.68	43.75	.26	.29	.24	.25	.97
1203.000	13.76	37.46	46.37	.29	.32	.22	.23	.97
1203.250	13.79	36.40	45.14	.27	.32	.21	.23	.98
1203.500	13.80	32.94	40.87	.23	.30	.24	.25	.97
1204.000	13.81	37.84	46.96	.29	.27	.21	.23	1.00
1204.250	13.61	31.60	38.78	.20	.27	.26	.26	.99
1205.000	13.74	34.96	43.23	.25	.26	.23	.24	1.00
1205.250	13.96	34.51	43.20	.25	.25	.25	.24	1.00
1205.500	13.85	33.21	41.31	.23	.24	.29	.25	1.00
1205.750	13.75	32.21	39.87	.22	.23	.28	.25	1.00
1206.000	14.18	29.20	36.99	.18	.22	.28	.27	1.00
1206.250	14.26	31.44	40.02	.22	.22	.26	.26	1.00
1206.500	13.46	33.98	41.36	.23	.23	.25	.25	1.00
1206.750	13.65	33.75	41.52	.23	.26	.25	.24	1.00
1207.000	13.07	32.93	39.23	.21	.32	.25	.24	.99
1207.250	12.90	32.48	38.31	.20	.39	.25	.24	.89
1207.500	12.88	34.68	40.85	.23	.45	.23	.23	.84
1207.750	12.84	33.43	39.29	.21	.47	.24	.25	.79
1208.000	12.93	28.68	33.88	.15	.44	.26	.26	.80
1208.250	12.84	29.09	34.20	.15	.35	.23	.26	.90
1208.500	12.92	34.70	40.97	.23	.28	.20	.23	1.00
1208.750	13.23	34.14	41.01	.23	.25	.20	.22	1.00
1209.000	13.51	31.85	38.88	.20	.24	.21	.23	1.00
1209.250	13.56	33.78	41.35	.23	.24	.20	.22	1.00
1209.500	13.58	32.98	40.41	.22	.24	.22	.23	1.00
1209.750	13.56	28.13	34.43	.16	.25	.25	.26	1.00
1210.000	13.31	30.67	37.02	.18	.26	.23	.25	1.00
1210.250	13.07	32.26	38.42	.20	.28	.21	.24	1.00
1210.500	12.91	26.01	30.70	.11	.29	.25	.27	.96
1210.750	12.95	28.51	33.72	.15	.30	.24	.27	.96
1211.000	12.95	28.83	34.11	.15	.30	.24	.27	.94
1211.250	13.09	28.56	34.05	.15	.30	.24	.27	.94
1211.500	13.14	29.88	35.71	.17	.30	.22	.26	.95
1211.750	13.24	25.98	31.24	.12	.30	.24	.28	.93
1212.000	13.33	28.93	34.95	.16	.30	.23	.27	.95
1212.250	13.07	28.53	33.97	.15	.29	.24	.27	.95

display limited to Vsh< 30% for 1150 - 1250m
used Rw = 0.03 ohm @ 45.8 deg C
used Hunt Raymer shale corr. porosity
Vsh from GR-RESBHC,Rsh = 1.5 ohm

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TERRALOG - MAY 86 - 6

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1212.500	13.08	24.18	28.81	.09	.29	.27	.29	.91
1212.750	12.98	27.79	32.93	.14	.29	.26	.28	.94
1213.000	13.01	31.45	37.32	.19	.28	.25	.26	.97
1213.250	12.91	30.63	36.15	.17	.28	.26	.27	.96
1213.500	12.95	32.66	38.64	.20	.28	.23	.26	.98
1213.750	12.94	31.80	37.61	.19	.29	.22	.27	.95
1214.000	12.91	31.88	37.63	.19	.29	.23	.26	.95
1214.250	12.89	35.52	41.87	.24	.29	.22	.24	.99
1214.500	12.99	35.42	41.99	.24	.29	.23	.24	1.00
1214.750	12.92	34.28	40.47	.22	.28	.25	.25	1.00
1215.000	12.95	37.50	44.37	.27	.27	.23	.24	1.00
1215.250	13.03	34.40	40.87	.23	.25	.24	.25	1.00
1215.500	13.05	31.67	37.68	.19	.23	.26	.27	1.00
1215.750	13.03	32.33	38.41	.20	.22	.25	.27	1.00
1216.000	13.07	31.31	37.28	.19	.22	.28	.27	1.00
1216.250	13.45	36.21	44.06	.26	.23	.27	.25	1.00
1216.500	13.80	35.73	44.33	.27	.24	.28	.24	1.00
1216.750	13.36	30.89	37.38	.19	.25	.29	.27	1.00
1217.000	13.42	29.39	35.70	.17	.27	.27	.28	.95
1217.250	13.93	30.06	37.56	.19	.30	.22	.27	.94
1217.500	13.49	34.30	41.81	.24	.32	.19	.25	.94
1217.750	13.70	29.35	36.21	.18	.34	.24	.27	.88
1218.000	14.26	28.52	36.30	.18	.34	.24	.27	.88
1218.250	13.70	30.08	37.12	.19	.34	.21	.26	.90
1218.500	13.50	30.31	36.97	.18	.34	.23	.26	.90
1218.750	13.93	30.90	38.62	.20	.34	.23	.26	.90
1219.000	13.86	29.06	36.17	.17	.34	.24	.27	.89
1219.250	13.38	31.79	38.52	.20	.33	.24	.26	.91
1219.500	13.82	31.24	38.80	.20	.32	.25	.26	.91
1219.750	13.97	29.95	37.51	.19	.31	.26	.27	.91
1220.000	13.38	28.35	34.35	.15	.29	.29	.28	.91
1220.250	13.14	27.68	33.09	.14	.27	.29	.29	.93
1220.500	13.02	27.27	32.39	.13	.26	.29	.29	.95
1220.750	13.07	32.29	38.46	.20	.25	.28	.27	1.00
1221.000	12.71	34.93	40.75	.23	.25	.26	.26	1.00
1221.250	12.68	28.63	33.36	.14	.25	.29	.29	.99
1221.500	12.62	29.14	33.83	.15	.25	.28	.28	1.00
1221.750	12.61	30.59	35.50	.17	.24	.27	.27	1.00
1222.000	12.56	31.88	36.88	.18	.24	.26	.27	1.00
1222.250	12.54	32.60	37.69	.19	.24	.26	.26	1.00
1222.500	12.53	28.73	33.20	.14	.24	.27	.28	1.00
1222.750	12.51	26.98	31.14	.12	.24	.28	.29	.99
1223.000	12.53	26.89	31.07	.12	.24	.32	.29	.99
1223.250	12.55	25.16	29.11	.10	.24	.33	.30	.98
1223.500	12.53	23.41	27.05	.07	.25	.32	.31	.95
1223.750	12.52	25.13	29.02	.10	.25	.31	.30	.95
1224.000	12.50	27.28	31.46	.12	.26	.30	.29	.95
1224.250	12.49	26.63	30.69	.11	.26	.31	.30	.94
1224.500	12.49	25.49	29.38	.10	.27	.30	.30	.92
1224.750	12.53	28.54	32.96	.14	.27	.26	.28	.95
1225.000	12.54	31.73	36.68	.18	.28	.24	.26	.98
1225.250	12.49	29.45	33.94	.15	.29	.24	.26	.98
1225.500	12.36	28.49	32.61	.14	.30	.22	.26	.98
1225.750	12.35	31.30	35.79	.17	.28	.21	.25	1.00
1226.000	12.26	30.41	34.60	.16	.26	.23	.26	1.00

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TERRALOG - MAY 86 - 7

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1226.250	12.30	30.94	35.29	.17	.26	.23	.27	1.00
1226.500	12.55	30.08	34.78	.16	.26	.24	.27	.99
1226.750	13.89	29.65	36.98	.18	.26	.27	.27	.98
1227.000	15.05	33.17	44.13	.26	.27	.33	.26	.97
1227.250	16.61	32.05	46.57	.29	.30	.28	.24	.96
1227.500	13.68	32.30	39.81	.22	.31	.22	.24	1.00
1227.750	13.33	36.42	44.01	.26	.29	.17	.23	1.00
1228.000	13.39	36.21	43.89	.26	.27	.18	.24	1.00
1228.250	13.39	36.08	43.73	.26	.24	.21	.25	1.00
1229.500	13.31	34.26	41.35	.23	.28	.23	.25	.99
1229.750	13.14	35.64	42.60	.25	.31	.18	.24	.97
1230.000	13.19	35.49	42.55	.25	.32	.19	.25	.94
1230.250	13.24	32.27	38.80	.20	.29	.25	.27	.94
1230.500	13.24	36.11	43.41	.26	.29	.24	.25	.94
1230.750	13.16	37.41	44.77	.27	.32	.23	.25	.91
1231.000	12.89	33.63	39.64	.21	.32	.24	.27	.88
1231.250	12.81	35.48	41.63	.24	.31	.22	.26	.92
1231.500	12.62	36.70	42.60	.25	.29	.22	.26	.95
1231.750	12.48	36.67	42.24	.24	.27	.22	.25	1.00
1232.000	12.47	35.84	41.25	.23	.25	.21	.24	1.00
1232.250	12.50	31.44	36.26	.18	.24	.22	.26	1.00
1232.500	12.51	29.70	34.28	.15	.24	.25	.28	1.00
1232.750	12.53	30.25	34.93	.16	.23	.27	.28	1.00
1233.000	12.62	29.57	34.34	.15	.23	.27	.28	1.00
1233.250	12.71	28.90	33.73	.15	.23	.28	.28	1.00
1233.500	12.68	29.73	34.64	.16	.24	.28	.27	1.00
1233.750	12.72	31.61	36.90	.18	.25	.23	.26	1.00
1234.000	12.75	29.40	34.38	.15	.27	.23	.26	1.00
1234.250	12.75	32.00	37.42	.19	.29	.21	.25	1.00
1234.500	12.73	34.99	40.87	.23	.29	.19	.24	1.00
1234.750	12.76	33.46	39.16	.21	.30	.23	.25	.96
1235.000	12.81	38.33	44.99	.27	.30	.20	.23	.99
1235.250	13.06	38.99	46.41	.29	.30	.19	.23	1.00
1235.500	14.02	35.15	44.16	.26	.29	.22	.24	1.00
1235.750	13.22	31.33	37.63	.19	.26	.25	.27	.99
1236.000	13.01	30.85	36.62	.18	.25	.23	.27	1.00
1236.250	12.93	31.31	37.01	.18	.23	.23	.26	1.00
1236.500	13.23	32.89	39.52	.21	.22	.20	.25	1.00
1236.750	13.26	31.96	38.47	.20	.22	.20	.26	1.00
1237.000	13.39	29.86	36.20	.18	.22	.22	.27	1.00
1237.250	13.69	32.23	39.75	.21	.22	.21	.25	1.00
1237.500	13.51	34.94	42.65	.25	.23	.20	.24	1.00
1237.750	12.85	37.25	43.81	.26	.25	.19	.23	1.00
1238.000	12.74	36.86	43.08	.25	.27	.18	.23	1.00
1238.250	12.63	33.32	38.71	.20	.27	.18	.24	1.00
1238.500	12.69	31.94	37.22	.19	.28	.21	.25	1.00
1238.750	12.62	33.42	38.81	.20	.28	.22	.25	.99
1239.000	12.67	34.92	40.67	.22	.28	.21	.25	1.00
1239.250	12.80	32.38	37.98	.19	.27	.24	.25	1.00
1239.500	12.83	35.95	42.23	.24	.25	.23	.24	1.00
1239.750	12.72	36.61	42.75	.25	.24	.20	.24	1.00
1240.000	12.80	35.45	41.57	.23	.24	.22	.24	1.00
1240.250	12.80	32.89	38.57	.20	.24	.25	.24	1.00
1240.500	12.75	30.55	35.73	.17	.25	.26	.22	1.00
1240.750	12.79	34.18	40.06	.22	.25	.22	.22	1.00

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TERRALOG - MAY 86 - 8

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1241.000	12.59	37.32	43.26	.25	.26	.19	.22	1.00
1241.250	12.62	35.93	41.73	.24	.24	.22	.23	1.00
1241.500	12.71	33.91	39.56	.21	.23	.26	.25	1.00
1241.750	12.88	31.15	36.71	.18	.22	.27	.26	1.00
1242.000	12.71	34.28	40.00	.22	.22	.23	.25	1.00
1242.250	12.66	32.59	37.91	.19	.22	.26	.26	1.00
1242.500	12.59	32.69	37.89	.19	.22	.26	.26	1.00
1242.750	12.65	34.61	40.26	.22	.24	.24	.25	1.00
1243.000	12.79	33.25	38.98	.21	.25	.22	.25	1.00
1243.250	13.07	28.86	34.35	.15	.25	.25	.27	1.00
1243.500	12.91	33.57	39.61	.21	.25	.25	.26	1.00
1244.000	13.25	36.27	43.64	.26	.21	.24	.25	1.00
1244.250	12.82	36.62	43.00	.25	.20	.24	.25	1.00
1244.500	13.02	36.71	43.60	.26	.20	.28	.24	1.00
1244.750	12.93	33.61	39.70	.21	.21	.29	.26	1.00
1245.000	13.28	35.22	42.44	.24	.22	.25	.25	1.00
1245.250	12.58	35.60	41.24	.23	.23	.24	.25	1.00
1245.500	12.55	34.14	39.49	.21	.23	.24	.24	1.00
1245.750	12.51	30.96	35.72	.17	.24	.25	.26	1.00
1246.000	12.47	29.70	34.19	.15	.24	.25	.27	1.00
1246.250	12.43	30.41	34.93	.16	.24	.25	.27	1.00
1246.500	12.48	31.25	36.01	.17	.23	.24	.26	1.00
1246.750	12.51	30.17	34.81	.16	.23	.25	.27	1.00
1247.000	12.52	30.23	34.90	.16	.23	.25	.27	1.00
1247.250	12.56	29.23	33.82	.15	.23	.26	.28	1.00
1247.500	12.56	32.23	37.31	.19	.23	.25	.26	1.00
1247.750	12.55	33.24	38.45	.20	.23	.24	.25	1.00
1248.000	12.48	34.86	40.17	.22	.23	.22	.25	1.00
1248.250	12.56	34.74	40.20	.22	.23	.22	.25	1.00
1248.500	12.65	33.17	38.58	.20	.23	.23	.25	1.00
1248.750	12.68	35.96	41.89	.24	.24	.21	.24	1.00
1249.000	12.67	35.78	41.66	.24	.25	.20	.24	1.00
1249.250	12.69	35.56	41.45	.23	.27	.20	.22	1.00
1249.500	12.61	34.81	40.39	.22	.29	.20	.23	1.00
1249.750	12.59	33.81	39.20	.21	.31	.19	.23	1.00
1250.000	12.66	36.59	42.58	.25	.29	.19	.23	1.00

274141

TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASED 6/2/86

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1568.750	13.08	55.25	65.83	.27	.34	.24	.25	.87
1570.500	13.80	53.43	66.28	.27	.38	.26	.27	.77
1570.750	13.83	48.99	60.86	.23	.37	.22	.26	.89
1571.000	13.83	52.12	64.75	.26	.34	.20	.25	.99
1571.250	13.83	50.28	62.50	.25	.32	.21	.25	1.00
1571.500	13.83	47.66	59.22	.22	.32	.22	.25	.96
1571.750	13.81	48.58	60.30	.23	.32	.23	.24	.93
1572.000	13.78	45.14	55.94	.19	.30	.21	.20	1.00
1572.250	13.87	37.45	46.64	.12	.29	.22	.23	1.00
1572.500	13.88	45.32	56.48	.20	.31	.22	.24	.99
1573.250	13.24	57.29	68.87	.29	.53	.23	.26	.70
1573.500	13.24	55.40	66.60	.28	.52	.25	.26	.68
1573.750	13.27	54.27	65.34	.27	.45	.25	.27	.71
1574.000	13.35	48.55	58.74	.22	.39	.26	.26	.75
1574.250	13.59	42.58	52.22	.17	.34	.26	.26	.84
1574.500	13.90	41.16	51.35	.16	.27	.26	.26	.93
1575.750	14.18	40.96	51.92	.16	.28	.25	.26	.97
1576.000	14.22	48.42	61.51	.24	.34	.19	.22	1.00
1576.250	13.69	46.92	57.86	.21	.38	.20	.21	.97
1576.500	13.59	44.11	54.09	.18	.40	.24	.25	.83
1576.750	13.60	42.54	52.21	.17	.40	.27	.26	.76
1577.000	14.13	40.61	51.32	.16	.35	.28	.25	.79
1577.250	13.78	40.54	50.25	.15	.30	.26	.25	.89
1577.500	14.01	42.00	52.73	.17	.30	.25	.25	.93
1577.750	14.11	47.81	60.35	.23	.34	.25	.24	.85
1578.000	14.54	48.51	62.73	.25	.36	.26	.23	.79
1578.250	15.40	45.14	61.25	.24	.37	.26	.23	.77
1578.500	15.64	45.81	63.02	.25	.36	.27	.23	.75
1579.750	15.32	41.18	55.64	.19	.30	.29	.24	.80
1580.000	13.66	41.97	51.66	.16	.30	.29	.25	.81
1580.250	13.30	42.09	50.77	.15	.30	.28	.25	.83
1580.500	13.15	38.94	46.58	.12	.30	.28	.25	.84
1580.750	13.09	43.16	51.44	.16	.30	.27	.24	.86
1581.000	13.06	46.82	55.72	.19	.30	.26	.23	.88
1581.250	13.03	44.98	53.44	.18	.30	.26	.23	.89
1581.500	13.58	50.34	61.70	.24	.31	.23	.22	.95
1581.750	14.16	52.02	65.86	.27	.33	.21	.21	.96
1582.000	14.25	50.16	63.83	.26	.35	.21	.21	.93
1582.250	14.34	53.56	68.51	.29	.36	.21	.19	.91
1583.000	14.74	46.32	60.59	.23	.38	.22	.21	.88
1583.250	14.75	38.11	49.88	.15	.35	.25	.22	.86
1583.500	14.77	37.88	49.63	.15	.33	.28	.22	.81
1583.750	14.78	38.39	50.32	.15	.32	.28	.23	.83
1584.000	14.57	41.31	53.51	.18	.32	.26	.22	.87
1584.250	14.03	43.10	54.15	.18	.35	.25	.21	.86
1584.500	13.79	44.30	54.94	.19	.38	.24	.23	.84
1584.750	13.85	39.11	48.65	.14	.39	.26	.23	.81
1585.000	13.87	35.59	44.33	.11	.40	.25	.22	.83
1585.250	13.91	35.94	44.86	.11	.40	.24	.21	.87
1585.500	13.86	34.89	43.44	.10	.39	.23	.20	.91
1585.750	13.82	33.79	41.98	.09	.40	.24	.20	.88
1586.000	13.93	35.98	44.95	.11	.41	.23	.20	.90
1586.250	14.05	34.84	43.82	.10	.40	.22	.20	.93
1586.500	14.13	32.82	41.47	.08	.39	.22	.20	.95
1586.750	14.18	30.84	39.09	.07	.38	.23	.21	.93

display limited to Vsh < 30% for 1545 -1650m
used Rw 0.025 ohm @ 59.0 deg C
used N-D shale corr. porosity
used Vsh from GR-RESBHC,Rsh = 1.5 ohm

274142

TERRALOG - MAY 86 - 6

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1587.000	14.22	34.28	43.54	.10	.37	.23	.21	.94
1587.250	14.30	37.12	47.38	.13	.35	.23	.20	.97
1587.500	14.47	36.60	47.14	.13	.34	.23	.20	.96
1587.750	14.61	37.02	48.06	.13	.33	.22	.21	.99
1588.000	14.70	37.83	49.36	.14	.33	.22	.20	1.00
1588.250	14.74	37.32	48.82	.14	.34	.22	.20	.99
1588.500	14.83	37.02	48.67	.14	.35	.22	.21	.96
1588.750	15.03	41.43	55.08	.19	.35	.21	.21	.98
1589.000	15.22	42.13	56.62	.20	.34	.22	.22	.93
1589.250	15.33	45.02	60.87	.23	.34	.23	.22	.89
1589.500	15.52	45.79	62.58	.25	.35	.25	.22	.83
1589.750	15.65	42.14	58.00	.21	.38	.26	.23	.77
1602.750	14.15	54.28	68.67	.29	.65	.18	.17	.81
1604.000	13.77	50.29	62.31	.24	.25	.25	.25	.98
1604.250	13.96	39.49	49.45	.14	.26	.27	.27	.94
1604.500	13.88	38.59	48.10	.13	.28	.27	.26	.90
1604.750	14.21	43.01	54.60	.18	.29	.28	.24	.83
1605.250	13.67	51.60	63.54	.25	.31	.26	.23	.85
1605.500	13.63	50.38	61.91	.24	.32	.23	.23	.91
1605.750	13.94	48.69	60.87	.23	.33	.23	.23	.91
1606.000	14.58	41.84	54.25	.18	.31	.25	.23	.89
1606.250	15.02	40.18	53.38	.17	.29	.26	.22	.91
1606.500	14.87	41.01	54.02	.18	.29	.23	.22	1.00
1606.750	14.62	43.08	55.99	.20	.31	.21	.21	1.00
1607.000	14.17	44.72	56.65	.20	.35	.19	.21	1.00
1607.750	14.36	53.00	67.85	.29	.46	.21	.21	.81
1608.000	14.27	45.13	57.48	.21	.43	.23	.23	.80
1608.250	14.33	39.23	50.15	.15	.38	.25	.25	.82
1608.500	14.45	37.54	48.31	.14	.33	.25	.24	.89
1608.750	14.67	46.07	60.01	.23	.33	.22	.22	.96
1616.500	14.95	50.56	66.92	.28	.41	.23	.24	.80
1616.750	14.88	50.58	66.68	.28	.36	.22	.23	.89
1618.000	16.42	46.34	66.62	.28	.38	.25	.21	.77
1618.250	16.37	44.27	63.47	.25	.37	.25	.20	.79
1618.500	16.31	41.13	58.76	.22	.38	.27	.19	.74
1618.750	14.89	36.01	47.50	.13	.39	.27	.20	.75
1619.000	13.41	36.89	44.78	.11	.42	.24	.20	.85
1619.250	13.38	36.23	43.89	.10	.43	.22	.20	.89
1619.500	13.38	33.52	40.61	.08	.45	.22	.19	.89
1619.750	13.38	34.57	41.89	.09	.44	.22	.20	.88
1620.000	13.45	34.29	41.70	.09	.43	.23	.22	.89
1620.250	13.55	40.83	49.94	.15	.43	.20	.22	.94
1620.500	13.65	46.08	56.70	.20	.44	.21	.20	.88
1627.500	18.40	41.58	66.81	.28	.25	.28	.24	.88
1627.750	19.15	40.56	67.96	.29	.23	.25	.23	.99
1628.000	19.07	36.90	61.57	.24	.22	.27	.26	.97
1645.000	16.75	41.78	61.17	.23	.32	.25	.24	.86
1645.250	16.91	38.97	57.59	.21	.27	.27	.24	.87
1646.250	16.49	39.59	57.14	.20	.24	.29	.24	.88
1646.500	16.23	40.19	57.17	.20	.27	.23	.23	1.00
1646.750	15.90	39.47	55.11	.19	.29	.16	.22	1.00
1647.000	15.54	44.20	60.48	.23	.31	.14	.20	1.00
1647.250	15.55	47.98	65.68	.27	.34	.14	.19	1.00
1647.500	15.92	47.70	66.65	.28	.36	.15	.20	1.00
1647.750	15.82	46.97	65.26	.27	.35	.17	.22	1.00

274143

TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASED 6/2/86

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1713.750	12.56	57.18	66.17	.28	.36	.24	.23	1.00
1714.000	13.02	44.61	52.96	.18	.31	.24	.26	1.00
1714.250	13.43	39.24	47.68	.14	.28	.28	.28	1.00
1714.500	13.64	37.91	46.61	.13	.26	.32	.29	1.00
1715.250	15.37	49.02	66.41	.29	.28	.30	.25	.96
1715.500	14.73	47.06	61.52	.25	.30	.30	.26	.96
1718.750	13.21	55.96	67.15	.29	.29	.24	.25	1.00
1719.500	13.15	55.42	66.28	.29	.25	.29	.26	1.00
1719.750	13.13	54.19	64.74	.27	.25	.29	.26	1.00
1721.750	14.31	39.04	49.84	.15	.51	.27	.27	.83
1722.000	15.09	36.92	49.26	.15	.33	.28	.26	1.00
1722.250	13.71	35.13	43.35	.10	.26	.28	.20	1.00
1722.500	12.82	34.63	40.65	.08	.23	.27	.19	1.00
1722.750	13.49	37.86	46.16	.12	.24	.20	.21	1.00
1723.000	14.06	45.23	56.94	.21	.28	.18	.18	1.00
1729.000	13.00	52.69	62.51	.26	.31	.33	.27	.86
1729.750	12.83	56.70	66.61	.29	.29	.29	.26	.97
1731.750	13.48	51.47	62.71	.26	.35	.34	.28	.79
1733.500	12.67	49.35	57.47	.21	1.25	.19	.18	.72
1733.750	13.74	50.87	62.90	.26	1.19	.20	.20	.74
1734.750	13.08	53.93	64.24	.27	.32	.23	.22	1.00
1745.250	12.25	51.69	58.78	.23	.46	.26	.24	.89
1745.500	12.40	53.70	61.58	.25	.41	.25	.25	.95
1745.750	12.47	57.17	65.83	.28	.36	.25	.25	1.00
1746.000	12.39	56.45	64.71	.27	.33	.26	.24	1.00
1746.500	12.36	54.11	61.90	.25	.32	.26	.25	1.00
1746.750	12.36	49.30	56.39	.21	.32	.28	.26	1.00
1747.000	12.31	49.06	55.97	.20	.29	.27	.26	1.00
1747.250	12.28	50.66	57.70	.22	.28	.27	.25	1.00
1747.500	12.25	53.76	61.15	.24	.30	.27	.24	1.00
1747.750	12.19	56.78	64.36	.27	.32	.25	.23	1.00
1749.000	12.37	55.20	63.21	.26	.45	.26	.25	.87
1749.250	12.55	53.94	62.37	.25	.39	.26	.25	.93
1749.500	12.59	53.97	62.58	.26	.32	.26	.25	1.00
1749.750	12.50	55.52	64.05	.27	.27	.27	.25	1.00
1750.000	12.70	55.97	65.27	.28	.27	.29	.25	1.00
1750.250	12.77	54.55	63.89	.27	.28	.29	.26	1.00
1751.000	12.34	56.99	65.14	.28	.33	.28	.25	.95
1751.250	12.50	56.56	65.23	.28	.36	.29	.25	.90
1751.500	12.66	54.80	63.76	.27	.38	.28	.25	.90
1751.750	12.70	56.12	65.45	.28	.38	.25	.24	.96
1752.000	12.60	57.45	66.62	.29	.35	.28	.24	.93
1752.250	12.69	54.51	63.53	.26	.34	.29	.23	.90
1752.500	12.51	52.27	60.33	.24	.33	.29	.24	.94
1752.750	12.50	55.24	63.70	.26	.32	.28	.24	.97
1754.750	12.18	51.91	58.82	.23	.50	.25	.23	.88
1755.000	12.19	47.07	53.35	.18	.49	.24	.24	.93
1755.250	12.22	49.71	56.44	.21	.45	.23	.24	1.00
1755.500	12.30	51.35	58.56	.22	.37	.22	.24	1.00
1755.750	12.36	52.20	59.72	.23	.35	.23	.24	1.00
1756.000	12.31	50.62	57.77	.22	.34	.25	.25	1.00
1756.250	12.30	50.58	57.69	.22	.33	.26	.25	1.00
1756.500	12.32	46.45	53.02	.18	.32	.27	.26	1.00
1756.750	12.22	42.91	48.70	.14	.32	.28	.27	1.00
1757.000	12.18	45.64	51.71	.17	.30	.28	.27	1.00

display limited to Vsh (30% for 1700 - 1925m
used Rw = 0.04 ohm @ 62.5 deg C
used N-D shale corr. porosity
used Vsh from GR-RESBHC,Rsh =2.5 ohm

274144

TERRALOG - MAY 86 - 6

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1757.250	12.15	44.52	50.34	.16	.29	.29	.26	1.00
1757.500	12.40	43.28	49.64	.15	.28	.31	.28	.99
1758.000	12.71	49.80	58.10	.22	.29	.34	.28	.88
1758.250	12.56	53.26	61.64	.25	.29	.31	.26	.94
1758.500	12.45	55.42	63.74	.27	.30	.31	.25	.92
1758.750	12.39	58.01	66.50	.29	.35	.30	.25	.88
1759.000	12.35	57.75	66.04	.28	.36	.28	.25	.91
1759.250	12.45	55.11	63.39	.26	.36	.29	.26	.90
1759.500	12.47	53.46	61.56	.25	.36	.30	.25	.87
1759.750	12.47	50.44	58.09	.22	.35	.31	.26	.87
1760.000	12.36	50.71	58.02	.22	.34	.30	.26	.90
1760.250	12.23	52.37	59.48	.23	.34	.30	.26	.89
1760.500	12.22	53.34	60.54	.24	.35	.30	.26	.89
1760.750	12.19	50.66	57.41	.21	.35	.29	.26	.92
1761.000	12.22	49.31	55.98	.20	.35	.27	.25	.99
1761.250	12.23	49.83	56.60	.21	.35	.26	.25	1.00
1761.500	12.23	53.29	60.53	.24	.36	.25	.25	1.00
1761.750	12.22	55.10	62.53	.26	.36	.25	.25	1.00
1762.000	12.27	50.10	57.02	.21	.36	.26	.26	1.00
1762.250	12.35	45.95	52.56	.18	.39	.27	.27	.96
1762.500	12.36	49.40	56.51	.21	.36	.27	.26	.97
1762.750	12.29	54.07	61.62	.25	.35	.26	.25	.98
1766.250	12.31	57.26	65.33	.28	.43	.24	.22	.94
1766.500	12.32	55.14	62.94	.26	.46	.24	.22	.93
1768.000	12.23	56.46	64.13	.27	.56	.23	.22	.86
1768.250	12.23	49.97	56.76	.21	.59	.23	.21	.86
1768.500	12.22	50.54	57.36	.21	.59	.20	.19	.97
1768.750	12.18	56.88	64.41	.27	.57	.20	.18	.97
1770.500	12.23	54.14	61.51	.25	.40	.25	.22	.96
1770.750	12.30	58.59	66.81	.29	.44	.23	.21	.95
1774.250	12.06	59.95	67.44	.29	.45	.25	.23	.90
1774.500	12.08	51.19	57.65	.22	.38	.26	.24	.95
1774.750	12.11	42.82	48.32	.14	.33	.28	.25	1.00
1775.000	12.14	39.12	44.20	.11	.31	.28	.26	1.00
1775.250	12.09	40.69	45.87	.12	.31	.27	.25	1.00
1775.500	12.08	46.48	52.35	.17	.33	.24	.22	1.00
1775.750	12.06	58.04	65.30	.28	.37	.22	.21	1.00
1777.500	12.11	57.79	65.22	.28	.46	.25	.22	.89
1777.750	12.12	55.18	62.30	.25	.45	.27	.22	.85
1778.000	12.14	53.72	60.71	.24	.43	.28	.23	.85
1778.250	12.13	52.37	59.16	.23	.50	.28	.21	.78
1778.500	12.11	49.55	55.90	.20	.61	.27	.19	.76
1778.750	12.11	43.85	49.47	.15	.69	.23	.16	.84
1779.000	12.20	40.81	46.28	.13	.97	.17	.09	.94
1779.250	12.18	36.85	41.74	.09	1.24	.12	.04	1.00
1779.500	12.14	42.66	48.22	.14	1.20	.16	.14	.88
1779.750	12.16	58.38	66.05	.28	1.12	.17	.18	.85
1794.750	12.27	56.11	63.87	.27	.41	.28	.25	.86
1795.000	12.23	54.64	62.07	.25	.35	.29	.25	.90
1795.250	12.22	51.43	58.38	.22	.30	.28	.26	.99
1795.500	12.30	53.52	61.04	.24	.30	.27	.26	1.00
1799.750	12.22	58.17	66.05	.28	.38	.26	.25	.93
1800.000	12.23	57.00	64.75	.27	.34	.28	.26	.92
1809.750	12.15	58.44	66.07	.28	.39	.23	.23	1.00
1810.000	12.26	54.55	62.07	.25	.37	.25	.25	.98

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TERRALOG - MAY 86 - 7

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
1810.250	12.28	54.66	62.26	.25	.32	.25	.24	1.00
1810.500	12.19	51.67	58.57	.22	.29	.23	.24	1.00
1810.750	12.31	45.14	51.51	.17	.29	.20	.21	1.00
1811.000	12.33	41.81	47.76	.14	.31	.16	.20	1.00
1811.250	12.42	42.98	49.35	.15	.34	.16	.20	1.00
1811.500	12.38	52.37	60.00	.24	.37	.18	.22	1.00
1813.250	12.36	56.91	65.11	.28	.34	.22	.24	1.00
1813.500	12.44	53.45	61.44	.25	.36	.22	.23	1.00
1813.750	12.45	57.43	66.05	.28	.38	.23	.23	1.00
1858.750	12.71	54.07	63.09	.26	1.48	.13	.11	.83
1874.250	12.54	57.36	66.31	.29	.41	.21	.24	1.00
1875.000	12.98	56.95	67.48	.29	.41	.23	.24	.98
1875.500	12.53	57.62	66.58	.29	.40	.25	.24	.95
1875.750	12.59	57.94	67.15	.29	.39	.26	.24	.90
1876.000	12.86	57.16	67.26	.29	.40	.27	.22	.87
1879.000	12.45	55.10	63.36	.26	.61	.16	.22	1.00
1879.250	12.68	53.33	62.15	.25	.61	.22	.23	.86
1909.000	12.36	57.39	65.65	.28	.49	.24	.22	.87
1914.750	12.35	56.88	65.04	.28	.49	.25	.22	.84
1915.750	12.34	57.74	66.00	.28	.67	.19	.19	.88
1916.000	12.37	55.00	62.96	.26	.78	.19	.19	.84
1916.250	12.34	52.41	59.91	.23	.79	.19	.18	.84
1916.500	12.36	55.46	63.44	.26	.78	.20	.18	.81
1916.750	12.39	55.13	63.19	.26	.77	.20	.19	.82
1917.000	12.43	51.59	59.27	.23	.77	.20	.18	.85
1917.250	12.42	52.57	60.35	.24	.64	.21	.19	.87
1917.500	12.59	56.83	65.86	.28	.59	.22	.21	.84
1917.750	12.72	55.49	64.77	.27	.54	.23	.22	.84
1918.000	12.52	56.22	64.90	.27	.52	.24	.21	.85
1918.500	12.37	53.48	61.23	.24	.47	.24	.21	.90
1918.750	12.51	47.49	54.79	.19	.47	.27	.23	.82
1919.000	12.74	53.14	62.12	.25	.55	.27	.23	.74

