Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

KINGFISH-2 (W512)

WELL SUMMARY

1 Folio No.	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No.	2 Referred to	3 Date	4 Clearing Officer's Initials

FILE COVER INSTRUCTIONS FOR ACTION OFFICERS

(1) FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.

(2) REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer please initial Column 4 and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column 3.

(3) BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).

(4) PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

FILE No.

EARLIER FILES	LATER FILES	RECORDS DISPOSITION

SPUD. 28-11-67.
COMPLETED 30-1-68
T.D 8021".

38° 35' 5
148° 10' 1
WD 252' RT.
GLOMAR III

KINGFISH - 2

ESSO. STEPOUT 512.

✓ IES.	Run 1.	766' - 2430'.	Separate logs 2" and 5".
"	" 3.	2397 - 8017'.	" " 2" " 5"
✓ BHCS/GR.	" 1.	765 - 2410	" " 2" " 5".
✓ BHCS	" 2.	2397 - 8004.	" " 2" " 5".
✓ FDC/GR	" 1.	2397 - 8010	" " 2" " 5".
✓ GRN	" 1.	7300 - 7800	" " 2" " 5"
✓ MLL.	" 1	" "	" " 2" " 5".
✓ LL.	" 1	7300 - 8100.	" " 2" " 5".
✓ FIT.	" 1.	Tests 1 - 4.	

✓ Core Lab. Mudlog. 2457-8021. + [illegible]

Cores 1 - 8. Sent to store

✓ Completion Coregraph. Cores 2-8. Core Lab.

✓ Core Descriptions 1-8. Core Lab. ?

~~S.W.C. Cut 11. Rec 6.~~ (weekly reports) no record of any

Well Discovery Report.

✓ Velocity Survey with TDC

Palaeontology Report by D. Taylor.

Palynology " " L. E. Stover & A. D. Partridge.

Weekly Reports

✓ Well Summary unrestricted copy only.

Cuttings received into store 15/10/74. 1400' - 8020'.

Palynology Report Revision by A. D. Partridge.

No CDM 766-8010.

KINGFISH-2 (W512)

Well Summary Report

Table of Contents

Enclosures

Formation Tester and Recovery
Grapholog
Completion Coregraph
Time-Depth Curve

WELL SUMMARY

UNRESTRICTED COPY

512

BASIC

RE-NAMED (AUG. 1968) KINGFISH 2

WELL DISCOVERY REPORT

ESSO KINGFISH B1 WELL SUMMARY

Purpose of Well: Exploratory test, step-out well to Kingfish A1, Gippsland Basin. The well was drilled 2.5 miles west-southwest of Kingfish A1, near the crest of a large east-west trending anticline, mapped on top of the Latrobe Valley Formation. The anticipated reservoirs were sands developed in the Latrobe Valley Formation. New seismic shooting (after completion of Kingfish A1) indicated that the top of the Latrobe Valley Formation is higher in Kingfish B1 than in A1. A regional dip within the Latrobe Valley Formation, below the unconformity, suggested that the upper ± 200 feet of the Latrobe Valley Formation in Kingfish B1 are younger than those in Kingfish A1.

Well Statistics:

Type of Well: Step-out exploratory test.

Location: Latitude 38° 35' 57"
Longitude 148° 10' 13"

Elevation: Rotary table at 31 feet above mean sea level.

Water Depth: 252 feet.

Spudded: November 28, 1967.

Completed: January 30, 1968.

Total Depth: 8,021 feet.

Well Status: Plugged and suspended.

Casing:

30"	to	392 feet.
20"	to	766 feet.
13 3/8"	to	2397 feet.

Perforations: None.

Plugs:

1. 7650-7290 feet, using 190 sacks of Australian N. cement, at 14.5 lbs/gallon. Displaced with 124 barrels of mud.
2. 2550-2290 feet, using 250 sacks Aust. N. cement, at 14.2 lbs/gal, displaced with 38 barrels of mud.
3. 510-310 feet, 130 sacks of Aust. N. cement, at 15 lbs/gallon.

Cores: 1 core at 5149-5177 feet; cut 28 feet, recovered 28 feet.

7 cores at 7401-7614 feet;
cut 213 feet, recovered 207 feet.

2/.....

Mud Log: The well was logged by Core Laboratories from 800 feet to T.D.

Electric Logs:

IES	8017 -	766 feet.
S	8002 -	766 feet.
FDCGR	8006 -	2393 feet.
LL7	8010 -	7300 feet.
MLL	7800 -	7300 feet.
GRN	7800 -	7300 feet.
CDM	8010 -	766 feet.

Hydrocarbons:

Wireline Formation Tests:

Test 1. 7607 feet.
Recovered 15750 ccs fluid,
15000 ccs of filtrate,
750 ccs of mud.
Salinity 11120 ppm.

Test 2. 7591 feet.
Recovered: 18.78 cub. ft gas,
1,805 ccs fluids,
13,330 ccs oil, 48.5° A.P.I.
COR 235:1.

Test 3. 7513 feet.
Recovered: 400 ccs mud,
48 ccs filtrate.

Test 4. 7411 feet - Tool stuck and abandoned.

LITHOLOGY

2457 - 3600 ft:	(First samples.) Alternating marl and limestone. Marl: light grey, soft, puggy, abundant carbonaceous flecks. Limestone: light grey, micritic, skeletal.
3600 - 3820 ft:	Mudstone: light brown. Siltstone: grey, calcareous, argillaceous.
3820 - 3920 ft:	Limestone: micritic, skeletal.
3920 - 4720 ft:	Limestone: buff, argillaceous, soft.
4720 - 5149 ft:	Limestone: light grey, skeletal, micritic, detrital, fine grained, soft, friable, argillaceous.
5149 - 5177 ft:	Limestone: Detrital, micritic, minor skeletal limestone, light grey brown, silty, argillaceous.
5177 - 5835 ft:	Limestone: light grey to brown, very fine to fine grained, argillaceous, glauconitic.
5835 - 6250 ft:	Mudstone: brown grey, grey green, very calcareous, fossiliferous.
6250 - 7364 ft:	Mudstone: brown grey, grey green, calcareous, fossiliferous, glauconitic.
7364 - 7504 ft:	Sandstone: grey white, mainly medium to coarse, (also fine to granular size), sub-rounded, well sorted, blue yellow fluorescence.
7504 - 7542 ft:	Sandstone: light grey, very fine to fine grained, very argillaceous, grey to white clay matrix, micaceous, carbonaceous, fluorescence.
7542 - 7932 ft:	Sandstone: light grey, medium grained, sub-angular, well sorted, unconsolidated, fluorescence.
7932 - 8021 (T.D.):	Sandstone: medium grained, sub-angular to well rounded, silty, argillaceous.

. . . . . .

PROPOSED ENGINEERING AND GEOLOGICAL DETAILS: These may be varied according to conditions encountered during drilling operations

(j) Proposed total depth	7800 ft.

(k) Proposed engineering details of well

Hole Diameter	Casing Size	Setting Depth	Cementing proposals
36"	30"	350 ft.	Proposed top of cement
26"	20"	750 ft.	As in previous operations.
17"	$13^{3}/8$"	2400 ft.	
12"	$9^{5}/8$"	As required.	

(l) Proposed Logging details

Type of log	Intervals, to be logged
1. IES, SGR, CDM & possibly sidewall.	2400 ft. ($13^{3}/8$" casing depth).
2. IES, SGR, FDC, CDM, sidewall, velocity survey and possibly MLL, LL7.	7800 ft. (T.D.)

(m) Provision for Formation Testing Outline of testing equipment to be stationed at well site or brief details of arrangements made for formation testing	Wireline set packer in casing; $2^{7}/8$" tubing. Otis double ball valve with surface extension to a Haliburton C.B. Head to a two-phase separator. Gas, (if any), will be flared, liquids will go to separator.
(n) Geological supervision will be undertaken by:	L. Beddoes and W.D. Laporte, Esso Standard Oil (Aust.) Ltd., 71-79 Macquarie Street, Sydney. 27-8371
(o) Name and address of drilling contractor	Global Marine Aust. Pty. Ltd., 380 Lonsdale Street, Melbourne.
(p) Proposed date of commencement of operations.	Week commencing November 20, 1967.

I/we advise that I/we have noted Sections 25, 26 and 27 of the Regulations under the Petroleum Act, 1958, pertaining to compensation for drilling operations on private land, and the provisions in relation to safety and health of the Petroleum Act, the Mines Act and the Regulations under the Mines Act.

Yours faithfully,

Date 3/11/67

[signature]