274146

TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASED 6/2/86

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
2328.000	12.52	37.60	43.40	.14	1.08	.24	.21	.96
2328.250	12.11	25.87	29.18	.03	.91	.30	.26	.88
2328.500	12.09	23.96	27.01	.01	.77	.30	.26	.96
2328.750	12.04	24.61	27.66	.02	.60	.29	.25	1.00
2329.000	12.02	26.72	29.99	.04	.52	.29	.25	1.00
2329.250	12.00	29.60	33.20	.06	.54	.28	.24	.98
2329.500	12.01	27.01	30.30	.04	.56	.28	.24	1.00
2329.750	12.00	25.25	28.32	.02	.59	.29	.24	1.00
2330.000	11.99	25.00	28.02	.02	.65	.29	.24	1.00
2330.250	11.97	24.42	27.34	.01	.71	.29	.24	.99
2330.500	11.97	26.37	29.53	.03	.75	.28	.24	.97
2330.750	11.98	27.94	31.29	.05	.76	.27	.23	1.00
2331.000	11.97	27.50	30.79	.04	.77	.26	.23	1.00
2331.250	11.97	25.78	28.87	.03	.77	.26	.24	1.00
2331.500	11.97	26.92	30.14	.04	.77	.27	.23	1.00
2331.750	11.99	25.86	28.98	.03	.78	.26	.23	.96
2332.000	12.02	25.33	28.43	.02	.79	.26	.23	.95
2332.250	11.99	26.50	29.70	.03	.80	.26	.22	.97
2332.500	11.99	24.01	26.91	.01	.79	.27	.23	.98
2333.000	11.97	26.49	29.65	.03	.79	.27	.23	.97
2333.250	11.97	30.63	34.28	.07	.77	.26	.23	1.00
2333.500	11.97	27.65	30.95	.04	.72	.27	.23	1.00
2333.750	11.97	26.57	29.74	.03	.67	.28	.24	1.00
2334.000	11.97	27.02	30.24	.04	.64	.28	.24	1.00
2334.250	11.98	25.22	28.25	.02	.63	.29	.24	1.00
2334.500	12.01	25.96	29.13	.03	.62	.28	.24	1.00
2334.750	12.03	26.14	29.37	.03	.63	.28	.24	1.00
2335.000	12.03	28.30	31.79	.05	.65	.28	.24	1.00
2335.250	12.04	26.95	30.28	.04	.69	.28	.24	1.00
2335.500	12.04	27.44	30.83	.04	.69	.28	.24	.96
2335.750	11.99	34.57	38.73	.10	.69	.28	.24	1.00
2336.000	11.97	37.54	42.01	.13	.69	.27	.24	.99
2336.250	11.96	39.84	44.58	.15	.69	.26	.24	1.00
2336.500	11.98	38.50	43.12	.14	.68	.26	.24	1.00
2336.750	12.02	40.77	45.77	.16	.67	.26	.24	1.00
2337.000	12.05	45.53	51.20	.20	.67	.24	.24	1.00
2409.000	12.23	54.30	61.68	.29	1.58	.19	.20	.87
2422.000	11.86	56.15	62.47	.29	1.77	.18	.20	.86
2424.000	11.84	55.43	61.59	.29	1.51	.21	.21	.85
2426.500	12.23	44.24	50.25	.20	2.65	.18	.17	.76
2426.750	12.23	34.98	39.74	.11	2.49	.20	.20	.74
2427.000	12.24	36.42	41.40	.13	2.32	.21	.21	.73
2427.250	12.31	42.57	48.59	.18	2.31	.21	.20	.72
2427.500	12.40	43.04	49.38	.19	2.37	.20	.19	.72
2427.750	12.52	46.75	53.98	.23	2.50	.19	.19	.72
2467.250	11.96	50.98	57.04	.25	1.66	.19	.20	.87
2468.000	12.09	54.56	61.47	.29	1.57	.18	.19	.92
2468.250	12.10	49.43	55.73	.24	1.50	.20	.19	.88
2468.500	12.09	46.74	52.69	.22	1.41	.22	.20	.87
2468.750	12.14	52.61	59.45	.27	1.36	.20	.20	.91
2469.000	12.19	53.91	61.10	.28	1.32	.20	.21	.93
2469.250	12.23	52.46	59.57	.27	1.28	.21	.21	.92
2469.500	12.23	45.28	51.44	.21	1.27	.23	.23	.88
2479.000	12.18	54.96	62.24	.29	2.58	.18	.16	.73
2479.250	12.18	47.08	53.32	.22	2.43	.17	.17	.79

display limited to Vsh (30% for 2310 - 2575m
used Rw = 0.07 ohm @ 88.2 deg C
used N-D shale corr. porosity
used Vsh from GR-RESBHC,Rsh = 7.0 ohm

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TERRALOG - MAY 86 - 6

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
2479.500	12.18	47.36	53.63	.22	2.41	.16	.17	.86
2479.750	12.17	48.31	54.70	.23	2.41	.15	.16	.88
2480.000	12.18	50.96	57.72	.26	2.43	.15	.15	.88
2480.250	12.18	52.23	59.15	.27	2.48	.15	.15	.88
2480.500	12.18	46.15	52.26	.21	2.55	.16	.16	.83
2480.750	12.18	48.82	55.30	.24	2.61	.15	.15	.86
2481.000	12.20	51.16	58.01	.26	2.66	.15	.15	.86
2481.250	12.22	51.57	58.53	.26	2.70	.14	.15	.87
2508.250	11.92	54.64	60.99	.28	2.92	.16	.16	.74
2508.500	11.97	54.37	60.87	.28	2.50	.17	.17	.77
2510.000	12.01	55.68	62.48	.29	2.21	.17	.16	.83
2510.250	12.07	55.11	62.04	.29	2.19	.16	.16	.84
2511.000	12.00	54.53	61.13	.28	2.10	.17	.17	.83
2511.250	12.00	45.50	51.01	.20	2.06	.18	.18	.85
2511.500	12.02	37.75	42.36	.13	2.03	.19	.19	.85
2511.750	12.00	37.28	41.81	.13	1.99	.18	.19	.89
2512.000	11.96	42.27	47.29	.17	1.95	.17	.19	.94
2512.250	11.96	45.87	51.31	.21	1.92	.18	.19	.88
2512.500	11.95	44.71	49.99	.20	1.86	.20	.19	.83
2512.750	11.95	47.87	53.53	.22	1.80	.18	.19	.90
2513.000	12.08	51.09	57.55	.26	1.94	.17	.19	.90
2514.250	11.97	55.48	62.12	.29	1.84	.19	.19	.81
2515.000	11.96	55.73	62.36	.29	1.72	.18	.18	.86
2515.250	11.95	55.77	62.34	.29	1.76	.18	.18	.88
2516.000	11.94	54.81	61.26	.29	1.88	.17	.18	.87
2516.250	11.94	52.54	58.72	.26	1.91	.18	.18	.84
2516.500	11.93	53.80	60.08	.28	1.95	.19	.18	.81
2535.500	11.98	54.61	61.17	.28	1.85	.17	.19	.89
2535.750	11.96	52.28	58.48	.26	1.81	.17	.20	.92
2536.250	12.02	55.23	61.98	.29	1.88	.16	.18	.91
2554.000	12.00	51.72	57.98	.26	2.05	.19	.19	.77
2554.250	11.99	52.02	58.30	.26	2.03	.19	.19	.77
2556.500	12.01	47.01	52.75	.22	2.19	.20	.20	.72
2556.750	12.05	46.86	52.69	.22	1.95	.21	.21	.76
2557.000	12.20	47.18	53.49	.22	1.86	.21	.21	.78
2557.250	12.19	42.65	48.35	.18	1.85	.21	.22	.77
2557.500	12.59	44.93	52.07	.21	2.18	.18	.19	.78

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TERRALOG - MAY 86 - 5
WELL NAME: CHAT #1
LOCATION: T-15P BASS BASIN
DATE: RIG RELEASE 6/2/86

DEPTH	CALRES	GR-RES	GR-RES BHC	VSH-GR BHC	ILDBHC	N-DPOR	PORSON SC	SW-IND
2916.500	13.31	41.81	50.45	.27	2.46	.22	.25	.87
2918.500	13.23	40.32	48.45	.25	2.52	.24	.25	.79
2918.750	13.20	39.03	46.83	.24	2.54	.24	.26	.80
2919.000	12.99	40.53	48.05	.25	2.59	.23	.27	.81
2919.250	13.00	37.07	43.98	.21	2.66	.22	.22	.85
2919.500	13.02	32.89	39.06	.17	2.96	.18	.14	1.00
2919.750	12.97	34.03	40.30	.18	3.10	.13	.15	1.00
2920.000	12.78	36.00	42.17	.20	2.69	.16	.17	1.00
2920.250	12.41	35.91	41.20	.19	1.61	.22	.24	1.00
2920.500	12.35	35.94	41.09	.19	1.59	.26	.26	.96
2920.750	12.35	37.85	43.28	.21	1.59	.25	.26	.97
2921.000	12.35	37.68	43.09	.21	1.59	.25	.25	.98
2921.250	12.35	38.35	43.86	.21	1.58	.25	.26	.98
2921.500	12.35	39.83	45.54	.23	1.58	.25	.27	.96
2921.750	12.51	41.43	47.79	.25	1.72	.24	.27	.95
2922.000	12.81	44.86	52.64	.29	1.80	.21	.24	1.00
2923.750	12.82	44.69	52.48	.29	6.12	.19	.21	.91
2924.250	12.63	44.07	51.20	.28	6.07	.19	.20	.92
2924.500	12.64	37.81	43.94	.21	6.02	.22	.22	.86
2924.750	12.61	39.45	45.76	.23	6.06	.23	.23	.83
2925.000	12.57	42.54	49.26	.26	6.07	.23	.23	.81
2925.250	12.56	39.30	45.47	.23	6.01	.24	.23	.80
2925.500	12.60	36.74	42.60	.20	6.08	.24	.25	.80
2925.750	12.61	37.38	43.38	.21	6.67	.23	.24	.80
2926.000	12.76	35.18	41.16	.19	6.96	.20	.20	.90
2926.250	12.96	33.37	39.49	.17	7.43	.14	.16	.80
2926.500	13.10	35.86	42.77	.20	10.31	.09	.06	.95
2926.750	13.49	36.09	44.01	.21	10.40	.06	.04	1.00
2927.000	13.62	37.41	45.96	.23	10.55	.06	.06	1.00
2927.250	13.54	37.11	45.37	.23	8.30	.09	.10	1.00
2927.500	13.34	38.70	46.77	.24	6.59	.12	.12	.89
2927.750	13.24	42.91	51.58	.28	6.23	.11	.13	.92
2928.250	13.30	40.50	48.86	.26	4.89	.14	.14	.89
2928.500	13.23	37.02	44.49	.22	4.38	.15	.14	.92
2928.750	13.24	37.88	45.55	.23	3.91	.17	.17	.89
2929.000	13.23	39.56	47.54	.25	3.42	.21	.22	.78
2929.250	13.24	38.87	46.73	.24	3.15	.23	.24	.74
2929.500	13.26	41.32	49.74	.27	3.19	.22	.20	.76
2929.750	13.27	41.61	50.12	.27	3.28	.19	.21	.86
2961.500	13.01	40.54	48.11	.25	8.09	.06	.05	1.00
2963.500	12.83	43.94	51.61	.28	3.47	.18	.21	.83
2964.250	12.80	44.58	52.29	.29	3.27	.20	.22	.80
2964.500	12.82	42.83	50.28	.27	3.71	.21	.21	.73
2964.750	12.88	37.50	44.18	.21	4.01	.18	.20	.82
2965.000	13.12	35.66	42.57	.20	4.18	.13	.17	1.00
2965.250	13.21	38.02	45.65	.23	4.35	.12	.18	1.00
2981.250	14.29	40.00	51.01	.28	5.51	.15	.08	.80
2993.000	14.27	40.36	51.41	.28	2.29	.28	.26	1.00
2993.250	14.49	36.28	46.78	.24	2.51	.29	.27	.95
2993.500	14.36	39.66	50.78	.28	2.65	.27	.26	.99
2994.750	15.30	36.82	49.69	.27	2.85	.31	.27	.85
2995.000	14.52	37.33	48.23	.25	2.82	.29	.27	.89

display limited to Vsh < 30% for 2900 - 3000m
used Rw = 0.15 ohm @ 104.8 deg C
used N-D shale corr. porosity
used Vsh from GR-RESBHC,Rsh = 11.0 ohm

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PETROLEUM GEOCHEMISTRY

HYDROCARBON SOURCE ROCK

EVALUATION STUDY

CHAT 1

Prepared for

BRIDGE OIL LIMITED

APRIL, 1986

ANALABS
A Division of Macdonald Hamilton & Co. Pty. Ltd.
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HYDROCARBON SOURCE ROCK

EVALUATION STUDY

CHAT 1

SUMMARY

Organic geochemical analyses performed on cuttings samples between 970m and 3000m from the Chat 1 well have indicated the following:

- sediments shallower than 2000m are immature and pre oil generative. Between 2000m and 3000m sediments are thought to be marginally mature and in the initial stages of hydrocarbon generation.

- the carbonaceous shales and coals show excellent organic richness and are predominantly oil prone.

- appreciable quantities of hydrocarbon are unlikely to have been sourced from the sediments penetrated by Chat 1 at present. However at greater thermal maturities the shaley horizons are considered to be excellent oil and gas sources.

STEVE CADMAN
April, 1986

INTRODUCTION

Organic geochemical analyses have been performed on sixty-four (64) canned cuttings samples and fifteen (15) washed and dried cuttings samples between 970m and 3000m in the Chat 1 well drilled by Bridge Oil Ltd., in T-15-P of the Bass Basin.

The purpose of this study has been to evaluate the thermal maturity and the hydrocarbon source potential of the sediments encountered in this well.

Analytical

Upon arrival at Analabs, samples were assigned the Analabs job number 42859. Sixty-four (64) canned cuttings samples were then submitted to C_1-C_7 headspace gas chromatography. Fifteen (15) washed and dried cuttings samples selected from intervals identified as shales on the electric logs were chosen for total organic carbon determination and Rock-Eval pyrolysis analysis. However, most of these samples contained large proportions of sand. Consequently, thirteen (13) were hand picked and the shaley/silty fraction analysed. Five unpicked cuttings samples from between 1740m and 2708m were sent to Professor Alan Cook for vitrinite reflectance measurement and coal maceral description.

The results of these analyses may be found in the following figures and tables:

Type of Analysis	Figure	Table
C_1-C_7 headspace gas chromatography	1	1
% total organic carbon determination	2	2
Rock-Eval pyrolysis	2	2
Vitrinite reflectance/coal maceral descriptions	2,3	3
Lithological descriptions		4

A description of these analyses may be found in the Theory and Methods section located at the rear of this report.

General Information

Copies of this report have been sent to Mr. C. Furr of Bridge Oil Ltd., Sydney. Any questions regarding this study may be directed to Steve Cadman of Analabs, located in Perth, Western Australia.

All data and interpretations contained herein are proprietary to Bridge Oil and are treated as highly confidential material by all Analabs personnel.

DISCUSSION OF THE RESULTS

A. Thermal Maturity of Sediments

Five vitrinite reflectance measurements between 1740m and 2709m indicate sediments within this interval are immature to, at best, marginally mature. Headspace gas data (Figure 1) confirms this interpretation. iC_4/nC_4 ratios are high in most instances, indicating sediments are of low thermal maturity. However, these ratios do decrease in the deeper section of this well (1950m to 3000m). % Gas wetness is fairly uniform throughout, suggesting significant oil generation has not yet commenced.

Tmax temperatures recorded between 1740m and 2709m average less than 430° C. Again, this indicates sediments penetrated by the Chat 1 well are pre oil generative. On the basis of the above data, the sediments encountered in Chat 1 have been divided into the following maturity intervals:

Interval (m)	Maturation	Generation Capability
0 - 2000	Immature	Pre oil generative
2000 - 3000	Marginally mature	Initial hydrocarbon generation.

B. Hydrocarbon Source Character

Organic richness (TOC) of the picked shale and coal lithologies is excellent (Table 2). However, it must be remembered that in some cases the organic rich shales and coals comprised as little as five percent of the bulk sample. Similarly hydrogen indices in most samples are high, indicating the shales are predominantly oil prone. This may be true for the picked lithologies, but overall these rocks may in fact possess a more gas prone character. Coal maceral descriptions (Table 3), seem to support this, with gas prone vitrinite predominating over the other macerals in all samples.

Volatile hydrocarbon yields (S_1) from the carbonaceous shales and coals suggest hydrocarbon generation may have commenced from these intervals. However, these sediments are of low thermal maturity and it is unlikely that major quantities of oil or gas have been sourced from these horizons at present. However, at greater levels of thermal maturity the carbonaceous shales encountered in Chat 1 would probably be excellent oil sources. Unfortunately, the volume of hydrocarbon generated from these source rocks may be limited by the restricted thickness of these organic-rich, oil prone shales.

5 cm

FIGURE 1

APRIL 1988

ANA-LOG

HYDROCARBON SOURCE ROCK EVALUATION

BRIDGE OIL LIMITED

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CHAT 1

LIME
DOLOMITE
CLAY
SILT
IGNEOUS
META
EVAPORITE

IN METRES ■ IN FEET

SAMPLE TYPE
■ CUTTINGS
□ CONV. CORE
□ SWC

SAMPLE QUALITY
□ POOR
□ FAIR
■ GOOD

C1 - C7 LIGHT HYDROCARBON

C1 - DRY GAS
C2 - C4 - WET GAS +
C1 - C4 - TOTAL GAS ×
C5 - C7 - CONDENSATE

% GAS WETNESS = $\frac{C2 - C4}{C1 - C4} \times 100$

iC4 - ISOBUTANE
nC4 - NORMAL BUTANE

PAE OIL WINDOW
OIL WINDOW
WET GAS/COND
THERMAL C_1

INDIGENOUS KEROGEN
□ ALGINITE
▨ EXINITE
◪ VITRINITE
■ INERTINITE
OIL / GAS

LITHOLOGY (Percent) 20 40 60 80	DEPTH	ORGANIC CARBON (Percent of Rock) .25 .5 1 2 4	C1 - C4 ppm 100 1000 10000	% GAS WETNESS 25 50 75	C5 - C7 ppm 100 1000 10000	iC4/nC4 1 2 3	▲ VITRINITE REFLECTANCE .6 1.2 1.8	INDIGENOUS KEROGEN 25 50 75 % IND
	1000							
	1100							
	1200							
	1300							
	1400							
	1500							
	1600							
	1700							
	1800							
	1900							
	2000							
	2100							
	2200							
	2300							
	2400							
	2500							
	2600							
	2700							
	2800							
	2900							
	3000							

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5 cm

274157

FIGURE 1 A

APRIL 1986

ANA-LOG

HYDROCARBON SOURCE ROCK EVALUATION

BRIDGE OIL LIMITED

CHAT 1

LIME
DOLOMITE
CLAY
SILT
SAND
COAL
IGNEOUS
META
EVAPORITE

IN METRES ■ IN FEET □

SAMPLE TYPE
■ CUTTINGS
□ CONV. CORE
□ SWC

SAMPLE QUALITY
□ POOR
□ FAIR
■ GOOD

C1 - C7 LIGHT HYDROCARBON

C1 - DRY GAS
C2 - C4 - WET GAS +
C1 - C4 - TOTAL GAS ×
C5 - C7 - CONDENSATE

% GAS WETNESS = $\frac{C2 - C4}{C1 - C4} \times 100$

iC4 - ISOBUTANE
nC4 - NORMAL BUTANE

PRE OIL WINDOW
OIL WINDOW
WET GAS/COND
THERMAL C_1

INDIGENOUS KEROGEN
ALGINITE
EXINITE
VITRINITE
INERTINITE
OIL
GAS

LITHOLOGY (Percent) 20 40 80 80	DEPTH	ORGANIC CARBON (Percent of Rock) .25 .5 1 2 4	C1 - C4 ppm 100 1000 10000	% GAS WETNESS 25 50 75	C5 - C7 ppm 100 1000 10000	iC4/nC4 1 2 3	▲ VITRINITE REFLECTANCE .6 1.2 1.8	INDIGENOUS KEROGEN 25 50 75	% IND
	1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000								

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5 cm

FIGURE 2

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ANA-LOG

HYDROCARBON SOURCE ROCK EVALUATION

BRIDGE OIL LIMITED

CHAT 1

LIME
DOLOMITE
CLAY
SILT
IGNEOUS
META
EVAPORITE

IN METRES / IN FEET

SAMPLE TYPE
■ CUTTINGS
□ CONV. CORE
□ SWC

SAMPLE QUALITY
□ POOR
□ FAIR
■ GOOD

S_1 = VOLATILE HYDROCARBONS (HC) ×

S_2 = HC GENERATION POTENTIAL

$S_1 + S_2$ = TOTAL HYDROCARBON

S_3 = ORGANIC CO_2

PI = PRODUCTION INDEX $= \frac{S_1}{S_1 + S_2}$

HI = HYDROGEN INDEX $= \frac{S_2}{TOC} \times 100$

OI = OXYGEN INDEX $= \frac{S_3}{TOC} \times 100$

T_{max} [Max. Temp. S_2]

PRE OIL WINDOW | OIL WINDOW | WET GAS/COND | THERMAL C_1

INDIGENOUS KERogen
ALGINITE
EXINITE
VITRINITE
INERTINITE
OIL / GAS

LITHOLOGY (Percent) 20 40 80 80

DEPTH

ORGANIC CARBON (Percent of Rock) 1 2 4 8 16 32

PYROLYSIS YIELD (mg/g Rock)
S_1; S_1+S_2 2 4 8 16 32 64
S_3 1 2 3 4

PI .2 .4

■ HI ▲ OI 100 200 300

T_{max} °C 435 460

▲ VITRINITE REFLECTANCE .6 1.0 1.5

INDIGENOUS KERogen 25 50 75 % IND

1750 Shale
1800
1850 Shale
1900 Shale
1950 Shale
2000
2050 Coal
2100
2150
2200
2250
2300
2350 Coal
Coal
2400 Siltst
2450 Shale
2500 Shale
Shale
2550 Shale
2600
Shale
2650
Unpicked
2700 Unpicked

100
87
100
100
100

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5 cm

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FIGURE 2

APRIL 1986

ANA-LOG

HYDROCARBON SOURCE ROCK EVALUATION

BRIDGE OIL LIMITED

CHAT 1

LIME
DOLOMITE
CLAY
SILT
SAND
COAL
IGNEOUS
META
EVAPORITE

IN METRES ■ IN FEET □

SAMPLE TYPE
■ CUTTINGS
□ CONV. CORE
□ SWC

SAMPLE QUALITY
□ POOR
□ FAIR
■ GOOD

S_1 = VOLATILE HYDROCARBONS (HC) ×

S_2 = HC GENERATION POTENTIAL

$S_1 + S_2$ = TOTAL HYDROCARBON + PI = PRODUCTION INDEX

$PI = \frac{S_1}{S_1 + S_2}$

S_3 = ORGANIC CO_2

HI = HYDROGEN INDEX

$HI = \frac{S_2}{TOC} \times 100$

OI = OXYGEN INDEX

$OI = \frac{S_3}{TOC} \times 100$ T_{max} [Max. Temp. S_2]

PRE OIL WINDOW | OIL WINDOW | WET GAS/COND | THERMAL C_1

INDIGENOUS KEROGEN
ALGINITE
EXINITE
VITRINITE
INERTINITE
OIL / GAS

LITHOLOGY (Percent) 20 40 80 80	DEPTH	ORGANIC CARBON (Percent of Rock) 1 2 4 8 16 32	PYROLYSIS YIELD (mg/g Rock) S_1; S_1+S_2 2 4 8 16 32 64	S_3 1 2 3 4	PI .2 .4	■ HI ▲ OI 100 200 300	T_{max} °C 435 460	▲ VITRINITE REFLECTANCE .6 1.2 1.5	INDIGENOUS KEROGEN 25 50 75	% IND
	1750	Shale								
	1800	Shale								
	1850									
	1900	Shale								
	1950	Shale								
	2000									
	2050	Coal								87
	2100									
	2150									
	2200									
	2250									
	2300									
	2350	Coal								
		Coal								
	2400	Siltst								
	2450	Shale								100
	2500	Shale								
		Shale								
	2550	Shale								100
	2600									
		Shale								
	2650									
		Unpicked								
	2700	Unpicked								100

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5 cm

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FIGURE : 3a
VITRINITE REFLECTANCE AND COAL MACERAL IDENTIFICATION

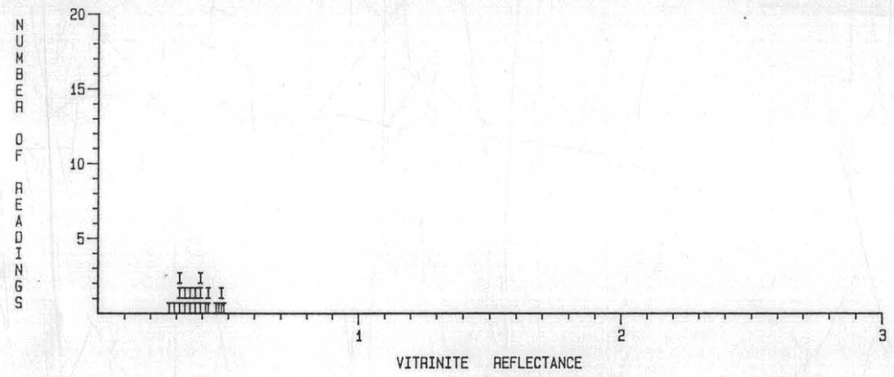
CLIENT NAME : BRIDGE OIL LTD. DATE : APRIL 1986 WELL NAME : CHAT 1

DEPTH OR SAMPLE No : 1740 Metres SAMPLE TYPE : Cuttings

(Total No. of Readings = 22) 0.27 0.29 0.31 0.31 0.31 0.33 0.33 0.35 0.35 0.37 0.37 0.39 0.39 0.39 0.41 0.42 0.42 0.45 0.46 0.47 0.47 0.48

VITRINITE REFLECTANCE — MACERAL IDENTIFICATION

POPULATION Number	POPULATION %	No. of Readings	Mean Ro (%)	Min. Ro (%)	Max. Ro (%)	STD. Dev. (%)	Comments	% Alginite	% Exinite	% Vitrinite	% Inertinite
1	100	22	0.38	0.27	0.48	0.06	INDIGENOUS (I)	0.00	25.00	64.00	11.00



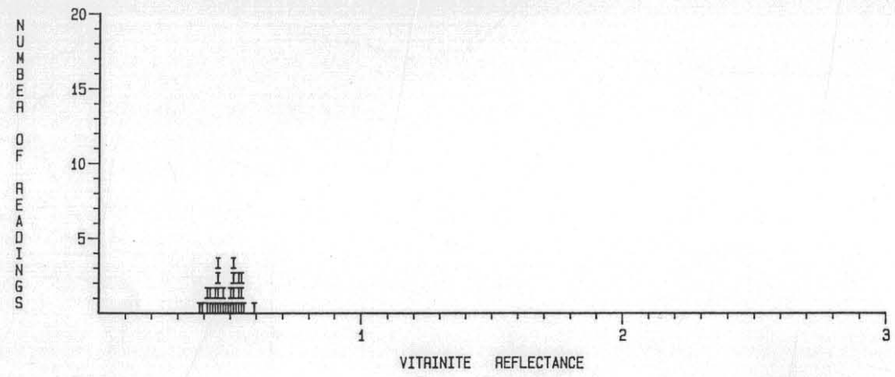
CLIENT NAME : BRIDGE OIL LTD. DATE : APRIL 1986 WELL NAME : CHAT 1

DEPTH OR SAMPLE No : 2454 Metres SAMPLE TYPE : Cuttings

(Total No. of Readings = 33) 0.38 0.39 0.41 0.41 0.42 0.42 0.43 0.44 0.44 0.45 0.45 0.45 0.45 0.46 0.47 0.47 0.48 0.49 0.50 0.50 0.51 0.51 0.51 0.51 0.52 0.53 0.53 0.53 0.54 0.54 0.54 0.55 0.59

VITRINITE REFLECTANCE — MACERAL IDENTIFICATION

POPULATION Number	POPULATION %	No. of Readings	Mean Ro (%)	Min. Ro (%)	Max. Ro (%)	STD. Dev. (%)	Comments	% Alginite	% Exinite	% Vitrinite	% Inertinite
1	100	33	0.48	0.38	0.59	0.05	INDIGENOUS (I)	0.00	11.00	87.00	2.00



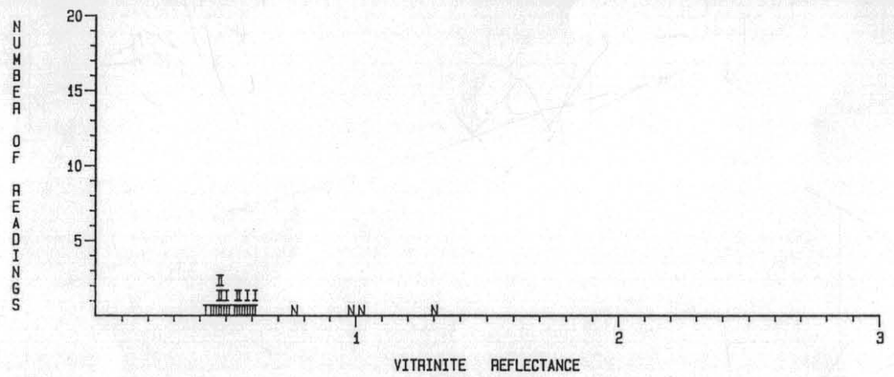
CLIENT NAME : BRIDGE OIL LTD. DATE : APRIL 1986 WELL NAME : CHAT 1

DEPTH OR SAMPLE No : 2058 Metres SAMPLE TYPE : Cuttings

(Total No. of Readings = 31) 0.42 0.44 0.45 0.46 0.47 0.47 0.47 0.48 0.48 0.48 0.49 0.50 0.50 0.51 0.53 0.54 0.54 0.55 0.55 0.56 0.57 0.58 0.58 0.59 0.60 0.61 0.61 0.76 0.98 1.02 1.30

VITRINITE REFLECTANCE — MACERAL IDENTIFICATION

POPULATION Number	POPULATION %	No. of Readings	Mean Ro (%)	Min. Ro (%)	Max. Ro (%)	STD. Dev. (%)	Comments	% Alginite	% Exinite	% Vitrinite	% Inertinite
1	87.1	27	0.52	0.42	0.61	0.06	INDIGENOUS (I)	0.00	9.00	79.00	12.00
2	12.9	4	1.02	0.76	1.30	0.22	INERTINITE (N)	No data	No data	No data	No data



CLIENT NAME : BRIDGE OIL LTD. DATE : APRIL 1986 WELL NAME : CHAT 1

DEPTH OR SAMPLE No : 2550 Metres SAMPLE TYPE : Cuttings

(Total No. of Readings = 28) 0.43 0.44 0.45 0.47 0.47 0.48 0.49 0.49 0.50 0.50 0.51 0.51 0.52 0.52 0.52 0.53 0.53 0.53 0.53 0.53 0.55 0.55 0.56 0.57 0.57 0.58 0.59 0.65

VITRINITE REFLECTANCE — MACERAL IDENTIFICATION

POPULATION Number	POPULATION %	No. of Readings	Mean Ro (%)	Min. Ro (%)	Max. Ro (%)	STD. Dev. (%)	Comments	% Alginite	% Exinite	% Vitrinite	% Inertinite
1	100	28	0.52	0.43	0.65	0.05	INDIGENOUS (I)	0.00	27.00	71.00	2.00

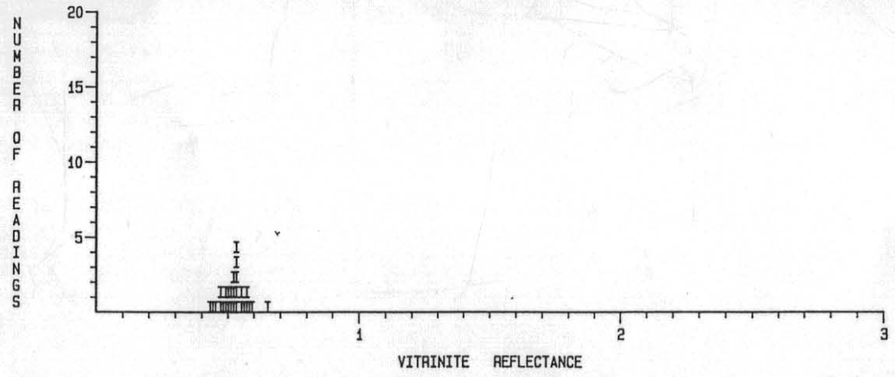


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FIGURE : 3b
VITRINITE REFLECTANCE AND COAL MACERAL IDENTIFICATION

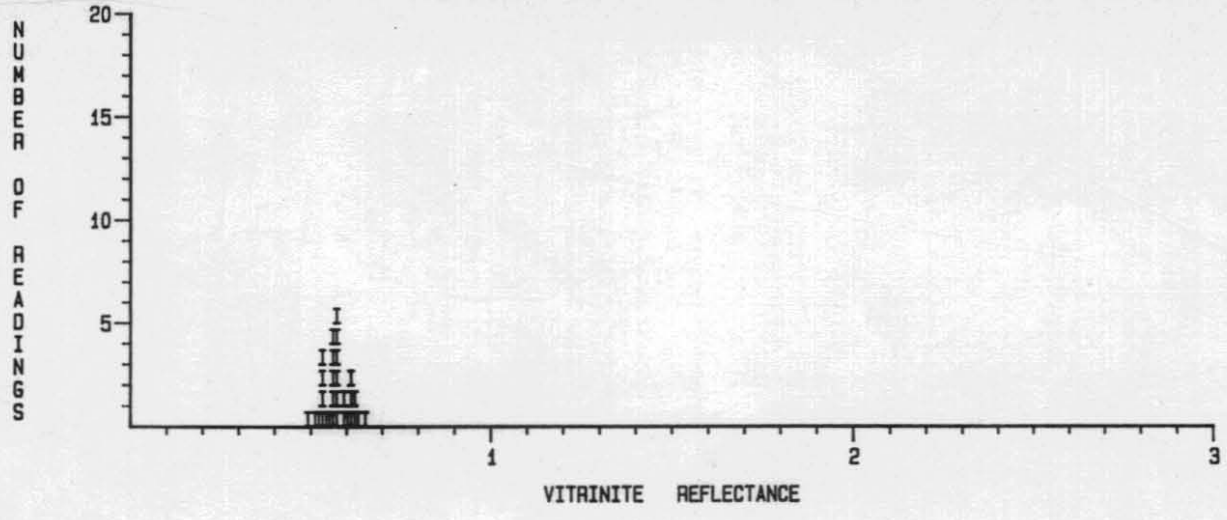
CLIENT NAME : BRIDGE OIL LTD. DATE : APRIL 1988 WELL NAME : CHAT 1