MINES DEPARTMENT, VICTORIA

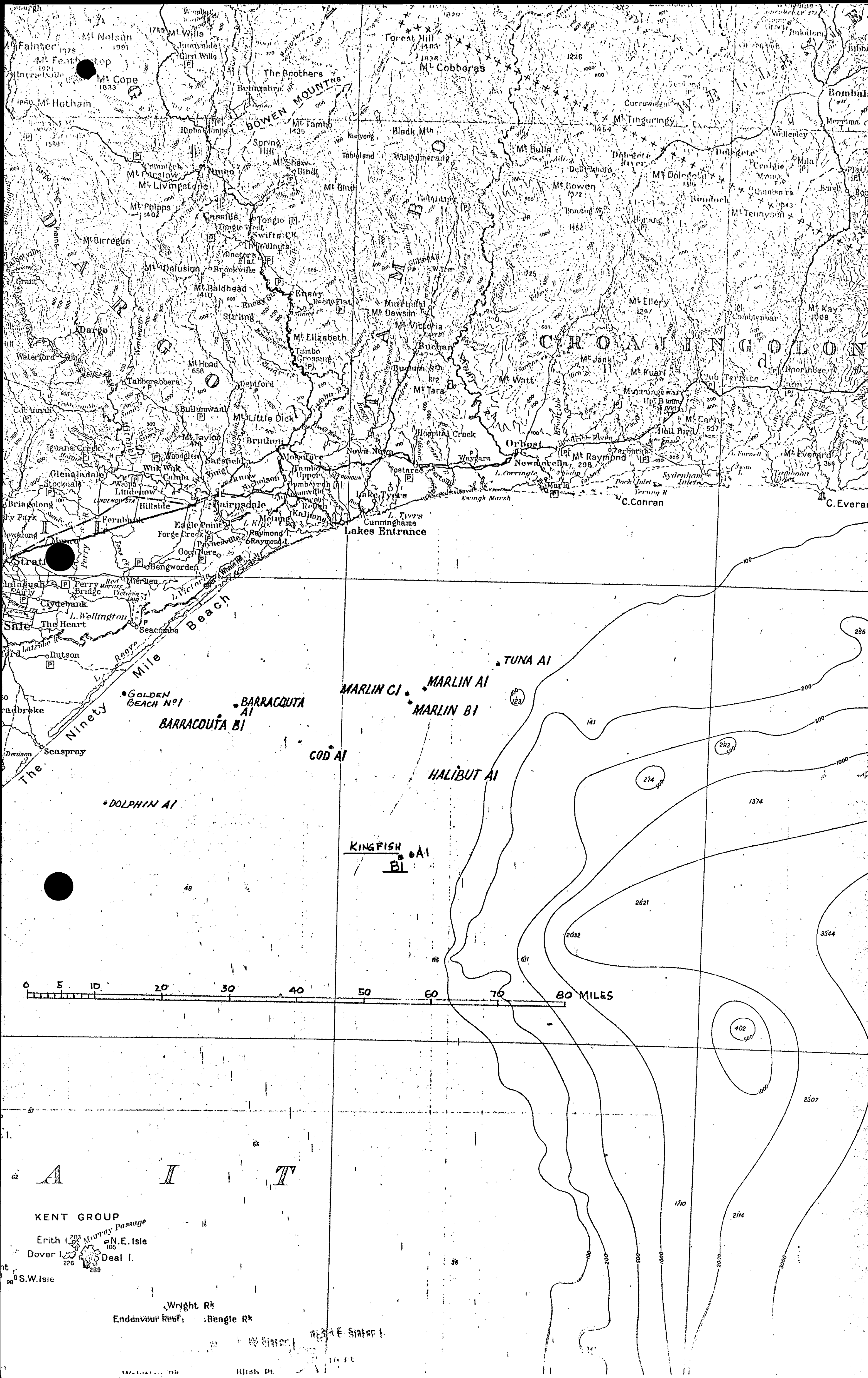
APPLICATION FOR PERMISSION TO DRILL A WELL UNDER THE PETROLEUM ACT, 1958

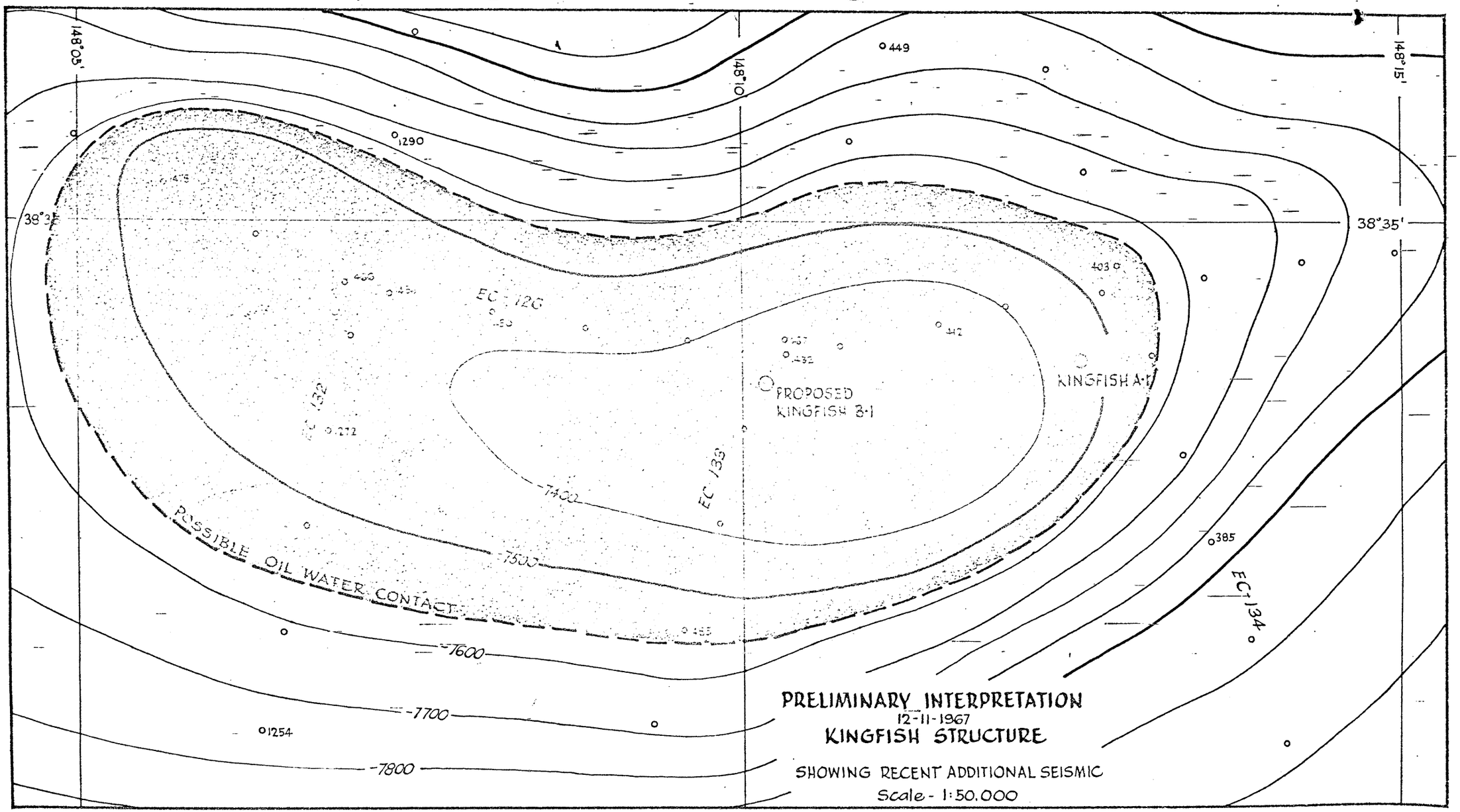
To the Honourable the Minister of Mines:

~~I~~/we **Hematite Petroleum Pty.Ltd.** being the holder/operator of Petroleum Exploration Permit/Petroleum Prospecting Licence No. ..... hereby apply for your consent to drill a well for petroleum within the above area.

The following are the particulars of the proposed operation.

(a)	The name and number by which the well is to be known	**Kingfish B1.**
(b)	Classification of well	~~Exploratory~~ ~~Test~~ Assessment ~~Development~~ ~~Service~~
(c)	The exact location of the proposed well	Latitude 148° 10' 13" Longitude 38° 35' 57" (accuracy ± 3 seconds of arc) Parish:
(d)	Distance from nearest tenement boundary	18 miles from P.P.L. No. 3 (Marlin). 7 miles from P.E.P. No. 39
(e)	Heights above sea level (This information may be submitted later) Include:- Water depth ~~to~~ offshore wells	Surface Level: 31' A.S.L. Derrick Floor: or Rotary Table: or Kelly Bushing: 250 ft.
(f)	Diameter of proposed well at surface	See (k) 36" well. 30" casing.
(g)	Method of drilling proposed and name and type of drilling rig	Rotary, using floating rig Glomar III.
(h)	The extent to which coring is intended	Two (2) for geological correlation. The hydrocarbon zone will be continuously cored.
(i)	Name, address and telephone number of person in charge of the drilling operation	W. Bohlmann, Esso Exploration & Production Aust. Inc., 380 Lonsdale Street, Melbourne. 67-9331.


TUNA A1
MARLIN A1
MARLIN C1
MARLIN B1
GOLDEN BEACH No1
BARRACOUTA A1
BARRACOUTA B1
COD A1
HALIBUT A1
DOLPHIN A1
KINGFISH A1
B1
0 5 10 20 30 40 50 60 70 80 MILES
BOWEN MOUNTAINS
CROAJINGOLONG
The Ninety Mile Beach
Lakes Entrance
Bairnsdale
Orbost
Sale
Seaspray
C.Conran
Cunninghame
Lake Tyers
Mt Cobboras
Mt Hotham
Mt Cope
Mt Nelson
Mt Tingaringy
Mt Ellery
Dargo
Buchan
Newmerella
Marlo
Kent Group
Erith I.
Dover I.
Deal I.
N.E. Isle
S.W. Isle
Murray Passage
Wright Rk
Endeavour Reef
Beagle Rk



PRELIMINARY INTERPRETATION
12-11-1967
KINGFISH STRUCTURE

SHOWING RECENT ADDITIONAL SEISMIC
Scale - 1:50.000

LITHOLOGY

[illegible] AND CUTTINGS ANALYSIS

FOR

ESSO STANDARD OIL (AUST.) LTD.

ESSO [illegible] No.1 WELL

STRZELECKI

VICTORIA, AUSTRALIA

BY

CORE LABORATORIES AUSTRALIA (QLD) LTD.

CORE LABORATORIES AUSTRALIA (QLD) LTD.

Petroleum Reservoir Engineering

BRISBANE, AUSTRALIA

G.P.O. BOX 664K
CABLE: CORELAB
PHONE: 5-3222

1st March, 1968.

RE-NAMED
(AUG. 1968)
KINGFISH 2

ESSO STANDARD OIL (AUST.) LTD.,
Box 4249, G. P. O.,
SYDNEY, NEW SOUTH WALES. 2001.

ATTENTION: MR. JOHN L. ELLIOTT.

SUBJECT: CORE, MUD AND CUTTINGS ANALYSIS,
KINGFISH B-1 WELL,
STEPOUT,
OFFSHORE - BASS STRAIT,
VICTORIA, AUSTRALIA.

GENTLEMEN:

A CORE LABORATORIES AUSTRALIA combination drill cuttings and core analysis unit was present at the site of the subject well during drilling operations from 2457 feet to the total depth of 8021 feet.

Using standard equipment, a Programmed Hydrocarbon Detector, and a Beckman GC-1 Gas Chromatograph, the drilling fluid was monitored continuously for hydrocarbon content and the drill cuttings were checked at regular intervals for gas and oil content and lithology. Shale Density determinations were made at regular intervals when applicable. All core analysis was performed by API standard procedures. The results of these operations are shown on the accompanying Grapholog and Coregraph. A description of cores recovered is given on Pages 2 through 4.

HYDROCARBON SHOWS:
Hydrocarbons were detected in one zone during the drilling of this Well. Details of this show are included on the attached Show Report No. 1.

CORE ANALYSIS:
Core Analysis of the Zone 7411 feet to 7599 feet indicated excellent reservoir conditions with reasonably good oil saturations. Oil production is indicated.

We sincerely appreciate this opportunity to have been of service, and trust that the information furnished in this report and during drilling operations has assisted in the evaluation of this well.

Yours very truly,
CORE LABORATORIES AUSTRALIA (QLD) LTD.

Joe B. McAdams

JOE B. MC ADAMS,
RESIDENT MANAGER.

2/5

DESCRIPTIONS OF CORE KINGFISH ~~B-1~~ -2 WELL

CORE NO. 1

5149 - 5177' Recovery 28'

LIMESTONE: Light to brownish grey, soft to firm, detrital to micritic with small amounts skeletal, small amounts of carbonaceous matter, locally argillaceous. Numerous irregular and discontinuous argillaceous laminae which are badly disrupted by heavy concentrations of worm burrows.

CORE NO. 2

7401 - 7431' Recovery 30'

SANDSTONE: Grey to pale brown, unconsolidated to very friable, fine to coarse grained by predominantly medium grained, scattered pebbles, sub-rounded and slightly frosted grains, generally flat bedded but with local intervals of cross bedding, very small amounts of white clay cement. Strong petroliferous odor with good blue-white fluorescence throughout core.

CORE NO. 3

7431 - 7463' Recovery 29'

7431 - 7460' SANDSTONE: Grey, unconsolidated to friable, fine to very coarse grained with some pebble bands, rounded to sub-rounded, moderate sorting, locally frosted grains, white clay cement which increases with a decrease in grain size, traces of glauconite. Discontinuous and wavy, light to dark grey shale stringers found locally which exhibit worm burrows. Strong petroliferous odor and good blue-white fluorescence found throughout core.

7460 - 7463' NOT RECOVERED.

CORE NO. 4

7463 - 7493' Recovery 30'

SANDSTONE: Light to medium grey, friable to firm, very fine to medium grained quartz with local coarse grained bands, rounded to sub-rounded, white clay cement which includes mica where concentration is heavier, local concentrations of pyrite aggregates, worm burrows at local intervals, rare leaf impressions. Strong petroliferous odor and good blue-white fluorescence with good cut found throughout core. Core bleeding at local intervals.

Kingfish-2
3/5

CORE NO. 5

7493 - 7524' Recovery 31'

SANDSTONE: Light to dark grey, slightly friable to firm, very fine to fine grained with coarse grained and pebbly zones, sub-rounded, very argillaceous, white to light grey clay matrix, carbonaceous matter in the darker areas, pyrite and mica. Heavy concentrations of worm burrows removes bedding characteristics. Strong petroliferous odor and good blue-white fluorescence throughout core. Bleeding oil causes a yellow-brown stain.

CORE NO. 6

7524 - 7554' Recovery 30'

7524 - 7538' SANDSTONE: Light to medium grey, friable to firm, very fine to fine grained quartz sand with scattered pebbles, sub-rounded moderate to poor sorting, white to light brown clay cement, mica, plant remains, traces of glauconite, and rare feldspar. Bedding destroyed by heavy concentrations of worm burrows.

7538 - 7540' SHALE: Brown, firm slightly fissile, heavy concentrations of sand infilled worm burrows disturbs bedding.

7540 - 7554' SANDSTONE: Light grey, unconsolidated to very friable, medium to pebble sized grains, sub-angular to sub-rounded, moderate to well sorted, little or no clay cement. Strong odor and good blue-white fluorescence found in sandy portions. Fluorescence becomes patchy in the shale band.

CORE NO. 7

7554 - 7584' Recovery 30'

SANDSTONE: Light grey to medium grey, friable, medium to coarse grained with scattered concentrations of pebbles, rounded to sub-angular, frosted to clear or smoky, moderately to well sorted, small amounts of white to light grey clay cement, scattered pyrite aggregates, mica, traces of glauconite, rare worm burrows, little or no bedding characteristics. Strong petroliferous odor and good blue-white fluorescence throughout core.

Kingfish-2
4/5

CORE NO. 8

7584 - 7614'	Recovery 27'
7584 - 7611'	SANDSTONE: Light to medium grey, friable to firm, medium to granular sized quartz with local zones of very coarse to pebbly sizes, sub-angular to rounded, moderately to well sorted, white to medium grey clay cement, mica, traces of glauconite, rare worm burrows. Coarse to pebble sized grain alignment suggests a sub-horizontal bedding. Strong petroliferous odor and good blue-white fluorescence is found above 7599 feet. Below this depth, the petroliferous odor is absent while the fluorescence becomes patchy and then not present.
7611 - 7614'	NOT RECOVERED

SHOW REPORT
CL-402

CORE LABORATORIES, INC.

Operator ESSO STANDARD OIL (AUST.) LTD. No. 1
Well KINGFISH B-1 County State Date 16 January 1968
CLA No. FL 115-13L

DESCRIPTION OF SHOW:

Kingfish-2 S/S

Show Interval 7360 To 7599
Color of Flu Blue-White Intensity of Flu Trace *
% Sand-Lime in Sample 90 % of Sand-Lime w/Flu 100
Cut: Visual Nil Flu Instant Blue
Lithology of Section: Sandstone: White to light grey, medium to coarse grained, subrounded, V/friable to unconsolidated, moderate sorting.

GAS UNITS:

	HOT WIRE			P/H/D (CHROMATOGRAPH)					
Mud	Hi	Lo	Mud	Methane C_1	Ethane (+) C_2 (+)	Ethane C_2	Propane C_3	Butane C_4	Pentane C_5
From:	2		From:	10					
To:	60		To:	185		46	41	19	
Cuttings			Cuttings						
From:	0	0	From:	Not recorded					
To:	60	58	To:	Not recorded					

ADDITIONAL INFORMATION:

Bit Condition New X Worn Dull
Drilling Break Yes X No
Average Drilling Rate Controlled Rate Before Break 3.8 During Break 1.0
Weight on Bit Changes Increased Decreased No Change X
Circulated Out Yes X No Depth CO **
Chloride Changes Before 3680 After 3200
NaCl

MUD EVALUATION:

Minor Poor Fair Good X Remarks: * Unconsolidated nature of sand at shale shaker causes fluorescence intensity in cuttings to be less than that observed in cores.
** Drilling and circulating in anticipation of hydrocarbon zone.

FINAL EVALUATION: (It is recognized that other information such as other shows, side wall samples, etc. are necessary for the best evaluation. Consequently, this final opinion will be given at the end of the job after this data is available.)
Core Analysis indicates oil production from the interval 7411 - 7599 feet

Non-subsidized drilling operation
— confidential.

KINGFISH ~~X~~ Y Well.

Spudded 28/11/67. T.D. reached on. T.D. Driller 8021'
E. Log.

30" @ 390' : 20" @ 766' : 13⅜" @ 2393'.

Water Depth 252 feet P.T.O.

2457' - 2590' : Marl, light-grey, soft, with some skeletal limestone & little quartz
2590' - 2610' : Limestone, light-grey, skeletal micritic.
2610' - 3250' : Marl, light-grey, soft, fuggy.
3250' - 3600' : Limestone, light-brown-grey, micritic, skeletal
Streaks of mudstone, 3430' - 3560'.
3600' - 3630' : Mudstone
3630' - 3820' : Siltstone, very calcareous, very argillaceous, light-brown grey.
3820' - 3920' : Limestone, micritic skeletal.
3930' - 4270' : Argillaceous limestone, buff, soft.
4290' - 5149' : Limestone, skeletal, micritic, detrital, light-grey, fine grained, soft, friable, argillaceous.
5149' - 5177' Core No 1. Rec 28' 100%.
Detrital, micritic limestone, minor skeletal micritic limestone, silty to very fine grained, light-grey to brown. Numerous discontinuous laminae of dark argillaceous limestone.
5177' - 5835' Limestone as above. (5770' Base of unit)
5835' - 6380' Mudstone, medium blue-grey to grey-green, very calcareous & fossilif.
6380' - 6768' Mudstone.
6768' - 6838' Mudstone, grey-green, calcareous, fossiliferous, scattered sand grains.
6838' - 7372' Mudstone, trace glauconite, trace medium-coarse quartz grains.
7370' - 7380' 80% Mudstone, 10% Sandstone.
7380' - 7390' 85% Sandstone, 10% Mudstone. Numerous.
7390' - 7401' Sandstone. (Depth correction 9' deducted (7410' → 7401')
7401' - 7438' Core No 2 Rec 30' 100%
Sandstone, light-grey, fine to granule size quartz, mainly medium to coarse grained; subangular to rounded; moderately sorted; friable, very little matrix with minor mica & trace clay.
7431' - 7463' Core No 3. Rec 29'.
Sandstone, light-grey; fine to very coarse grained, predominantly medium to coarse, occasional pebble; subangular to well rounded, small amount of white clay matrix, thin shale stringers less than ½" thick. Excellent Φ & K.

Cont-

Corelab.

Calibration: Chromatograph.

½% Methane = 100 units

½% Ethane = 100 "

½% Propane = 85 "

½% Butane = 50 "

Hot wire.

1% CH_4 = 20 units.

Kingfish B1 Coal.

7463'-7493': Core No 4. Rec 30'.

Sandstone, dark - light grey, fine to medium grained, very argillaceous abundant mica + pyritized burrows, thin carbonaceous laminae. Good porosity + permeability.

7493'-7524': Core No 5. Rec 31'.

Sandstone, light - dark grey, very fine - fine grained, with few scattered pebble bands, very argillaceous, light grey - white matrix abundant mica, carbonaceous flakes + pyrite. Massive, moderate to poor porosity, poor permeability.

7524'-7554': Core No 6. Rec 30'.

14': Sandstone, light - medium gray, very fine - fine grained, subangular to subrounded, firm with white clay matrix, micaceous, carbonaceous, some lithic fragments, massive. Poor Φ + K.

2': Shale, chocolate brown, firm

14': Sandstone, light grey, medium to pebble size quartz, subangular to well rounded, well sorted, no matrix, unconsolidated, excellent Φ + K.

7554'-7584': Core No 7. Rec 30'

Sandstone, medium to very coarse grained with scattered pebbles, scattered pyrites, brown mica, massive; clay matrix. Good Φ + K

7584'-7614' Core No 8. Rec 27'

Sandstone, light - medium gray, medium to granule quartz grains, o/c at 7599' subangular to well rounded, well sorted; some white clay matrix, abundant mica + occasional glauconite (?). Massive, firm to friable. Very good Φ + good K.

7614'-7967': Sandstone, medium to coarse quartz grains, subangular to well rounded, clear frosted grains, trace coal.

7916' - 8021' Sandstone, loose quartz grains, medium to very coarse grained, angular to well rounded.

at 7950 Trace of siltstone + silty sandstone, light grey argillaceous, very fine grained, subangular quartz.

Total Depth (Driller) 8021 feet.

KINGFISH B1 Well.

Logging Programme:

Log	Runs	Interval
Induction Electrical log	1, 2, 3,	766'-2430': 2393-8010', 2393-8017'.
Sonic - Gamma Ray	1,	766'-2410':
Continuous Dipmeter	1, 2,	766'-2405': 2397'-8010'
Sonic log	1,	2393'-8002'
Formation Density - Gamma	1,	2393-8006
Laterolog 7	1,	7300'-8010'
Microlaterolog	1,	7300'-7800'
Gamma ray - Neutron	1,	7300'-7800'

Velocity Survey Conducted.

Top of Latrobe Valley Gp. 7364'
Oil/Water Contact 7601'.

Formation Interval Tests

No 1 : at 7607'
Recovered 750 cc mud
15,000 cc filtrate
50 cc Formation fluid & 11,120 ppm Cl'.

No 2 : at 7591'
Recovered 18.78 cuft-gas
1805 cc. fluid in pressure bomb.
13,300 cc of Oil: 48.5° API Grav. at 70°F: Pour Point 50-55°F.
1,600 cc mud + filtrate.
Gas/Oil Ratio :- 235:1 (approx.

No 3 : at 7513'
Recovered 400 cc mud
48 cc of filtrate in isolation chamber
no oil recov.
Flow + Sampling pressure 100 lbs. No build up.

Plugged. 7650'-7290' : 2550'-2290' : 510'-310' : Well Cap.

Kingfish B1. 38°35' 57"S 148°10' 13"E.
ex Corelab.

2460'-2940'. Marl + limestone: Marl is buff to lt gy, soft to firm, granular, foss, silt size debris, v/ calc Tr glauconite, Tr carb matter. Limestone is buff to lt gy, skeletal micritic to granular, soft to mod hard, foss, Tr glauc and calcite, occ loose qtz grns.

2940'-3250' Marl: buff to lt gy soft sticky silty Tr carb matter, tr Mudstone, lt gy to lt olive gy, soft carb matter.

3250'-3420' Limestone: gy to buff gy micritic skeletal mod hard fossil silty v/ argill glauc carb flecks tr pyrite.

3420-3920' Mudstone: (Marlstone) lt brn gy, v/ calc, silty, foss well cemented mod hd glauconite, carb matter.

3560'-3640' (Bad) Limestone: lt gy brn micritic skeletal, v/ argill, hd well cemented, foss glauconite, some calcite.

3920'- Limestone: buff to olive gy micritic skeletal v/ argill firm to mod hard w/ silt size debris glauc minor carb flecks and fine disseminated foss frags tr loose qtz grns.

Note: Limestone section continuous throughout.

4630'-4860': Mudstone: lt gy - gy soft - firm fossil sli carb and micaceous

4790'-4910': Dolomite: med gy brn, cryptocrln, v hd.

5030'-5120': Marl: lt gy, soft, tr glauconite + carb. matter.

5149-4177' Core No 1 Rec. 28'

Limestone: detrital micritic, lt gy brn silt-size debris argill w/ minor skeletal deposits. Some irregular laminae sl darker and more argill.

Note: Limestone section continuous throughout

5580'-5650': Mudstone: lt gy to mid gy soft to firm v/ calc, carb.

5740'-5900: Mudstone: ~~med brn gy to gy, olive green, fissile, calc fossil, firm, silty in part, sli carb, pyritic.~~ mid - lt gy silty calc soft.

5900'- : Mudstone: med brn gy to gy olive green, fissile, calc fossil, firm, silty in part, sli carb, pyritic.

Note: Mudstone section continuous throughout

cont.

PALYNOLOGICAL AND PALAEONTOGICAL MATERIAL

Kingfish - 2 well SPECIES LIST

Samples examined include sediments of core 4 (7480, 7489 feet) and core 5 (7511, 7517 feet), which yielded abundant carbonaceous material consisting chiefly of wood fragments and rare spores and pollen grains. Microplankton were not observed.

7480 feet

Spores: Gleicheniidites circinidites (Cookson)
Trilites tuberculiformis Cookson

Pollen: Proteacidites annularis Cookson
P. crassus Cookson
P. dilwynensis Harris
P. subscabratus Couper
Podocarpidites elliptieus Cookson
Phyllocladidites mawsonii Cookson

7498 feet

Pollen: Araucariacites australis Cookson
Proteacidites annularis Cookson
P. subscabratus Couper
Tricolpites sp.

7511 feet

Spores: Cyathidites australis Couper
Gleicheniidites circinidites (Cookson)

Pollen: Proteacidites annularis Cookson
P. incurvatus Cookson
P. subscabratus Couper
Phyllocladidites mawsonii Cookson
Tricolporites microreticulatus Harris
Triorites harrisii Couper

7517 feet

Spores: Baculatisporites comaumensis (Cookson)
Cyathidites australis Couper
Gleicheniidites circinidites (Cookson)

Pollen: Dacrydiumites florinii Cookson & Pike
Proteacidites crassus Cookson
P. dilwynensis Harris
P. subscabratus Couper

The sparse microfloras are referred to the Eocene Duplopollis orthoteichus Assemblage on the basis of Proteacidites dilwynensis.

BASIN GIPPSLAND DATE

WELL NAME KINGFISH -2 ELEVATION +31 feet

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
MIO.	P. tuberculatus										
EOCENE	U. N. asperus										
EOCENE	M. N. asperus										
EOCENE	L. N. asperus										
EOCENE	P. asperopolus										
EOCENE	U. M. diversus										
EOCENE	M. M. diversus										
EOCENE	L. M. diversus	7480	2				7537	1			
PALEOCENE	U. L. balmei	7980	3				7980	3			
PALEOCENE	L. L. balmei										
PALEOCENE	T. longus										
CRETACEOUS	T. lilliei										
CRETACEOUS	N. senectus										
CRETACEOUS	C. trip./T.pach.										
CRETACEOUS	C. distocarin.										
CRETACEOUS	T. pannosus										
EARLY CRETACEOUS											
PRE-CRETACEOUS											

COMMENTS: T.D. 8021'

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

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

DATA RECORDED BY: L.E.S./A.D.P. DATE June 1971; Dec 1971

DATA REVISED BY: A.D.P. DATE Jan. 1975

FORM No R 315 12/72

BASIN GIPPSLAND DATE JUNE 1971.

WELL NAME KINGFISH - 2 ELEVATION + 31 feet.

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
MIOC.	T. bellus										
	P. tuberculatus										
EOCENE	U. N. asperus										
	L. N. asperus										
	P. asperopolus										
	U. M. diversus										
	L. M. diversus	7480	2				7537	1			
PALEO-CENE	L. balmei	7980	3				7990	3			
	T. longus										
LATE CRETACEOUS	T. lilliei										
	N. senectus										
	C. trip./T.pach.										
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS	C. paradoxa										
	C. striatus										
	U. C. hughesii										
	L. C. hughesii										
	C. stylosus										
Pre-Cretaceous											

COMMENTS: Top of Lower M. diversus based on report by M.F.Dettmann, and should be regarded as provisional.

T.D 8021 (1-971)

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

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

DATA RECORDED BY: L.E.Stover & A.D.Partridge. DATE JUNE 1971.

DATA REVISED BY: CHECKED; L.E.S. DATE DEC. 1971

Form R 193 3/71

512

BASIN GIPPSLAND BASIN BY David TAYLOR

WELL NAME KINGFISH-2 DATE 20 April 1971 ELEV. +31'

Foram Zonules

		Highest Data	Quality	2 Way Time	Lowest Data	Quality	2 Way Time
MIOCENE	A				1100	3	
	Alternate						
	B	1200	3		1600	3	
	Alternate						
	C	1850	1		2900	3	
	Alternate						
	D_1	3000	3		5100	3	
	Alternate						
	D_2	5200	3				
	Alternate						
	E				5930	3	
	Alternate						
	F						
	Alternate						
	G						
	Alternate						
	H_1	6000	3				
	Alternate						
	H_2				7000	3	
	Alternate						
OLIGOCENE	I_1	7100	3		7300	3	
	Alternate						
	I_2						
	Alternate						
	J_1	7350	1		7350	1	
	Alternate						
	J_2						
	Alternate						
EOC.	K	7370	4		7370	4	
	Alternate						
	Pre K						

COMMENTS:

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

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

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

Date Revised _____

By _____

VELOCITY SURVEY

1 of 18

VELOCITY SURVEY

AND

EXTEND SPREAD VELOCITY SURVEY

ESSO KINGFISH ~~E~~ — 2

GIPPSLAND BASIN, VICTORIA

By

R.J. Black
P.J. Birmingham
P.E. Towey

RE-NAMED
(AUG. 1968)
KINGFISH 2

A. INTRODUCTION

Esso (Australia) contracted United Geophysical Company to conduct an extended spread velocity survey concurrent with the regular velocity survey of the Kingfish B-1, on the 23rd January, 1968. The purpose of the extended spread survey was to measure the slant travel path times from the surface to the principal geological formations for horizontal spread distances from 1000 feet to 7500 feet. From this measurement any discrepancies of the horizontal component to the vertical component of velocity can be determined.

(1) Instruments

a) SSC Model GCE 101 Pressure Sensitive Well Geophone.

b) Model 1-27 United Refraction Amplifier with nickel-cadmium power supply.

c) G.S.I. Marine Water Break Amplifier.

d) Electro-tech ER-62 standard 25 trace camera.

e) Two F-M Transceivers

(i) PYE "Premier" Type MFV-516

(ii) AWA "Carphone"

f) One 70 Volt Blaster.

(2) Personnel - One Marine Shooter, one Instrument Operator and one Geophysical Supervisor.

(3) One Licensed Shooting Boat - "Wendy Maree"

B. SURVEY PROCEDURES

Weather was good during the survey. All recording equipment functioned properly.

(1) The orientation of Glomar III was NE to SW during the survey. Buoys were positioned at distances of 1000, 2500, 4000, 5500, and 7500 feet on either side of the ship along a line passing NW to SE at an asimuth of 2950 through the well site. Exact shot offset distances were obtained from water time arrivals recorded at the well by a specially designed amplifier. Two geophones positioned in the moonpool were used at the well for water arrivals. The conventional survey with shots at 1000 feet offset was completed prior to the extended spread survey.

(2) Shot Size

Two shots of 100 lbs., forty-six shots of 50 lbs. each.

(3) Well Geophone Positioning

All depth measurements were made using the Schlumberger depth indicator. The marine riser was disconnected and lowered to the top of casing to reduce rig noise. The cable was clamped with a T-bar device to de-couple the rig movement.