DEPTH OR SAMPLE No : 2709 Metres SAMPLE TYPE : Cuttings

(Total No. of Readings = 30) 0.49 0.51 0.52 0.53 0.53 0.53 0.53 0.54 0.55 0.56 0.56 0.56 0.58 0.58 0.57 0.57 0.5
0.57 0.57 0.57 0.59 0.59 0.60 0.61 0.61 0.61 0.62 0.62 0.63 0.65

VITRINITE REFLECTANCE — MACERAL IDENTIFICATION

POPULATION		No. of	Mean	Min.	Max.	STD.		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev. (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100	30	0.57	0.49	0.65	0.04	INDIGENOUS (I)	0.00	24.00	68.00	8.00



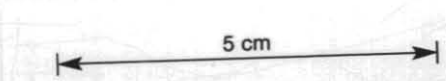


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TABLE 1

WELLNAME = CHAT 1

DATE OF JOB = APRIL 1986

HEADSPACE ANALYSIS DATA

DEPTH(m)	METHANE	ETHANE	PROPANE	ISOBUTANE	BUTANE	C1-C4	C2-C4	%WETNESS	C5-C7	i-C4/n-C4
970.0-1020.0	65.0	16.0	10.0	3.5	3.9	98.5	33.5	34.0	10.4	0.91
1020.0-1070.0	48.4	12.7	14.2	5.6	6.5	87.5	39.1	44.6	29.7	0.87
1070.0-1120.0	274.4	4.7	4.9	1.6	2.0	287.6	13.2	4.6	6.9	0.79
1120.0-1170.0	256.2	9.6	10.6	3.9	2.6	282.9	26.8	9.5	12.7	1.53
1170.0-1200.0	75.0	17.9	12.0	4.9	2.5	112.4	37.3	33.2	12.9	2.00
1200.0-1230.0	179.1	10.8	7.8	3.4	1.7	202.8	23.7	11.7	9.1	1.98
1230.0-1260.0	81.1	3.2	3.6	1.6	1.1	90.5	9.4	10.4	4.0	1.50
1260.0-1290.0	127.2	3.4	4.2	2.2	1.1	138.1	10.9	7.9	4.1	2.04
1290.0-1320.0	318.6	37.2	42.9	16.6	6.0	421.3	102.7	24.4	15.5	2.78
1320.0-1350.0	293.3	57.4	64.9	29.2	9.1	453.9	160.6	35.4	21.3	3.22
1350.0-1380.0	442.6	76.2	75.7	31.2	9.3	635.0	192.3	30.3	16.9	3.35
1380.0-1410.0	268.0	42.1	30.5	21.9	6.7	369.2	101.2	27.4	15.2	3.25
1410.0-1440.0	417.0	89.6	95.1	42.4	11.8	655.8	238.8	36.4	22.4	3.61
1440.0-1470.0	295.1	33.7	42.2	19.6	6.9	397.5	102.4	25.8	21.5	2.85
1470.0-1500.0	7273.9	9.5	16.5	10.4	3.7	7314.0	40.1	.5	10.7	2.85
1500.0-1530.0	7142.1	6.8	10.6	6.9	2.5	7168.9	26.8	.4	7.8	2.77
1530.0-1560.0	80.7	37.9	50.8	21.4	6.4	197.2	116.5	59.1	6.6	3.33
1560.0-1590.0	289.1	104.1	57.1	16.0	4.5	470.8	181.7	38.6	2.0	3.58
1590.0-1620.0	388.3	105.5	91.0	29.8	7.9	622.5	234.2	37.6	5.8	3.78
1620.0-1650.0	443.9	153.1	107.8	33.9	8.5	747.1	303.2	40.6	11.9	4.00
1680.0-1710.0	378.4	141.8	92.1	32.3	7.8	652.5	274.0	42.0	10.5	4.11
1710.0-1740.0	181.7	93.3	95.0	43.4	11.0	424.3	242.6	57.2	19.4	3.94
1740.0-1770.0	242.9	22.5	29.1	15.1	4.0	313.6	70.7	22.6	10.7	3.78
1770.0-1800.0	451.6	147.5	119.8	41.8	9.5	770.1	318.6	41.4	17.9	4.38
1800.0-1830.0	3070.2	858.3	475.7	120.2	26.6	4551.0	1480.8	32.5	48.5	4.51
1830.0-1860.0	1292.3	527.2	379.8	109.3	26.2	2334.8	1042.5	44.7	57.1	4.17
1860.0-1890.0	2196.6	522.7	363.0	108.4	22.7	3213.3	1016.7	31.6	44.3	4.78
1890.0-1920.0	25796.4	342.3	260.5	86.9	20.8	26506.9	710.5	2.7	51.2	4.18
1920.0-1950.0	2585.7	513.2	233.6	84.5	17.5	3434.5	848.9	24.7	48.4	4.83
1950.0-1980.0	11618.3	1789.1	559.7	161.2	35.2	14163.5	2545.2	18.0	88.9	4.58
1980.0-2010.0	2125.8	423.8	171.1	59.6	13.1	2793.4	667.6	23.9	28.9	4.54
2010.0-2040.0	2120.0	372.4	164.0	55.9	15.2	2727.5	607.5	22.3	47.6	3.68
2040.0-2070.0	919.2	249.5	150.1	57.4	17.4	1393.6	474.3	34.0	54.4	3.30
2070.0-2100.0	1482.6	307.1	152.2	50.9	16.3	2009.2	526.6	26.2	49.4	3.12
2100.0-2130.0	428.8	99.6	61.7	24.7	9.7	624.5	195.7	31.3	32.5	2.54
2130.0-2160.0	80.8	41.8	49.9	25.3	9.8	207.6	126.8	61.1	48.6	2.57
2160.0-2190.0	276.2	86.0	64.7	27.3	9.8	464.0	187.8	40.5	26.5	2.80
2190.0-2220.0	376.0	129.2	107.2	45.3	18.8	676.5	300.5	44.4	62.8	2.41
2220.0-2250.0	431.4	184.6	183.6	85.4	35.3	920.3	488.9	53.1	149.1	2.42
2250.0-2280.0	957.8	243.0	199.9	75.2	30.2	1506.1	548.3	36.4	81.8	2.49
2280.0-2310.0	15529.6	400.5	272.8	94.1	36.8	16333.9	804.2	4.9	73.5	2.55
2310.0-2340.0	8806.5	438.7	237.7	75.3	28.3	9586.5	780.0	8.1	58.6	2.66
2340.0-2370.0	1233.8	278.8	191.4	61.4	23.1	1788.4	554.7	31.0	45.8	2.66
2370.0-2400.0	4220.4	557.7	321.6	95.6	34.0	5229.4	1008.9	19.3	48.8	2.81
2400.0-2430.0	15521.2	187.2	133.2	45.2	18.7	15905.5	384.4	2.4	31.3	2.41
2430.0-2460.0	3881.9	244.3	166.4	55.3	25.8	4373.8	491.9	11.2	45.0	2.14
2460.0-2490.0	1793.1	364.5	218.2	74.3	32.1	2482.2	689.1	27.8	55.5	2.31
2490.0-2520.0	6157.5	1132.9	594.7	164.2	81.2	8130.6	1973.1	24.3	136.2	2.02

N.B. 1. GAS CONCENTRATIONS EXPRESSED IN PPM (VOL. GAS/VOL. SEDIMENT)
2. bdl = BELOW DETECTION LIMIT

TABLE 1 (cont)

WELLNAME = CHAT 1

DATE OF JOB = APRIL 1986

HEADSPACE ANALYSIS DATA

DEPTH(m)	METHANE	ETHANE	PROPANE	ISOBUTANE	BUTANE	C1-C4	C2-C4	%WETNESS	C5-C7	i-C4/n-C4
2520.0-2550.0	7112.0	1164.6	631.0	161.2	84.3	9153.2	2041.2	22.3	156.3	1.91
2550.0-2580.0	26495.5	814.6	473.8	121.3	63.0	27968.3	1472.7	5.3	126.5	1.93
2580.0-2610.0	14009.0	438.8	270.1	76.0	38.3	14832.2	823.1	5.5	83.0	1.99
2610.0-2640.0	1775.4	452.4	322.2	91.0	45.3	2686.3	910.9	33.9	91.7	2.01
2640.0-2670.0	1452.6	301.7	201.2	52.7	29.7	2037.9	585.3	28.7	57.3	1.78
2670.0-2700.0	4468.1	627.9	272.6	59.8	30.9	5459.2	991.1	18.2	47.7	1.94
2700.0-2730.0	3324.5	277.8	114.0	27.8	14.3	3758.4	433.9	11.5	20.0	1.95
2730.0-2760.0	6620.5	197.1	104.4	24.7	15.0	6961.6	341.2	4.9	21.2	1.65
2760.0-2790.0	471.9	102.2	60.9	17.1	9.5	661.7	189.8	28.7	12.0	1.81
2790.0-2820.0	2813.2	338.5	134.3	33.4	20.0	3339.3	526.1	15.8	26.8	1.67
2820.0-2850.0	47082.7	70.8	60.4	19.8	12.1	47245.8	163.1	.3	17.5	1.64
2850.0-2880.0	4466.4	495.9	175.4	37.5	19.2	5194.4	728.0	14.0	25.4	1.95
2880.0-2910.0	3910.2	399.2	122.0	23.6	15.1	4470.1	559.9	12.5	18.4	1.56
2910.0-2940.0	1642.4	183.2	59.0	12.5	6.7	1903.8	261.4	13.7	6.3	1.85
2940.0-2970.0	140.2	27.0	20.9	5.7	4.7	198.6	58.4	29.4	3.2	1.21
2970.0-3000.0	56.1	19.4	26.1	10.4	8.7	120.6	64.5	53.5	9.1	1.19

N.B. 1. GAS CONCENTRATIONS EXPRESSED IN PPM (VOL. GAS/VOL. SEDIMENT)
2. bdl = BELOW DETECTION LIMIT

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TABLE 2

ROCK-EVAL PYROLYSIS DATA (one run)

WELLNAME = CHAT 1 (Washed & Dried Cuttings)

DATE OF JOB = APRIL 1986

DEPTH(m)	LITH.	TMAX	S1	S2	S3	S1+S2	S2/S3	PI	PC	TOC	HI	OI
1740.0	Sh	427	1.53	54.17	0.01	55.70	5417.0	0.03	4.62	23.30	232	1
1824.0	Sh	427	5.83	126.66	3.80	132.49	33.33	0.04	11.00	37.63	336	10
1899.0	Sh	420	4.15	69.60	3.46	73.75	20.12	0.06	6.12	26.09	266	13
1953.0	Sh	430	3.26	74.61	8.07	77.87	9.25	0.04	6.46	51.68	144	15
2058.0	Coal	417	5.14	76.61	4.85	81.75	15.80	0.06	6.79	40.10	191	12
2355.0	Coal	423	9.05	121.25	2.76	130.30	43.93	0.07	10.81	31.62	383	8
2373.0	Coal	425	3.00	53.98	1.91	56.98	28.26	0.05	4.73	17.15	314	11
2415.0	Slt	439	0.09	1.42	1.87	1.51	0.76	0.06	0.13	1.68	84	111
2454.0	Sh	428	1.85	36.08	0.80	37.93	45.10	0.05	3.15	8.99	401	8
2496.0	Sh	430	2.50	56.48	4.53	58.98	12.47	0.04	4.90	17.88	315	25
2520.0	Sh	424	3.35	52.73	1.40	56.08	37.66	0.06	4.65	15.59	338	8
2550.0	Sh	429	1.25	29.89	0.94	31.14	31.80	0.04	2.58	8.05	371	11
2628.0	Sh	426	2.76	43.33	0.95	46.09	45.61	0.06	3.83	11.82	366	8
2679.0	Wh	429	0.51	10.08	0.86	10.59	11.72	0.05	0.88	3.31	304	25
2709.0	Wh	430	0.45	14.67	0.72	15.12	20.38	0.03	1.25	4.33	338	16

TMAX = Max. temperature S2
S1 = Volatile hydrocarbons (HC)
S2 = HC generating potential
S1+S2 = Potential yield
S3 = Organic carbon dioxide
PI = Production index
PC = Pyrolysable carbon
TOC = Total organic carbon
HI = Hydrogen index
OI = Oxygen Index
nd = no data
Wh = Whole sample analysed
Sh = Shale
Slt = Siltstone

TABLE 3

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A1/1

CHAT NO. 1

K.K. No.	Depth (m)	$\bar{R}_v$max	Range	N	Description including Exinite Fluorescence
x4797	1740 Ctgs	0.38	0.27-0.48	22	Sparse sporinite, yellow to dull orange, rare cutinite, orange to dull orange, rare resinite, yellow to orange. (Sandstone>claystone>carbonate>shaly coal. Shaly coal sparse, V>>E. Clarite. Dom common, V>E>I. Vitrinite and exinite sparse, inertinite rare. Pyrite abundant.)
x4798	2058 Ctgs	0.52	0.42-0.61	27	Common sporinite, yellow to orange, rare to sparse, resinite yellow to orange, rare cutinite, orange to dull orange, rare liptodetrinite, yellow to dull orange. (Sandstone>coal> siltstone>carbonate>shaly coal. Coal abundant, V>I>E. Vitrite>durociarite>ciarite. Shaly coal rare, V>>E. Ciarite. Dom rare to sparse, V>I>E. Vitrinite rare to sparse, inertinite and exinite rare. Moderate oil cut from vitrinite in coal. Lower Eastern View Facies. Pyrite sparse.)
x4799	2454 Ctgs	0.48	0.38-0.59	33	Common sporinite, yellow to orange, sparse liptodetrinite, yellow to dull orange, rare cutinite, orange to dull orange, rare resinite, yellow to orange. (Sandstone> carbonate>claystone>coal>shaly coal. Coal abundant, V>>E>I. Vitrite>ciarite=durociarite. Shaly coal sparse, V>>E. Vitrite>ciarite. Dom common, V>E>I. Vitrinite sparse to common, exinite sparse, inertinite rare. Vitrinite shows dull orange to brown fluorescence. Moderate to strong oil cut from vitrinite in coal. Pyrite sparse.)
x4800	2550 Ctgs	0.52	0.43-0.65	28	Common liptodetrinite, bright yellow to orange yellow, common sporinite, yellow, sparse cutinite, yellow to dull orange, sparse resinite, orange to dull orange. (Sandstone>siltstone>carbonate>shaly coal>coal. Coal sparse, vitrite. Shaly coal common, V>E. Ciarite>vitrite. Dom abundant, V>E>I. Vitrinite abundant, exinite common, inertinite rare. Moderate green oil cut rare from vitrinite in coal. Pyrite sparse.)
x4801	2709 Ctgs	0.57	0.49-0.65	30	Common liptodetrinite, bright yellow to orange, sparse sporinite, yellow, sparse cutinite, yellow to orange, sparse resinite, yellow orange to orange. (Sandstone>siltstone> carbonate>shaly coal>coal. Coal sparse, vitrite. Shaly coal sparse, V>E>I. Ciarite>vitrite. Dom common to abundant, V>E>I. Vitrinite and exinite common, inertinite sparse. Some vitrinite shows weak brown fluorescence. Pyrite sparse.)

TABLE 4

LITHOLOGICAL DESCRIPTIONS

CHAT 1

Depth (m)	Description
1740	Sand 95% clr-opaq, c-vc, lse, subang-subrnd, mod well srtd qtz grs, occ pyr cmt. Siltstone trace only. lt gy, hd, qrtzse and silic. *Shale 5% dk gy-brn-blk, frm, v carb and coaly.
1824	Sand 80% clr-opaq, m-c, occ f, lse, subang, poorly srtd lse qtz grs and pyrtc aggs. *Shale 20% m gy-brn-blk, frm-mod hd, v carb, grdng to coal in pt, brit in pt.
1899	Sand 30% clr-opaq, m-vc, subang, lse, v poorly srtd, qtz grs, tr pyr cmt. *Shale 10% dk gy-brn-blk, mod hd-brit, v carb, grdng to coal in pt. Siltstone 60% lt-m gy to gy-brn, sft, v arg in pt, calc.
1953	Sandstone 40% trnsl-opaq, f-vc, lse subang-subrnd poorly srtd grs and well cmtd sil aggs, occ pyr cmt. *Shale 60% m gy-brn-dk gy-blk, frm-mod hd, v slty in pt, v carb and coaly in pt.
2058	Sandstone 70% clr-opaq, vf-m, lse, subang-subrnd, poorly srtd qtz grs and sil aggs, tr pyr cmt. Siltstone 20% lt-m gy-brn, sft, arg. *Coal 10% dk brn-blk, sft-frm, arg and shaley in pt.
2355	Sand 85% clr-wh-opaq, vf-m, lse, ang-subang, poorly srtd grs and well cmtd sil aggs, tr Lst. Siltstone 10% lt-m gy, sft-frm, occ brit. *Coal 5% blk, frm-mod hd, arg in pt, shaley in pt.
2373	Sand 90% A/A Siltstone 5% A/A *Coal 5% A/a
2415	Sand 50% trnsl-opaq, vf-m, lse, poorly srtd, subang-subrnd qtz grs. *Siltstone 50% lt-m gy-brn, sft, occ frm, v arg in pt, tr coal.
2454	Sand 70% wh-opaq, vf-m, lse, poorly srtd, subang-subrnd qtz grs and sil aggs. *Shale 30% lt-m gy to dk gy-blk, frm-mod hd, v slty and sft in pt, v carb and coaly in pt.
2496	Sand 10% A/A *Shale 90% A/A
2520	Sand 90% A/A *Shale 10% A/A
2550	Sand 5% A/A *Shale 95% dk gy, frm-mod hd, slty in pt, carb in pt

TABLE 4 Cont'd.

LITHOLOGICAL DESCRIPTIONS

CHAT 1

Depth (m)	Description
2628	Sandstone 60% trnsl-opaq-wh, vf-f, occ m, lse, subang-subrnd, poorly srtd qtz grs and well cmtd sil aggs. *Shale 40% m-dk gy-blk, frm, v slty, v carb and coaly in pt.
2679	Sandstone 15% A/A Shale 85% A/A *TOC/RE on whole sample
2709	Sandstone 5% A/A Shale 95% A/A *TOC/RE on whole sample

* - lithology picked for TOC/RE

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THEORY AND METHODS

This section details a series of geochemical methods which are commonly used in our laboratory, including those used to obtain the data presented in this report. Where applicable, the discussion is accompanied by a summary of the general theory used to interpret the data generated by each method.

1. SEDIMENTARY GAS ANALYSIS

a) Headspace Analysis

Headspace analysis is carried out using sealed containers (usually tinned cans) of wet cuttings. The containers are approximately three quarters filled with the cuttings and water to leave an appreciable headspace into which volatile hydrocarbons contained in the cuttings diffuse.

After covering about 1cm2 of the container lid with silicone and allowing the silicone to dry, the procedure involves placing a small hole in the lid through the silicone, then sampling an aliquot of the headspace gas with a gas injection syringe, and finally gas chromatographing this sample of gas under the following conditions: instrument = Shimadzu GC-8APF; column = 6' x 1/8" Chromosorb 102; column temperature = 110 Deg. C; carrier gas = nitrogen at 23mls/min; injector temperature = 120 Deg. C.; analysis cycle = C1-C4 components are flushed from the column in the forward direction and then the C5-C7 compounds are removed from the column by backflushing.

The integrated areas of peaks representing each of the C1-C7 components of the headspace gas are compared to the areas of corresponding components of a standard gas of known composition. The calculated amount of each component in the sample gas is adjusted for the total headspace volume and reported as ppm (parts of gas per million parts of sediment by volume).

Data from headspace analysis is commonly used to identify the zone of oil generation by plotting gas wetness (C2-C4/C1-C4) expressed as a % against sediment burial depth. Gas containing appreciable quantities of C2-C4 components, termed wet gas (Fuex, 1977), is generally considered to be gas associated with oil generation. In addition, the ratio of isomeric butanes can sometimes be used for assessment of sediment maturity (Alexander et. al., 1981). The amount of gas in sediments can be used to identify zones of significant gas generation and out-of-place gas (LeTran et. al., 1975).

b) Cuttings Gas Analysis

This analysis is the same as Headspace Analysis with the exception that instead of analysing the gas in the container headspace, a known volume of the wet cuttings are transferred to the blender bowl of a Kenwood electronic blender with the lid modified to incorporate a septum, water at 75 Deg. C is added to leave a headspace of 160ml, and the mixture is blended at maximum speed for 2 minutes. Following a 2 minute settling period 1ml of the blending bowl headspace gas is analysed as described in section 1a.

It is recommended that for the most meaningful gas data both headspace and cuttings gas analysis are carried out. In such cases we provide tabulations of the headspace, gas, and combined headspace/cuttings gas data. Normally, the combined data is used for plotting purposes.

2. SAMPLE PREPARATION

a) Cuttings

Cuttings samples are inspected by our qualified geological staff and then water washed according to the drilling mud content and lithology. In special cases (e.g. diesel contamination) it is necessary to lightly solvent wash samples. After washing, the samples are air dried, either sieved or picked free of cavings, and crushed to 0.1mm using a ring pulveriser.

b) Sidewall Cores

Sidewall samples are freed of mud cake and any other visible contaminants, and are also inspected for lithologic homogeneity. For homogeneous samples, the minimum amount of material required for the requested analyses is air dried and handcrushed to 0.1mm. For non-homogeneous samples, the whole sample is air dried and handcrushed to 0.1mm.

c) Conventional Core and Outcrop Samples

These sample types are firstly inspected for visible contaminants, and where applicable, are freed of these contaminants to the best of our ability. Commonly, the surface of conventional core and outcrop samples are lightly solvent washed. The samples are then crushed to approximately 1/8" chips using a jaw crusher, air dried, and finally further crushed to 0.1mm using a ring pulveriser.

d) Petroleum/Aqueous Mixtures

The most common sample type in this category are RFT tests containing oil, water and mud. The mixture is placed in a separation funnel and allowed to stand for several hours which enables the petroleum and water/mud fractions to separate. The neat petroleum is isolated by removal of the lower layer (water/mud) from the funnel. To remove the last traces of water and mud, the neat petroleum is centrifuged at moderate speed.

When the volume of petroleum accounts for only a very small part of the sample the method above is unsatisfactory and the petroleum is solvent extracted from the mixture with dichloromethane. The petroleum is recovered by careful evaporation of the solvent from the organic layer.

3. TOTAL ORGANIC CARBON DETERMINATION

The total organic carbon value (TOC) is determined on the unextracted sediment sample. The value is determined by treating a known weight of sediment with hot dilute HCl for 1 hour to remove carbonate minerals, and then heating the residue to 1700 Deg. C (Leco Induction Furnace CS-044) in an atmosphere of pure oxygen. The carbon dioxide produced is transferred to an infra-red detector which has been calibrated with a series of standards, and the microprocessor of the Leco unit then automatically calculates the % TOC in the sample. To ensure reliable data a standard is run after every 10 samples, regular sample repeats are carried out, and at least one blank determination is carried out for each batch of samples.

The following scales are normally used for source rock classification based on % TOC data:

Classification	Clastics	Carbonates
Poor	0.00 - 0.50	0.00 - 0.25
Fair	0.50 - 1.00	0.25 - 0.50
Good	1.00 - 2.00	0.50 - 1.00
Very Good	2.00 - 4.00	1.00 - 2.00
Excellent	> 4.00	> 2.00

4. ROCK-EVAL PYROLYSIS

Although a preliminary source rock classification is made using TOC data a more accurate assessment accounting for organic source type and maturity is made by pyrolysis analysis. Two types of Rock-Eval pyrolysis services are offered: "one run" which involves pyrolysis of the crushed but otherwise untreated sediment and "two run" which involves pyrolysis of both the crushed, untreated sediment and sediment which has been rendered free of carbonate minerals by treatment with hot dilute HCl. The two run service offers considerably more reliable S3 data.

The method involves accurately weighing approximately 100mg of the sample into a sintered steel crucible and subjecting it to the following pyrolysis cycle:

Stage (i) - Sample purged with helium for 3.5 minutes in unheated part of pyrolysis furnace;

Stage (ii) - Sample heated at 300 Deg. C for 3 minutes to liberate free petroleum (S1 peak);

Stage (iii) - Sample heated from 300 Deg. C to 550 Deg. C at 25 Deg. C/minute to produce petroleum from kerogen (S2 peak). The furnace is maintained at 550 Deg. C for one minute. Carbon dioxide produced during this pyrolysis up to 390 Deg. C in the case of "one run" and 550 Deg. C for "two run" is absorbed on a molecular sieve trap;

Stage (iv) - During the cool down period the carbon dioxide produced during pyrolysis is measured (S3 peak).

The units used for Rock-Eval data are as follows:

S1, S2, S3 = kg/tonne or mg/g of rock

Tmax = Deg. C

Hydrogen Index = $\frac{S2}{TOC} \times \frac{100}{1}$

Oxygen Index = $\frac{S3}{TOC} \times \frac{100}{1}$

Rock-Eval data is most commonly used in the following manner:

(i) S1 - indicates the level of oil and or/gas already generated by the sample according to the following scale:

S1 (mg/g or kg/tonne)	Classification
0.00 - 0.20	Poor
0.20 - 0.40	Fair
0.40 - 0.80	Good
0.80 - 1.60	Very Good
> 1.60	Excellent

(ii) S1+S2 - referred to as the genetic potential this parameter is used for source rock classification according to the following criteria:

S1+S2 (mg/g or kg/tonne)	Classification
0.00 - 1.00	Poor
1.00 - 2.00	Marginal
2.00 - 6.00	Moderate
6.00 - 10.00	Good
10.00 - 20.00	Very Good
> 20.00	Excellent

(iii) S1/(S1+S2)- this parameter is the production index (PI) which is a measure of the level of maturity of the sample. For oil prone sediments, values less than 0.1 are indicative of immaturity, the values increase from 0.1 to 0.4 over the oil window and values greater than 0.4 represent over maturity. For gas prone sediments, the PI data shows a relatively smaller change with increasing maturity.

(iv) Tmax - the temperature corresponding to the S2 maxima. This temperature increases with increasingly mature sediments. Values less than 430 Deg. C are indicative of immaturity while values from 430/435 to 460 Deg. C represent the maturity range of the oil window. Tmax values greater than 460 Deg. C are indicative of over maturity.

(v) HI, OI - the hydrogen ((S2 x 100)/TOC) and oxygen ((S3 x 100)/TOC) indices when plotted against one another provide information about the type of kerogen contained in the sample and the maturity of the sample. Both parameters decrease in value with increasing maturity. Samples with large HI and low OI are dominantly oil prone and conversely samples with low HI and large OI are at best gas prone.

5. EXTRACTION OF SEDIMENT SAMPLES

Crushed sediment (maximum of 250g) and 300mls of purified dichloromethane are placed in a 500ml conical flask and are then blended for ten minutes with a Janke and Kunkel Ultra-Turrax T45/2G high efficiency disperser. After a ten minute settling period the solvent is separated from the sediment using a large Buchner filtration system. The extract is recovered by careful evaporation of the solvent on a steam bath and weighed. The weight of extract is used to calculate % EOM and ppm EOM using the following formulae:

$$\% \text{ EOM} = \frac{\text{Wt EOM}}{\text{Wt Sediment Extracted (g)}} \times \frac{100}{1}$$

$$\text{ppm EOM} = \frac{\text{Wt EOM (mg)}}{\text{Wt Sediment Extracted (kg)}}$$

The following scale is used to classify the source rock richness of samples based on C12+ extractables:

Classification	ppm Total Extract
Poor	0 - 500
Fair	500 - 1000
Good	1000 - 2000
Very Good	2000 - 4000
Excellent	> 4000

6. SEPARATION OF PETROLEUM INTO CONSTITUENT FRACTIONS

Sediment extracts and crude oil or condensate samples are separated into saturate, aromatic and NSO (asphaltenes plus resins) fractions by medium pressure liquid chromatography (MPLC). That part of the petroleum which is soluble in pentane is applied to the MPLC system via a sample loop and is then pumped using pentane to a partially activated silicic acid pre-column which prevents further movement of the non-hydrocarbon compounds. The hydrocarbon components are pumped further to a Merck Si60 column where the saturate fraction is obtained by forward flushing and the aromatic fraction is recovered by reverse flushing. This separation procedure is monitored using a refractive index detector. To complete the separation the pre-column is removed from the MPLC system and flushed with dichloromethane: methanol (1:10). This non-hydrocarbon fraction is combined with the pentane insoluble material which is not applied to the MPLC system, and is labelled as the NSO fraction. The neat fractions are recovered by careful removal of the solvent by distillation and are weighed.

The weight of each fraction is used to calculate the % of each fraction in the sediment according to the following formulas:

$$\% \text{ Fraction} = \frac{\text{Wt Fraction}}{\text{Wt all Fractions}} \times \frac{100}{1}$$

$$\text{ppm Fraction} = \frac{\text{Wt Fraction (mg)}}{\text{Wt Sediment Extracted (kg)}}$$

The ppm hydrocarbon (saturates and aromatics) and ppm saturate values can be used to classify source rock richness and oil source potential respectively according to the following criteria:

Classification	ppm Hydrocarbon	ppm Saturates
Poor	0 - 300	0 - 200
Fair	300 - 600	200 - 400
Good	600 - 1200	400 - 800
Very Good	1200 - 2400	800 - 1600
Excellent	> 2400	> 1600

The composition of the extracts can also provide information about their levels of maturity and/or source type (LeTran et. al., 1974; Philippi, 1974). Generally, marine extracts have relatively low concentrations of saturated and NSO compounds at low levels of maturity, but these concentrations increase with increased maturation. Terrestrially derived organic matter often has a low level of saturates and large amount of aromatic and NSO compounds irrespective of the level of maturity.

N.B. If requested by a client the NSO fraction is separated into asphaltenes and resins by conventional methods.

7. EXTRACTABLE/TOTAL ORGANIC CARBON RATIOS

The ratios of EOM(mg)/TOC(g) and SAT(mg)/TOC(g) are determined from the appropriate data. The EOM(mg)/TOC(g) ratio can be used as a maturation indicator, especially if the parameter is plotted against depth for a given sedimentary sequence. In an absolute sense it is less reliable as a maturation indicator, although previous work (Tissot et. al., 1971; LeTran et. al., 1974) suggests that the following criteria can be used to determine maturity with this parameter.

< 50	Low maturity
50 - 100	Moderate maturity
> 100	High maturity

The ratios of EOM(mg)/TOC(g) and SAT(mg)/TOC(g) can be used collectively to provide information about source type. For example, if SOM(mg)/TOC(g) is > 100, suggesting a high level of maturity, but the SAT(mg)/TOC(g) < 20 it is very likely that the organic matter is gas prone. Conversely, the same EOM(mg)/TOC(g) value with a SAT(mg)/TOC(g) value > 40 suggests oil prone source type.

8. PYROLYSIS GAS CHROMATOGRAPHY

Pyrolysis-gas chromatography (PGC) incorporates a Chemical Data System Pyroprope 150 flash pyrolysis unit interfaced with a capillary gas chromatograph. A sample (5-10mg) of extracted sediment is placed in a quartz tube inside the element coil of the pyrolysis probe and is then heated to 610 Deg. C in a few milliseconds, and is maintained at this temperature for 20 seconds. Products generated from the pyrolysis are swept onto the bonded phase capillary column of the gas chromatograph and are chromatographed from -20 Deg. C (isothermal for two minutes) to 280 Deg. C at 4 Deg. C/minute. The product distribution is dominated by the nature of the kerogen from which it is derived.

9. C12+ GAS CHROMATOGRAPHY

C12+ gas chromatography is commonly carried out on the saturate fraction but in certain instances is carried out on neat oil, condensate or extract. The analysis is carried out under the following conditions: instrument = Shimadzu GC-9A; column = 50m x 0.2mm ID OV101 vitreous silica; column temperature = programmed from 60 Deg. C

to 280 Deg. C at 4 Deg. C/min; injection system = Grob splitless using a 30 second dump time and split ratio of 25:1, carrier gas = hydrogen at 2mls/min; sample = 1µ l of 0.5% soln in pentane.

The following information is commonly obtained from C12+ gas chromatographic analysis:

(a) n-Alkane Distribution - The C12-C31 n-alkane distribution is determined from the area under peaks representing each of these n-alkanes. This distribution can yield information about both the level of maturity and the source type (LeTran et. al., 1974).

(b) Carbon Preference Index - Two values are determined:

$$CPI\ (1) = \frac{(C23 + C25 + C27 + C29)\ Wt\% + (C25 + C27 + C29 + C31)\ Wt\%}{2 \times (C24 + C26 + C28 + C30)\ Wt\%}$$

$$CPI\ (2) = \frac{(C23 + C25 + C27)\ Wt\% + (C25 + C27 + C29)\ Wt\%}{2 \times (C24 + C26 + C28)\ Wt\%}$$

The CPI is believed to be a function of both the level of maturity (Cooper and Bray, 1963; Scalan and Smith, 1970) and the source type (Tissot and Welte, 1978). Marine extracts tend to have values close to 1.0 irrespective of maturity whereas values for terrestrial extracts decrease with maturity from values as high as 20 but do not usually reach a value of 1.0

(c) (C21+C22)/(C28+C29) - This parameter provides information about the source of the organic matter (Philippi, 1974). Generally, terrestrial source material gives values <1.2 whereas a aquatic source material results in values >1.5.

(d) Pristane/Phytane Ratio - This value was determined from the areas of peaks representing these compounds. The ratio renders information about the depositional environment according to the following scale (Powell and McKirdy, 1975):

< 3.0	Relatively reducing depositional environment
3.0-4.5	Reducing/oxidizing depositional environment
>4.5	Relatively oxidizing depositional environment

(e) Pristane/n-C17 Ratio - This ratio was determined from the areas of peaks representing these compounds. The value can provide information about both the depositional environment and the level of maturation (Lijmbach, 1975). Very immature crude oil has a pristane/n-C17 ratio >1.0, irrespective of the depositional environment. However, the following classification can be applied to mature crude oil:

<0.5	Open water depositional environment
0.5-1.0	Mixed depositional environment
>1.0	Peat-swamp depositional environment

In the case of sediment extracts these values are significantly higher and the following classification is used:

<1.0	Open water depositional environment
1.0-1.5	Mixed depositional environment
>1.5	Peat-swamp depositional environment

(f) Phytane/n-C18 Ratio - This ratio was determined from the areas of peaks representing these compounds. The value usually only provides information about the level of maturity of petroleum. The value decreases with increased maturation.

(g) Relative Amounts of n-Alkanes and Naphthenes - Since n-alkanes and naphthenes are the two dominant classes of compounds in the saturate fraction, a semi-quantitative estimate of the relative amounts of these compounds can be made from saturate GLC's. This information can be used to assess the degree of maturation and/or the source type of the petroleum (Philippi, 1974; Tissot and Welte, 1978). Very immature petroleum has only small proportions of n-alkanes, but as maturity increases the relative amount of n-alkanes increases. In addition, terrestrial petroleum has a greater proportion of high molecular weight naphthenes than petroleum comprising aquatic source material.

10. API/SPECIFIC GRAVITY

A specific gravity (SG) bottle was accurately weighed, then filled with crude oil at 60 Deg. F and finally reweighed. The weight difference was divided by the weight of an equal volume of water at 60 Deg. F to obtain the specific gravity. The following formula was then used to calcuate the API gravity:

$$\text{API Gravity} = \left[\frac{141.5}{\text{SG (60 Deg. F)}}\right] - 131.5$$

The reported gravity value is the average of duplicate determinations.

11. SULPHUR DETERMINATION

The % sulphur by weight is determined by dissolving 0.5g of the petroleum in 50mls kerosene and then analysing this mixture with an inductively coupled plasma (ICP) instrument which has been calibrated with a series of sulphur standards.

This parameter is influenced by the nature of the source material from which a crude is derived, the depositional environment of the source rocks, and reservoir alteration processed such as bacterial alteration.

12. C1-C31 WHOLE SAMPLE GAS CHROMATOGRAPHY

This method of analysis is normally only applied to oil or condensate samples. The technique provides a "picture" of the sample which shows good resolution of the low, medium and high molecular weight components. Whole sample GC data is considered to be more useful than C12+ saturate fraction GC data for oil or condensate samples.

The analysis is carried out under the same conditions as for the C12+ GC analysis with the following exceptions: column temperature = programmed from -20 Deg. C to 280 Deg. C at 4 Deg. C/min (uses cryogenic mode); injection is carried out in split mode; sample = 0.1 µl of neat petroleum.

C1-C31 analysis data can be used to obtain the same information as that obtained from C12+ GC but further provides detailed compositional data on the C1-C11 fraction and enables calculation of the distillation range of the sample.

13. MOLECULAR SIEVE EXTRACTION

This technique is used to isolate the branched/cyclic alkanes from the saturate fraction for gas chromatography/mass spectometry analysis. A mixture of saturates: 5A molecular sieves: purified benzene in the proportions 1:5:12 by weight is placed in a 100ml round bottom flask and refluxed for 24 hours. After cooling, the seives are filtered from the liquid phase and are washed with 4 x 10ml aliquots of benzene. The liquid phase plus washing are freed of benzene by distillation yielding the branched/cyclic compounds.

14. COMPUTERIZED GAS CHROMATOGRAPHY/MASS SPECTOMETRY (GC/MS)

Gas chromatography/mass spectrometry employs a capillary column gas chromatograph linked in series with a mass spectrometer and data system (GC/MS/DS). As molecules are eluted from the capillary column they are bled into the analyser tube of the mass spectrometer where they are bombarded with high energy electrons and consequently fragment to form several ions each with molecular weights less than that of the parent molecule. The fragmentation pattern is characteristic of the particular molecular type. The spectrum of these ions (referred to as a mass spectrum) is recorded approximately once every second and all of the mass spectra recorded during a GC/MS/DS analysis are memorised by the data system. Since any given class of molecules will breakdown in the analyser type to give one or more characteristic ion fragments of known molecular weight, after a GC/MS/DS analysis it is possible to examine the distribution of compounds within a given class by having the data system reproduce a mass fragmentogram (plot of ion concentration against gas chromatography retention time) representative of the particular class.

GC/MS/DS analyses can be carried out using one of the two following modes of operation:

(i) Acquire mode - in which all ions in each mass spectrum are memorised by the data system;

(ii) Selective ion monitoring (SIM) mode - in which only selected ions of interest are memorised by the data system.

At present the sterane/triterpane/bicyclane fraction of petroleum is considered most useful for GC/MS/DS analysis and therefore we commonly use the second of the above mentioned modes of operation and run the following twenty-two ions which are pertinent to the sterane/triterpane/bicuclane fraction.

Ion	Molecular Type
177	Demethylated triterpanes
191	Normal triterpanes
205	Methyl triterpanes
163	Specific dethylated triterpanes
356	Parent ion - C26 triterpanes
370	Parent ion - C27 triterpanes
384	Parent ion - C28 triterpanes
398	Parent ion - C29 triterpanes

412	Parent ion - C30 triterpanes
426	Parent ion - C31 triterpanes
183	Isoprenoids
217	Normal steranes
218	Normal steranes
231	4-methylsteranes
259	Diasteranes
358	Parent ion - C26 steranes
372	Parent ion - C27 steranes
386	Parent ion - C28 steranes
400	Parent ion - C29 steranes
414	Parent ion - C30 steranes

GC/MS/DS analysis of the sterane/triterpane/bicyclane fraction can often provide information about the maturity and source type of petroleum and whether it has been affected by micro-organisms. This technique is also often useful for oil:oil and oil:source rock correlation. The following sections indicate which parameters are used to obtain this information and summarize the theory behind their use.

Maturity

(i) Based on Steranes

(a) The biologically produced $\alpha\alpha\alpha$ (20R) sterioisomer is converted in sediment to a mixture of the $\alpha\alpha\alpha$ (20R) and $\alpha\alpha\alpha$ (20S) compounds. The ratio of

$$C29\ \frac{\alpha\alpha\alpha\ (20S)}{\alpha\alpha\alpha\ (20R) + \alpha\alpha\alpha\ (20S)}$$

expressed as a percentage is about 25% at the onset of oil generation and increases almost linearily to a value of about 50% at the peak of oil generation.

(ii) Based on Triterpanes

(a) The C31, C32, C33, C34 and C35 hopanes have the biological R configuration at C22. On mild thermal maturation equilibration occurs to produce a 60/40 mixture of S/R. This equilibration occurs before the onset of oil generation.

(b) The conversion of the biological 17β,21β hopanes to the corresponding 17α,21β and 17β,21α compounds is also maturation dependant. For C30 triterpanes the ratio of $\frac{17\beta,21\alpha}{17\alpha,21\beta}$ decreases steadily from a value of about 0.4 at the onset of oil generation to a value of about 0.1 at peak oil generation.

(c) Two of the C27 triterpanes can also be used as maturity indicators. The ratio of 18 α(H) trisnorhopane to 17 α(H) trisnorhopane increases exponentially with increasing maturity from a value of approximately 0.2 at the onset of oil generation to approximately 1.0 at peak oil generation.

(d) It is our experience that the ratio of the C27 18α(H) + C27 17α(H) triterpanes to C30 17α,21β triterpane is maturity dependent. The ratio decreased from values around 1.0 at the onset of oil generation to a value of approximately 0.4 at peak oil generation. With increasing maturity at levels greater than that equivalent to peak oil generation the ratio

increases steadily to values greater than 3.0.

Source Type

(i) Based on Steranes
Algal organic matter contains steranes in which the C27 compounds are more abundant than the C29 compounds. General aquatic organic matter has approximately equivalent amounts of the C27 and C29 compounds while organic matter rich in land-plants usually has a lot more of the C29 steranes.

(ii) Based on Triterpanes
The triterpane components in petroleum can be derived from both bacteria and higher plants. The common bacterial products are the C27-C35 hopanes and moretanes whereas the higher plant triterpanes are compounds other than hopanes or moretanes and are commonly C30 compounds.

(iii) Based on Diasteranes
The diasteranes are not produced biologically but are formed during early diagenesis from sterane precursors. The diasterane ratios

$$\frac{C27(20R)}{C29(20R)} \text{ and } \frac{C27(20R+20S)}{C29(20R+20S)}$$

should reflect the nature of the organic matter in the same manner as that outlined above for the steranes.

Biodegradation

It has been observed that in severely biodegraded petroleum the series of normal hopanes are converted to a series of A ring demethylated hopanes and the C29 (20R) sterane is selectively removed. For altered crudes which have not been degraded to this extent the severity of biodegradation can often be gauged by studying the isoprenoid and aromatic fractions. However, this type of investigation extends beyond a standard GC/MS/DS analysis.

Correlation

Our present approach to oil:oil or oil:source rock correlation problems is as follows:

(i) Compare the distribution of compounds in the 123, 177, 191, 205, 217, 218, 231 and 259 mass fragmentograms for an oil or sediment extract to the distribution of compounds in the respective fragmentograms for the other oil(s) or sediment extract(s). It is necessary in this type of comparison to make allowance for small variations due to possible maturity differences.

(ii) Examine the fragmentograms for peaks or sets of peaks which may represent compounds that are specific to the geological system under investigation. Normal steranes, diasteranes and bacterial hopanes cannot be used for this purpose because they are present in virtually all crude oils and sediment extracts. However, compounds like higher plant triterpanes, bisnorhopane and botryococcane can often prove very useful for this purpose.

15. CARBON ISOTOPE ANALYSIS

The measurement is carried out on one or more of the following mixtures; topped oil; saturate fraction; aromatic fraction; NSO fraction. The organic matter is combusted at 860 Deg. C in oxygen and the carbon dioxide formed is purified and transferred to an isotope mass spectrometer. The carbon isotope ratio is measured relative to a standard gas of known isotopic composition. In our case the standard gas is prepared from the NBS No. 22 oil. However, since the isotopic relationship between NBS No. 22 oil and the international reference PDB limestone are known, the values are adjusted to be relative to PDB limestone.

Although carbon isotope data has been commonly used for oil:oil and oil:source rock correlation its most significant application is the identification of the source of gas according to the following criteria (Fuex, 1977):

δ13C (PDB)	Gas Type
-85 to -58	Biogenic methane
-58 to -40	Wet gas/associated with oil
-40 to -25	Thermal methane

16. VITRINITE REFLECTANCE MEASUREMENT

Vitrinite is a coal maceral which responds to increasing levels of thermal maturity. This response can be measured by the percent of light reflected off a polished surface of a vitrinite particle immersed in oil. Reflectance measurements are made on a number (40 if possible) of vitrinite particles in each sample, in order to establish a range and mean for reflectance values. Immature rocks have low reflectance values (0.2% Ro to 0.6% Ro), with mature values ranging from 0.6% Ro to 1.2% Ro. Very mature values are between 1.2 % Ro and 1.8% Ro, while severely altered rocks have reflectances above 1.8% Ro.

Vitrinite reflectance results are best obtained from coals or rocks deposited in environments receiving large influxes of terrestrially-derived organic matter. Unfortunately, these environments are not conducive to the accumulation of large quantities of oil-prone organic mater. Also vitrinite reflectance cannot be performed on rocks older than Devonian Age, due to the absence of land plants in the older geological time periods.

17. VISUAL KEROGEN

Visual kerogen assessment is carried out by the coal petrologist and/or the palynologist. In the case of the petrologist the assessment is made in reflected light using the plug prepared for vitrinite reflectance measurement, and reports the relative amounts of alginite, exinite, vitrinite and inertinite particles.

Visual study of kerogen by the palynologist is carried out in transmitted light and can indicate the relative abundance, size and state of preservation of the various recognizable kerogen types and hence indicates the source character of a sedimentary rock. In addition, the colour of the kerogen is related to the thermal maturity of the sediments and is often used as a maturation indicator.

The preparation of slides for visual kerogen assessment by the palynologist firstly involves concentration of the organic matter by removal of the rock matrix using hydrochloric and hydrofluoric acid treatment and heavy liquid separation. The organic concentrate is then mounted on a glass slide using Petropoxy.

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APPENDIX 3

274182

MINPET SERVICES

659 Botany Road
ROSEBERY, N.S.W.

REPORT NO. 11/86

DRILL CHIP SPECIMEN FROM 3104 m, CHAT 1 WELL, BASS STRAIT FOR PETROGRAPHIC ANALYSIS

(prepared for Mr. R. Roberts,
Bridge Oil Limited, Sydney)

February 1986

274183

CONTENTS

1. Introduction
2. Petrographic Descriptions

EVAULATION OF SUITABILITY FOR K-Ar DATING

1. Introduction
2. Procedures
3. Petrographic Description

1. INTRODUCTION

One specimen of percussion drill chips from the base of Chat 1 Well at 3104 m in the Bass Strait was forwarded by Mr. R. Roberts of Bridge Oil Ltd. for petrological identification of chips.

/....

2. PETROGRAPHIC DESCRIPTIONS

.. Chat 1 Well, 3104 m.

Petrographic Summary: Basalt, holocrystalline and intergranular shows a variation in plagioclase composition to andesine:labradorite limits and a very variable state of freshness, many fragments showing strong chloritisation. Other fragments present - up to 8 vol.% are contaminants that are mixed-in overlying cuttings.

Mineralogy (vol.%) Fragments		Fragments	Mineralogy
1)	Fresh basalt (to chlorite 10 v%)	54	-
			20
	Augite		-
	Plagioclase		68
	Magnetite		7
	Chlorite		~5
2)	Strongly chloritised basalt	24	
	Plagioclase		40
	Chlorite		55
	Carbonate		2
	Limonite/leucoxene		3
3)	Chlorite (totally chlorite)	4	
	Or ± leucoxene (to 30 v%)		
	± carbonate (to 30 v%)		
4)	Illite	2	
5)	Carbonate	1	
6)	Quartz	2	
7)	Banded iron?		
	Limonite		20
	Chert		60
	Chlorite		20
8)	Iron oxides	4	
9)	Wacke	2	vary
	Quartz		15-20
	Clays		80-75
	Iron oxides		5

/....

Mineralogy (cont.)	Fragments	Mineralogy
10) Acid volcanics varying from occasional to scattered quartz phenocrysts.	1	
Quartz phenocrysts		to 10
K feldspar		0-70
Chlorite		balance

Texture: Drill fragments vary in size from 0.2 to 3.5 x 2.5 mm, median size 0.4 mm, and are fairly evenly distributed in a medium of clear blue araldite.

Fragments:

Type 1. 'Fresh' basalt. An intergranular texture of fresh labradorite plagioclase as random intergrowths of elongate fine laths (0.05 x 0.015 mm varying to 0.45 x 0.05 mm) with mostly weak albite twinning though a number show sharp twinning. The plagioclase composition varies from An_{40} to An_{55}. Interstitial pigeonite (0.02, 0.016, 0.03 x 0.08 mm) is as subhedral prisms and cross sections. Augite(?) (0.4, 0.2 mm) euhedral shapes where present are altered to felts of olive-green chlorite or less commonly occur as fresh grains.

Magnetite occurs as very fine interstitial granules ($\sim$ 0.002 mm).

Type 2. Much chloritised basalt. As for Type 1 basalt but with strong chloritisation of all melanocratic minerals and in places plagioclase is also affected.

Type 3. Completely chloritised basalt may show partial carbonatisation of mainly phenocrysts. Also several completely chloritised basalt grains show clustered leucoxene granules within chloritised augite phenocryst shapes.

Type 4. Illite of claystone. Fine vermicular illite shows no preferred orientation, though mineral also occurs as finely sheared parallel felts of illite.

Type 5. Carbonate occurs as clear grains of dolomite rhombs (0.22 x 0.19 mm) in mosaics, as brecciated recrystallised grains (0.015 to 0.05 mm) cemented into mosaics and also as elongate grains (0.3 x 0.15 mm) strongly twinned.

Type 6. Quartz. As single grains (to 0.6 x 0.5 mm) showing volcanic β forms. Clear of inclusions, unstrained but fragmented.

Type 7. Banded iron. Only one fragment (1.2 x 0.5 mm) as finely banded, fine cherty quartz with interbands of fine goethite and chlorite.

Type 8. Iron oxides, mostly limonitic subangular fragments as octahedra showing fracture partings, or as oblong or square shapes, squat laths and irregular fragments. These vary in size (0.02 to 0.8 x 0.4 mm, median 0.3 x 0.24 mm), and are of variable origin - pyrite(?), magnetite, pseudomorphs of pyroxene and/or hornblende? .

Type 9. Wacke. Fine chloritic shale (to 2 x 0.6 mm) with an abundance of very fine cherty quartz fragments (to 0.2 mm). Some fragments are of chloritic shale only.

Type 10. Acid volcanic with chloritised groundmass showing flow banding or with preserved KF as fine granular feldspar. Occasional quartz phenocrysts, are embedded in the KF and chloritised glassy matrix.

Notes: One grain made up of spherulites of chamosite chlorite was also noted.

Mostly basalt, mainly fresh with few altered fragments. It is assumed that grains of carbonate, iron oxides and most grains made up totally of chlorite are basaltic. So that

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only 8% of fragments are non-basaltic, extraneous and are the product of mixing with cuttings from overlying strata.

EVALUATION OF SUITABILITY FOR K-Ar DATING

1. INTRODUCTION

A sample of basalt chips from a sidewall core from Chat#1, 3050.95m, was received from Bridge Oil Ltd. with a request to carry out a K-Ar age determination.

2. PROCEDURES

A thin section was prepared from several rock chips after the drilling mud had been washed off and examined for suitability for K-Ar dating.

The petrographic description is given in the following section, where it is noted that due to the presence of alteration products, the sample is unsuitable for dating.

3. PETROGRAPHIC DESCRIPTION

Chat#1, 3050.95m: TS45913

Rock Name: Olivine Basalt

The thin section was prepared from several chips up to 1 cm in size and the mineralogy is fairly consistent in all chips. The rock is a porphyritic olivine basalt containing about 10% of phenocrysts (altered? olivine) in a groundmass composed of plagioclase, pyroxene, opaques, minor glass and other intergranular material that may represent altered glass.

The phenocrysts are generally ~0.25 mm in size. In one chip, the phenocrysts are relatively fresh olivine but in all other chips, the phenocrysts are replaced by intergrowths of chlorite and serpentine minerals. Some glomero-porphyritic aggregates are present. Rare plagioclase phenocrysts were noted in one chip.

The groundmass consists of plagioclase laths, often quite elongated (e.g. 1 mm) but ranging down to less than 0.1 mm. In some chips the plagioclase laths have a random orientation while in others, a weak fluidal texture is present.

The interstices between the plagioclase laths are filled with finely granular pyroxene (usually ~20 microns in size and rarely exceeding 60-70 microns).

Another common interstitial phase is a brown chlorite mineral which may represent altered glass. Undevitrified glass was noted only in one chip.

Although the plagioclase and pyroxene are fresh, the abundance of interstitial chloritic alteration makes this rock unsuitable for isotopic dating. The rock is too fine grained to permit mineral separation of plagioclase to be attempted and, in any case, the sample is much too small for this to be considered.

The presence of interstitial alteration is a critical factor in determining the suitability of a volcanic rock for dating. This material represents a late phase of crystallisation and usually contains a higher concentration of potassium. Any alteration of this phase will destroy the argon retentivity of the rock.

APPENDIX 4

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PALYNOLOGY OF BRIDGE CHAT-1, BASS BASIN

BY

ROGER MORGAN

FOR BRIDGE OIL

APRIL, 1986.

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PALYNOLOGY OF BRIDGE CHAT-1, BASS BASIN

BY

ROGER MORGAN

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FIGURE 1 MATURITY PROFILE, CHAT-1

APPENDIX I PALYNOMORPH DATA CHARTS
- SPORE POLLEN
- DINOFLAGELLATES

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I SUMMARY

1000m (cutts) : P. tuberculatus : Early Oligocene : nearshore marine : immature

1050-1140m (cutts) : Upper N. asperus : Late Eocene to Early Oligocene : nearshore marine : immature

1170-1299m (cutts) : Middle N. asperus : Middle to Late Eocene : nearshore marine : immature

1353-1548m (cutts) : Lower N. asperus : Middle Eocene : marginally marine : immature

1565-1596m (cutts) : P. asperopolus : Middle Eocene : non-marine to possibly marginal marine : immature

1600-1635m (cutts) : Upper M. diversus : Early Eocene : probably non-marine : marginally mature

1740m (cutts) : Middle M. diversus : Early Eocene : non-marine : marginally mature

1806-1830m (cutts) : Lower M. diversus : Early Eocene : non-marine : marginally mature

1842-1968m (cutts) : Upper L. balmei : Paleocene : non-marine : marginally mature

2016-2268m (cutts) : Lower L. balmei : Paleocene : non-marine : marginally mature

2370-2805m (cutts) : T. longus : Maastrichtian : non-marine : marginally mature to mature

2899.93 (swc)-3033m (cutts) : T. lillei : Maastrichtian to Campanian : non-marine : mature

3099.77m (swc) : Indeterminate (almost barren)

3104m (cutts) : probably N. senectus : Campanian : non-marine : mature

II INTRODUCTION

Bridge Chat-1 was drilled in early 1986. Several batches of cuttings samples were examined on a quick turnaround basis during drilling, providing approximately 100m spacing. Close to the final T.D., several individual samples were processed on a quick turnaround basis to provide age dating to aid the T.D. decision. Following well completion, a final batch of samples was submitted. This batch included three sidewall cores only, as the sidewall coring gun failed. In all, thirty six samples were studied and are reported here. Many of the preparations are not the best possible, as the emphasis was on fast turnaround, not absolute technical processing excellence.

The spore-pollen zonation used is that of Stover and Evans (1973) and Stover and Partridge (1973), as modified for the Bass Basin by Partridge (1973). No formal zonation exists for the dinoflagellates, although Harris (1985) has recently published some zones for part of the Eocene of the St. Vincent and Otway Basins. Partridge (1976) published a table showing zone names for the Gippsland Basin, but the underlying justification has never been published. Neither of these zonations are entirely relevant, but elements of them are discussed herein.

Palynomorph occurrence data are presented in Appendix I, and are the basis for the assignment of the studied section to thirteen zones of Campanian to Oligocene age. Maturity data was developed in the form of Spore Colour Index, and is plotted on Figure 1.

27 41 94

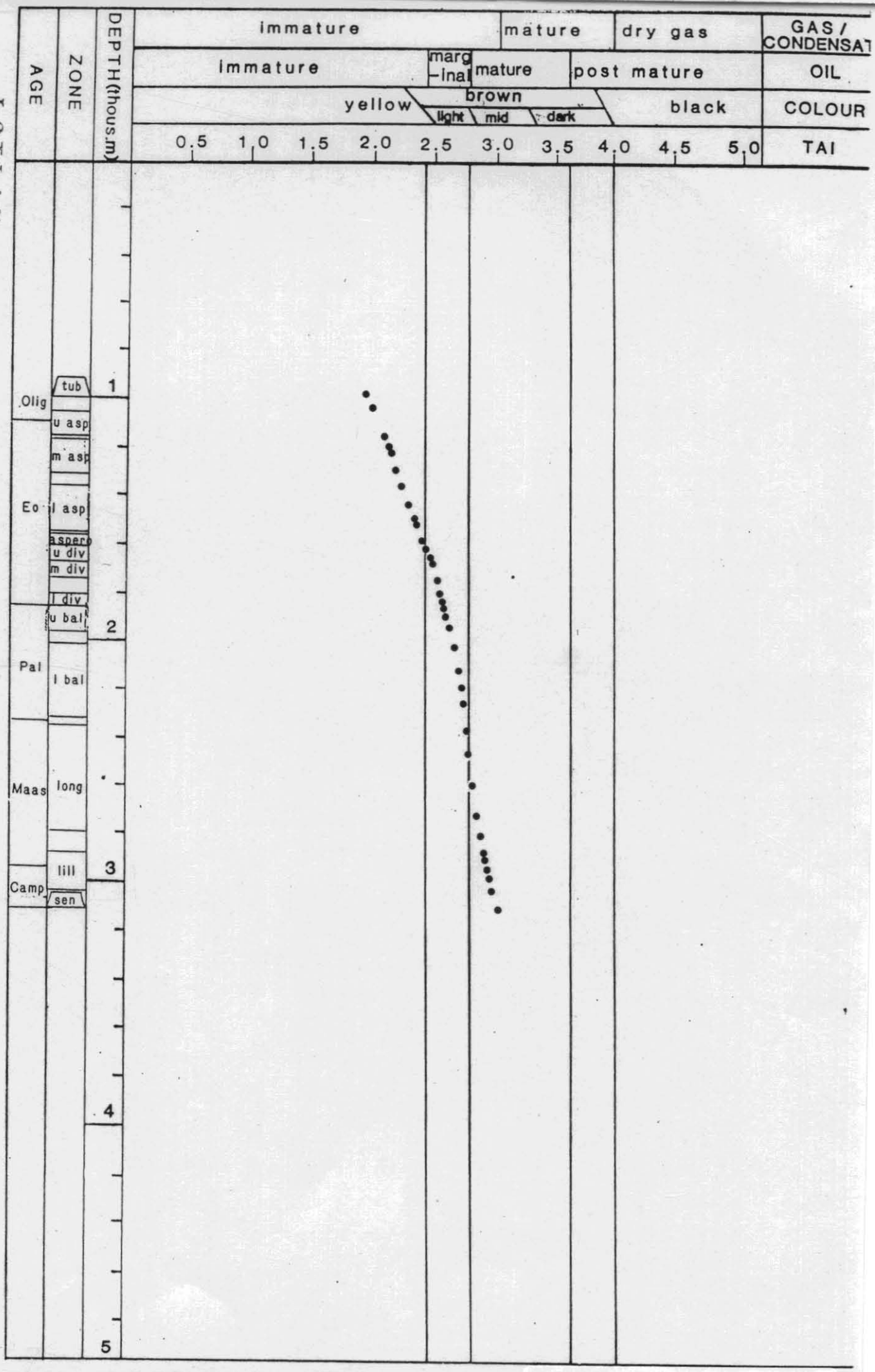

FIGURE 1 MATURITY PROFILE CHAT-1

5 cm

III PALYNOSTRATIGRAPHY

A. 1000m (cutts) : P. tuberculatus Zone

Assignment to the Proteacidites tuberculatus Zone is indicated by the presence and oldest occurrence of Cyatheacidites annulatus. The assemblage is sparse, of low diversity, and spore dominated. The presence of Cyathidites subtilis supports the assignment.

Marine environments are indicated by the presence of dinoflagellates, but their scarcity and the spore dominated nature of the assemblages suggests a nearshore to very nearshore environment.

Spore colours of light yellow indicate immaturity for hydrocarbons, although thicker walled spores may be considerably darker in colour.

B. 1050-1140m (both cutts) : upper N. asperus Zone

Assignment to the upper Nothofagidites asperus Zone is indicated by the oldest occurrence of Foveotriletes crater at 1140m, the absence of Cyatheacidites annulatus above and of Proteacidites pachypolus and other species below. The presence of Proteacidites tuberculatus at 1140m supports the assignment.

Dinoflagellates include Systematophora placacantha, Deflandrea phosphoritica and Kisselovia coleothrypta, all of which indicate a general mid Eocene or younger age.

Nearshore marine environments are indicated by the dominance of spores and pollen (despite their low diversity), and presence of only minor dinoflagellates of low to moderate diversity. These

samples are not rich in fossil material.

Spore colours of yellow indicate immaturity for hydrocarbons.

C. 1170-1299m (cutts) : middle N. asperus Zone

Assignment to the middle Nothofagidites asperus Zone is indicated by the presence (confined to this interval) of Triorites magnificus. The youngest occurrences of Proteacidites pachypolus (1180m, cuttings) and Santalumidites cainozoicus (1299m) confirm the assignment.

Age diagnostic dinoflagellates include Alisocysta ornata (restricted to the middle N. asperus Zone in the Gippsland Basin) and Deflandrea phosphoritica, Systematophora placacantha and Areosphaeridium arcuatum, all indicating a general mid Eocene or younger age.

Nearshore marine environments are indicated by the dominance of spores and pollen, with minor dinoflagellates.

Spore colours of mid yellow indicate immaturity for hydrocarbons.

D. 1353-1548m (cutts) : lower N. asperus Zone

Assignment to the lower Nothofagidites asperus Zone is indicated at the top by the absence of T. magnificus (seen above) and at the base by the dominance of Nothofagus spp. The presence of Intratriporopollenites notabilis, Malvacipollis diversus and Proteacidites obesolabrus in the bottom sample only, suggest substantial reworking and possible proximity to an unconformity.

Age diagnostic dinoflagellates include S. placacantha, D.

phosphoritica and Corrudinium incompositum, all indicating a general mid Eocene or younger age. The deepest sample (1548m) contained only a single dinoflagellate that may well have been caved, given the cuttings nature of the samples.

Marginally marine environments (possibly non-marine at the base) are indicated by the total dominance of spores and pollen, the common cuticle, and the very scarce low diversity dinoflagellates.

Spore colours of mid to dark yellow indicate immaturity for hydrocarbons.

E. 1565-1596m (cutts) : P. asperopolus

Assignment to the Proteacidites asperopolus Zone is indicated at the top by the presence of common Haloragacidites harrisii and at the base by the oldest occurrence of P. asperopolus. Some lower N. asperus caving is evident, including Nothofagidites falcatus and Periporopollenites vesicus.

No age diagnostic dinoflagellates were seen. Only very rare long ranging species were observed, but they may all be caved.

Non-marine environments are most likely, on regional geological grounds, and on the absence of dinoflagellates from one sample (1565m) and their probably caved origin in the other. Spores and pollen and cuticle fragments are common in both samples.

Spore colours of yellow to light brown indicate immaturity for hydrocarbons.

F. 1600-1635m (cutts) : upper M. diversus Zone

Assignment to the upper Malvacipollis diversus Zone is indicated at the top by the absence of younger indicators above, and at the base by the oldest occurrences of Proteacidites pachypolus, Santalumidites cainozoicus and Proteacidites obesolabrus.

The only age diagnostic dinoflagellate was Deflandrea phosphoritica, which must be caved, as it flatly contradicts the spore-pollen data.

Environments are probably non-marine, as the few dinoflagellates seen are considered caved. If the interval was marine, the distinctive dinoflagellate Homotriblium tasmaniense would be expected, as it is usually common at this level.

Spore colours of light brown indicate marginal maturity for oil but immaturity for gas/condensate.

G. 1740m (cutts) : middle M. diversus Zone

Assignment to the middle Malvacipollis diversus Zone is indicated by the absence of younger indicators, and the oldest occurrences of Anacolosidites luteoides, Proteacidites ornatus and Triporopollenites ambiguus.

Non-marine environments are indicated by the absence of dinoflagellates from a spore-pollen and cuticle dominated assemblage.

Spore colour of light brown indicates marginal maturity for oil and immaturity for gas/condensate.

H. 1806-1830m (cutts) : lower M. diversus

Assignment to the lower Malvacipollis diversus Zone is indicated at the top by the absence of younger indicators and at the base by the oldest occurrence of M. diversus without older indicators. The youngest occurrence of Cyathidites gigantis (1830m) and oldest occurrence of Periporpollenites demarcatus (1806m) confirm the assignment.

Non-marine environments are indicated by the absence of dinoflagellates from the spore-pollen dominated assemblages.

Spore colours of light brown indicate marginal maturity for oil and immaturity for gas/condensate.

I. 1842-1968m (cutts) : upper L. balmei Zone

Assignment to the upper Lygistepollenites balmei Zone is indicated at the top by the youngest occurrence of Gambierina rudata (1842m) and confirmed by the youngest occurrence of L. balmei. The zone base is indicated by the oldest occurrence of Proteacidites incurvatus (1968m), confirmed by the oldest occurrences of P. grandis and P. annularis (1890m). Downhole caving is present, including forms such as Nothofagidites falcatus and Malvacipollis diversus. The zone base may be picked slightly too low, as it is taken on oldest occurrence in cuttings with some obvious contamination.

Non-marine environments are indicated by the absence of dinoflagellates (a single specimen at 1890m is considered caved) in spore-pollen dominated microfloras.

Spore colours of light brown indicate marginal maturity for oil, and immaturity for gas/condensate.

J. 2016-2268m (cutts) : lower L. balmei Zone

Assignment to the lower Lygistepollenites balmei Zone is indicated by the absence of younger indicators above, and of older indicators below. The oldest occurrence of L. balmei at 2268m confirms the assignment. Minor caving includes Proteacidites grandis (from its light spore colour caved a long way). A single specimen of Tricolpites confessus at 2268m is considered reworked, although it is possible that the Cretaceous was penetrated at this point, and obsured by heavy caving.

Non-marine environments are indicated by the lack of dinoflagellates and presence of common cuticle and spores and pollen.

Spore colours of light brown indicate marginal maturity for oil and immaturity for gas/condensate.

K. 2370-2805m : T. longus Zone

Assignment to the Tricolpites longus Zone is indicated at the top by the youngest occurrence of Tricolpites confessus (2370m) T. waipawaensis, Tricolporites lillei and Triporopollenites sectilis (at 2490m). The zone base is defined by the oldest occurrence of Tricolpites longus (at 2805m), and the increase in Nothofagidites spp. abundance in the T. lillei zone below. The oldest occurrences of Tetracolporites verrucosus (2370m) and Stereisporites (Tripunctisporis) punctatus (2490m) indicate that both upper and lower parts of the zone are present.

Non-marine environments are indicated by the absence of dinoflagellates, and common spores and pollen.

Spore colours of mid brown at the base and light brown at the top indicate that the section is mature for oil and marginally mature for gas/condensate below about 2600m, and marginally mature for oil and immature for gas/condensate above that level.

L. 2899.93 (swc)-3033m : T. lillei Zone

Assignment to the Tricolporites lillei Zone is indicated at the top by the top of common Nothofagidites spp. (and the absence of younger indicators above) and at the base by the oldest consistent Gambierina rudata, and common Nothofagidites endurus. Nothofagidites senectus becomes common at 3033m, suggesting the lower half of the T. lillei Zone. Two sidewall cores are assigned to this interval, enhancing precision.

Non-marine, probably lacustrine environments are suggested by the rare presence of the dinoflagellate Morkallacysta pyramidalis, in a monospecific association.

Spore colours of mid brown indicate maturity for oil and marginal maturity for gas/condensate.

M. 3097.77m (swc) : indeterminate

This sidewall core was almost barren, yielding only rare vitrinite and inertinite fragments, and so cannot be dated.

N. 3104m (cutts) : probably N. senectus Zone

Assignment to the Nothofagidites senectus Zone is suggested by the presence of common N. senectus and scarce N. endurus, in contrast to the T. lillei Zone above. Gambierina rudata is represented by

a single broken specimen and is considered caved. If G. rudata is considered to be in place, it would indicate assignment to the T. lillei Zone above. However, on balance, assignment to the N. senectus Zone appears more likely. It is a pity that sidewall cores could not be recovered from this point to resolve the uncertainty.