(4) Recording

The survey records consist of 6 traces. Traces 1 to 3 recorded the well geophone break at 3 different levels. Traces 4 and 5 recorded the water arrivals at the water break phones. The time break was recorded on trace 6.

(5) Time of Survey

The first charge was shot at 9.40 am and the last shot at 6.40 pm for a total time of 8 hours 27 minutes. The conventional survey required 2 hours 37 minutes and the extended spread survey required 5 hours 50 minutes.

C. RESULTS

For the conventional survey, a total of sixteen shots were fired at eight geological levels, eight from the NW 1000 foot buoy as the well phone was lowered, and eight from the SE 1000 foot buoy as the well phone was raised in the hole. Results are tabulated in Table no. 1.

For the extended spread survey, a total of thirty-two shots were fired at seven geological levels, fourteen from the 2500 foot buoys, ten from the 4000 foot buoys, six from the 5500 foot buoys, and two from the 7500 foot buoys. Results are tabulated in Tables No.2, 3 and 4.

The quality of the records is good. Time breaks, water breaks and well phone breaks are considered to be reliable. All records are included in the folder of this report.

The final check-shot times for offset distance of 1000 feet and the integrated sonic times from the CVL log are compared in Table No. 5 and the averaged values are compared in Table No. 6. Time differences did not exceed plus or minus one millisecond. Offset distances based on water travel times averaged 1132 feet for the check shots.

The extended spread corrected times for buoy offset distances of 2500, 4000, 5500, and 7500 feet are compared with the integrated sonic times in Table No.5 in terms of time differences and percentage error for the northwest and southeast offsets. Common offset times were then averaged and listed in Table No. 6 for comparison with the integrated sonic times. Differences in averaged times varied from approximately six milliseconds for the 2500 feet offsets to thirty-seven milliseconds for the 7500 feet offsets.

Measured average offset distances based on water travel times are listed below:

	Distances in Feet				
NW	1154	2748	4237	5710	7825
SE	1109	2625	4337	5880	7675
NW-SE Average	1132	2687	4287	5795	7750

D. CONCLUSION

Since the record quality is good, the integrated CVL can be considered accurately tied to the 1000 foot check shots (See Table No.6, columns 2 through 5).

The extended spread survey shows an increase of velocity with increasing offset distances from a depth of 3000 feet. Tabulations are shown in Tables 2, 3, 4 and 5. This would indicate a horizontal component of velocity increasing directly with increase of offset distance at the Kingfish B-1 location.

In terms of percentages as shown in Table 6, the percent of error for averaged values at the top of the Latrobe (Dgm 7329) increases with offset from a minimum of 0.13 percent at 1000 feet to a maximum of 4.68 percent at 7500 feet. The maximum percent of error for values not averaged was 5.19 (See Table No.5).

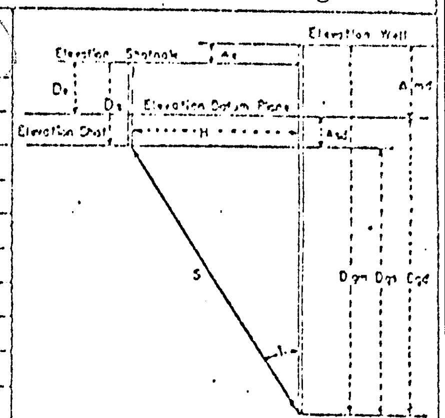
A comparison of the Latrobe Velocity in Tables No.1, 2, 3 and 4, for buoy offsets of 1000, 4000, 5500, and 7500 feet, show corresponding velocities of 9289, 9360, 9420, and 9746 feet per second. All tabulations are based on straight line calculations.

TABLE NO. 1 CHECK SHOTS

Shothole Information - Elevation, Distance & Direction from Well

Company	Well	Elevation (Derrick Floor)	Total Depth	Coordinates	Section, Township, Range	State	Area or Field
ESSO STANDARD OIL AUSTRALIA INC.	KINGFISH B.1	31'	8020	36° 35' 57" 148°10' 13"	DATUM Sealevel	Victoria	Kingfish

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Vo Average Velocity
1		09:40	3031	5	.001	.216	.406	D	G	2995	1080	.361	.941	.382	5	.001	.383	.382	3000				7853
16		12:17	3031	5	.001	.208	.402	D	G	2995	1040	.347	.945	.380	5	.001	.381						
																				497	.046	10804	
2		10:00	3528	5	.001	.229	.449	D	G	3492	1145	.328	.950	.427	5	.001	.428	.428	3497	Top	Channel		8171
15																							
																				703	.060	11717	
3		10:10	4231	5	.001	.233	.505	D	G	4195	1165	.278	.963	.486	5	.001	.487	.488	4200				8607
14		12:05	4231	5	.001	.214	.504	D	G	4195	1070	.255	.969	.488	5	.001	.489						
																				657	.056	11732	
4		10:20	4888	5	.001	.233	.558	D	G	4852	1165	.240	.972	.542	5	.001	.543	.544	4857				8928
13		11:55	4888	5	.001	.215	.556	D	G	4852	1075	.222	.976	.543	5	.001	.544						
																				740	.064	11563	
5		10:25	5628	5	.001	.228	.619	D	G	5592	1140	.204	.980	.607	5	.001	.608	.608	5597	Base	Channel		9206
12		11:40	5628	5	.001	.220	.619	D	G	5592	1100	.197	.981	.607	5	.001	.608						
																				615	.066	9318	
6		10:30	6243	5	.001	.237	.685	D	F	6207	1185	.191	.982	.673	5	.001	.674	.674	6212	Lake	Entrance		9217
11		11:30	6243	5	.001	.223	.683	D	F	6207	1115	.180	.984	.672	5	.001	.673						
																				1117	.115	9713	
7		10:50	7360	5	.001	.228	.798	D	G	7324	1140	.155	.988	.788	5	.001	.789	.789	7329				9289
10		11:15	7360	5	.001	.238	.798	D	G	7324	1190	.162	.987	.788	5	.001	.789						
																				621	.053	11717	
8		11:00	7981	5	.001	.242	.851	D	G	7945	1210	.152	.989	.842	5	.001	.843	.842	7950				9442
9		11:08	7981	5	.001	.235	.849	D	G	7945	1175	.148	.989	.840	5	.001	.841						



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

Surveyed by: ....

Date: ....

Weathering Data:

Casing Record

RE-NAMED (AUG. 1968) KINGFISH 2

KINGFISH - 2

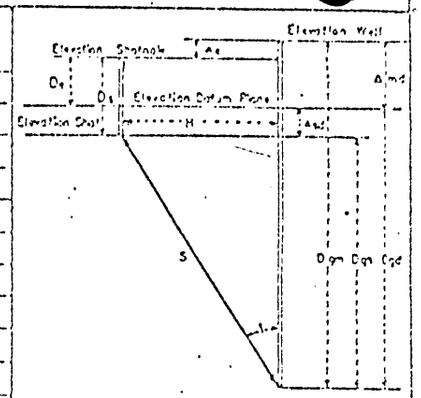
S 7/8

TABLE NO. 2 EXTENDED SPREAD

Shothole Information - Elevation, Distance & Direction from Well

Company: ESSO STANDARD OIL AUSTRALIA INC.
Well: KINGFISH B.1
Elevation (Derrick Floor): 31
Total Depth: 8020
LOCATION: Coordinates · Section, Township, Range: State · Area or Field:
DATUM : Sea level

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd/V	Tgd	Tgd Average	Dgd	Δ Dgd	Δ Tgd	Vi Interval Velocity	Vo Average Velocity
7	SE		3031	5	.001	.558	.509	D		2995	2790	.931	.732	.373	5	.001	.374	.376	3000				7979
8	NW		3031	5	.001	.512	.496	D		2995	2560	.855	.760	.377	5	.001	.378			497	.046	10804	
8	SE		3528	5	.001	.545	.530	D		3492	2725	.780	.789	.418	5	.001	.419	.422	3497				8287
7	NW		3528	5	.001	.518	.527	D		3492	2590	.742	.803	.423	5	.001	.424			703	.060	11717	
9	SE		4231	5	.001	.545	.573	D		4195	2725	.649	.839	.481	5	.001	.482	.482	4200				8714
5	NW		4231	5	.001	.523	.567	D		4195	2615	.623	.849	.481	5	.001	.482			657	.056	11732	
2	SE		4888	5	.001	.540	.617	D		4852	2700	.556	.874	.539	5	.001	.540	.538	4857				9028
4	NW		4888	5	.001	.521	.607	D		4852	2605	.537	.881	.535	5	.001	.536			740	.064	11385	
3	SE		5628	5	.001	.549	.672	D		5592	2745	.491	.898	.603	5	.001	.604	.602	5597				9282
0	NW		5628	5	.001	.530	.663	D		5592	2650	.474	.904	.599	5	.001	.600			615	.065	9609	
8	SE		6243	5	.001	.540	.728	D		6207	2700	.434	.917	.668	5	.001	.669	.667	6212				9313
9	NW		6243	5	.001	.526	.721	D		6207	2630	.424	.921	.664	5	.001	.665			1117	.116	9629	
9	SE		7360	5	.001	.570	.841	D		7324	2850	.389	.932	.784	5	.001	.785	.783	7329				9360
8	NW		7360	5	.001	.545	.832	D		7324	2725	.372	.937	.780	5	.001	.781						



Dgm = Geophone depth measured from well elevation
Dgs = " " " " shot "
Dgd = " " " " datum "
Ds = Depth of shot
De = Shothole elevation to datum plane
H = Horizontal distance from well to shotpoint
S = Straight line travel path from shot to well geophone
tus = Uphole time of shotpoint
T = Observed time from shotpoint to well geophone.
Tr = " " " to reference geophone
Δe = Difference in elevation between well & shotpoint.
Δsd = " " " " shot & datum plane
Δsd = Ds - De
Dgs = Dgm - Dst Δe ; tan i = H / Dgs
Tgs = cos i Tv Vert. travel time from shot elev to geophone
Tgd = Tgs - Δsd/V " " " " datum plane "
Dgd = Dgm - Δmd
Vi = Interval velocity = ΔDgd / ΔTgd
Vo = Average " = Dgd / Tgd

Surveyed by: .....
Dated: .....
Weathering Data:
Casing Record

RE-NAMED
(AUG. 1968)
KINGFISH 2

KINGFISH - 2.

6/18

TABLE NO. 3 EXTENDED SPREAD

Shothole Information - Elevation, Distance & Direction from Well

Company: ESSO EXPLORATION AUSTRALIA INC.

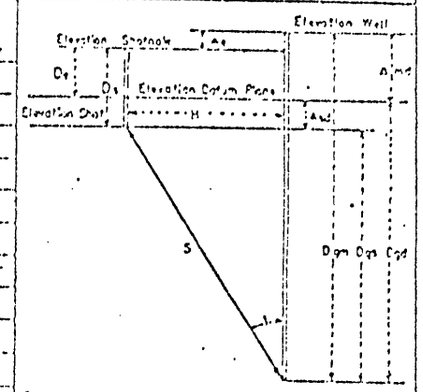
Well: KINGFISH B-1

Elevation (Derrick Floor): Total D:

LOCATION: Coordinates · Section, Township, Range · County · Area or Field

DATUM :

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Vo Average Velocity
20	SE		4231	5	.001	.853	.670	D		4195	4265	1.017	.701	.470	5	.001	.471	.469	4200				8955
46	NW		4231	5	.001	.887	.678	D		4195	4435	1.057	.687	.466	5	.001	.467			657	.059	11136	
21	SE		4888	5	.001	.850	.702	D		4852	4250	.876	.752	.528	5	.001	.529	.528	4857				9199
43	NW		4888	5	.001	.828	.690	D		4852	4140	.853	.761	.525	5	.001	.526			740	.062	11935	
24	SE		5628	5	.001	.844	.746	D		5592	4220	.755	.798	.589	5	.001	.590	.590	5597				9486
41	NW		5628	5	.001	.859	.742	D		5592	4295	.768	.793	.588	5	.001	.589			615	.068	9044	
27	SE		6243	5	.001	.835	.798	D		6207	4175	.673	.830	.662	5	.001	.663	.658	6212				9441
38	NW		6243	5	.001	.919	.811	D		6207	4595	.740	.804	.652	5	.001	.653			1,117	0.120	9308	
30	SE		7360	5	.001	.855	.901	D		7324	4275	.583	.864	.778	5	.001	.779	.778	7329				9420
34	NW		7360	5	.001	.844	.894	D		7324	4220	.576	.867	.775	5	.001	.776						



Dgm = Geophone depth measured from well elevation

Dgs = " " " " shot "

Dgd = " " " " datum "

Ds = Depth of shot

De = Shothole elevation to datum plane

H = Horizontal distance from well to shotpoint

S = Straight line travel path from shot to well geophone

tus = Uphole time at shotpoint

T = Observed time from shotpoint to well geophone.

tr = " " " to reference geophone

Δe = Difference in elevation between well & shotpoint.

Δsd = " " " " shot & datum plane

Δmd = Ds - De

Dgs = Dgm - Dst Δe ; $\tan i = \frac{H}{Dgs}$

Tgs = cos i Tn Vert. travel time from shot elev to geophone

Tgd = $Tgs \pm \frac{\Delta sd}{V}$ " " " " datum plane " "

Dgd = Dgm - Δmd

Vi = Interval velocity = $\frac{\Delta Dgd}{\Delta Tgd}$

Vo = Average " = $\frac{Dgd}{Tgd}$

Surveyed by: .....

Date: .....

Weathering Data:

Casing Record

RE-NAMED
(AUG. 1968)
KINGFISH 2

KINGFISH - 2

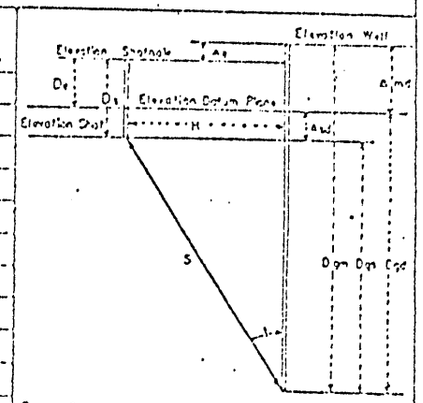
7 of 18

TABLE NO. 4 EXTENDED SPREAD

Shothole Information - Elevation, Distance & Direction from Well

Company: ESSO EXPLORATION AUSTRALIA INC.
Well: KINGFISH B-1
Elevation (Derrick Floor):
Total Depth:
LOCATION: Coordinates / Section, Township, Range / County / Area or Field
DATUM:

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN I	Cos I	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Vo Average Velocity
25	SE		5628	5	.001	1.138	.835	D		5592	5690	1.018	.701	.585	5	.001	.586	.583	5597				9600
42	NW		5628	5	.001	1.171	.836	D		5592	5855	1.047	.691	.578	5	.001	.579			615	.066	9318	
26	SE		6243	5	.001	1.133	.882	D		6207	5665	.913	.739	.651	5	.001	.652	.648	6212				9572
37	NW		6243	5	.001	1.174	.884	D		6207	5870	.946	.726	.642	5	.001	.643			1,117	.118	9466	
31	SE		7360	5	.001	1.155	.979	D		7324	5775	.789	.785	.769	5	.001	.770	.767	7329				9555
35	NW		7360	5	.001	1.183	.980	D		7324	5915	.808	.778	.762	5	.001	.763						
32	SE		7360	5	.001	1.535	1.092	D		7324	7675	1.048	.690	.753	5	.001	.754	.752	7329				9746
36	NW		7360	5	.001	1.565	1.094	D		7324	7825	1.068	.684	.748	5	.001	.749						



Dgm = Geophone depth measured from well elevation
Dgs = " " " " shot "
Dgd = " " " " datum "
Ds = Depth of shot
De = Shothole elevation to datum plane
H = Horizontal distance from well to shotpoint
S = Straight line travel path from shot to well geophone
tus = Uphole time at shotpoint
T = Observed time from shotpoint to well geophone
tr = " " " to reference geophone
Δe = Difference in elevation between well & shotpoint
Δsd = " " " " shot & datum plane
Δsd = Ds - De
Dgs = Dgm - Dst Δe ; tan I = H / Dgs
Tgs = cos I x Tx Vert. travel time from shot elev to geophone
Tgd = Tgs ± Δsd/V " " " " datum plane " "
Dgd = Dgm - Δmd
Vi = Interval velocity = ΔDgd / ΔTgd
Va = Average " = Dgd / Tgd

Surveyed by:
Date:
Weathering Data:
Casing Record

RE-NAMED (AUG. 1968) KINGFISH 2

KINGFISH - 2.

30

TABLE NO. 5 PERCENT ERROR

Depth in ft From S.L.	Σ Times C.V.L. Survey	Slant time (X=1109')	Δt ms	% Error	Slant time (X=2625')	Δt m.s.	% Error	Slant time (X=4337')	Δt m.s.	% Error	Slant time (X=5880')	Δt m.s.	% Error	Slant time (X=7675')	Δt m.s.	% Error
3000	0.381	0.383	+ 2	.52	0.374	- 7	1.84									
3500	0.429	0.428	- 1	.23	0.419	-10	2.33									
4200	0.489	0.487	- 2	.41	0.482	- 7	1.43	0.471	-18	3.68						
4857	0.544	0.543	- 1	.18	0.540	- 4	0.74	0.529	-15	2.76						
5597	0.608	0.608	0	0	0.605	- 3	0.49	0.590	-18	2.96	0.587	-21	3.45			
6212	0.674	0.674	0	0	0.669	- 5	0.74	0.663	-11	1.63	0.654	-20	2.97			
7329	0.790	0.789	- 1	.13	0.785	- 5	0.63	0.779	-11	1.39	0.770	-20	2.53	0.754	-36	4.56
		(X=1154')			(X=2748')			(X=4237')			(X=5710')			(X=7825')		
3000	0.381	0.381	0	0	0.378	- 3	0.79									
3500	0.429	-	-	-	0.424	- 5	1.17									
4200	0.489	0.489	0	0	0.482	- 7	1.43	0.467	-12	2.45						
4857	0.544	0.544	0	0	0.536	- 8	1.47	0.526	-18	3.31						
5597	0.608	0.608	0	0	0.600	- 8	1.32	0.589	-19	3.13	0.579	-29	4.77			
6212	0.674	0.673	- 1	.15	0.665	- 9	1.34	0.653	-21	3.12	0.643	-31	4.60			
7329	0.790	0.789	- 1	.13	0.781	- 9	1.14	0.776	-14	1.77	0.763	-27	3.42	0.749	-41	5.19

S.E. OFFSETS

N.W. OFFSETS.

KINGFISH -2

9878

TABLE NO. 6 PERCENT ERROR OF AVERAGE TIMES

Depth in ft From S.L.	Σ Times CVL Survey	Slant time (X=1132')	Δt ms	% Error	Slant time (X=2687')	Δt ms	% Error	Slant time (X=4287')	Δt ms	% Error	Slant time (X=5795')	Δt ms	% Error	Slant time (X=7750')	Δt ms	Erro
3000	0.381	0.382	+1	0.26	0.376											
3500	0.429	0.428	-1	0.23	0.422											
4200	0.489	0.488	-1	0.20	0.482	-7	1.43	0.469	-20	4.09						
4857	0.544	0.544	0	0	0.538	-6	1.10	0.528	-16	2.94						
5597	0.608	0.608	0	0	0.603	-5	82	0.590	-18	2.96	0.583	-25	4.11			
6212	0.674	0.674	0	0	0.667	-7	1.04	0.658	-16	2.37	0.649	-25	3.71			
7329	0.790	0.789	-1	0.13	0.783	-7	0.88	0.778	-12	1.52	0.767	-23	2.91	0.752	-37	4.6

KINGFISH-2

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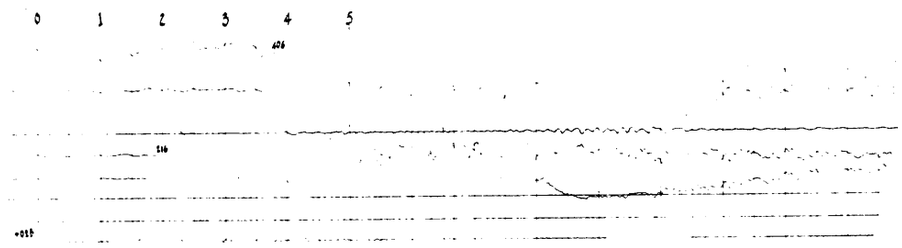
11 8 18

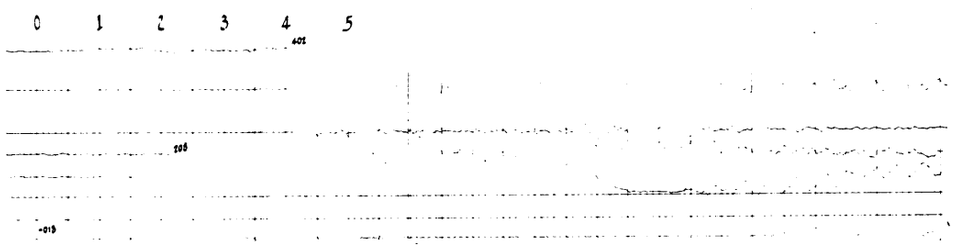
ESSO Kingfish - 2

Well Velocity Records

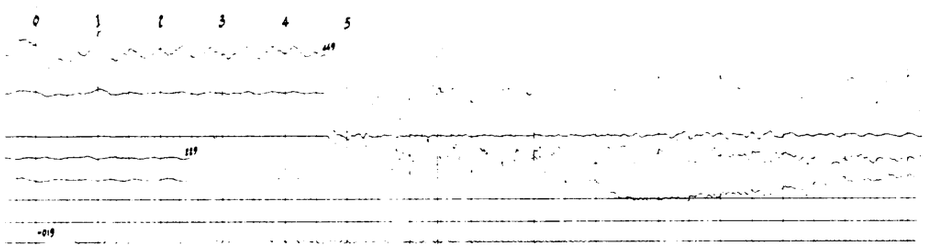
SHOT :- 1
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 3000'
CHARGE :- 50# @ 5'
TIME :- 9·40



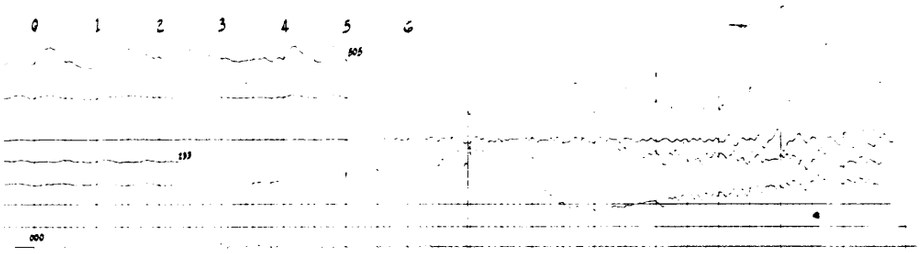
SHOT :- 16
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 3000'
CHARGE :- 50# @ 5'
TIME :- 12·17



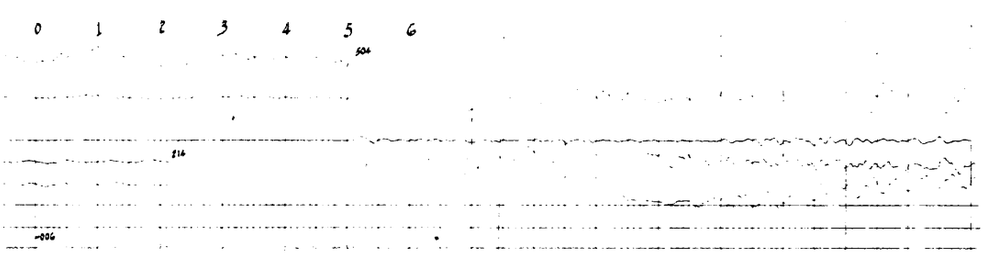
SHOT :- 2
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 3497'
CHARGE :- 50# @ 5'
TIME :- 10·00



SHOT :- 3
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 4200'
CHARGE :- 50# @ 5'
TIME :- 10·10



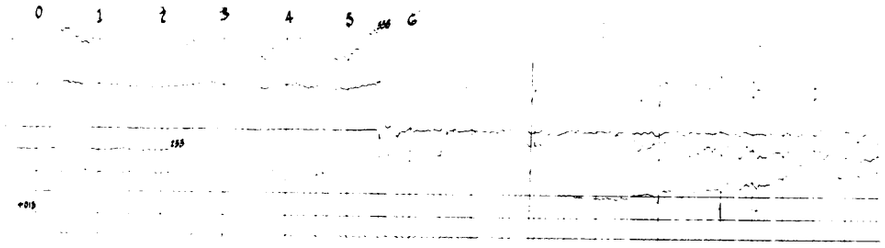
SHOT :- 14
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 4200'
CHARGE :- 50# @ 5'
TIME :- 12·05



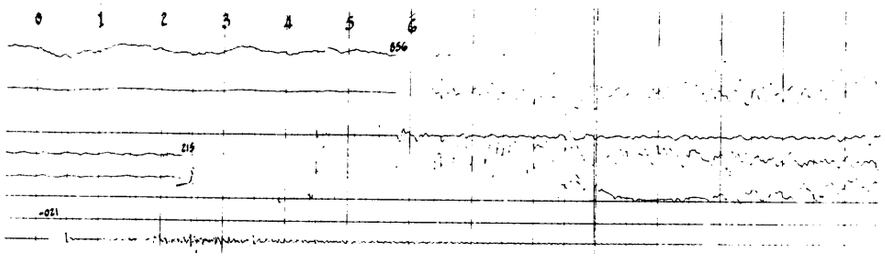
ESSO Kingfish-2

Well Velocity Records

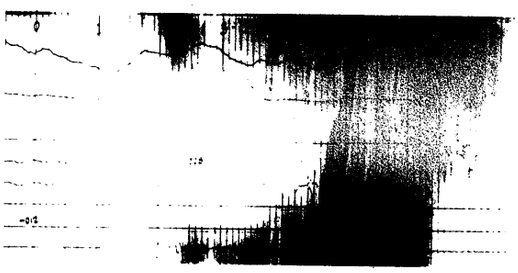
SHOT :- 4
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 4857'
CHARGE :- 50# @ 5'
TIME :- 10·20



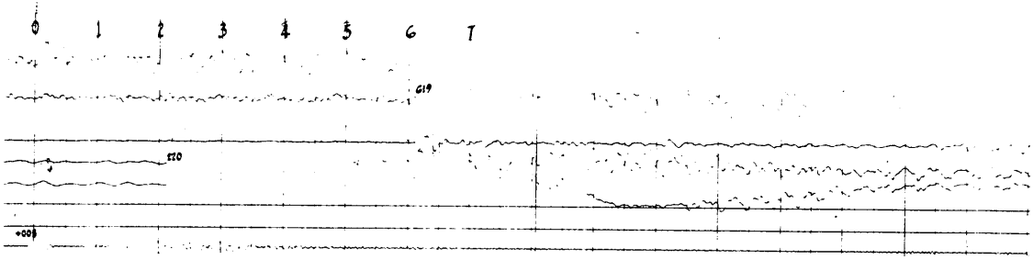
SHOT :- 13
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 4857
CHARGE :- 50# @ 5'
TIME :- 11·55



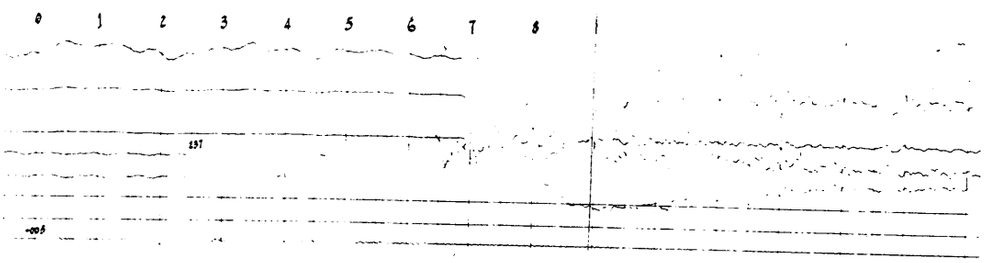
SHOT :- 5
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 10·25