IV CONCLUSIONS

A. The studied section is assigned to the Campanian to Early Oligocene, without major hiati.

B. An unconformity probably exists at about 1551m (log evidence) and coincides with the asperopolus/lower asperus boundary. This boundary is regionally unconformable in much of the Gippsland as well as Bass Basins (Partridge 1975) and is associated with the major mid Middle Eocene base level rise.

C. Age relationships are consistent with those elsewhere in the basin. The base Torquay Group is slightly younger than usual, due to the development of an Oligocene sand above normal Demon's Bluff Formation. The Eastern View Formation contains the best reservoir sand in the Early Eocene M. diversus subzones, with a significant increase in shale beneath. Lava flows at the base of the section are dated as latest Cretaceous, consistent with volcanicity seen elsewhere, including Durroon-1.

D. The age at T.D. indicates the potential for a substantial Late Cretaceous and Early Cretaceous undrilled section in the area, enhancing its prospectivity.

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APPENDIX I

Palynomorph Data Charts

- Spore-pollen
- Dinoflagellates

274206

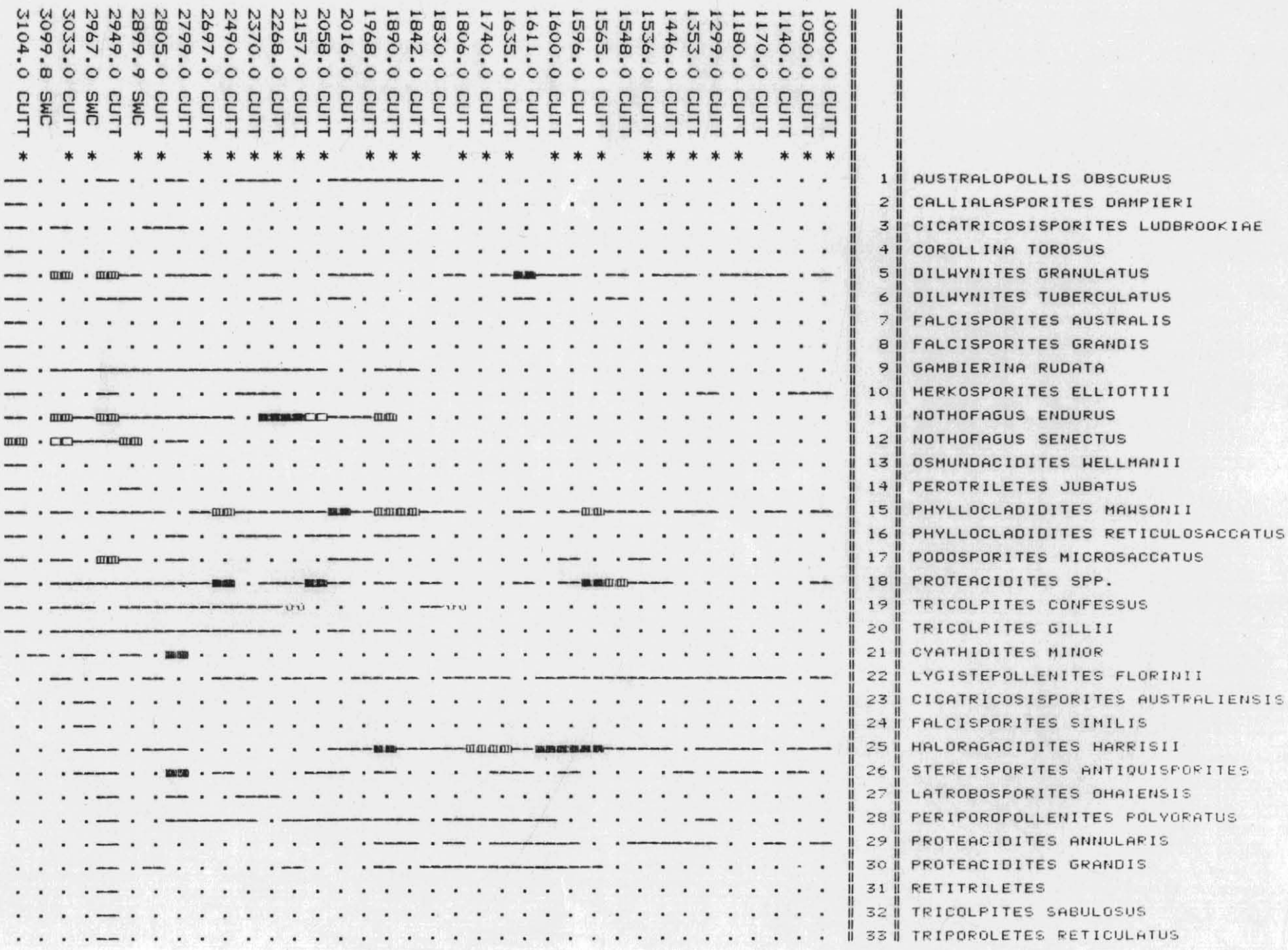
CHAT #1 S/P

DESCRIPTION:

PALYNOLOGICAL INTERPRETATION FOR BRIDGE OIL BY ROGER MORGAN - FEB.- MARCH 1986
N.B. ALL SAMPLE DEPTHS ARE IN METRES
* INDICATES QUICK TURNAROUND SAMPLES

CHECKLIST OF GRAPHIC ABUNDANCE BY LOWEST APPEARANCE


= Abundant
= Common
= Few
= Rare
= Very Rare
? = Questionably Present
. = Not Present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1 AUSTRALOPOLLIS OBSCURUS
2 CALLIALASPORITES DAMPIERI
3 CICATRICOSISPORITES LUDBROOKIAE
4 COROLLINA TOROSUS
5 DILWYNITES GRANULATUS
6 DILWYNITES TUBERCULATUS
7 FALCISPORITES AUSTRALIS
8 FALCISPORITES GRANDIS
9 GAMBIERINA RUDATA
10 HERKOSPORITES ELLIOTTII
11 NOTHOFAGUS ENDURUS
12 NOTHOFAGUS SENECTUS
13 OSMUNDACIDITES WELLMANII
14 PEROTRILETES JUBATUS
15 PHYLLOCLADIDITES MAWSONII
16 PHYLLOCLADIDITES RETICULOSACCATUS
17 PODOSPORITES MICROSACCATUS
18 PROTEACIDITES SPP.
19 TRICOLPITES CONFESSUS
20 TRICOLPITES GILLII
21 CYATHIDITES MINOR
22 LYGISTEPOLLENITES FLORINII
23 CICATRICOSISPORITES AUSTRALIENSIS
24 FALCISPORITES SIMILIS
25 HALORAGACIDITES HARRISII
26 STEREISPORITES ANTIQUISPORITES
27 LATROBOSPORITES OHAIENSIS
28 PERIPOROPOLLENITES POLYORATUS
29 PROTEACIDITES ANNULARIS
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31 RETITRILETES
32 TRICOLPITES SABULOSUS
33 TRIPOROLETES RETICULATUS

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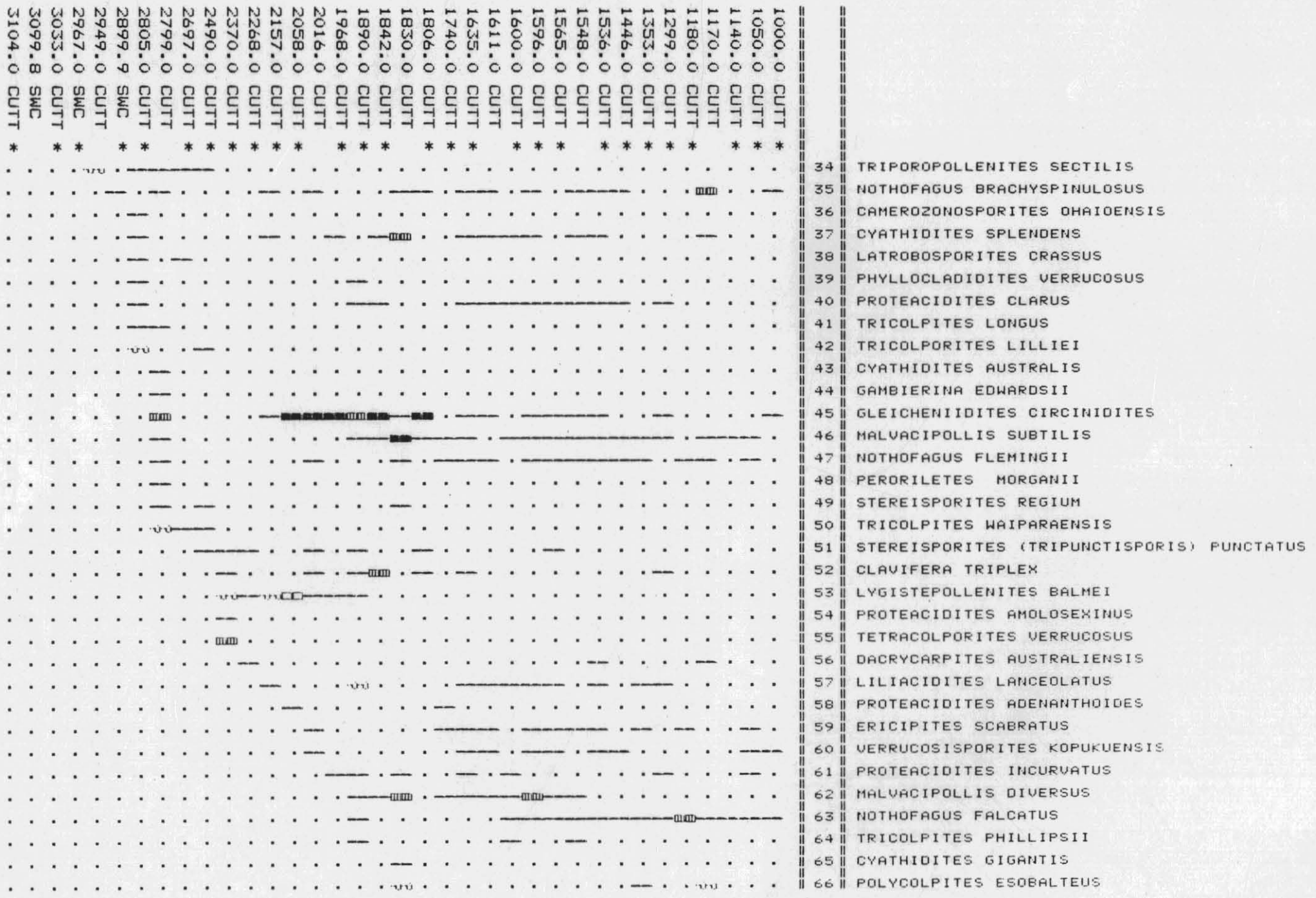
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34 TRIPOROPOLLENITES SECTILIS
35 NOTHOFAGUS BRACHYSPINULOSUS
36 CAMEROZONOSPORITES OHAIOENSIS
37 CYATHIDITES SPLENDENS
38 LATROBOSPORITES CRASSUS
39 PHYLLOCLADIDITES VERRUCOSUS
40 PROTEACIDITES CLARUS
41 TRICOLPITES LONGUS
42 TRICOLPORITES LILLIEI
43 CYATHIDITES AUSTRALIS
44 GAMBIERINA EDWARDSII
45 GLEICHENIIDITES CIRCINIDITES
46 MALVACIPOLLIS SUBTILIS
47 NOTHOFAGUS FLEMINGII
48 PERORILETES MORGANII
49 STEREISPORITES REGIUM
50 TRICOLPITES WAIPARAENSIS
51 STEREISPORITES (TRIPUNCTISPORIS) PUNCTATUS
52 CLAVIFERA TRIPLEX
53 LYGISTEPOLLENITES BALMEI
54 PROTEACIDITES AMOLOSEXINUS
55 TETRACOLPORITES VERRUCOSUS
56 DACRYCARPITES AUSTRALIENSIS
57 LILIACIDITES LANCEOLATUS
58 PROTEACIDITES ADENANTHOIDES
59 ERICIPITES SCABRATUS
60 VERRUCOSISPORITES KOPUKUENSIS
61 PROTEACIDITES INCURVATUS
62 MALVACIPOLLIS DIVERSUS
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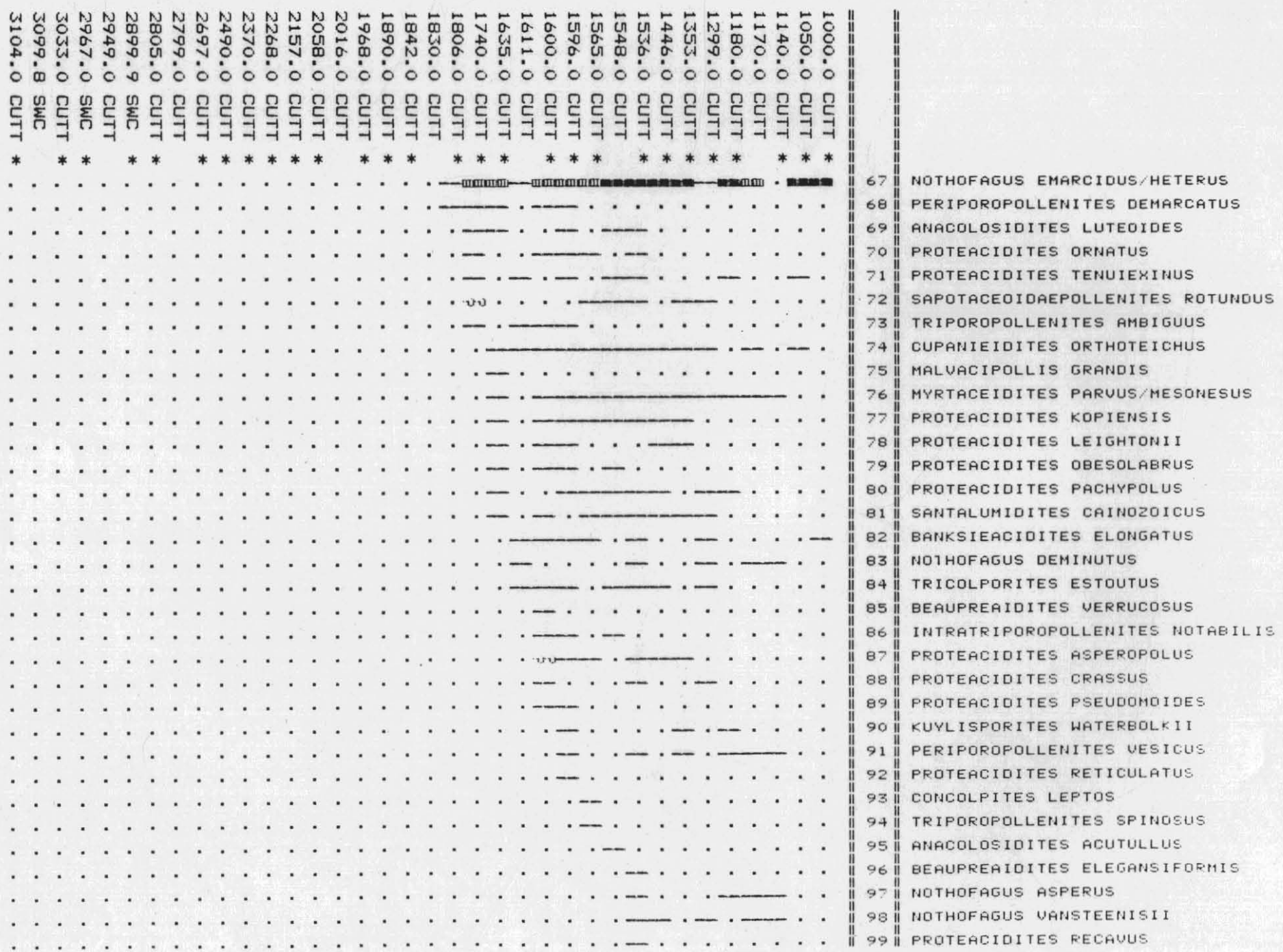
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3099.8 SWC
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67 NOTHOFAGUS EMARCIDUS/HETERUS
68 PERIPOROPOLLENITES DEMARCATUS
69 ANACOLOSIDITES LUTEOIDES
70 PROTEACIDITES ORNATUS
71 PROTEACIDITES TENUIEXINUS
72 SAPOTACEOIDAEPOLLENITES ROTUNDUS
73 TRIPOROPOLLENITES AMBIGUUS
74 CUPANIEIDITES ORTHOTEICHUS
75 MALVACIPOLLIS GRANDIS
76 MYRTACEIDITES PARVUS/MESONESUS
77 PROTEACIDITES KOPIENSIS
78 PROTEACIDITES LEIGHTONII
79 PROTEACIDITES OBESOLABRUS
80 PROTEACIDITES PACHYPOLUS
81 SANTALUMIDITES CAINOZOICUS
82 BANKSIEACIDITES ELONGATUS
83 NOTHOFAGUS DEMINUTUS
84 TRICOLPORITES ESTOUTUS
85 BEAUPREAIDITES VERRUCOSUS
86 INTRATRIPOROPOLLENITES NOTABILIS
87 PROTEACIDITES ASPEROPOLUS
88 PROTEACIDITES CRASSUS
89 PROTEACIDITES PSEUDOMOIDES
90 KUYLISPORITES WATERBOLKII
91 PERIPOROPOLLENITES VESICUS
92 PROTEACIDITES RETICULATUS
93 CONCOLPITES LEPTOS
94 TRIPOROPOLLENITES SPINOSUS
95 ANACOLOSIDITES ACUTULLUS
96 BEAUPREAIDITES ELEGANSIFORMIS
97 NOTHOFAGUS ASPERUS
98 NOTHOFAGUS VANSTEENISII
99 PROTEACIDITES RECAVUS

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			100 PROTEACIDITES SCITUS	101 PROTEACIDITES STIPPLATUS	102 ILEXPOLLENITES ANGULOCLAVATUS	103 CYPERACEAE	104 POLYCOLPITES SIMPLEX	105 PROTEACIDITES RECTOMARGINIS	106 PROTEACIDITES RUGULATUS	107 TRIORITES MAGNIFICUS	108 GOTHANIPOLLIS BASSENSIS	109 MYRTACEIDITES VERRUCOSUS	110 TRILETES TUBERCULIFORMIS	111 FOVEOTRILETES CRATER	112 LILIACIDITES BAINII	113 PROTEACIDITES REFLEXUS	114 PROTEACIDITES TUBERCULATUS	115 SPINIZONOCOLPITES PROMINATUS	116 CYATHEACIDITES ANNULATUS	117 CYATHIDITES SUBTILIS	118 RUGULATISPORITES MALLATUS
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SPECIES LOCATION INDEX

Index numbers are the columns in which species appear.

INDEX NUMBER	SPECIES
95	ANACOLOSIDITES ACUTULLUS
69	ANACOLOSIDITES LUTEOIDES
1	AUSTRALOPOLLIS OBSCURUS
82	BANKSIEACIDITES ELONGATUS
96	BEAUPREAIDITES ELEGANSIFORMIS
85	BEAUPREAIDITES VERRUCOSUS
2	CALLIALASPORITES DAMPIERI
36	CAMEROZONOSPORITES OHAIOENSIS
23	CICATRICOSISPORITES AUSTRALIENSIS
3	CICATRICOSISPORITES LUDBROOKIAE
52	CLAVIFERA TRIPLEX
93	CONCOLPITES LEPTOS
4	COROLLINA TOROSUS
74	CUPANIEIDITES ORTHOTEICHUS
116	CYATHEACIDITES ANNULATUS
43	CYATHIDITES AUSTRALIS
65	CYATHIDITES GIGANTIS
21	CYATHIDITES MINOR
37	CYATHIDITES SPLENDENS
117	CYATHIDITES SUBTILIS
103	CYPERACEAE
56	DACRYCARPITES AUSTRALIENSIS
5	DILWYNITES GRANULATUS
6	DILWYNITES TUBERCULATUS
59	ERICIPITES SCABRATUS
7	FALCISPORITES AUSTRALIS
8	FALCISPORITES GRANDIS
24	FALCISPORITES SIMILIS
111	FOVEOTRILETES CRATER
44	GAMBIERINA EDWARDSII
9	GAMBIERINA RUDATA
45	GLEICHENIIDITES CIRCINIDITES
108	GOTHANIPOLLIS BASSENSIS
25	HALORAGACIDITES HARRISII
10	HERKOSPORITES ELLIOTTII
102	ILEXPOLLENITES ANGULOCLAVATUS
86	INTRATRIPOROPOLLENITES NOTABILIS
90	KUYLISPORITES WATERBOLKII
38	LATROBOSPORITES CRASSUS
27	LATROBOSPORITES OHAIENSIS
112	LILIACIDITES BAINII
57	LILIACIDITES LANCEOLATUS
53	LYGISTEPOLLENITES BALMEI
22	LYGISTEPOLLENITES FLORINII
62	MALVACIPOLLIS DIVERSUS
75	MALVACIPOLLIS GRANDIS
46	MALVACIPOLLIS SUBTILIS
76	MYRTACEIDITES PARVUS/MESONESUS
109	MYRTACEIDITES VERRUCOSUS

97	NOTHOFAGUS ASPERUS
35	NOTHOFAGUS BRACHYSPINULOSUS
83	NOTHOFAGUS DEMINUTUS
67	NOTHOFAGUS EMARCIDUS/HETERUS
11	NOTHOFAGUS ENDURUS
63	NOTHOFAGUS FALCATUS
47	NOTHOFAGUS FLEMINGII
12	NOTHOFAGUS SENECTUS
98	NOTHOFAGUS VANSTEENISII
13	OSMUNDACIDITES WELLMANII
68	PERIPOROPOLLENITES DEMARCATUS
28	PERIPOROPOLLENITES POLYORATUS
91	PERIPOROPOLLENITES VESICUS
48	PERORILETES MORGANII
14	PEROTRILETES JUBATUS
15	PHYLLOCLADIDITES MAWSONII
16	PHYLLOCLADIDITES RETICULOSACCATUS
39	PHYLLOCLADIDITES VERRUCOSUS
17	PODOSPORITES MICROSACCATUS
66	POLYCOLPITES ESOBALTEUS
104	POLYCOLPITES SIMPLEX
58	PROTEACIDITES ADENANTHOIDES
54	PROTEACIDITES AMOLOSEXINUS
29	PROTEACIDITES ANNULARIS
87	PROTEACIDITES ASPEROPOLUS
40	PROTEACIDITES CLARUS
88	PROTEACIDITES CRASSUS
30	PROTEACIDITES GRANDIS
61	PROTEACIDITES INCURVATUS
77	PROTEACIDITES KOPIENSIS
78	PROTEACIDITES LEIGHTONII
79	PROTEACIDITES OBESOLABRUS
70	PROTEACIDITES ORNATUS
80	PROTEACIDITES PACHYPOLUS
89	PROTEACIDITES PSEUDOMOIDES
99	PROTEACIDITES RECAVUS
105	PROTEACIDITES RECTOMARGINIS
113	PROTEACIDITES REFLEXUS
92	PROTEACIDITES RETICULATUS
106	PROTEACIDITES RUGULATUS
100	PROTEACIDITES SCITUS
18	PROTEACIDITES SPP.
101	PROTEACIDITES STIPPLATUS
71	PROTEACIDITES TENUIEXINUS
114	PROTEACIDITES TUBERCULATUS
31	RETITRILETES
118	RUGULATISPORITES MALLATUS
81	SANTALUMIDITES CAINOZOICUS
72	SAPOTACEOIDAEPOLLENITES ROTUNDUS
115	SPINIZONOCOLPITES PROMINATUS
51	STEREISPORITES (TRIPUNCTISPORIS) PUNCTATUS
26	STEREISPORITES ANTIQUISPORITES
49	STEREISPORITES REGIUM
55	TETRACOLPORITES VERRUCOSUS

19	TRICOLPITES CONFESSUS
20	TRICOLPITES GILLII
41	TRICOLPITES LONGUS
64	TRICOLPITES PHILLIPSII
32	TRICOLPITES SABULOSUS
50	TRICOLPITES WAIPARAENSIS
84	TRICOLPORITES ESTOUTUS
42	TRICOLPORITES LILLIEI
110	TRILETES TUBERCULIFORMIS
107	TRIORITES MAGNIFICUS
33	TRIPOROLETES RETICULATUS
73	TRIPOROPOLLENITES AMBIGUUS
34	TRIPOROPOLLENITES SECTILIS
94	TRIPOROPOLLENITES SPINOSUS
60	VERRUCOSISPORITES KOPUKUENSIS

274214

CHAT #1 DINOS

DESCRIPTION:

PALYNOLOGICAL INTERPRETATION FOR BRIDGE OIL BY ROGER MORGAN - FEB-MARCH 1986
N.B. ALL SAMPLE DEPTHS ARE IN METRES
* INDICATES QUICK TURNAROUND SAMPLES

CHECKLIST OF GRAPHIC ABUNDANCE BY LOWEST APPEARANCE


= Abundant
= Common
= Few
= Rare
= Very Rare
? = Questionably Present
. = Not Present

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2016.0	CUTT		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2058.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2157.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2268.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2370.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2490.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2697.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2799.0	CUTT		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2805.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2899.0	SWC	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2949.9	CUTT		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2967.0	SWC	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3033.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3099.8	SWC		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3104.0	CUTT	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

1	MORKALLACYSTA SP.
2	MORKALLACYSTA PYRAMIDALIS
3	HYSTRICHOKOLPOMA RIGAUDAE
4	SPINIFERITES RAMOSUS
5	DEFLANDREA PHOSPHORITICA
6	LINGULODINIUM MACHAEROPHORUM
7	OPERCULODINIUM CENTROCARPUM
8	* BOTRYOCOCCUS *
9	MILLIOUDODINIUM TENUITAB
10	CORRUDINIUM INCOMPOSITUM
11	SYSTEMATOPHORA PLACACANTHA
12	AREOSPHAERIDIUM ARCUATUM
13	CEREBROCYSTA BARTONENSIS
14	DAPSILIDINIUM PASTIELSII
15	PHTHANOPERIDINIUM EOCENICUM
16	ACHOMOSPHAERA ALCICORNU
17	ALISOCYSTA ORNATUM
18	CORDOSPHAERIDIUM INODES
19	MICROFASTA EVANSII
20	SAMLANDIA RETICULIFERA
21	APECTODINIUM HOMOMORPHA (SH. SP.)
22	SAMLANDIA CHLAMYDOPHORA
23	TRICHODINIUM HIRSUTUM
24	DEFLANDREA HETEROPHLYCTA
25	HOLOROGINELLA SPINATA
26	KISSELOVIA COLEOTHRYPTA

27415

SPECIES LOCATION INDEX

Index numbers are the columns in which species appear.

INDEX NUMBER	SPECIES
8	* BOTRYOCOCCUS *
16	ACHOMOSPHAERA ALCICORNU
17	ALISOCYSTA ORNATUM
21	APECTODINIUM HOMOMORPHA (SH. SP.)
12	AREOSPHAERIDIUM ARCUATUM
13	CEREBROCYSTA BARTONENSIS
18	CORDOSPHAERIDIUM INODES
10	CORRUDINIUM INCOMPOSITUM
14	DAPSILIDINIUM PASTIELSII
24	DEFLANDREA HETEROPHLYCTA
5	DEFLANDREA PHOSPHORITICA
25	HOLOROGINELLA SPINATA
3	HYSTRICHOKOLPOMA RIGAUDAE
26	KISSELOVIA COLEOTHRYPTA
6	LINGULODINIUM MACHAEROPHORUM
19	MICROFASTA EVANSII
9	MILLIOUDODINIUM TENUITAB
2	MORKALLACYSTA PYRAMIDALIS
1	MORKALLACYSTA SP.
7	OPERCULODINIUM CENTROCARPUM
15	PHTHANOPERIDINIUM EOCENICUM
22	SAMLANDIA CHLAMYDOPHORA
20	SAMLANDIA RETICULIFERA
4	SPINIFERITES RAMOSUS
11	SYSTEMATOPHORA PLACACANTHA
23	TRICHODINIUM HIRSUTUM

APPENDIX 5

274217

FINAL WELL SUMMARY

BRIDGE OIL LTD

CHAT NO. 1

BASS STRAIT

15 JANUARY - 3 FEBRUARY 1986

by

EXPLORATION LOGGING OF AUSTRALIA

274218

CONTENTS

1. Introduction
2. Sampling
3. Formation Evaluation Log
4. Drilling Results
   a) Introduction
   b) Cuttings Lithology
   c) Hydrocarbon Indications
5. Evaluation

274219

1. INTRODUCTION

Chat No. 1 was drilled in the Bass Basin by Triton International, using the semisubmersible "Margie", for Bridge Oil Ltd. Its main objective was to test the Paleocene sands of the Eastern View Group. Secondary objectives were sands of Eocene, Oligocene and late Cretaceous age.

A standard mud logging service was provided by Exploration Logging from 268 metres to the Total Depth at 3104 metres. In addition an interpretive lithology column was provided throughout the well and calcimetry readings were taken wherever necessary to provide a quantitative measure of the carbonate content of the formation being drilled.

274220

2. SAMPLING

All samples were lagged. Lag times were calculated using theoretical hole capacities and pump outputs and were checked by running carbides. Throughout the well the theoretical and carbide lags showed good agreement.

Washed and air dried samples were caught for Bridge Oil Ltd and its partners as well as the BMR and the Tasmanian Mines Dept. These samples were washed through a 2.36 mm mesh sieve to remove cavings and then through a 180 micron sieve to remove any remaining drilling fluid. Unwashed samples were also caught. All these samples were caught at 10 metre intervals to 1200 metres. From there to Total Depth three metre samples were caught, except when very high penetration rates made this impossible, then samples at six metre and occasionally nine metre intervals were caught.

In addition canned geochemical samples were caught throughout the well. These were 50 metre composites down to 1200 metres and 30 metre composites from there to Total Depth.

Throughout the well the samples were generally of good quality. The main problems experienced were the lack of time between samples at high penetration rates and the tendency of the clays to be dispersed into the drilling fluid and to be washed away during sample preparation.

A minor problem was the occasional clogging of the shakers during drilling the sands between 1190 and 1300 metres.

3. FORMATION EVALUATION LOG

A standard formation evaluation log was made with a depth scale of 1:500. Rate of penetration was recorded on a semi log scale in metres per hour. The ditch gas was recorded in units with 50 units being equivalent to 1% methane in air. Continuous chromatograph analysis was made from methane to butane with pentane analysis being made whenever its presence was possible. Calcimetry, cuttings gas, and natural and cut fluorescence were recorded throughout the well. In addition lithology descriptions and notes on any factors affecting the drilling of the well were made in the remarks column throughout the well.

4. DRILLING RESULTS

a. Introduction

No major drilling problems were encountered. Drill rates ranged from 480 metres per hour in the upper sandstones and limestones down to two metres per hour in the basalt near Total Depth.

The maximum deviation was 2-1/4 degrees to 2414 metres and 5-1/2 degrees between there and Total Depth.

Tight hole was encountered at 1427 metres and some washing and reaming was necessary most trips from 1742 metres.

274224

b. Cuttings Lithology

From 268 to 560 metres the dominant lithology was bioclastic limestone grading into calcarenite with depth, interbedded with minor claystone.

From 560 to 960 metres the lithology was dominantly moderately to very calcareous claystone with occasional thin limestone veins.

From 960 to 1300 metres the lithology consisted of interbedded claystones and unconsolidated to friable sandstones.

From 1300 to 3022 metres the lithology consisted predominantly of interbedded sandstones and claystones. Coal occurred in minor amounts throughout the interval while minor siltstone interbeds occurred below 2550 metres.

From 3022 to 3104 the well penetrated moderately to very weathered basalt.

c. Hydrocarbon Indications

Only traces of gas were recorded from 268 to 1300 metres and from 3022 to 3104 metres. In the interval 1300 to 3022 metres a trace to five units total gas was recorded. This was mostly dominantly methane with minor ethane and propane indicating that it was coal gas. At 2450 metres traces of oil were observed with associated gas ranging from methane to butane.

Maximum trip gas throughout the well was nine units. No connection gas or cuttings gas was recorded throughout the well.

274226

5. EVALUATION

Electric logs were run over the interval 268 to 3104 metres and sidewall cores were shot between 934 and 3104 metres. Log analysis showed no significant hydrocarbons and the well was plugged and abandoned.

BRIDGE OIL LIMITED

CHAT - 1
COMPOSITE LOG

WELL	CHAT-1	LOCATION	OFF EP 2007/P1
AREA	OFF EP 2007/P1	DRILLING	2007 AND 2008
OPERATOR	BRIDGE OIL LIMITED	RIG	ENSIGN 970
LOCATION	5.7KM SW CHATSWORTH	ELEVATION (G.L.)	14.5 M (ASTRO)
STATE	NEW SOUTH WALES	DATUM (RT)	24.5 M (ASTRO)
COMPLETED	5 OCTOBER 2008	TOTAL DEPTH (DRILLER)	2,000 M
KB ELEVATION	10 METRES AMSL		

STANDARD	CASING	20"	13 3/8"
	HOLE	26"	17 1/2"
	MUD	SEAWATER	SEAWATER

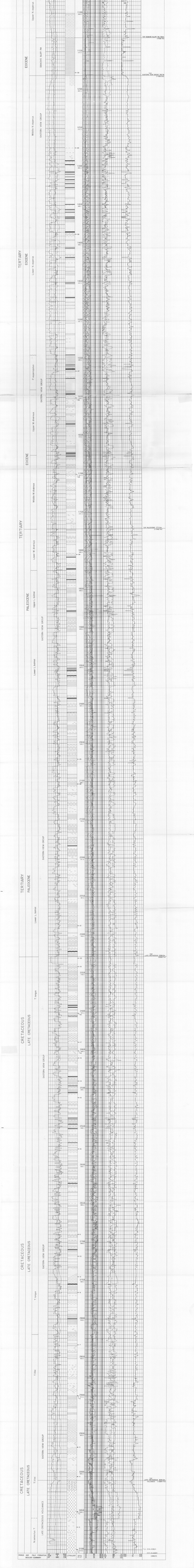
GAMMA RAY	GR	GR (ECS)	GR (HNGS)
SPONTANEOUS POTENTIAL	SP		
CALIPER	CAL	CALI	CALI
BOREHOLE VOLUME	BVOL		
BOREHOLE DIAMETER	BS	BS	BS
BOREHOLE ENVIRONMENTAL CORRECTIONS	BHC		
DEEP RESISTIVITY	RT	RT	RT
MEDIUM RESISTIVITY	RM	RM	RM
SHALLOW RESISTIVITY	RS	RS	RS
MICRO RESISTIVITY	MSFL		
DENSITY	RHOB	RHOB	RHOB
DENSITY CORRECTION	DRHO	DRHO	DRHO
PHOTOELECTRIC FACTOR	PE	PEF	PEF
NEUTRON POROSITY	NPHI	CNCF	CNCF
ACOUSTIC	DT	DT	DT
ACOUSTIC VELOCITY			
ACOUSTIC ENVIRONMENTAL CORRECTIONS			
ACOUSTIC AMPLITUDE			
ACOUSTIC WAVEFORM			
ACOUSTIC VARIABLE DENSITY			
ACOUSTIC IMPEDANCE			
ACOUSTIC SHEAR WAVE			
ACOUSTIC COMPRESSIONAL WAVE			
ACOUSTIC MODE CONVERSION			
FORMATION TESTER			
CORE ANALYSIS			
CUTTINGS			
SIDEWALL CORES			
VELOCITY SURVEY			
DIPMETER			
FORMATION MICRO IMAGER			
CEMENT BOND LOG			
CASING COLLAR LOCATOR			
PERFORATING			
CASED HOLE LOGS			
OPEN HOLE LOGS			

LITHOLOGY

Marine	SHALE		
Non-Marine	SHALE/COAL/SANDSTONE		
COAL			
SILTSTONE			
SILTSTONE			
LIMESTONE			
SALSTONE			

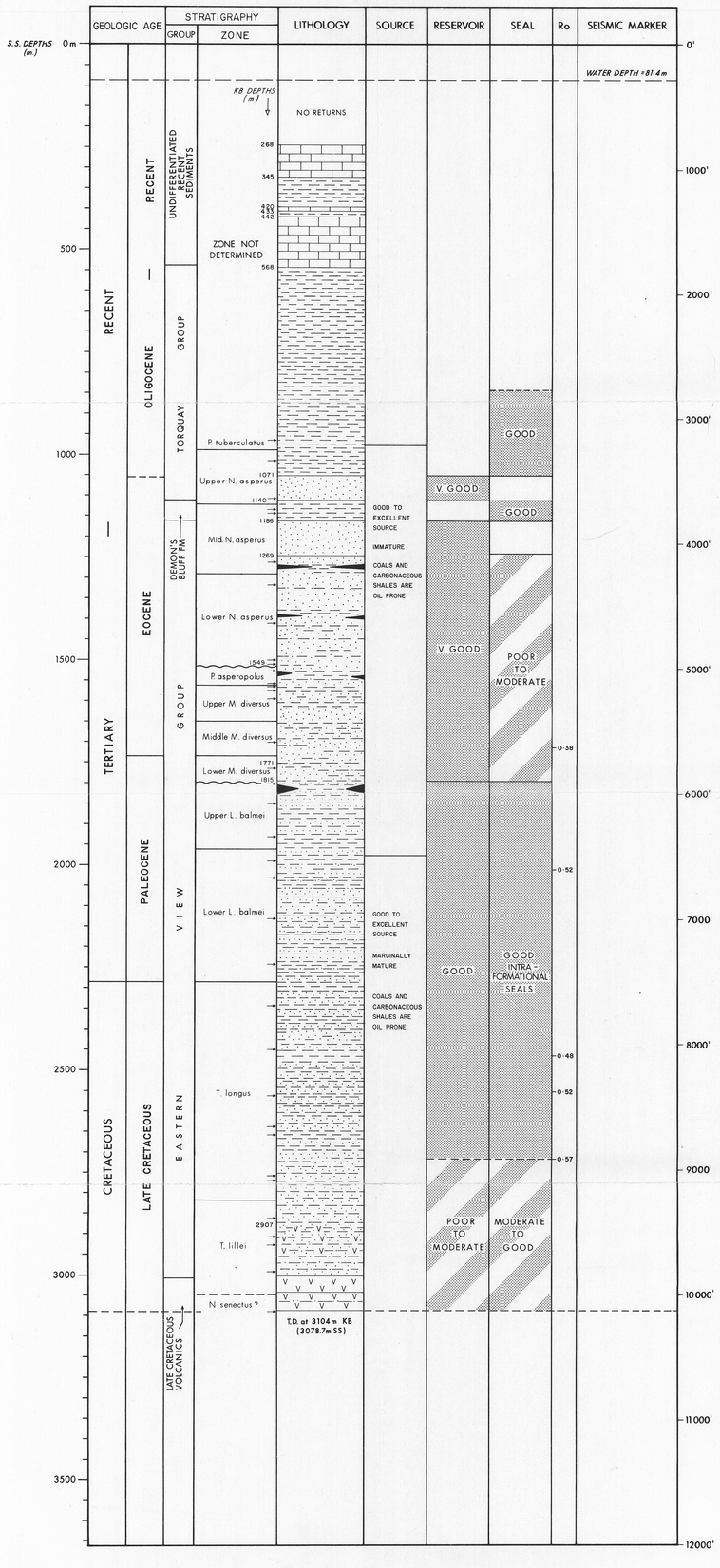
LEGEND

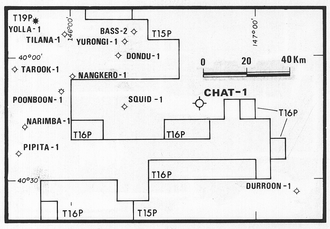
	CEMENT PLUG		PERFORATIONS
	CASING SHOE		DST
	FAULT		Recovered No Recovery


CRETACEOUS
LATE CRETACEOUS
Campanian
Maastrichtian
Edmonton Group
Battle Formation
Scollard Formation
Ft. Union Formation
Lance Formation
Lebo Member
Tullock Member
Hell Creek Formation
Fox Hills Formation
Bearpaw Formation
Horseshoe Canyon Formation
Upper Horseshoe Canyon Member
Middle Horseshoe Canyon Member
Lower Horseshoe Canyon Member
Drumheller Member
Carbon Member
Whitemud Formation
Eastend Member
Rosebud Formation
Frenchman Formation
Ravenscrag Formation
Cypress Hills Formation
Battle Formation
Coalspur Formation
Paskapoo Formation
Scollard Formation
Upper Scollard Member
Middle Scollard Member
Lower Scollard Member
Battle Formation
Upper Battle Member
Middle Battle Member
Lower Battle Member
Haynes Member
Kneehills Tuff Member
Dinosaur Park Formation
Oldman Formation
Foremost Formation
Upper Foremost Member
Middle Foremost Member
Lower Foremost Member
Milk River Formation
Pakowki Formation
Lea Park Formation
Medicine Hat Member
Ribstone Member
Viking Formation
Joli Fou Formation
Westgate Formation
Second White Specks Formation
Fish Scale Zone
Belle Fourche Formation
Carlile Formation
Niobrara Formation
Pembina Member
Ardmore Member
Lower Niobrara Member
Favel Formation
Ashville Formation
Second Speckled Shale
Second White Specks Member
Fish Scale Zone
First Speckled Shale
First White Specks Member
Belle Fourche Member
Carlile Member
Turonian
Cenomanian
Albian
Aptian
Barremian
Hauterivian
Valanginian
Berriasian
Upper Mannville
Middle Mannville
Lower Mannville
Upper Fernie
Middle Fernie
Lower Fernie
Upper Kootenay
Middle Kootenay
Lower Kootenay
Upper Blairmore
Middle Blairmore
Lower Blairmore
Upper Cadomin
Lower Cadomin
Nordegg Member
Rock Creek Member
Gething Formation
Boulder Creek Formation
Brittle Creek Member
Moosebar Formation
Bullhead Group
Fernie Group
Kootenay Group
Blairmore Group
Mannville Group
Minnes Group
Upper Shaftesbury Formation
Middle Shaftesbury Formation
Lower Shaftesbury Formation
Dunvegan Formation
Kaskapau Formation
Cardium Formation
Wapiabi Formation
Blackstone Formation
Brazeau Formation
Paskapoo Formation
Porcupine Hills Formation
Upper Paskapoo Formation
Middle Paskapoo Formation
Lower Paskapoo Formation
Upper Scollard Member
Middle Scollard Member
Lower Scollard Member
Battle Formation
Upper Battle Member
Middle Battle Member
Lower Battle Member
Haynes Member
Kneehills Tuff Member
Dinosaur Park Formation
Oldman Formation
Foremost Formation
Upper Foremost Member
Middle Foremost Member
Lower Foremost Member
Milk River Formation
Pakowki Formation
Lea Park Formation
Medicine Hat Member
Ribstone Member
Viking Formation
Joli Fou Formation
Westgate Formation
Second White Specks Formation
Fish Scale Zone
Belle Fourche Formation
Carlile Formation
Niobrara Formation
Pembina Member
Ardmore Member
Lower Niobrara Member
Favel Formation
Ashville Formation
Second Speckled Shale
Second White Specks Member
Fish Scale Zone
First Speckled Shale
First White Specks Member
Belle Fourche Member
Carlile Member
Turonian
Cenomanian
Albian
Aptian
Barremian
Hauterivian
Valanginian
Berriasian
Upper Mannville
Middle Mannville
Lower Mannville
Upper Fernie
Middle Fernie
Lower Fernie
Upper Kootenay
Middle Kootenay
Lower Kootenay
Upper Blairmore
Middle Blairmore
Lower Blairmore
Upper Cadomin
Lower Cadomin
Nordegg Member
Rock Creek Member
Gething Formation
Boulder Creek Formation
Brittle Creek Member
Moosebar Formation
Bullhead Group
Fernie Group
Kootenay Group
Blairmore Group
Mannville Group
Minnes Group
Upper Shaftesbury Formation
Middle Shaftesbury Formation
Lower Shaftesbury Formation
Dunvegan Formation
Kaskapau Formation
Cardium Formation
Wapiabi Formation
Blackstone Formation
Brazeau Formation
Paskapoo Formation
Porcupine Hills Formation
Upper Paskapoo Formation
Middle Paskapoo Formation
Lower Paskapoo Formation

CHAT-1

SPUDDED = 15-1-1986
RIG RELEASED = 6-2-1986
WATER DEPTH = 81.4m.
K.B. = 25.3m.
T.D. = 3104m KB
PLUGGED AND ABANDONED
NO SIGNIFICANT SHOWS.





BRIDGE OIL LIMITED

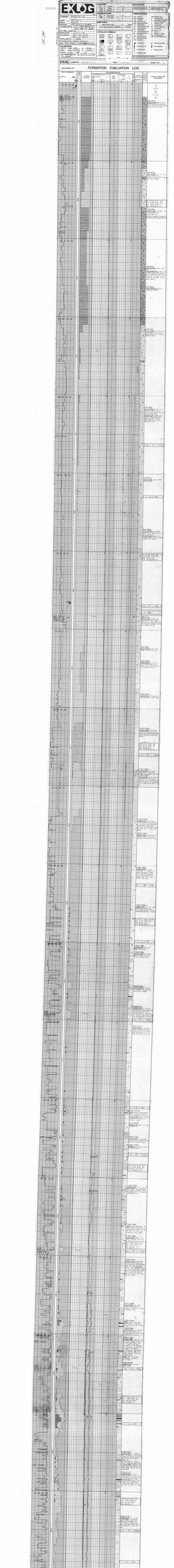
CHAT-1
STRATIGRAPHY

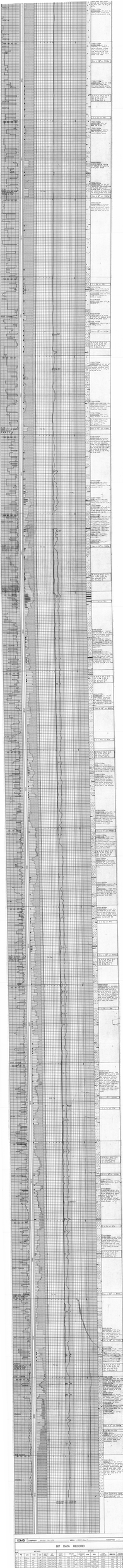
AUTHOR: H.H.	DATE: March, 1986	
DRAWN BY: J. Muniz	SCALE: 1cm. = 50m	ENCLOSURE N°: 2

274228

5 cm

OR-284


EXLOG
FORMATION EVALUATION LOG



EXXG | COMPANY: AMOCO PRO. CO. | WELL: GOVT No. 1 | SHEET NO.

BIT DATA RECORD

NO	SIZE	MFG	TYPE	JETS OR TFA	DEPTH OUT	FEET	HOURS	FT/HR	DULL CHAR	REMARKS
1	8 3/4	SEC	S84F	3X13	2,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
2	8 3/4	SEC	S84F	3X13	3,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
3	8 3/4	SEC	S84F	3X13	4,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
4	8 3/4	SEC	S84F	3X13	5,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
5	8 3/4	SEC	S84F	3X13	6,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
6	8 3/4	SEC	S84F	3X13	7,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
7	8 3/4	SEC	S84F	3X13	8,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
8	8 3/4	SEC	S84F	3X13	9,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
9	8 3/4	SEC	S84F	3X13	10,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
10	8 3/4	SEC	S84F	3X13	11,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
11	8 3/4	SEC	S84F	3X13	12,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
12	8 3/4	SEC	S84F	3X13	13,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
13	8 3/4	SEC	S84F	3X13	14,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
14	8 3/4	SEC	S84F	3X13	15,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
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21	8 3/4	SEC	S84F	3X13	22,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
22	8 3/4	SEC	S84F	3X13	23,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
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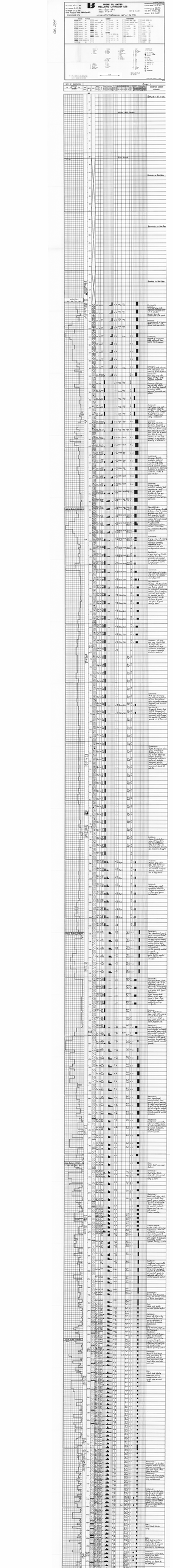
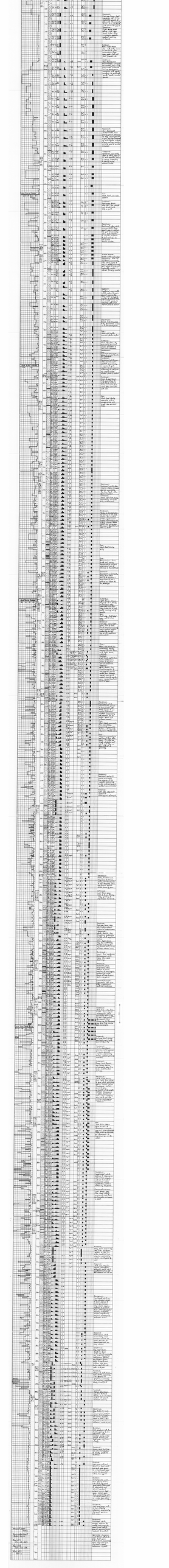
28	8 3/4	SEC	S84F	3X13	29,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
29	8 3/4	SEC	S84F	3X13	30,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
30	8 3/4	SEC	S84F	3X13	31,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
31	8 3/4	SEC	S84F	3X13	32,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
32	8 3/4	SEC	S84F	3X13	33,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
33	8 3/4	SEC	S84F	3X13	34,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
34	8 3/4	SEC	S84F	3X13	35,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
35	8 3/4	SEC	S84F	3X13	36,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
36	8 3/4	SEC	S84F	3X13	37,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
37	8 3/4	SEC	S84F	3X13	38,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
38	8 3/4	SEC	S84F	3X13	39,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
39	8 3/4	SEC	S84F	3X13	40,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
40	8 3/4	SEC	S84F	3X13	41,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
41	8 3/4	SEC	S84F	3X13	42,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
42	8 3/4	SEC	S84F	3X13	43,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
43	8 3/4	SEC	S84F	3X13	44,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
44	8 3/4	SEC	S84F	3X13	45,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
45	8 3/4	SEC	S84F	3X13	46,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
46	8 3/4	SEC	S84F	3X13	47,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
47	8 3/4	SEC	S84F	3X13	48,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
48	8 3/4	SEC	S84F	3X13	49,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
49	8 3/4	SEC	S84F	3X13	50,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
50	8 3/4	SEC	S84F	3X13	51,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
51	8 3/4	SEC	S84F	3X13	52,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
52	8 3/4	SEC	S84F	3X13	53,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
53	8 3/4	SEC	S84F	3X13	54,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
54	8 3/4	SEC	S84F	3X13	55,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
55	8 3/4	SEC	S84F	3X13	56,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
56	8 3/4	SEC	S84F	3X13	57,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
57	8 3/4	SEC	S84F	3X13	58,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
58	8 3/4	SEC	S84F	3X13	59,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
59	8 3/4	SEC	S84F	3X13	60,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
60	8 3/4	SEC	S84F	3X13	61,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
61	8 3/4	SEC	S84F	3X13	62,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
62	8 3/4	SEC	S84F	3X13	63,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
63	8 3/4	SEC	S84F	3X13	64,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
64	8 3/4	SEC	S84F	3X13	65,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
65	8 3/4	SEC	S84F	3X13	66,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
66	8 3/4	SEC	S84F	3X13	67,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
67	8 3/4	SEC	S84F	3X13	68,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
68	8 3/4	SEC	S84F	3X13	69,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
69	8 3/4	SEC	S84F	3X13	70,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
70	8 3/4	SEC	S84F	3X13	71,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
71	8 3/4	SEC	S84F	3X13	72,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
72	8 3/4	SEC	S84F	3X13	73,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
73	8 3/4	SEC	S84F	3X13	74,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
74	8 3/4	SEC	S84F	3X13	75,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
75	8 3/4	SEC	S84F	3X13	76,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
76	8 3/4	SEC	S84F	3X13	77,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
77	8 3/4	SEC	S84F	3X13	78,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
78	8 3/4	SEC	S84F	3X13	79,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
79	8 3/4	SEC	S84F	3X13	80,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
80	8 3/4	SEC	S84F	3X13	81,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
81	8 3/4	SEC	S84F	3X13	82,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
82	8 3/4	SEC	S84F	3X13	83,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
83	8 3/4	SEC	S84F	3X13	84,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
84	8 3/4	SEC	S84F	3X13	85,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
85	8 3/4	SEC	S84F	3X13	86,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
86	8 3/4	SEC	S84F	3X13	87,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
87	8 3/4	SEC	S84F	3X13	88,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
88	8 3/4	SEC	S84F	3X13	89,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
89	8 3/4	SEC	S84F	3X13	90,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
90	8 3/4	SEC	S84F	3X13	91,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
91	8 3/4	SEC	S84F	3X13	92,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
92	8 3/4	SEC	S84F	3X13	93,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
93	8 3/4	SEC	S84F	3X13	94,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
94	8 3/4	SEC	S84F	3X13	95,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
95	8 3/4	SEC	S84F	3X13	96,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
96	8 3/4	SEC	S84F	3X13	97,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
97	8 3/4	SEC	S84F	3X13	98,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
98	8 3/4	SEC	S84F	3X13	99,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
99	8 3/4	SEC	S84F	3X13	100,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	
100	8 3/4	SEC	S84F	3X13	101,000	1,000	15 1/2	64.5	1-1-WT-A-E-I-NO-TD	





OR-284

ENCLOSURE No. 5

MIGRATED SECTION

LINE : BB85-40

S.P. 1 TO 695

NORTHEAST

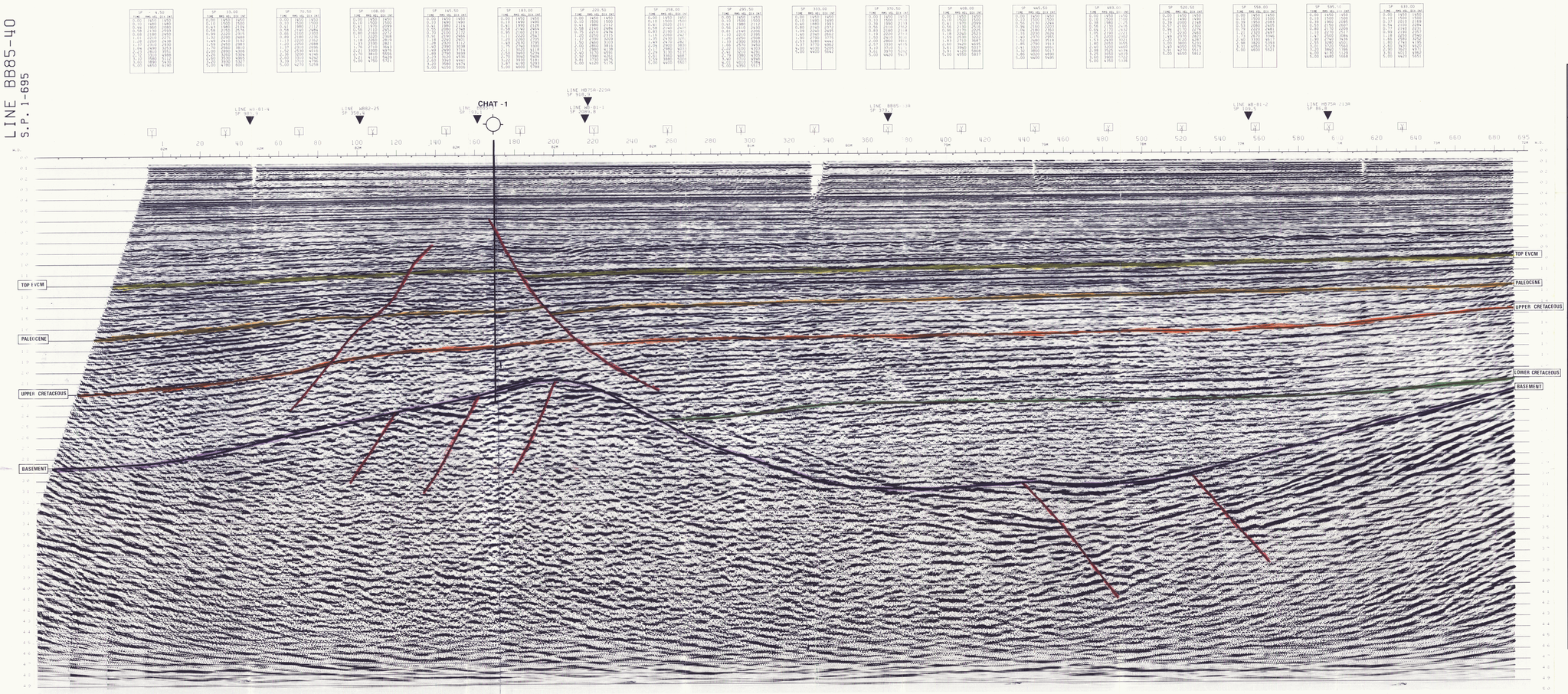
DIRECTION SHOT= 057 DEGREES

5cm

274231

120TRACE 6000X DBS STK DAS MIG RMS BPF

LINE BB85-40
S.P. 1-695



BRIDGE OIL LIMITED

AREA : BASS BASIN
T-15-P / T-16-P

WESTERN GEOPHYSICAL
DIVISION OF LITTON INDUSTRIES
SINGAPORE DIGITAL CENTRE

RECORDED APRIL 1985
PROCESSED MAY 1985

RECORDING DATA

BOAT
WESTERN ODYSSEY
NAVIGATION BY
SHOT LOCATIONS

PARTY NO
MAXIMA
ANTENNA POSITION

SOURCE
AIR GUN VOLUME
AIR GUN PRESSURE
DEPTH
S/P INTERVAL
POP INTERVAL
NOM. FOLD
NO. OF GUNS

1830 CU.IN.
4000 PSI.
10 FT.
25.0 M.
00.0 M.
1500%.
15

INSTRUMENTS
SYSTEM
NO. CHANNELS
FILTERS
FILTER SLOPES
SAMPLE RATE
SAMPLE BITS
POLARITY

L-D-S 15
2 X 3240 BPI
3 - 172 HZ.
18 DB/OCT
4 MILLISECONDS
16
COMPRESSION NEGATIVE

CABLE
STREAMER
GROUPS
GROUP INTERVAL
NEAR
CABLE DEPTH

3000 M.
240
12.50 M.
200 M.
12 M. AVERAGE

ARRAY FORMED SPECIFICATIONS
TRACE
GROUP INTERVAL
FILTERS
FILTER SLOPES
SAMPLE RATE

240
12.50 M.
3 - 140 - 180 HZ.
18 - 180 DB/OCT
4 MS.

218.75M
3175.75M
AIR GUN
SOURCE
Fig. 4

SCALES
HORIZONTAL.. 2.50 IN/KILOMETER
VERTICAL.... 3.75 IN/SECOND
KILOMETER

LEGEND
INTERFACTIONS
W.D. WATER DEPTH
V VELOCITY IN KM/SECS

COMMENTS

DATUM PLANE = SEA LEVEL
CORRECTION APPLIED ON FINAL DISPLAY
CHAN. 1 CORRECTION..... = 0000 MS.
CHAN. 2 CORRECTION..... = 0008 MS.
TOTAL CORRECTION..... = 0012 MS.

DISPLAY POLARITY :
NEGATIVE NUMBER ON TAPE
REPRESENTED BY A TROUGH

PROCESSING SEQUENCE

SAMPLING INTERVAL 4 MS.

FORMAT CONVERSION
SHOT; 120 CHANNELS SEG B WB81-FORMED
DEPOTH; MX-7206 & FORMAT IFP. #15

SIGNATURE DECONVOLUTION
OPERATOR DESIGNED FROM AVERAGE
OF RECORDED NEAR-YIELD SIGNATURES.

DECONVOLUTION
TYPE-LEAST SQUARES
MINIMUM PHASE INVERSE FILTER
X-CORR. W. (NB-OFFSET) 300-3000 MS.
WINDOW #1 STAR TIME/VEL 2500 MS.
WINDOW #1 END TIME/VEL 3500-5000 MS.
WINDOW #2 STAR TIME/VEL 5000 MS.
WINDOW #2 END TIME/VEL 6000 MS.
MINIMUM PREDICTION LAG 12 MS.
OPERATOR LENGTH 252 MS.

COMMON DEPTH POINT SORT

VELOCITY ANALYSIS
2 CDP'S/ANALYSIS EVERY ONE KILOMETER

N.M.O. STACK
6000% N.M.O. CORRECTION

RESIDUAL VELOCITY WORK
ANALYSIS OF VELOCITIES
REDUCE IF NECESSARY

DECONVOLUTION
TYPE-LEAST SQUARES
MINIMUM PHASE INVERSE FILTER
ONE WINDOW 4950 MS.
AUTOCORRELATION LENGTH 240 MS.
PREDICTION LAG 12 MS.
OPERATION LENGTH 252 MS.

BANDPASS FILTER 10-90 HZ.

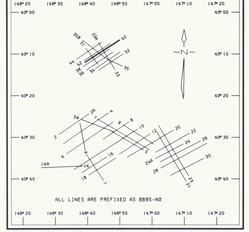
MIGRATION
FD-MIGRATION

RMS GAIN
WINDOW LENGTH 64 MS.- 1024 MS.

FINAL FILTER
SLOPE (DB/OCTAVE) LO HI
TIME OF APPLICATION 10 90
0000-5000 MS.

PLAYBACK
SCALES
HORIZONTAL 1/1.768
VERTICAL 12.7CM.
VELOCITIES 1.28 IN/SECOND
SAMPLE RATE 4 MS.

LINE LOCATION MAP



7128

OR.284

ENCLOSURE 6

274232

Schlumberger

SYDNEY COMPUTING CENTRE

GEOGRAM*

(Synthetic Seismogram)

* A Mark of Schlumberger

Company:	BRIDGE OIL LTD.				
Well:	CHAT - 1				
Field:	WILDCAT				
Country:	AUSTRALIA				
Reference No:	560203	Interval:	0.00 to 3105.00		
Date Logged:	02/02/86	Date Processed:	03/02/86		
Location:	040 10' 53.2" S		146 47' 54.9" E		
Elevations:	KB: 25.3 M	DF: 25.0 M	GL: -81.4 M		
Permanent Datum:	MSL	Depth Units:	METRES		

LOG INFORMATION

FIELD RECORDING:	Engineer:	I. CHAVERA	Location:	WA	Program Version: 30.3
COMPUTATION:	Analyst:	M. SANDERS	Centre:	SYJ	Baseline: 14.2

ELEVATION ABOVE MEAN SEA LEVEL

Logging Datum: 25.3 M
Seismic Reference Datum: MSL
Sea Floor: -81.4 M

Sonic Calibration By Check Shots: NO Sonic Edited By Analyst: YES

Two-Way Time Sample Interval: 2 ms Environment: offshore

True Vertical Depth Corrections Applied: NO
Source of True Vertical Depth Data:
Maximum Hole Deviation:

Run	Date	Total Time		Bit Size/ Depth	Casing Size/ Depth	Top Depth	Bottom Depth
1	JAN/86	SLS		12 1/4" @ 914 M	20" @ 306 M	306 M	914 M
2	03/02/86	SLS		12 1/4" @ 3104 M	13 3/8" @ 914 M	914 M	3105 M

WST Run	Date	Gun Offset	Axial Offset	Gun Elevation	Accelerometer Elevation	Gun Azimuth	Accel Azimuth
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

GEOGRAM MODEL ASSUMPTIONS

Equal time slice model of horizontal plane layers.
Plane acoustic waves at normal incidence.
No intrinsic attenuation.

POLARITY

An upgoing wave, reflected by an increase in acoustic impedance with depth, is displayed as a white trough under normal polarity.

SIGNATURES

All signatures displayed in the Geogram results correspond to a wavelet convolved with a reflection coefficient of -0.5 (A decrease in accoustic impedance with depth).

REMARKS

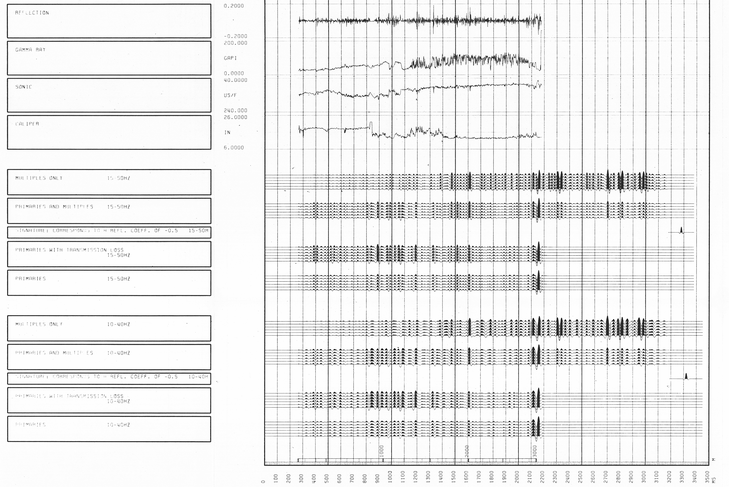
Sonic log interval 255 - 3109 metres below KB
Density log data not available
No checkshot data available
Time scale 3.75 in/sec

The well data, opinion and scenarios contained herein have been furnished to the customer by Schlumberger. While Schlumberger has exercised all reasonable care in the preparation of this material, Schlumberger cannot guarantee the accuracy or correctness of any information provided herein and in no event shall Schlumberger be liable for any direct, indirect, special, consequential or other damages suffered by the customer or others resulting from the use of this material. Schlumberger makes no warranty, expressed or implied, as to the merchantability or fitness for any purpose of any product or service described herein.

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations. We shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost, damage or expense incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.

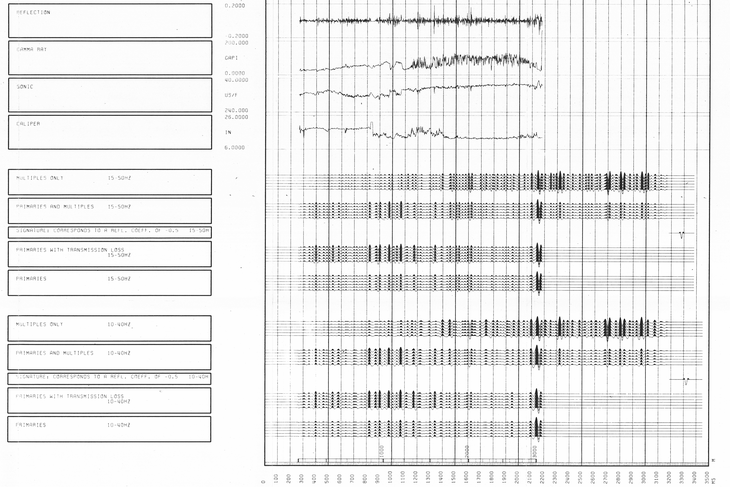
GEOGRAM FROM UNCALIB SONIC
BUTTERWORTH FILTERED
ZERO PHASE WAVELETS
NORMAL POLARITY

CHAT - 1



GEOGRAM FROM UNCALIB SONIC
BUTTERWORTH FILTERED
ZERO PHASE WAVELETS
REVERSE POLARITY

CHAT - 1



COMPANY BRIDGE OIL LTD.
FIELD WILDCAT
WELL CHAT - 1
COUNTRY AUSTRALIA

Schlumberger

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

274234

*
TASROK AA58276
BRIOIL AA26518

D of M | A.O. | C.G. | E.O. | D.S.M.E. | Registrar | D. DIR. | E & M
14 JAN 1985
DEPT. OF MINES
REF. No. 378186
DEPARTMENT OF MINES
RECEIVED
14 JAN 1986
OPERATOR
P. Baillie
4
200 = AM

CI
TOS MSG NO: A0140018 FROM ??????????????????ON JAN 14, 1986 AT 12:18

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC),LTD. SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L.,SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L.,PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXPLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT.PET. CO., TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE

FM.:. BRIDGE OIL LTD.,SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, T-15-P

DAILY OPERATIONS REPORT NO. 2 DATE: 13 JANUARY 1986
==========

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HRS:
0000 - 1700 UNDER TOW TO LOCATION WITH LADY VERA AND BASS TIDE.
1700 - 2400 RELEASE BASS TIDE TO SET LOCATION BUOYS. CONTINUE TOW WITH LADY VERA.

PRESENT OPERATIONS 0600: MOVING ON LOCATION.
N.B. EARLIEST POSSIBLE SPUD LATE P.M. TUESDAY, 14.1.86.

GEOLOGICAL REPORT
==========

NO REPORT

REGARDS,
G.G. FENTON/W.A. JAMIESON,
BRIDGE OIL LIMITED.