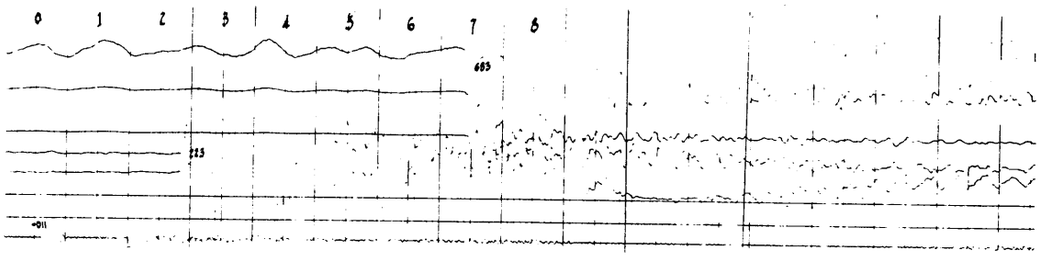
SHOT :- 12
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 11·40



SHOT :- 6
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 10·30



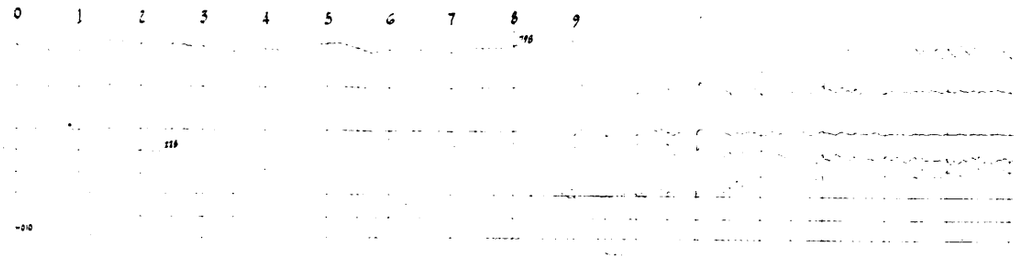
SHOT :- 11
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 11·30



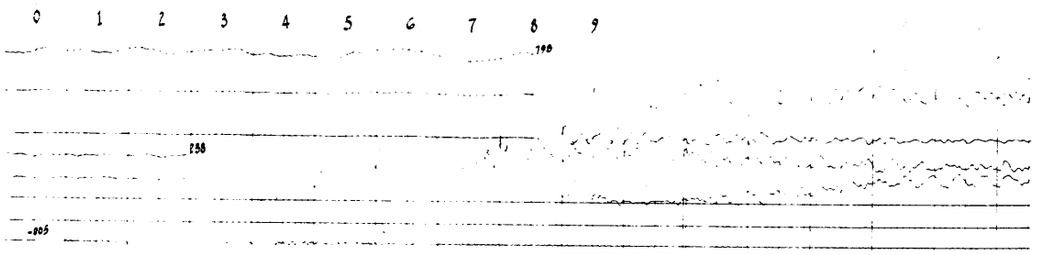
ESSO Kingfish-2

Well Velocity Records

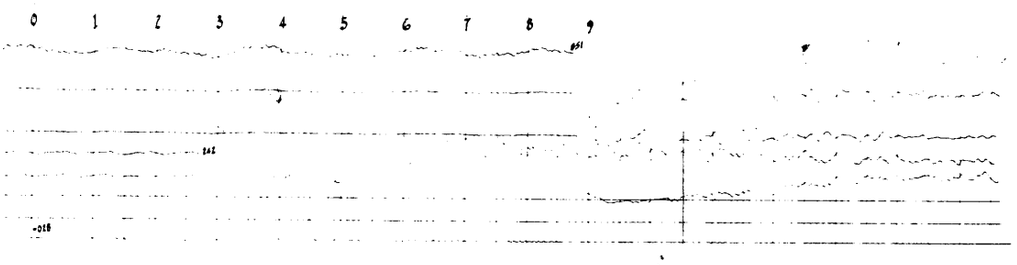
SHOT :- 7
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 10·50



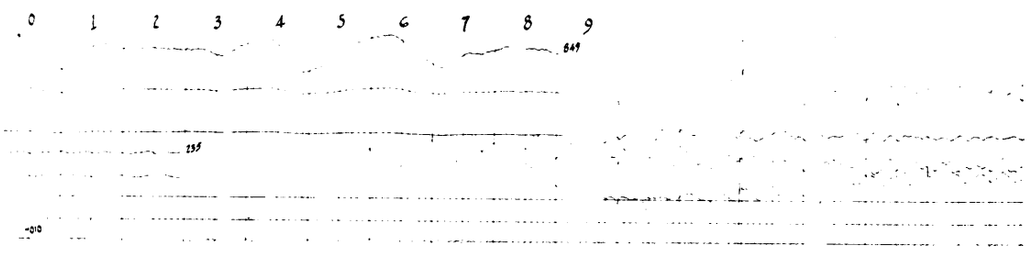
SHOT :- 10
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 11·15



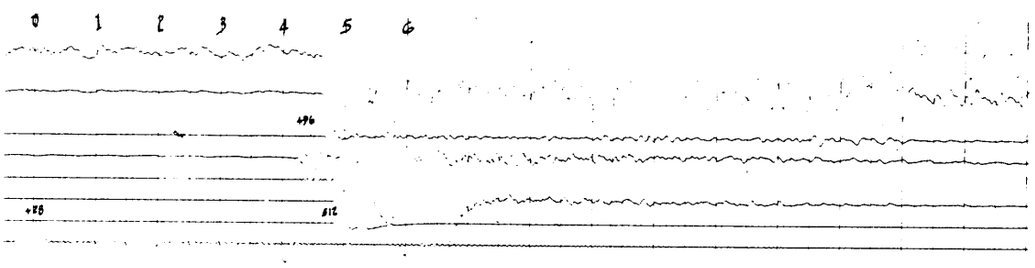
SHOT :- 8
OFFSET :- 1000' NW
DEPTH OF GEOPHONE :- 7950'
CHARGE :- 50# @ 5'
TIME :- 11·00



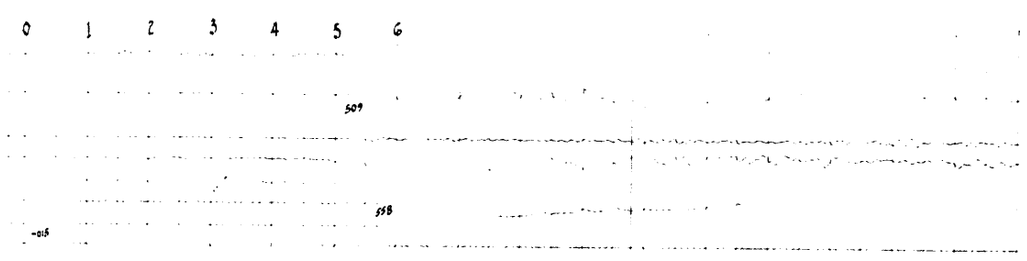
SHOT :- 9
OFFSET :- 1000' SE
DEPTH OF GEOPHONE :- 7950'
CHARGE :- 50# @ 5'
TIME :- 11·08



SHOT :- 48
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 3000'
CHARGE :- 50# @ 5'
TIME :- 18·40



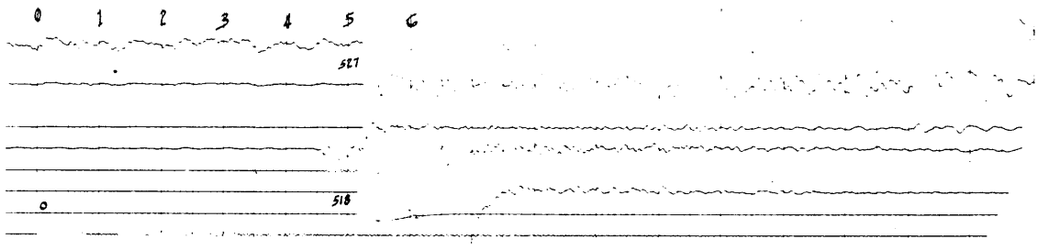
SHOT :- 17
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 3031'
CHARGE :- 50# @ 5'
TIME :- 12·50



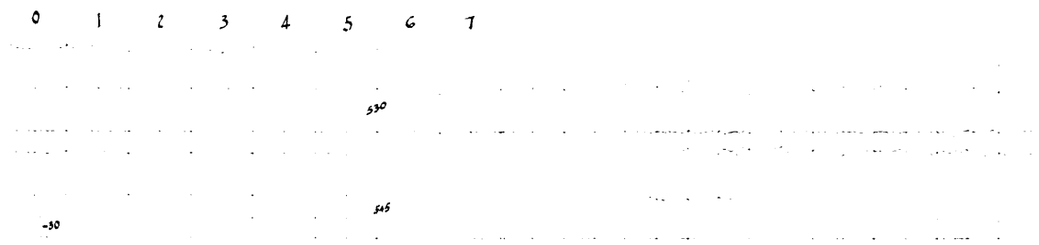
ESSO Kingfish-2

Well Velocity Records

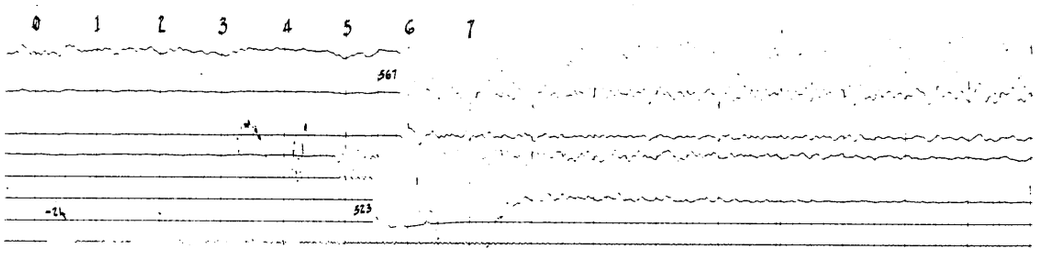
SHOT :- 47
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 3497'
CHARGE :- 50# @ 5'
TIME :- 18·30



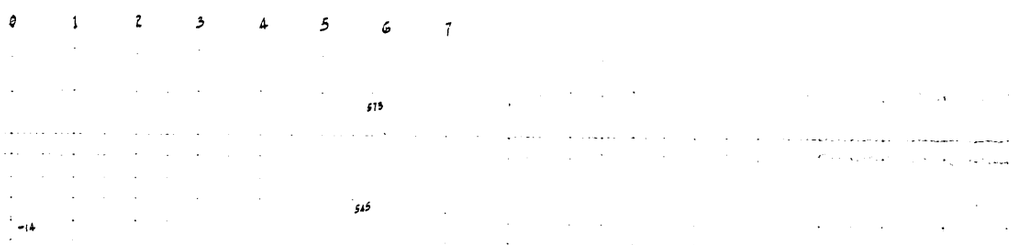
SHOT :- 18
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :-
CHARGE :- 50# @ 5'
TIME :- 13·20



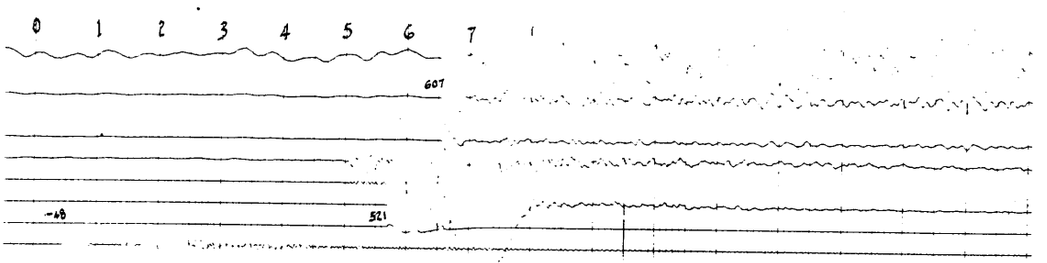
SHOT :- 45
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :-
CHARGE :- 50# @ 5'
TIME :- 18·13



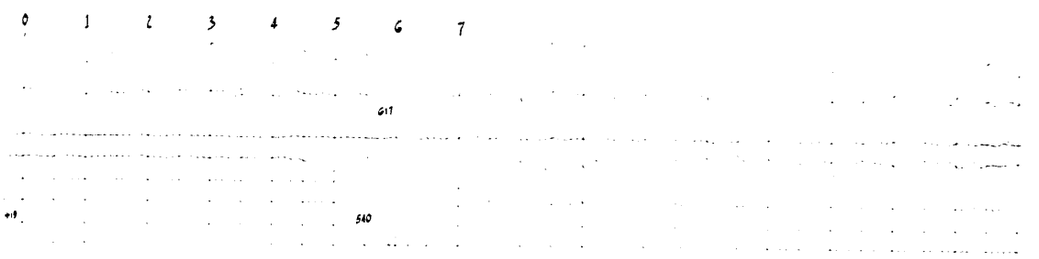
SHOT :- 19
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 4200'
CHARGE :- 50# @ 5'
TIME :- 13·30



SHOT :- 44
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 4857'
CHARGE :- 50# @ 5'
TIME :- 18·08



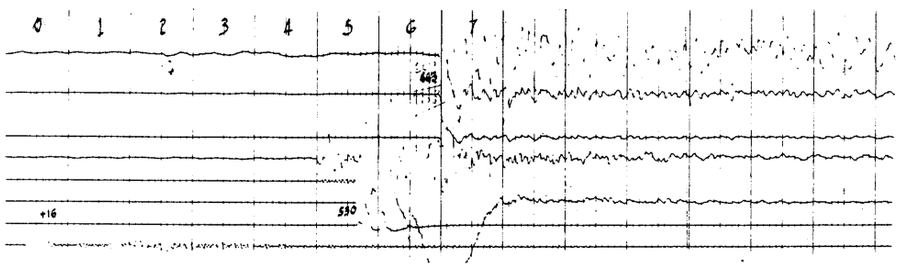
SHOT :- 22
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 4857'
CHARGE :- 50# @ 5'
TIME :- 13·50