REPLY TO:

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

BRIOIL AA26518

274237 11.50

CI
TOS MSG NO: A0170011 FROM BRIOIL AA26518 ON JAN 17, 1986 AT 11:38

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 5 DATE: 16.1.86
==========

DEPTH 2400: 268 METRES
PROGRESS 0000-2400: 5 METRES
DEPTH 0600: 268 METRES
PRESENT OPERATIONS 0600: RUNNING BOP STACK

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HOURS:

0000 - 0030: DRILLED TO 268 M
0030 - 0130: SWEEP HOLE WITH HIGH VIS MUD, DISPLACE WITH 300 BBLS
0130 - 0230: SURVEY AT 268 M, 1/4 DEG.
0230 - 0330: WIPER TRIP TO TGB
0330 - 0500: DISPLACE HOLE WITH 300 BBLS MUD, P.O.H.
0500 - 0600: PREPARE PERMANENT GUIDE BASE
0600 - 1200: RIG UP AND RUN 11 JOINTS 20? CASING AND PILE JOINT
1200 - 1300: MAKE UP PGB AND PILE JOINT
1300 - 1400: LAND CASING WITH HWDP
1400 - 1700: BREAK CIRC AND CMT WITH 850 SX LEAD SLURRY PLUS 10 PCT GEL (13.0 PPG) TAIL IN WITH 480 SX CLASS G NEAT CMT (16.0 PPG) DISPLACE WITH 158 BBLS SEA WATER
1700 - 1800: BACK OUT RT WASH WELL HEAD WITH SEA WATER, P.O.H. AND LAY DOWN RUNNING STRING.
1800 - 2400: RIG AND RUN 18.3/4? BOPS.

N.B. WEATHER: MAX WIND 25 KTS WSW, MAX SEA 5 FT.

BIT DETAILS
CONT./ 2
*
TASROK AA58276

==========

MUD DETAILS
==========

TYPE: SPUD MUD WEIGHT: 8.6 PPG F.VIS: 40

GEOLOGICAL REPORT
==========

NO REPORT

REGARDS,
G.G.FENTON/W.A.JAMIESON,
BRIDGE OIL LIMITED,
SYDNEY.

REPLY TO:BRIOIL AA26518

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

EX MESSAGE TELEX MESSAGE TELEX

274238

200

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0200015 FROM BRIOIL AA26518 ON JAN 20, 1986 AT 12:58

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 6 DATE: 17.1.86
==========

DEPTH 2400: 704 METRES
PROGRESS 0000-2400: 436 METRES
DEPTH 0600: 878 METRES
PRESENT OPERATIONS 0600: DRILLING AT 878 M

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HOURS:

0000 - 0630: RUN BOP AND RISER, LATCH BOP, OVERPULL 50K
0630 - 0800: HOOK UP BOP CONTROLS AND DIVERTER SYSTEM. TEST SHEAR RAMS AND CSG TO 500 PSI. O.K.
0800 - 1100: CHANGE BHA AND RIH. TAG CMT AT 249 M.
1100 - 1130: BREAK CIRC., CLOSE HYDRILL AND TEST TO 500 PSI, OK
1130 - 1230: DRILL HARD CMT TO 255 M, DRILL SHOE AT 256 M
1230 - 1300: CLEAN OUT RAT HOLE AND DRILL TO 278 M
1300 - 1330: LEAK OFF TEST 180 PSI, 8.7 PPG MUD (12.5 PPG EQUIV.)
1330 - 1600: DRILL TO 416 M
1600 - 1630: SURVEY AT 416 M - 1/2 DEG
1630 - 1930: DRILL TO 568 M
1930 - 2000: SURVEY AT 568 M - 1/4 DEG
2000 - 2400: DRILL TO 704 M

N.B. WEATHER: MAX WIND 20 KTS SW, MAX SEA 4 FT.
HEAVE 1 FT, PITCH NIL, ROLL 1 DEG

BIT DETAILS : LAST CSG 20? AT 256 M
==========

BIT NO. 2 SIZE 17 1/2?
CONT./ 2
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TASROK AA58276

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274239

PAGE: 2 A0200015

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 44	W.L.: 25
PH: 9.0	MUD CAKE: 3/32	YP: 38	PV: 6
CHL: 13,800	CA: 60	NITR: NIL	

GEOLOGICAL REPORT
=================

FORMATION TOPS: TORQUAY GROUP AT 565 M (TENTATIVE)
GAS READINGS:

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
268 -704	NIL						NIL

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
268 - 355	BIOCLASTIC LIMESTONE		100 - 480 AV.240	NIL
355 - 419	CLAYSTONE		55-120 AV.100	NIL
(370-375)	LIMESTONE			
419 - 565	BIOCLASTIC LIMESTONE	GRADED INTO CALCARENITE	75-175 AV.100	NIL
565 - 700	CLAYSTONE	V.SFT AND DISP.	45-240 AV.75	NIL
700 - 870	CLAYSTONE	FIRM TO SOFT	60-110 AV.80	NIL

BECOMING SOFTER AND MORE DISPERSIVE WITH DEPTH.
MORE DETAILS ON ABOVE REPORT AVAILABLE WHEN COMMUNICATIONS LINKS COMPLETE.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/W.A.JAMIESON,

REPLY TO:BRIOIL AA26518

*
*TASROK AA58276**
TASROK AA58276

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274241

PAGE: 2 A0200005

HEAVE 2 FT, PITCH NIL, ROLL 2 1/2 DEG

BIT DETAILS :
==========

N/A

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.4 PPG	F.VIS: 46	W.L.: 23
PH: 8.5	MUD CAKE: 3/32	YP: 37	PV: 5
CHL: 14,000	CA: 50	NITR: NIL	

GEOLOGICAL REPORT
==========

FORMATION TOPS: N/A

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
704 - 933M	NIL						NIL

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
704 - 933M	CLAYSTONE		50 - 120 AV. 80	NIL

REGARDS,
G.G.FENTON/W.A.JAMIESON,
BRIDGE OIL LIMITED,
SYDNEY.

REPLY TO:

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TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

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274242

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DEPARTMENT OF MINES
2-30
OPERATOR

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0200021 FROM BRIOIL AA26518 ON JAN 20, 1986 AT 15:20

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 8 DATE: 19.1.86
==========

DEPTH 2400: 933 M
PROGRESS 0000-2400: NIL M
DEPTH 0600: 933 M
LAST CSG 13.3/8? AT 917M
PRESENT OPERATIONS 0600: R.I.H., MAKE UP NEW BHA

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HOURS:

0000 - 0100:	CIRC. AND WAIT ON AWU MTG
0100 - 0330:	POH
0330 - 0630:	RETRIEVE BORE PROTECTOR, CHANGE OUT HWDP RUNNING STRING
0630 - 0700:	RIG UP TO RUN 13.3/8? CSG
0700 - 1600:	RUN 69 JTS 13.3/8? CSG, LAND IN WELL HEAD.
1600 - 1700:	CIRC. HOLE CLEAN
1700 - 2030:	PUMP 50 BBLS SEA WATER AND CMT W 600 SX CLASS-G PLUS 10 PCNT GEL AND 550 SX CLASS-G NEAT CMT. DISPLACE W RIG PUMP, BUMP PLUG W 1500 PSI.
2030 - 2130:	BACK OUT RUNNING TOOL AND POH, PICKUP WASH JOINT
2130 - 2200:	WASH WELL HEAD
2200 - 2400:	RUN AND SET SEAL ASSEMBLY, TEST TO 5000 PSI, OK

N.B. WEATHER: MAX WIND 45 KTS SW, MAX SEA 12-15 FT.
HEAVE 3 FT, PITCH 1.0, ROLL 2.1/2 DEG

BIT DETAILS : N/A

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TASROK AA58276

274243

PAGE: 2 A0200021

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.2 PPG	F.VIS: 35	W.L.: 20
PH: 8.5	MUD CAKE: 2/32	YP: 13	PV: 4
CHL: 15,500	CA: 50	NITR: NIL	

GEOLOGICAL REPORT: NO REPORT
==========

REGARDS, BRIDGE OIL, SYDNEY
G.G.FENTON/W.A.JAMIESON,

REPLY TO:BRIOIL AA26518

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TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

274244

MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0210028 FROM BRIOIL AA26518 ON JAN 21, 1986 AT 12:15

TO.:. BELCO PETROLEUM CORP., NEW YORK ATTN: H. KARREN/R.GOLDEN
       WEAVER OIL ? GAS CORP., HOUSTON ATTN: J. METZ
       CLUFF OIL (PACIFIC) LTD., SYDNEY ATTN: W. PENNINGER
       OAKWOOD INT. PET. N.L., SYDNEY   ATTN: J. LE GAY BRERETON
       PEKO OIL LTD, MELBOURNE   ATTN: P. CAMERON
       KIMBERLEY OIL ? GAS N.L., PERTH ATTN: P. UNSWORTH
       H.N.G., EXLOR. CO., HOUSTON   ATTN: H. KARREN
       CHAMPLIN INT. PET. CO, TEXAS   ATTN: H. BEYKPOUR
       TASMANIAN DEPT. OF MINES   ATTN: H. MURCHIE
       BUREAU OF MINERAL RESOURCES   ATTN: J. WHITE
       BRIDGE OIL LTD., BRISBANE   ATTN: D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 9 DATE: 20.1.86
==========

DEPTH 2400: 1195 M
PROGRESS 0000-2400: 262 M
DEPTH 0600: 1415 M
LAST CSG 13.3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 1415 M

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HOURS:

0000 - 0200: TEST BOP'S
0200 - 0430: LAY DOWN TEST TOOLS, RUN WEAR BUSHING
0430 - 0600: TEST SURFACE EQUIPMENT
0600 - 0730: LAY DOWN 9 1/2? DC'S AND 17 1/2? STAB
0730 - 1100: MAKE UP 12 1/4? BHA, R.I.H., TAG CMT AT 887 M
1100 - 1230: DRILL PLUG AND FLOAT COLLAR, CIRC.
1230 - 1300: TEST CSG TO 1500 PSI, O.K.
1300 - 1430: DRILL CMT AND FLOAT SHOE, REAM RAT HOLE AND DRILL TO
              944 M
1430 - 1800: RUN LEAK OFF TEST. 925 PSI WITH 9.2 PPG MUD
              (15.1 PPG M.W.EQUIV.)
1800 - 1930: DRILL TO 1109 M
1930 - 2000: SURVEY 1104 M, 1/4 DEG
2000 - 2400: DRILL TO 1195 M

N.B. WEATHER: MAX WIND 20 KTS SE, MAX SEA 4 FT.
                HEAVE 1 FT, PITCH NIL, ROLL 1/2 DEG

BIT DETAILS :
CONT./ 2
*
TASROK AA58276

PAGE: 2 A0210028
==========

BIT: NO. 3 SIZE: 12 1/4?

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11.15

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0220004 FROM BRIOIL AA26518 ON JAN 22, 1986 AT 11:00

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 10 DATE: 21.1.86
==========

DEPTH 2400: 1600 M
PROGRESS 0000-2400: 405 M
DEPTH 0600: 1703 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AHEAD AT 1703M

DRILLING REPORT
==========

ACTIVITY LOG LAST 24 HOURS:

0000 - 0100:	DRILLED TO 1275M
0100 - 0130:	SURVEY AT 1275M - 1/2 DEG. (POSSIBLE MISRUN)
0130 - 0230:	DRILLED TO 1303M
0230 - 0400:	CIRC. AND WORKED TIGHT HOLE ON BTM (HI-TORQ - SAND AND GRAVEL)
0400 - 1000:	DRILLED TO 1441M
1000 - 1030:	SURVEY AND SLUG
1030 - 1330:	P.O.H. FOR NEW BIT
1330 - 1500:	CHANGED BIT AND R.I.H. TO SHOE
1500 - 1530:	SLIPPED DRILLING LINE
1530 - 1700:	CONTINUE R.I.H. TO 1423M
1700 - 2400:	WASH TO BTM AND DRILL TO 1600M

N.B. WEATHER: MAX WIND 15 KTS SW, MAX SEA 3 FT.
HEAVE 1 FT, PITCH .2, ROLL .4 DEG

BIT DETAILS :
==========

CONT./ 2
*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

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MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 37	W.L.: 7
PH: 10	MUD CAKE: 2	YP: 13	PV: 8
CHL: 8,200	CA: 20	NITR: NIL	

GEOLOGICAL REPORT:
=================

FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
1195-1703	1624	150	30	15	-	-	15-30
	1647	140	TR	-	-	-	C1 ONLY
	1674	140	20	15	-	-	

PEAKS PROBABLY ASSOCIATED WITH COAL

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
1195-1260	SST	TRANSL., CLR, WHT, ANG-SUB.ANG, FN-V.CRSE,OCC. GRIT,PR-MOD.SRTD,OCC.W.SRTD, UNCONSOL.,EXCEL.INF POR.	60-480 AV.350	NIL
1262-1600	INT'BED SST	A/A	5-240 AV.180	NIL
	CLYST	DOM.BRN-DK.BRN, SF-V.FM, BLKY-SUB.VIS, INCR.FISS W/DEPTH, INCR.CARB, SILTY, OCC. SANDY	AV.30	

GEOL.SUMMARY TO 0600:

1600 - 1703M, INTERBEDDED SST-CLYST-COAL, A/A. NO SHOWS.

REGARDS,
G.G.FENTON/W.A.JAMIESON,
BRIDGE OIL LIMITED,
CONT./ 3
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TASROK AA58276

SYDNEY.

REPLY TO:BRIOIL AA26518

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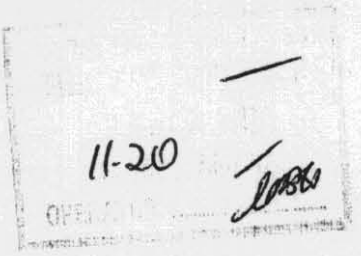

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0230005 FROM BRIOIL AA26518 ON JAN 23, 1986 AT 11:08

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 11 DATE: 22.1.86
==========
DEPTH 2400: 1861 M
PROGRESS 0000-2400: 261 M
DEPTH 0600: 1893 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: R.I.H. WITH NEW BIT NO. 5 AT 1893M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0030: DRILLED TO 1619M
0030 - 0100: SURVEY AT 1619M, 3/4 DEG
0100 - 1000: DRILLED TO 1742M
1000 - 1300: SLUG, SURVEY, P.O.H. FOR NEW BIT
1300 - 1600: CHANGE BIT AND R.I.H. TO 1732M
1600 - 1630: WASHED TO BTM - NO FILL - BREAK IN BIT
1630 - 2400: DRILLED WITH SURVEYS TO 1861M. SURVEY 1742M, 1 1/4 DEG
WEATHER: MAX WIND 10 KTS WNW, MAX SEA 1-2 FT. HEAVE 1 FT, PITCH .2, ROLL .5 DEG

BIT DETAILS :
==========
BIT: NO. 4 AND 5 SIZE: 12 1/4?

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 42	W.L.: 6.1
PH: 9.5	MUD CAKE: 2/32	YP: 10	PV: 8
CHL: 8,000	CA: 20	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
TENTATIVE TOP PALAEOCENE 1551M FROM PALYNOLOGY

CONT./ 2
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TASROK AA58276

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PAGE: 2 A0230005
GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
1600-1790	NIL	TR	-	-	-	-	TR-C1
1790-1850	1836	319	47	26	-	-	30-C1
1850-1861	NIL	TR	-	-	-	-	TR-C1

PEAKS PROBABLY ASSOCIATED WITH COAL
TRIP GAS 1 UNIT AT 1742M

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
1600-1861	INT'BED		5-180	
	SST	TRANSL., WHT, CLR, FN-CRS GN, ANG-SUB.ANG, MOD-W.SRTD, UNCONSOL. TR TO, 10 PCT PYR, TR MICA, GD-EXCEL INF.POR ALSO WHT, FN-V.FN GN, HD-FRI., ANG-SUB.ANG, MOD SRTD, SL. CALC. CMT, DOM.SILIC.CMT POOR VIS.POR	AV. 120	NIL
	CLYST	LT.BRN-BRN, V.SFT-FM, SILTY, BLKY-SUB.FISS, DISP.-V.DISP	AV. 15	
	COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		

GEOL.SUMMARY TO 0600:

1861 - 1893M INTERBEDDED SST-CLYST-COAL, A/A. NO SHOWS.
MNR GAS PEAK 1878M, COAL.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

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TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

274250

12-10

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0240010 FROM BRIOIL AA26518 ON JAN 24, 1986 AT 11:51

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 12 DATE: 23.1.86
==========
DEPTH 2400: 2017 M
PROGRESS 0000-2400: 156 M
DEPTH 0600: 2087 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 2087M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0400: DRILLED TO 1893M
0400 - 0930: P.O.H., CHANGED BIT AND BTM STAB, R.I.H. TO SHOE
0930 - 1000: SLIP AND CUT DRILLING LINE
1000 - 1130: R.I.H. TO 1862M
1130 - 1230: WASHED 1862-1893M, BROKE IN BIT
1230 - 2400: DRILLED TO 2017M
WEATHER: MAX WIND 10 KTS NE, MAX SEA 1-2 FT.
HEAVE 1 FT, PITCH .25, ROLL .5 DEG

BIT DETAILS :
==========
BIT: NO. 5 AND 6 SIZE: 12 1/4?

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 42	W.L.: 6
PH: 9	MUD CAKE: 2/32	YP: 9	PV: 7
CHL: 8,000	CA: 20	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
TENTATIVE TOP PALAEOCENE 1551M FROM PALYNOLOGY

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
1861-2017	2010	400	40	10	-	-	150-200

CONT./ 2
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TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

274252 P.B.

DEPARTMENT OF MINES
RECEIVED/SENT
28 JAN 1986
8.45 AM/PM
OPERATOR

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0240055 FROM BRIOIL AA26518 ON JAN 24, 1986 AT 18:40

TO.:.	BELCO PETROLEUM, NEW YORK	ATTN:	H. KARREN
	WEAVER OIL ? GAS, HOUSTON	ATTN:	J. METZ
	CLUFF OIL, SYDNEY	ATTN:	S. NASR
	OAKWOOD INTERNATIONAL, SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS, PERTH	ATTN:	P. UNSWORTH
	H.N.G., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT.PETROLEUM, TEXAS	ATTN:	P. RAVELING
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH

RE: CORRECTION TO CHAT NO.1 DAILY REPORTS 11 AND 12

PLS NOTE THE FOLLOWING CORRECTION FOR REPORTS 11 AND 12:

?TENTATIVE TOP PALAEOCENE 1551 M? IS FROM LITHOLOGY NOT PALYNOLOGY. QUICKLOOK PALYNOLOGY HAS IN FACT CONFIRMED THAT AT 1740M CHAT NO.1 WAS DRILLING IN THE MID-M.DIVERSUS ZONE.

REGARDS,
MIKE HANZALIK,
BRIDGE OIL LTD.,
SYDNEY.

REPLY TO:BRIOIL AA26518

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TE

P.W. BAILLIE 274253

DEPARTMENT OF MINES
RECEIVED/SENT
28 JAN 1986
12.15 AM/PM
OPERATOR

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0280005 FROM BRIOIL AA26518 ON JAN 28, 1986 AT 11:24

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 13 DATE: 24.1.86
==========
DEPTH 2400: 2254 M
PROGRESS 0000-2400: 237 M
DEPTH 0600: 2300 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 2300M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0730: DRILLED TO 2092M
0730 - 0800: SURVEY AT 2092M,1 1/4
0800 - 2400: DRILL TO 2254M
WEATHER: MAX WIND 10 KTS NW, MAX SEA 1-2 FT.
HEAVE 1 FT, PITCH .2, ROLL .5 DEG

BIT DETAILS :
==========
BIT: NO. 6 SIZE: 12 1/4?
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 44	W.L.: 6.2
PH: 10	MUD CAKE: 2/32	YP: 10	PV: 7
CHL: 9,100	CA: 13	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2017-2254	2058	250	20	10	-	-	150, C1

PEAK ASSOCIATED WITH SST
LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS

CONT./ 2
*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELE
SAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESS

2017-2254	INT'BED		8-85	
	SST	TRANSL, WHT, CLR, MED-CRS GN, OCC. FN, ANG-SUB. ANG,MOD-W.SRTD, UNCONSOL. TR PYR, TR MICA, GD-EXCEL INF.POR, KAOL MTX,OCC.DOL.CMT, ALSO WHT, FN-V.FN GN, HD-FRI., ANG-SUB.ANG, MOD SRTD, SL. CALC. CMT, DOM.SILIC.CMT POOR VIS.POR	AV.50	NIL
	CLYST/SLST	LT.BRN-BRN, V.SFT-FM, SILTY, BLKY-SUB.FISS, DISP,CARB,GRDNG TO ARGILL SLST.	AV.10	
	COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		

GEOL.SUMMARY TO 0600:
2254 - 2300M INTERBEDDED CLYST-SILST-COAL-MNR SAND. SST BECOMING MORE CONSOLIDATED. CLYST BECOMING FIRMER. NO SHOWS

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

*
*TASROK AA58276**
TASROK AA58276
BRIOIL AA26518

CI
TOS MSG NO: A0280022 FROM BRIOIL AA26518 ON JAN 28, 1986 AT 11:35

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 15 DATE: 26.1.86
==========
DEPTH 2400: 2548 M
PROGRESS 0000-2400: 132 M
DEPTH 0600: 2590 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 2590M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

EX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX M

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

DRILLING REPORT
==========

274255

ACTIVITY LOG LAST 24 HOURS:

0000 - 0030: FIN P.O.H., SURVEY 2416M - 2 1/4 DEG
0030 - 0230: CHANGE BIT, R.I.H. TO SHOE
0230 - 0330: SLIP AND CUT DRILLING WIRE
0330 - 0600: R.I.H. TO 2401M
0600 - 0700: WASHED TO 2416M - BROKE IN BIT
0700 - 2400: DRILLED TO 2548M
WEATHER: MAX WIND 25 KTS WSW, MAX SEA 4-5 FT.
HEAVE .5 FT, PITCH .5, ROLL 1 DEG

BIT DETAILS :
==========
BIT: NO. 7 SIZE: 12 1/4?

MUD DETAILS
==========
TYPE: SEAWATER GEL WEIGHT: 9.3 PPG F.VIS: 43 W.L.: 5.3
PH: 10 MUD CAKE: 2/32 YP: 8 PV: 7
CHL: 8,700 CA: 15 NITR: 200

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2416-2548	2451	670	60	16	TR	TR	150-200
	2502	456	45	21	-	-	C1

CONT./ 2
*
TASROK AA58276

2538	450	45	20	-	-	

PEAKS ASSOCIATED WITH SST

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2416 - 2548	INT'BED		5-60	SEE
	SST	TRANSL, WHT, CLR, MED-CRS GN, OCC. FN, ANG-SUB. ANG,MOD-W.SRTD, UNCONSOL. TR PYR, TR MICA, GD-EXCEL INF.POR ALSO WHT-LT.GRY, V.FN-MED GN, HD-FRI, ANG-SUB.ANG, MOD SRTD, KAOLMTX, TR PYR.,POOR VIS.POR	AV.30	BELOW
	CLYST/ SLST	LT.BRN-GRY, BRN FM-HD, BLKY, GRDNG TO ARGILL SLST, COMM. V.FN SST LAM., TR MICA CARB.LAM	AV. 8	
	COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		

FROM 2500M APPROX. THERE HAS BEEN MINOR AMOUNTS OF V.DULL YELLOW FLUOR. WITH INSTANT BLUE/WHITE STREAMING CUT, NO RESIDUAL RING. THIS FLUOR. IS ASSOC. WITH THE TIGHT FINER GRAINED SST.

GEOL.SUMMARY TO 0600:
2548 - 2590M INT'BEDDED CLYST/SLST-SST-COAL, TR SHOWS AS ABOVE.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

X MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX ME

X MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MES

274256

BRIOIL AA26518

CI
TOS MSG NO: A0280011 FROM BRIOIL AA26518 ON JAN 28, 1986 AT 11:47

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 14 DATE: 25.1.86
==========
DEPTH 2400: 2416 M
PROGRESS 0000-2400: 162 M
DEPTH 0600: 2416 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: P.O.H. TO CHANGE BIT AT 2416M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0200: DRILLED TO 2264M
0200 - 0300: SURVEY AT 2264M - 1 DEG
0300 - 2030: DRILLED TO 2416M
2030 - 2400: SURVEY, SLUG, P.O.H. FOR NEW BIT, NO TIGHT HOLE
WEATHER: MAX WIND 25 KTS SW, MAX SEA 6-7 FT.
HEAVE 2 FT, PITCH .25, ROLL .5 DEG

BIT DETAILS :
==========
BIT: NO. 6 AND 7 SIZE: 12 1/4?

MUD DETAILS
==========
TYPE: SEAWATER GEL WEIGHT: 9.4 PPG F.VIS: 44 W.L.: 5.7
PH: 9.5 MUD CAKE: 2/32 YP: 9 PV: 7
CHL: 8,900 CA: 20 NITR: 200

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2254-2380	NIL	TR	-	-	-	-	TR,C1
2380-2416	2388	300	35	21	-	-	150,C1
	2403	500	50	30	TR	TR	

PEAKS ASSOCIATED WITH SST
CONT./ 2
*
TASROK AA58276

PAGE: 2 A0280011
LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS

X MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX ME

MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX

274257

PAGE: 2 A0280011
LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2254-2416	INT'BED		5-60	
	SST	TRANSL, WHT, CLR, MED-CRS GN, OCC. FN, ANG-SUB. ANG,MOD-W.SRTD, UNCONSOL. TR PYR, TR MICA, GD-EXCEL INF.POR, KAOL MTX,OCC.DOL.CMT, ALSO WHT, FN-MED GN, HD-FRI., ANG-SUB.ANG, MOD SRTD, TR PYR.,POOR VIS.POR ALSO LT.BRN, MOD SRTD, SUB.ANG V.FN, 50 PCT ARGILL MTX, 50 PCT SILIC CMT, POOR VIS. POR	AV.35	NIL
	CLYST/ SLST	LT.BRN-GRY,SFT-FM, BLKY, GRDNG TO ARGILL SLST, COMM. AREN, CARB.LAM	AV. 8	
	COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		

FROM 2351M INT'BEDS BECOME THINNER, SST 0.5 - 1 M AND MORE CONSOL.

GEOL.SUMMARY TO 0600: N/A

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX

P. BAILLIE 274258

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0280032 FROM BRIOIL AA26518 ON JAN 28, 1986 AT 15:19

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 16 DATE: 27.1.86
==========
DEPTH 2400: 2693 M
PROGRESS 0000-2400: 145 M
DEPTH 0600: 2733 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 2733M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0800: DRILLED TO 2596M
0800 - 0900: SURVEY - 4 DEG
0900 - 2400: DRILLED TO 2693M
WEATHER: MAX WIND 30 KTS SW, MAX SEA 5-6 FT.
HEAVE 2 FT, PITCH .5, ROLL 1 DEG
BIT DETAILS :
==========
BIT: NO. 7 SIZE: 12 1/4?
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.3 PPG	F.VIS: 39	W.L.: 4.9
PH: 10	MUD CAKE: 1/32	YP: 10	PV: 7
CHL: 8,400	CA: 15	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2548-2693	NIL	TR	-	-	-	-	TR, C1

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2548 - 2693	INT'BED		4-60	SEE
	MNR SST TRANSL, WHT, CLR, MED-V.		AV.30	BELOW

CONT./ 2
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TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE

274259

CRS GN, OCC. FN, ANG-SUB.
ANG,MOD-W.SRTD, UNCONSOL.
TR PYR, TR MICA, GD-EXCEL
INF.POR
ALSO WHT-LT.BRN, DOM.FN-OCC.MED
GN, FM-FRI., OCC. HD,ANG-SUB.ANG,
MOD-W.SRTD, KAOL MTX, MNR CARB.
TR PYR, POOR VIS.POR

CLYST/ SLST — DK.BRN-GRY, BRN FM-HD, BLKY, OCC. SUB.FISS,GRDNG TO ARGILL SLST,COMM. V.FN SST LAM., TR MICA CARB.LAM — AV. 7

MNR COAL — BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST

FROM 2500M APPROX. THERE HAS BEEN MINOR V.DULL YELLOW FLUOR. WITH INSTANT BLUE/WHITE STREAMING CUT, NO RESIDUAL RING. THIS FLUOR. IS ASSOC. WITH THE TIGHT FINER GRAINED SST.

GEOL.SUMMARY TO 0600:
2693 - 2733M INT'BEDDED CLYST/SLST-SST-COAL, TR SHOWS AS ABOVE.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX

274260

DEPARTMENT OF MINES
RECEIVED
29 JAN 1986
12.15 PM
OPERATOR

P. BAILLIE

MINES
OPERATOR

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0290016 FROM BRIOIL AA26518 ON JAN 29, 1986 AT 11:35

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 17 DATE: 28.1.86
==========
DEPTH 2400: 2811 M
PROGRESS 0000-2400: 118 M
DEPTH 0600: 2845 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: P.O.H. TO CHANGE BIT AT 2845M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0100: SURVEY AT 2693M - 3 1/4 DEG
0100 - 2400: DRILLED TO 2811M
WEATHER: MAX WIND 30 KTS NE, MAX SEA 4 FT.
HEAVE 1 FT, PITCH .25, ROLL .5 DEG

BIT DETAILS :
==========
BIT: NO. 7 SIZE: 12 1/4?

MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.5 PPG	F.VIS: 44	W.L.: 5
PH: 9.5	MUD CAKE: 2/32	YP: 11	PV: 8
CHL: 8,100	CA: 20	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
APPROX. TOP L.BALMEI, 1820M FROM PALYNOLOGY, THE
LOWER M.DIVERSUS APPEARS TO BE MISSING.

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2693-2811	2697	630	50	25	-	-	150-250

CONT./ 2
*
TASROK AA58276

SSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAG

274261

2706	580	50	15	TR	TR	C1 ONLY
2751	790	80	39	TR	TR	
2796	577	55	26	TR	TR	

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2693 - 2735	INT'BED		3-60	SEE
	MNR SST	TRANSL, WHT, CLR, MED-V. CRS GN, OCC. FN, ANG-SUB. ANG, MOD-W.SRTD, UNCONSOL. TR PYR, TR MICA, GD-EXCEL INF.POR ALSO WHT-LT.BRN, DOM.FN-OCC.MED GN, FM-FRI., OCC. HD, ANG-SUB.ANG, MOD-W.SRTD, KAOL MTX, MNR CARB. TR PYR, POOR VIS.POR	AV.20	BELOW
	CLYST/ SLST	DK.BRN-GRY, BRN FM-HD, BLKY, OCC. SUB.FISS, GRDNG TO ARGILL SLST, COMM. V.FN SST LAM., TR MICA CARB.LAM	AV. 5	
	MNR COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		
2735 - 2749	SLST	GRY, HD, OCC.V.FM, ARGILL GRDNG TO V.FN-FN SST, SUB.ANG, MOD.SRTD, POOR VIS. POR.	AV. 4	NIL
2749 - 2811	INT'BED		3-40	
	MNR SST	AS ABOVE, BECOMING MORE FN GN, MORE CONSOL.	AV.20	SEE BELOW
	CLYST/ SLST	AS ABOVE	AV. 4	
	MNR COAL	AS ABOVE		

FROM 2500M APPROX. THERE HAS BEEN MINOR V.DULL YELLOW FLUOR. WITH INSTANT BLUE/WHITE STREAMING CUT, NO RESIDUAL RING. THIS FLUOR. IS ASSOC. WITH THE TIGHT FINER GRAINED SST.

GEOL.SUMMARY TO 0600:
2811 - 2845M INT'BEDDED CLYST/SLST-MNR SST-MNR COAL, TR SHOWS AS ABOVE.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

P. BAILLIE

274262

DEPARTMENT OF MINES
RECEIVED
30 JAN 1986
12.25
OPERATOR

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0300007 FROM BRIOIL AA26518 ON JAN 30, 1986 AT 12:09

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.81 MAMSL, WD 81.8M

DAILY OPERATIONS REPORT NO. 18 DATE: 29.1.86
==========
DEPTH 2400: 2898 M
PROGRESS 0000-2400: 87 M
DEPTH 0600: 2934 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DROP SURVEY, PUMP SLUG AND P.O.H. TO CHANGE BIT

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 0530:	DRILLED TO 2845M
0530 - 0600:	SURVEY AT 2845 5 3/4 DEG, PUMP SLUG
0600 - 1200:	P.O.H., CHANGE BIT, R.I.H. TO SHOE
1200 - 1230:	SLIP DRILLING LINE
1230 - 1530:	R.I.H. TO 2831M
1530 - 1600:	WASHED TO 2845M - BROKE IN BIT
1600 - 2200:	DRILLED TO 2893M
2200 - 2300:	SURVEY - 4 3/4 DEG
2300 - 2400:	DRILLED TO 2898M
WEATHER:	MAX WIND 30 KTS NE, MAX SEA 5-6 FT.
	HEAVE 2 FT, PITCH .5, ROLL 1.5 DEG

BIT DETAILS :
==========
BIT: NO. 8 SIZE: 12 1/4?
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 9.5 PPG	F.VIS: 44	W.L.: 4.6
PH: 10	MUD CAKE: 1/32	YP: 8	PV: 8
CHL: 7,900	CA: 20	NITR: 200	

GEOLOGICAL REPORT:
CONT./ 2
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TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

P. BAILLIE

274264

DEPARTMENT OF MINES
RECEIVED
31 JAN 1986
8.50 AM
OPERATOR

*
TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0300049 FROM BRIOIL AA26518 ON JAN 30, 1986 AT 18:23

TO.:.	BELCO PETROLEUM CORP, N.Y.	ATTN:	H. KARREN
	WEAVER OIL ? GAS, HOUSTON	ATTN:	J. METZ
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	H.N.G.EXPLOR CO, HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT.PETROLEUM, TEXAS	ATTN:	P. RAVELING
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES
CC:	KIMBERLEY OILI ? GAS, PERTH	ATTN:	P. UNSWORTH
	CLUFF OIL(PACIFIC)LTD, SYDNEY	ATTN:	S. NASR
	OAKWOOD INTERNATIONAL, SYDNEY	ATTN:	J. LE GAY BRERETON

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/KS

RE: CHAT NO.1 T.D.

BASED ON THE DRILLING RESULTS TO DATE, BRIDGE OIL LTD RECOMMENDS THAT THE CHAT NO.1 WELL IS NOT DRILLED DEEPER THAN 3,104M (10,182 FT) T.D., WHICH IS THE PROGRAMED DEPTH, OR, NO DEEPER THAN 50 FT INTO BASEMENT WHICHEVER IS THE LESSER.

BASED ON AVAILABLE INFORMATION, WE SHOULD REACH THE BRIDGE MAPPED ?PURPLE? REFLECTOR (ECONOMIC BASEMENT) AT 2.22 TWT (APPROX.) BELOW DRILLING LOCATION (S.P. 170 LINE BB85-40) BASED ON ASSUMPTIONS ABOUT THE VELOCITY GRADIENTS EXPECTED IN THE AREA. HOWEVER, THERE IS SOME CHANCE WE MAY NOT.

TRITON HAS ADVISED THAT - FOR DOCUMENTED TECHNICAL REASONS - THEY ARE VERY RELUCTANT TO DRILL DEEPER THAN THE ABOVE DEPTH - EITHER TURNKEY OR DAYRATE - WITHOUT SETTING INTERMEDIATE CASING. TO SET 9 5/8 INCH CASING AT 10,182 FT COULD COST USD 1 MILLION, WITH SUBSEQUENT 8 1/2 INCH HOLE COSTING USD 590/FT PLUS AN ADDITIONAL FINAL LOGGING RUN.

COULD WE PLEASE HAVE YOUR COMMENTS A.S.A.P.

REGARDS,
K.SKIPPER,
BRIDGE OIL LTD,
SYDNEY.

REPLY TO:BRIOIL AA26518

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TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.

DAILY OPERATIONS REPORT NO. 19 DATE: 30.1.86

DEPTH 2400: 2950 M
PROGRESS 0000-2400: 52 M
DEPTH 0600: 2984 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 2984M

DRILLING REPORT

ACTIVITY LOG LAST 24 HOURS:

0000 - 0630: DRILL TO 2934M
0630 - 0700: SLUG AND SURVEY AT 2934M - 4 1/4 DEG
0700 - 1100: P.O.H. AND CHANGE BIT
1100 - 1330: CHANGE TOP STAB, PICK UP SHOCK SUB, R.I.H. TO SHOE
1330 - 1400: SLIP DRILL LINE
1400 - 1700: R.I.H. TIGHT SPOT AT 2455M AND 2750M. PICK UP KELLY AT 2750M
1700 - 1730: REAM AND WASH 2750 TO 2755M
1730 - 1830: R.I.H. TO 2912M
1830 - 1900: WASH FROM 2912 TO 2934M. 2M FILL ON BOTTOM
1900 - 2400: DRILL TO 2950M
WEATHER: MAX WIND 25 KTS SW, MAX SEA 2 FT.
HEAVE 1 FT, PITCH - , ROLL 1 DEG

BIT DETAILS :

BIT: NO. 9 SIZE: 12 1/4?

MUD DETAILS

TYPE: SEAWATER GEL	WEIGHT: 9.5 PPG	F.VIS: 44	W.L.: 4.6
PH: 9.5	MUD CAKE: 1/32	YP: 12	PV: 6
CHL: 7,500	CA: 20	NITR: 200	

CONT./ 2
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TASROK AA58276

PAGE: 2 A0310005

GEOLOGICAL REPORT:

FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT) APPROX. TOP L.BALMEI, 1820M FROM PALYNOLOGY, THE LOWER M.DIVERSUS APPEARS TO BE MISSING.

SSAGE TELEX MESSAGE TELEX MESSAGE TELEX MESSA

274266

GEOLOGICAL REPORT:
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FORMATION TOPS: DRILLING IN EVCM, TOP 1285M, 41ML TO PROG.(TENT)
APPROX. TOP L.BALMEI, 1820M FROM PALYNOLOGY, THE
LOWER M.DIVERSUS APPEARS TO BE MISSING.

GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2898-2950	2922	540	25	5	-	-	100

TRIP GAS 2934M 4 UNITS

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2898 - 2927	INT'BED		3-60	SEE
	MNR SST	DK BRN, FM. V.FN-OCC.SILT MOD.SRTD, ANG,ARGILL MTX ABNDNT CARB, GRDNG TO SLST, NIL VIS. POR ALSO WHT, F-V.FN, OCC. SILT MOD HD-V.HD, WHT KAOL MTX, ANG, MOD SRTD, OCC. SILIC CMT OCC. CALC CMT, POOR-FAIR VIS. POR.	AV.40	BELOW
	CLYST/ SLST	GRY/BRN-LT.BRN, SFT-V.SFT OCC. FM, STICKY, AMORPH, SL. SWELLING, OCC. BLKY, OCC. SUB. FISS, OCC.GRDNG TO ARGILL SLST.	AV.4	
	V.MNR COAL	BLK, HD-OCC.FM AND FRI, DULL, BLKY-SUB.FISS, LAM.W/SLTST AND V.FN SST		
2927 - 2950M	INT'BED		2.5-6	NIL
	SLST	MED-DK BRN, HD, BRITTLE, OCC. FM, BLKY, OCC. SUB-CONC. FRACS		
	CLYST	AS ABOVE		

MINOR V.DULL YELLOW FLUOR. WITH INSTANT BLUE/WHITE STREAMING CUT,
NO RESIDUAL RING. THIS FLUOR. IS ASSOC. WITH THE TIGHT FINER
GRAINED SST.

GEOL.SUMMARY TO 0600:
2950 - 2984M DOM. CLYST, V. MNR SST, MORE CALC.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

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TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

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P. BAILLIE

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0340018 FROM BRIOIL AA26518 ON FEB 03, 1986 AT 11:27

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.
==========

DAILY OPERATIONS REPORT NO. 20 DATE: 31.1.86
==========
DEPTH 2400: 3049 M
PROGRESS 0000-2400: 99 M
DEPTH 0600: 3068 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: DRILLING AT 3068M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 1430: DRILLED TO 3013M
1430 - 1530: SURVEY AT 3013M - 5 DEG
1530 - 2400: DRILLED TO 3049M
WEATHER: MAX WIND 10 KTS NE, MAX SEA 2 FT.
HEAVE 1 FT, PITCH .2, ROLL .5 DEG
BIT DETAILS :
==========
BIT: NO. 9 SIZE: 12 1/4?
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 10.2 PPG	F.VIS: 50	W.L.: 4.4
PH: 10	MUD CAKE: 2/32	YP: 12	PV: 16
CHL: 7,500	CA: 15	NITR: 200	

GEOLOGICAL REPORT:
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FORMATION TOPS: N/A

CONT./ 2
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TASROK AA58276

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TASROK AA58276

PAGE: 2 A0340018
GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD
2950-2982	2976	350	20	TR	-	-	100
2982-3049	NIL	TR	-	-	-	-	TR

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
2950 - 2982	INT'BED		3-60	
	MNR SST	WHT. TRANSL, UNCONSOL.MED -CRS, MOD. SRTD, ANG ALSO GRY, FRI-HD, FN-OCC. V.FN, ANG-SUB.ANG,W.SRTD, CALC CMT I/P, INCR.CALC WITH DEPTH, LITHIC FRAGS, CARB.	AV.30	NIL
	CLYST	GRY/BRN-DK.GRY, SFT-FM OCC.V.FM, OCC. BLKY-SUB. FISS, OCC.GRDNG TO ARGILL SLST I/P, CARB.	AV.4	
	SLST	BRN-DK.BRN, HD-OCC.V.FM ARGILL, GRDS TO V.FN SST,		
2982 - 3033	BASALT	WEATHERED, LT.GRY, GRY, GRY/GRN, FRI-MOD HD, SPECKLED WITH MAFIC MIN. IN A WAXY CLAY MTX,	3-6 AV.5	
3033 - 3049	BASALT	FRESH, GRY, DK.GRY, HD-V.HD, SPECKLED WITH DK AND WHT MIN. IN A GLASSY MTX WITH OCC. CONC. FRAC	2.5-8 AV.4	

GEOL.SUMMARY TO 0600:
3049 - 3068M BASALT TO 3057M, THEN BACK TO SEDIMENTS ? MAINLY LT.GRY/GRN, V.LITHIC, FN SST SIMILAR TO 2982-3033M.

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

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*TASROK AA58276**
TASROK AA58276

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P. BAILLIE

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TASROK AA58276
BRIOIL AA26518
BRIOIL AA26518

CI
TOS MSG NO: A0340031 FROM BRIOIL AA26518 ON FEB 03, 1986 AT 13:37

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.
==========

DAILY OPERATIONS REPORT NO. 21 DATE: 1.2.86
==========
DEPTH 2400: 3104 M
PROGRESS 0000-2400: 55 M
DEPTH 0600: 3104 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: RUNNING DIL-SLS, T.D. LOGGER 3107M

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:

0000 - 1930: DRILLED TO 3104M
1930 - 2130: CIRC. OUT SAMPLE (2:00 HRS EVALUATION TIME)
2130 - 2400: SLUG, P.O.H. TO LOG
WEATHER: MAX WIND 20 KTS ENE, MAX SEA 4 FT.
HEAVE .5 FT, PITCH .2, ROLL .5 DEG
BIT DETAILS :
==========
BIT: NO. 9 SIZE: 12 1/4?
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 10.3 PPG	F.VIS: 53	W.L.: 4.5
PH: 9.5	MUD CAKE: 2/32	YP: 14	PV: 15
CHL: 7,400	CA: 15	NITR: 200	

GEOLOGICAL REPORT:
==========
FORMATION TOPS: N/A
GAS READINGS :

INTERVAL(M)	PEAK(M)	C1	C2	C3	IC4	NC4	BKGD

CONT./ 2
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TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

274270

PAGE: 2 A0340031
3049-3104 NIL TR - - - - TR

LITHOLOGY:

INTERVAL(M)	ROCK TYPE	DESCRIPTION	ROP(M/HR)	SHOWS
3049 - 3057	BASALT	FRESH, GRY, DK.GRY, HD-V.HD, SPECKLED WITH DK AND WHT MIN. IN A GLASSY MTX WITH OCC. CONC. FRAC	2.5-8 AV.4	
3057 - 3104	SST/SLST	(? WEATHERED BASALT) LT.GRY/GRN, GRY/GRN, ABNDNTLY LITHIC, SILT SIZE -V.FN SST SIZE GRAINS IN A WAXY GRY/GRN CLAY MTX.	3 - 6	

GEOL.SUMMARY TO 0600: N/A

REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

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*TASROK AA58276**
TASROK AA58276
BRIOIL AA26518

CI
TOS MSG NO: A0340023 FROM BRIOIL AA26518 ON FEB 03, 1986 AT 13:47

TO : WEAVER OIL ? GAS, HOUSTON ATTN: J. METZ
FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/MH

CC : BELCO PETROLEUM, NEW YORK ATTN: H. KARREN
CLUFF OIL, SYDNEY ATTN: S. NASR
OAKWOOD INTERNATIONAL, SYDNEY ATTN: J. LE GAY BRERETON
PEKO OIL LTD, MELBOURNE ATTN: P. CAMERON
KIMBERLEY OIL ? GAS, PERTH ATTN: P. UNSWORTH
H.N.G., HOUSTON ATTN: H. KARREN
CHAMPLIN INT.PETROLEUM, TEXAS ATTN: P. RAVELING
TASMANIAN DEPT. OF MINES ATTN: H. MURCHIE
BUREAU OF MINERAL RESOURCES ATTN: J. WHITE
BRIDGE OIL LTD., BRISBANE ATTN: D. JONES

RE: CHAT NO.1 W.D. AND K.B. CORRECTION

THE DISCREPANCY RELATED TO THE DATUM FOR CHAT NO. 1 RESULTED FROM THE FIGURES FOR THE LOG HEADINGS FOR RUN NO.1 BEING TAKEN FROM THE ORIGNAL WELL PROGRAME. THOSE FIGURES WERE ESTIMATES AND AS SUCH ARE NOW INCORRECT.

THE FINAL MEASURED WATER DEPTH AND K.B.ELEVATION RELATED TO MEAN SEA LEVEL ARE AS FOLLOWS:

WATER DEPTH 81.4 M (267 FT)
K.B. ELEVATION 106.7M (350 FT)

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

WATER DEPTH 81.4 M (267 FT)
K.B. ELEVATION 106.7M (350 FT)

274271

PLEASE ALTER YOUR LOG PRINTS AND SEPIAS TO CATER FOR THE ABOVE CHANGE.

WE APOLOGISE FOR THE CONFUSION.

REGARDS,
M. HANZALIK,
BRIDGE OIL LTD.

REPLY TO:BRIOIL AA26518

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*TASROK AA58276**
TASROK AA58276
BRIOIL AA26518

CI
TOS MSG NO: A0340036 FROM BRIOIL AA26518 ON FEB 03, 1986 AT 13:51

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.
==========

DAILY OPERATIONS REPORT NO. 22 DATE: 2.2.86
==========
DEPTH 2400: 3104 M
PROGRESS 0000-2400: NIL
DEPTH 0600: 3104 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: RE-RUNNNG CST, ATTEMPTED TO SHOOT 30, 24 MIS-FIRES, SHOT 6, RECOVERED 5.

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:
0000 - 0200: P.O.H.
0200 - 0230: RIG UP SCHLUMBERGER
0230 - 1130: RAN DIL-LSS-MSFL-CAL-GR-SP, SCHL T.D. 3107M
1130 - 1900: RAN LDT-CNL-GR-CAL, SCHL T.D. 3107M
1900 - 2300: RAN CST-GR. PROBLEMS WITH GR, P.O.H. CST
2300 - 2400: REPAIR CST, RE-RUN CST
WEATHER: MAX WIND 45-50 KTS W, MAX SEA 7-8 FT.
HEAVE 7 FT, PITCH 2.5, ROLL 2.5 DEG
BIT DETAILS : N/A
==========
MUD DETAILS
==========
TYPE: SEAWATER FE WEIGHT: 10.1 PPG F.VIS: 40

TELEX MESSAGE TELEX MESSAGE TELEX MESSAGE

X MESSAGE TELEX MESSAGE TELEX ME

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DRILLING REPORT
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ACTIVITY LOG LAST 24 HOURS:
0000 - 0200: P.O.H.
0200 - 0230: RIG UP SCHLUMBERGER
0230 - 1130: RAN DIL-LSS-MSFL-CAL-GR-SP, SCHL T.D. 3107M
1130 - 1900: RAN LDT-CNL-GR-CAL, SCHL T.D. 3107M
1900 - 2300: RAN CST-GR. PROBLEMS WITH GR, P.O.H. CST
2300 - 2400: REPAIR CST, RE-RUN CST
WEATHER: MAX WIND 45-50 KTS W, MAX SEA 7-8 FT.
HEAVE 7 FT, PITCH 2.5, ROLL 2.5 DEG
BIT DETAILS : N/A

==========
MUD DETAILS
==========

TYPE: SEAWATER GEL	WEIGHT: 10.1 PPG	F.VIS: 48	W.L.: 4.9
PH: 9.5	MUD CAKE: 2/32	YP: 15	PV: 15
CHL: 7,800	CA: 15	NITR: 200	

GEOLOGICAL REPORT: NO REPORT
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CONT./ 2
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TASROK AA58276

PAGE: 2 A0340036
REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:BRIOIL AA26518

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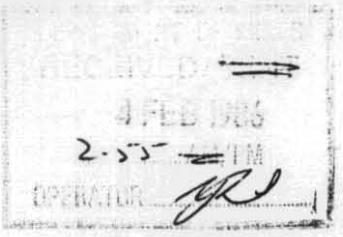
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

X MESSAGE TELEX MESSAGE TELEX ME

P. BAILLIE

274273



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TASROK AA58276
BRIOIL AA26518

CI
TOS MSG NO: B0350013 FROM ??????????????ON FEB 04, 1986 AT 14:44

TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
	OAKWOOD INT. PET. N.L., SYDNEY	ATTN:	J. LE GAY BRERETON
	PEKO OIL LTD, MELBOURNE	ATTN:	P. CAMERON
	KIMBERLEY OIL ? GAS N.L., PERTH	ATTN:	P. UNSWORTH
	H.N.G., EXLOR. CO., HOUSTON	ATTN:	H. KARREN
	CHAMPLIN INT. PET. CO, TEXAS	ATTN:	H. BEYKPOUR
	TASMANIAN DEPT. OF MINES	ATTN:	H. MURCHIE
	BUREAU OF MINERAL RESOURCES	ATTN:	J. WHITE
	BRIDGE OIL LTD., BRISBANE	ATTN:	D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.
==========

DAILY OPERATIONS REPORT NO. 23 DATE: 3.2.86
==========
DEPTH 2400: 3104 M
PROGRESS 0000-2400: NIL
DEPTH 0600: 3104 M
LAST CSG 13 3/8? AT 917 M
PRESENT OPERATIONS 0600: PULLING BOP STACK

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:
0630 - 0700: RIG DOWN SCHLUMBERGER
0700 - 1000: LAY DOWN D.C. AND HWDP
1000 - 1100: R.I.H. TO 964M OPEN ENDED
1100 - 1130: CIRC
1130 - 1230: SET 375 SX CLASS 'G' CMT. (PLUG 964 - 864M)
1230 - 1330: P.O.H. TO 772M - CIRC. OUT
1330 - 1600: LAY DOWN DRILL PIPE
1600 - 1700: SLIP AND CUT DRILLING LINE
1700 - 2230: LAY DOWN DRILL PIPE
2230 - 2300: PRESSURE TEST PLUG TO 1200 PSI
2300 - 2400: R.I.H. OPEN ENDED TO 247M. SET 275 SX CLASS 'G' CMT. (PLUG 247 - 147M).
WEATHER: MAX WIND 15 KTS WNW, MAX SEA 3 FT.
HEAVE 2-3 FT, PITCH .5, ROLL 1 DEG
BIT DETAILS : N/A
==========
MUD DETAILS: N/A
==========
GEOLOGICAL REPORT:
==========
LOG ANALYSIS INDICATES NO SIGNIFICANT HYDROCARBON ZONES AND NO
CONT./ 2
*
TASROK AA58276

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TELE

274274

PAGE: 2 B0350013
FRESH WATER SANDS PENETRATED, THEREFORE NO ADDITIONAL CMT PLUGS REQUIRED.
REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

SSAGE

P. BAILLIE

274275

11.30

TELEX MESSAGE TELEX MESSAGE TELEX

*
TASROK AA58276
BRIOIL AA26518

CI
TOS MSG NO: A0370021 FROM ??????????????ON FEB 06, 1986 AT 11:16

TO.:. BELCO PETROLEUM CORP., NEW YORK ATTN: H. KARREN/R.GOLDEN
       WEAVER OIL ? GAS CORP., HOUSTON ATTN: J. METZ
       CLUFF OIL (PACIFIC) LTD., SYDNEY ATTN: W. PENNINGER
       OAKWOOD INT. PET. N.L., SYDNEY   ATTN: J. LE GAY BRERETON
       PEKO OIL LTD, MELBOURNE   ATTN: P. CAMERON
       KIMBERLEY OIL ? GAS N.L., PERTH ATTN: P. UNSWORTH
       H.N.G., EXLOR. CO., HOUSTON   ATTN: H. KARREN
       CHAMPLIN INT. PET. CO, TEXAS   ATTN: H. BEYKPOUR
       TASMANIAN DEPT. OF MINES   ATTN: H. MURCHIE
       BUREAU OF MINERAL RESOURCES   ATTN: J. WHITE
       BRIDGE OIL LTD., BRISBANE   ATTN: D. JONES

FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
       N.B. CORRECTED KB ELEVATION AND W.D.
       ====================================
DAILY OPERATIONS REPORT NO. 25   DATE: 5.2.86
==============================
DEPTH 2400: 3104 M
PROGRESS 0000-2400: NIL
DEPTH 0600: 3104 M
LAST CSG 13 3/8? AT 917 M. TOP PLUG 147 PB DEPTH
PRESENT OPERATIONS 0600: WOW

DRILLING REPORT
===============
ACTIVITY LOG LAST 24 HOURS:
0000 - 0100   TRIM AND L.D. PILE JT
0100 - 0230   REMOVE GUIDE LINES AND MOVE PGB FROM MOON POOL
0230 - 0400   MU J-TOOL ON 8? DC AND BPR SUB. RIH WITH Z-ARM GUIDE
              TO MUD LINE
0400 - 0600   ENGAGE TGB, PULL AND SECURE IN MOON POOL
0600 - 1130   COMMENCE HANDLING ANCHORS. NO'S 7,2 AND 6 BOLSTERED
              BY 10.45.
1130 - 2400   SUSPENDED ANCHOR HANDLING DUE TO WEATHER
WEATHER: MAX WIND 35-40 KTS W, MAX SEA 12-15 FT.
              HEAVE 3 FT, PITCH 3.5, ROLL 3.5 DEG
GEOLOGICAL REPORT: N/A
=================
REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

TELEX MESSAGE TELEX MESSAGE TELEX

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TO.:.	BELCO PETROLEUM CORP., NEW YORK	ATTN:	H. KARREN/R.GOLDEN
	WEAVER OIL ? GAS CORP., HOUSTON	ATTN:	J. METZ
	CLUFF OIL (PACIFIC) LTD., SYDNEY	ATTN:	W. PENNINGER
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FM.:. BRIDGE OIL SYDNEY
REF:. 521/112/82/MH
RE: CHAT NO. 1, P.T.D.3109M, KB106.7 MAMSL, WD 81.4M
N.B. CORRECTED KB ELEVATION AND W.D.
==========

DAILY OPERATIONS REPORT NO. 26 AND FINAL DATE: 6.2.86
==========
PRESENT OPERATIONS 0600: UNDER TOW TO SEAL NO.1.

DRILLING REPORT
==========
ACTIVITY LOG LAST 24 HOURS:
0000 - 1400 WOW TO PULL ANCHORS
1400 - 2100 COMPLETE PULLING ANCHORS. RIG RELEASE FROM CHAT NO.1 AT 2100 HRS, 6 FEBRUARY 1986.
2100 - 2400 MOVING TO SEAL NO.1

WEATHER:	TIME	WIND	SEA	SWELL
	0900	WSW 25	WSW 6	NW 10
	1200	WSW 20	WSW 6	NW 9
	1500	WSW 20	WSW 6	NW 8

GEOLOGICAL REPORT: N/A
==========
REGARDS, BRIDGE OIL SYDNEY
G.G.FENTON/K.SKIPPER,

REPLY TO:

*
TASROK AA58276
BRIOIL AA26518*
TASROK AA58276

MESSAGE TELEX MESSAGE TELEX MESSAGE

274277

WELL: CHAT #1 DRILLED FOR: BRIDGE

PERMIT: T/15P BASIN: BASS

WELL TYPE: Wildcat

CONTRACTOR: Atwood Oceanics Aust.

DRILLING VESSEL OR RIG: "Mangie"

FINAL CO-ORDINATES: 40° 10' 53.2" E
146° 41' 54.9" S

ELEVATION REFERENCE: WD 82m (270') KB 25m (82')

	PROPOSED	ACTUAL (Hi/low)
SPUD DATE:	15 JAN 86	15 JAN 86 ✓
LOG AT:	13⅜ Casing, TD	
DRILLING TIME (Days):	30 days	26 days
COST:	A$9,780,000	Turnkey
OBJECTIVES (FM)/DEPTH(M):	Hydrocarbon potential of UK → Oligocene. Primary objective is Mid Paleocene	
TOTAL DEPTH (FM)/DEPTH (M):	Upper K, 3104m (10182')	3104m

STRUCTURE: Fault-bounded closure with 4-way dip. Mid Tertiary compression responsible for re-juvenation and creation of Eocene and Paleocene closures.

TESTS: None

Good sands were present in the Oligocene and also in the EVCM. Generative section was encountered from 2500m where rare flourescence was detected but at these depths no structure is present.

HYDROCARBON SHOWS: No significant shows

BOTTOMED IN (FM/AGE): ?Cret. basalt RATING: Dry

STATUS: Plugged & abandoned RIG RELEASED: 6 Feb 86

JAN 12

CHAT #1

27427 78

SPUD WITH ONE PUMP (1st 30ft)

20" 94# WITH JV CONN AND

WITH 18 x 24" PILE JOINT

13 3/8" 68# K BUTT

DEPTH BELOW KB - FEET

1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

TD 10182

LOG P & A

FEB 5

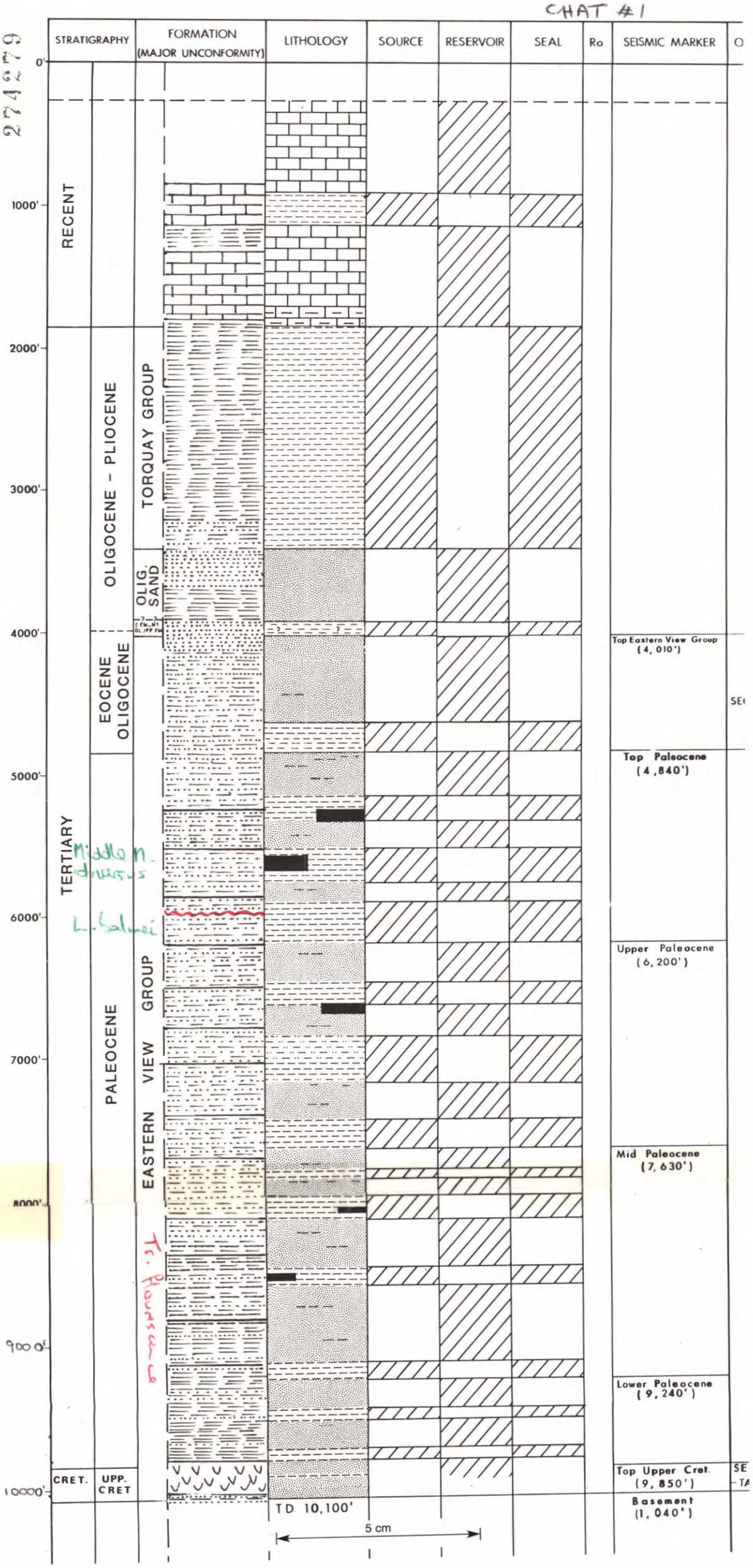
5 cm

2 4 6 8 10 12 14 16 18 20

16 JAN 20 JAN 24 JAN 28 JAN 1 FEB

DAYS ON LOCATION

CHAT #1



STRATIGRAPHY
FORMATION (MAJOR UNCONFORMITY)
LITHOLOGY
SOURCE
RESERVOIR
SEAL
Ro
SEISMIC MARKER
0'
1000'
2000'
3000'
4000'
5000'
6000'
7000'
8000'
9000'
10000'
RECENT
TERTIARY
OLIGOCENE - PLIOCENE
EOCENE OLIGOCENE
PALEOCENE
CRET.
UPP. CRET
TORQUAY GROUP
OLIG. SAND
EASTERN VIEW GROUP
Middle M. diversus
L. balmei
Tr. Flourescence
Top Eastern View Group (4, 010')
Top Paleocene (4,840')
Upper Paleocene (6, 200')
Mid Paleocene (7, 630')
Lower Paleocene (9, 240')
Top Upper Cret. (9, 850')
Basement (1, 040')
TD 10,100'
5 cm

272637 OR-0284 ENCLOSURE N°8.

EXLOG COMPANY: BRIDGE OIL LTD WELL: CHAT No. 1 SHEET NO. 1

BIT DATA RECORD

RUN #	BIT DATA						BIT RUN								
	BIT #	MFR	TYPE	SIZE	IADC CODE	JET SIZES	START DEPTH	DRILLED	HOURS	AVERAGE ROP	WOB	RPM	PUMP PRESSURE	SPM/GPM	IADC BIT CONDITION
1	1	VAREL	L3A	26"	111	22x22x22	10[illegible]	162	7	23.1	5	140	2000	1026	2 2 0
2	2	HTC	R1	17½"	111	16x16x16	268	666	16.5	40.0	20	180	2550	800	2 2 1/8
3	3	HTC	J1	12¼"	116	12x12x16	934	507	21	24.1	25	150-170	3100	[illegible]05	2 7 0
4	4	HTC	J1	12¼"	116	12x12x16	1441	301	16.5	18.2	25-30	150	3100	[illegible]95	2 4 1/8
5	5	HTC	J2	12¼"	126	14x14x14	1742	151	12	12.6	45-50	140-150	3000	[illegible]05	3 3 0
6	6	HTC	J22	12¼"	517	15x15x14	1893	521	55.[illegible]5	9.3	40	[illegible]0-80	2750	[illegible]33	4 8 0
7	7	SMITH	F2	12¼"	527	14x14x14	2414	431	69.75	6.2	45-50	60	3200	[illegible]87	1 4 0
8	8	HTC	J03	12¼"	137	14x14x15	2845	89	14.5	[illegible].1	30-40	130	3000	[illegible]83	7 2 0
9	9	SMITH	F2	12¼"	527	14x14x14	2934	170	47.5	3.6	30-45	[illegible]0-85	3000-3100	[illegible]61-[illegible]72	7 7 1/8

	1.75 LITHO-DENSITY CLOSE DETECTOR RUN2	
	CSU	

COMPANY: BRITANNIA OIL LTD

WELL: Cook 1a

FIELD: Cook area

COUNTY: Hampshire

STATE: England

LOCATION: 60°57'30"N 2°0'0"E

SECTION: 15

TOWNSHIP: 61 N

RANGE: 2 E

PERMANENT DATUM: MSL 0

LOG MEASURED FROM: RT 25.0 ft

DRILL MEASURED FROM: KB

APIN#:

SERVICE ORDER#: 71234

OTHER SERVICES:

RUN 1

DEPTH DRILLER:	3512.0 ft
DEPTH LOGGER:	3512.0 ft
BTM LOG INTERVAL:	3512.0 ft
TOP LOG INTERVAL:	3200.0 ft
CASING DRILLER:	3508.0 ft
CASING LOGGER:	3508.0 ft
BIT SIZE:	8.5 in
TYPE FLUID IN HOLE:	WATER BASED MUD
DENSITY:	10.2 lbm/gal
PH:	9.8
FLUID LOSS:	4.2 ml/30min
SOURCE OF SAMPLE:	FLOWLINE
RM @ MEAS TEMP:	0.142 @ 68 degF
RMF @ MEAS TEMP:	0.118 @ 68 degF
RMC @ MEAS TEMP:	0.189 @ 68 degF
RM @ BHT:	0.098 @ 142 degF
TIME CIRC ENDED:	11:30 13/07/87
TIME LOGGER ON BTM:	14:15 13/07/87
MAX REC TEMP:	142.0 degF
EQUIPMENT #:	LOG-UNIT-3
LOCATION:	Cook area
RECORDED BY:	J. Mackenzie
WITNESSED BY:	G. Fitzgerald

REMARKS:

RUN 1 WITH DUAL SPACED NEUTRON TOOL.
TOOL STRING RUN IN COMBINATION WITH LSS AND BHC.
MAIN PASS LOGGED UP HOLE AT 1800 FT/HR.
REPEAT SECTION 3 LOGGED AFTER CIRCULATION.

EQUIPMENT NUMBERS:

DSN-AC 1234	SLS-AC 1345	SLS-GR 1456	SLS-MN 1567
DIL-AC 1678	DIL-GR 1789	DIL-SP 1890	DIL-CAL 1901

DISCLAIMER: THE INTERPRETATIONS CONTAINED IN THIS LOG ARE BASED ON DATA SUPPLIED BY THE CLIENT AND ON MEASUREMENTS MADE BY LOGGING AND OTHER EQUIPMENT. THE ACCURACY OF THESE INTERPRETATIONS CANNOT BE GUARANTEED AND WE ACCEPT NO RESPONSIBILITY FOR LOSS OR DAMAGE ARISING FROM THE USE OF THIS DATA. WELL CONDITIONS AND OTHER FACTORS MAY AFFECT THE QUALITY OF THE LOGS. THE INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT AND DO NOT GUARANTEE THEIR ACCURACY OR CORRECTNESS. WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR STANDARD TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

```
DP 30.4          FILE  0    DR-GAM-MN 19:15
                            DR-GAM-MN 19:15
                            MN
DP 30.4          FILE  1    DR-GAM-MN 19:15
                            MN
```

BOREHOLE AND CASING DATA

```
OPEN HOLE
BIT
SIZE                8.5 in
FROM                0 ft
TO                  3512 ft
BIT                 1
SIZE                8.5 in
FROM                3508 ft
TO                  3512 ft
CASING
SIZE                9.625 in
WEIGHT              47 lbm/ft
GRADE               N-80
FROM                0 ft
TO                  3508 ft
```

```
DP 30.4          FILE  0    DR-GAM-MN 17:52
```

AFTER SURVEY TOOL CHECK SUMMARY

MEASUREMENT	BEFORE SURVEY	AFTER SURVEY	UNITS
CALIPER CHECK	8.50	8.48	in

SOURCE	TOOL CHECK		
	PRE-SURVEY	POST-SURVEY	UNITS
Cs-137	1234	1231	GAPI
Co-60	1456	1452	GAPI
Am-241	1678	1675	GAPI
CS SOURCE CHANGE CORRECTION	0	0	GAPI
CO SOURCE CHANGE CORRECTION	0	0	GAPI

```
DP 30.4          FILE  0    DR-GAM-MN 17:52
```

EVENT MARK SUMMARY

MARKER	DEPTH	DEPTH TRACK
TOP	3200.0 ft	LOG1 GAMMA
BOT	3508.0 ft	LOG1 GAMMA

```
DP 30.4          FILE  0    DR-GAM-MN 17:47
```