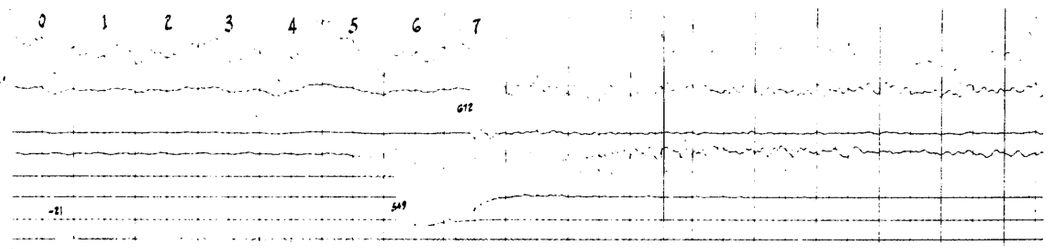
ESSO Kingfish - 2

Well Velocity Records

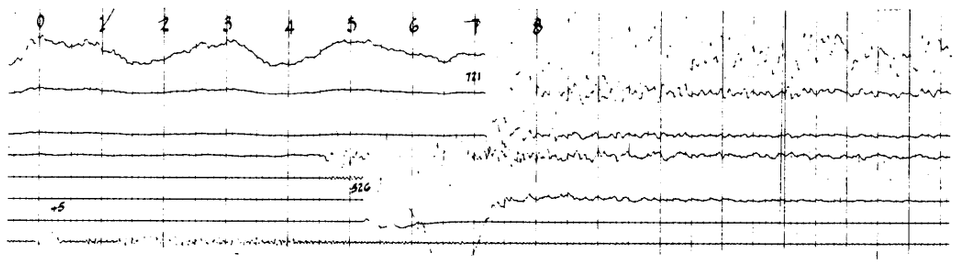
SHOT :- 40
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 17·40



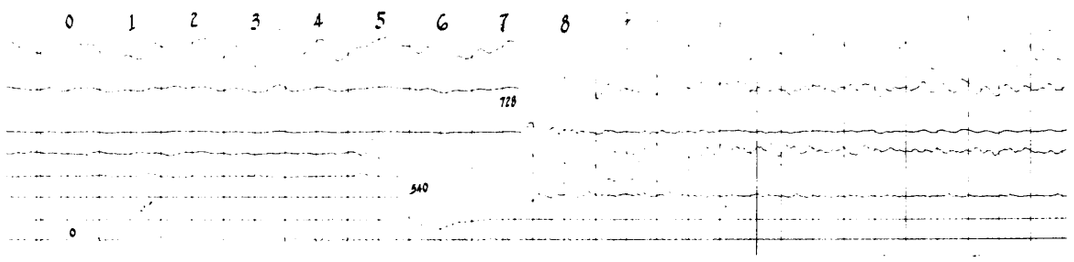
SHOT :- 23
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 13·55



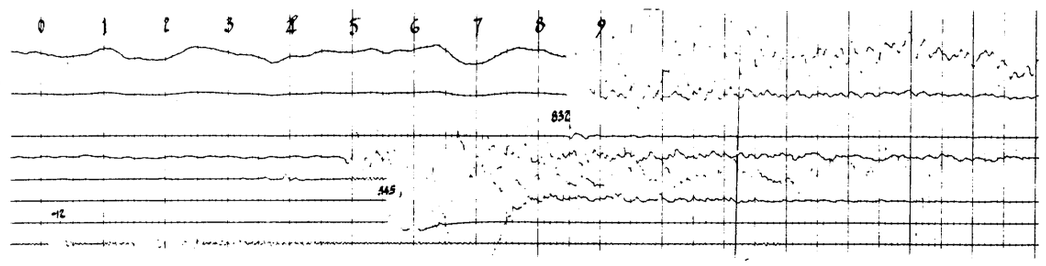
SHOT :- 39
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 17·25



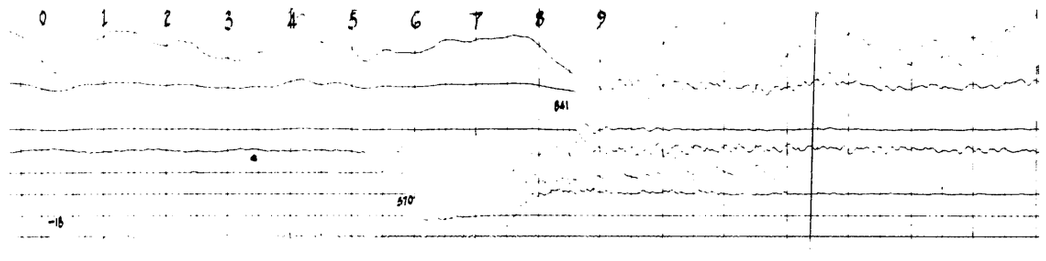
SHOT :- 28
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 14·35



SHOT :- 33
OFFSET :- 2500' NW
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 16·10



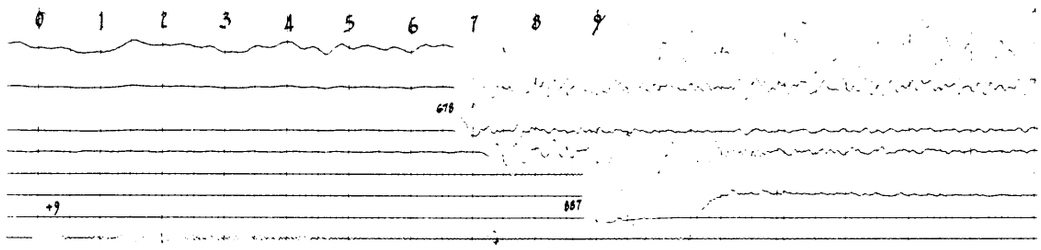
SHOT :- 29
OFFSET :- 2500' SE
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 15·10



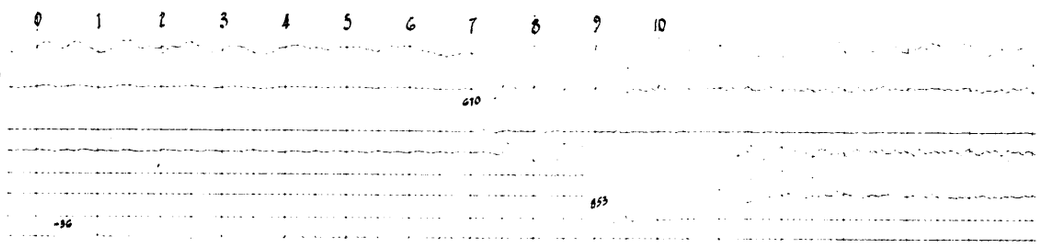
ESSO Kingfish-2

Well Velocity Records

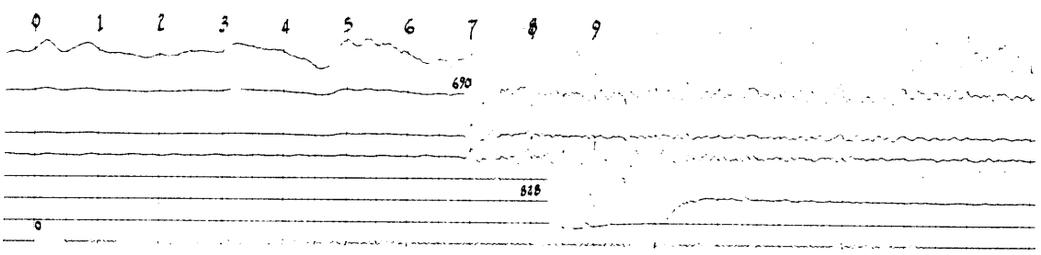
SHOT :- 46
OFFSET :- 4000' NW
DEPTH OF GEOPHONE - 4200'
CHARGE :- 50# @ 5'
TIME :- 18·25



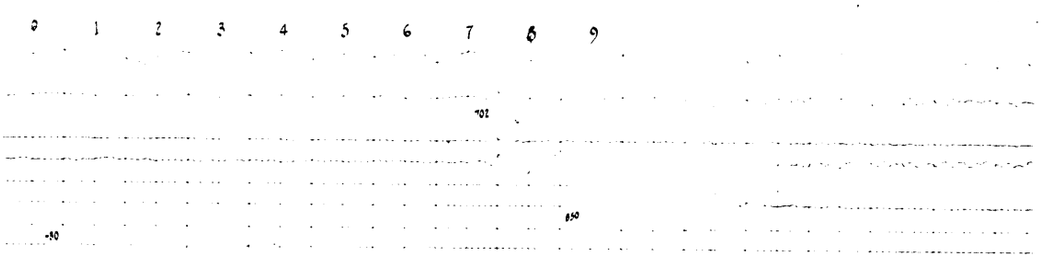
SHOT :- 20
OFFSET :- 2500' SE
DEPTH OF GEOPHONE - 4200'
CHARGE :- 50# @ 5'
TIME :- 13·35



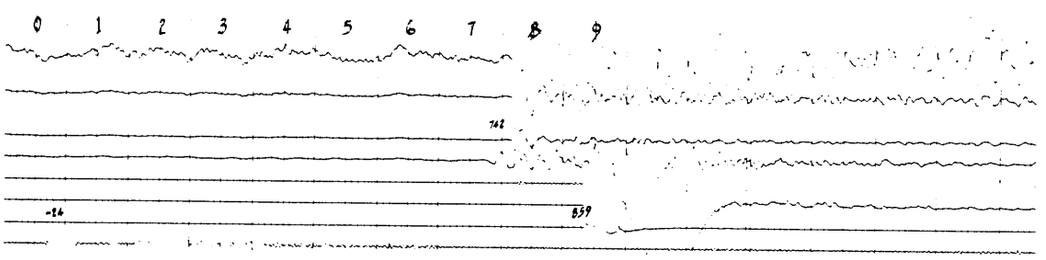
SHOT :- 43
OFFSET :- 4000' NW
DEPTH OF GEOPHONE - 4851'
CHARGE :- 50# @ 5'
TIME :- 18·00



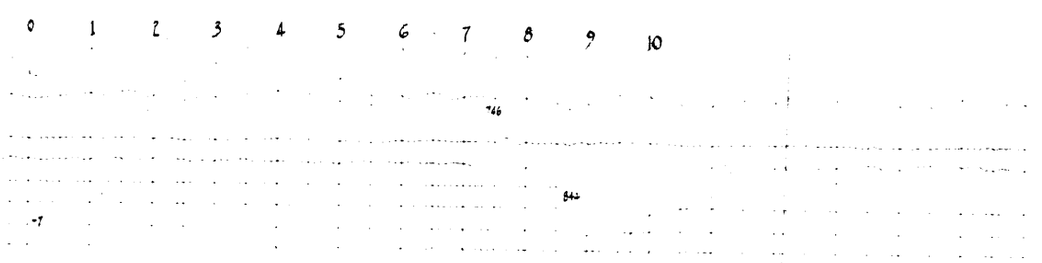
SHOT :- 21
OFFSET :- 4000' SE
DEPTH OF GEOPHONE - 4851'
CHARGE :- 50# @ 5'
TIME :- 13·40



SHOT :- 41
OFFSET :- 4000' NW
DEPTH OF GEOPHONE - 5597'
CHARGE :- 50# @ 5'
TIME :- 17·48



SHOT :- 24
OFFSET :- 4000' SE
DEPTH OF GEOPHONE - 5597'
CHARGE :- 50# @ 5'
TIME :- 14·03



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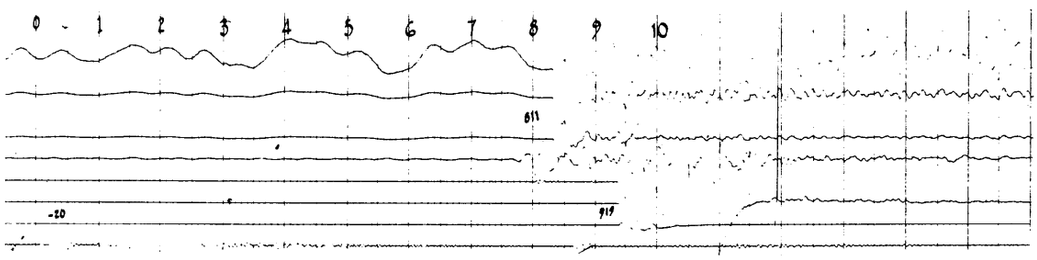
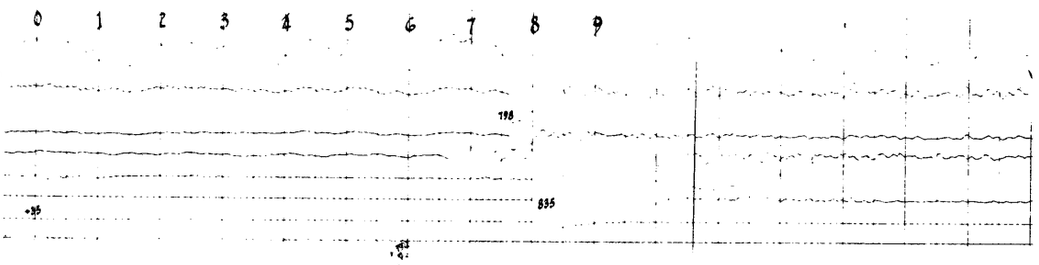
ESSO Kingfish-2

Well Velocity Records

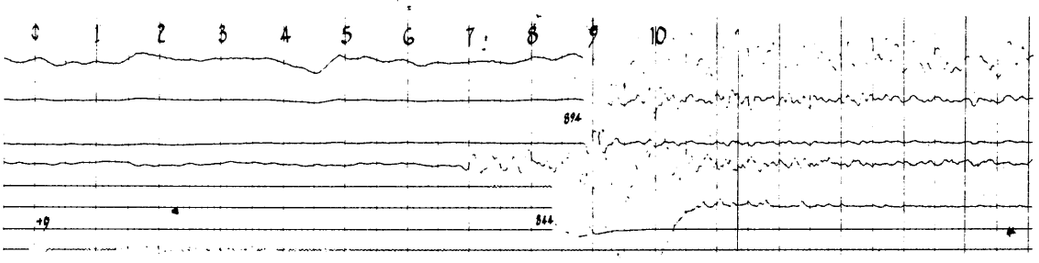
SHOT :- 38
OFFSET :- 4000' NW
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 17·20



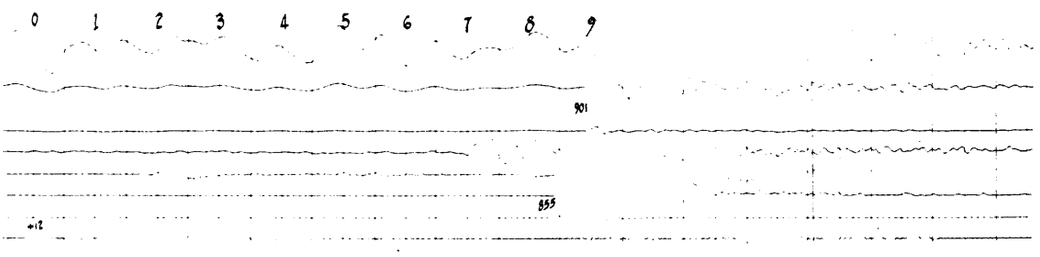
SHOT :- 27
OFFSET :- 4000' SE
DEPTH OF GEOPHONE :- 6212'
CHARGE :- 50# @ 5'
TIME :- 14·30



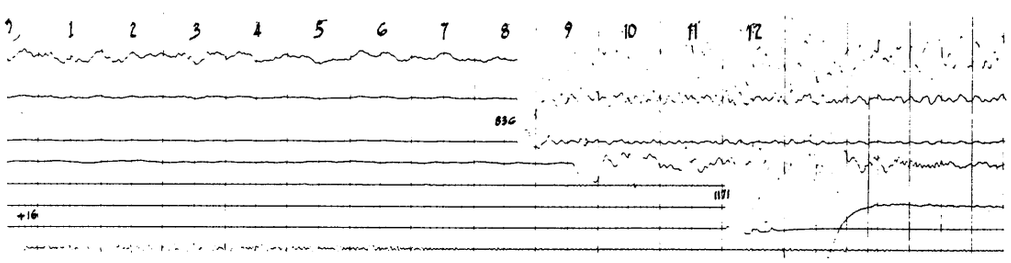
SHOT :- 34
OFFSET :- 4000' NW
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 16·20



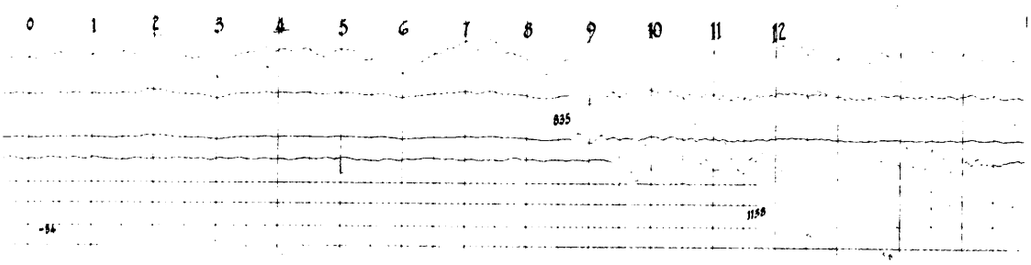
SHOT :- 30
OFFSET :- 4000' SE
DEPTH OF GEOPHONE :- 7329'
CHARGE :- 50# @ 5'
TIME :- 15·20



SHOT :- 42
OFFSET :- 5500' NW
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 17·53



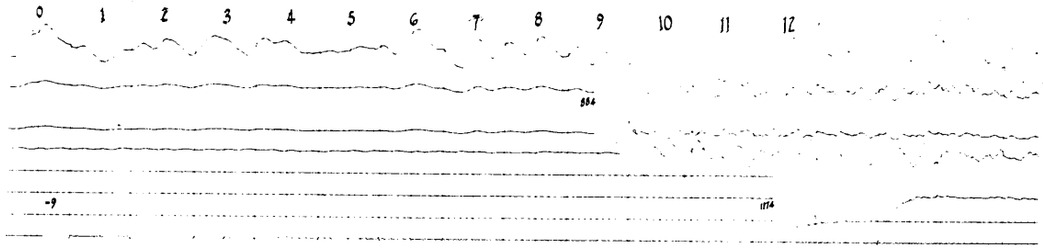
SHOT :- 25
OFFSET :- 5500' SE
DEPTH OF GEOPHONE :- 5597'
CHARGE :- 50# @ 5'
TIME :- 14·10



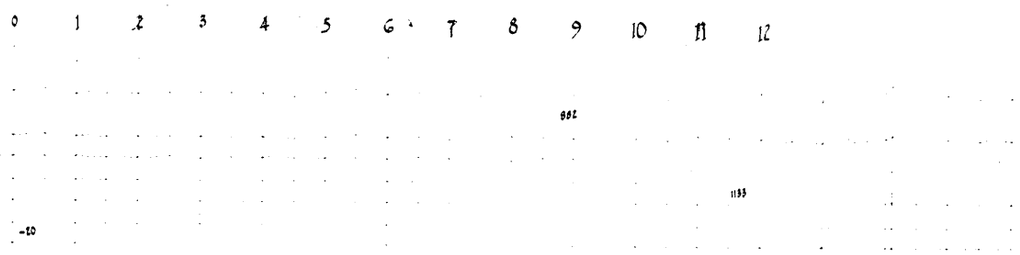
ESSO Kingfish-2

Well Velocity Records

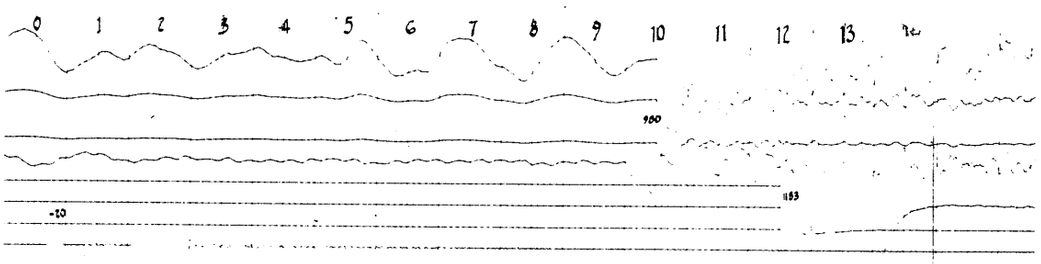
SHOT :- 37
OFFSET :- 5500' NW
DEPTH OF GEOPHONE - 6212'
CHARGE :- 50# @ 5'
TIME :- 17·05



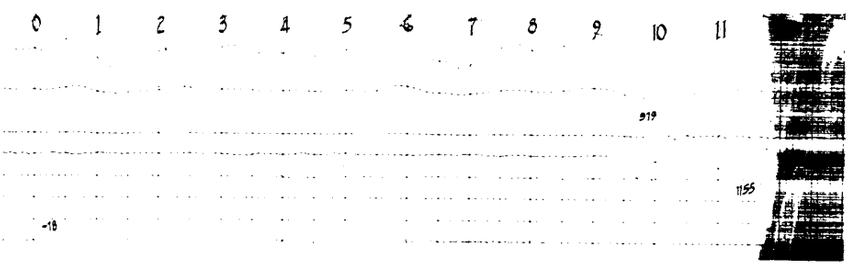
SHOT :- 26
OFFSET :- 5500' SE
DEPTH OF GEOPHONE - 6212'
CHARGE :- 50# @ 5'
TIME :- 14·25



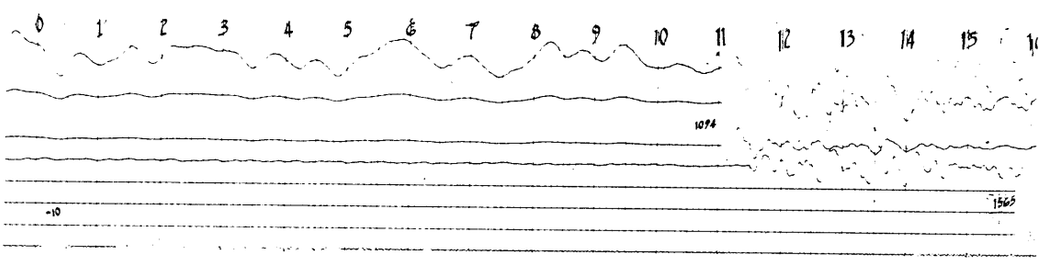
SHOT :- 35
OFFSET :- 5500' NW
DEPTH OF GEOPHONE - 7329'
CHARGE :- 50# @ 5'
TIME :- 16·35



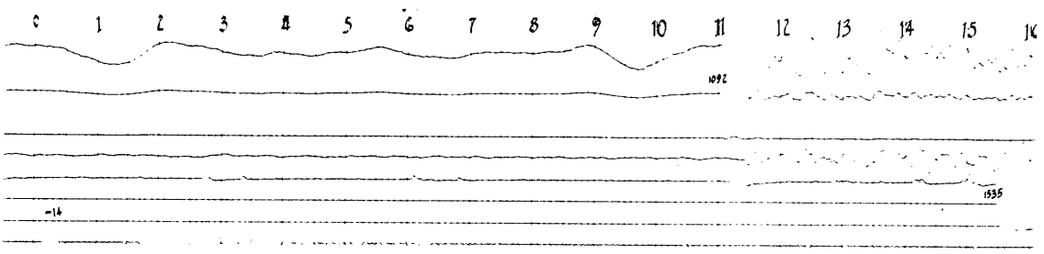
SHOT :- 31
OFFSET :- 5500' SE
DEPTH OF GEOPHONE - 7329'
CHARGE :- 50# @ 5'
TIME :- 15·25



SHOT :- 36
OFFSET :- 7500' NW
DEPTH OF GEOPHONE - 7329'
CHARGE :- 100# @ 5'
TIME :- 16·45



SHOT :- 32
OFFSET :- 7500' SE
DEPTH OF GEOPHONE - 7329'
CHARGE :- 100# @ 5'
TIME :- 15·40



PE906029

This is an enclosure indicator page.
The enclosure PE906029 is enclosed within the container PE906028 at this location in this document.

The enclosure PE906029 has the following characteristics:

ITEM_BARCODE	= PE906029
CONTAINER_BARCODE	= PE906028
NAME	= Formation Tester Report
BASIN	= GIPPSLAND
PERMIT	= PEP 38
TYPE	= WELL
SUBTYPE	= DRILL_RPT
DESCRIPTION	= Formation Tester and Recovery Report and data
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 31/08/1968
W_NO	= W512
WELL_NAME	= KINGFISH-2
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE604527

This is an enclosure indicator page.
The enclosure PE604527 is enclosed within the container PE906028 at this location in this document.

The enclosure PE604527 has the following characteristics:

ITEM_BARCODE	= PE604527
CONTAINER_BARCODE	= PE906028
NAME	= Grapholog/Mud Log
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Grapholog/Mud Log (enclosure from Well Summary) for Kingfish-2
REMARKS	=
DATE_CREATED	= 22/01/68
DATE_RECEIVED	=
W_NO	= W512
WELL_NAME	= KINGFISH-2
CONTRACTOR	= CORE LABORATORIES
CLIENT_OP_CO	= ESSO STANDARD OIL (AUSTRALIA)LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE902896

This is an enclosure indicator page.
The enclosure PE902896 is enclosed within the container PE906028 at this location in this document.

The enclosure PE902896 has the following characteristics:

ITEM_BARCODE	= PE902896
CONTAINER_BARCODE	= PE906028
NAME	= Completion Coregraph
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Completion Coregraph (Enclosure from Well Summary) for Kingfish-2
REMARKS	=
DATE_CREATED	= 20/01/68
DATE_RECEIVED	= 31/08/68
W_NO	= W512
WELL_NAME	= Kingfish-2
CONTRACTOR	= CORE LABORATORIES
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902897

This is an enclosure indicator page.
The enclosure PE902897 is enclosed within the container PE906028 at this location in this document.

The enclosure PE902897 has the following characteristics:

ITEM_BARCODE	= PE902897
CONTAINER_BARCODE	= PE906028
NAME	= Kingfish TimeDepth Curve
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Kingfish TimeDepth Curve (enclosure from Well Summary) for Kingfish-2
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 31/08/68
W_NO	= W512
WELL_NAME	= Kingfish-2
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE604688

This is an enclosure indicator page.
The enclosure PE604688 is enclosed within the container PE906028 at this location in this document.

The enclosure PE604688 has the following characteristics:

ITEM_BARCODE	= PE604688
CONTAINER_BARCODE	= PE906028
NAME	= Induction Electrical Log
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Induction Electrical log, run-1,(from Well Summary) for Kingfish-2
REMARKS	=
DATE_CREATED	= 31/12/67
DATE_RECEIVED	=
W_NO	= W512
WELL_NAME	= KINGFISH-2
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE604689

This is an enclosure indicator page.
The enclosure PE604689 is enclosed within the container PE906028 at this location in this document.

The enclosure PE604689 has the following characteristics:

ITEM_BARCODE	= PE604689
CONTAINER_BARCODE	= PE906028
NAME	= Induction Electrical Log
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Induction Electrical log, run-2, (from Well Summary) for Kingfish-2
REMARKS	=
DATE_CREATED	= 23/01/68
DATE_RECEIVED	=
W_NO	= W512
WELL_NAME	= KINGFISH-2
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)