



Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

W471

DEPT. NAT. RES & ENV



PE904833

EAST NOWA-1

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
RELEVANT FILES		
File No.	Subject	

SYMBOLS FOR ACTION OFFICERS

EXECUTIVE

Secretary SEC
 Deputy Secretary Corporate Management DSCM
 Executive Director Portfolio Management EDPM
 Executive Director Performance Evaluation EDPE
 Executive Director Primary Industries and Chief Scientist EDPI, CS
 Executive Director Catchment Mgt & Sustainable Agriculture EDCMSA
 Executive Director Minerals and Petroleum EDMPT
 Executive Director Forests Service EDFFS
 Executive Director Parks, Flora and Fauna EDPPF
 Executive Director Land Mgt and Resources Information EDLMRI
 Executive Director Regional Coordination EDRC

CORPORATE MANAGEMENT

Director Financial Management DFM
 Director Human Resources DHR
 Director Budget & Business Reporting DBBR
 Director Corporate Planning & Information DCPI
 Director Information Technology & Telecommunications DITT
 Director Corporate Administration DCA
 Manager Continuous Improvement Program MCIP

MINERALS AND PETROLEUM

Manager Petroleum Development MPD
 Manager Geological Survey Victoria MGSV
 Manager Mineral & Petroleum Operations MMPO
 Manager Minerals Development MMD
 Manager Extractive Industry Development MEID
 Manager Titles & Registration MTR

PRIMARY INDUSTRIES & CHIEF SCIENTIST

Manager Chemical Standards Branch MCSB
 Manager Plant Standards MPS
 Chief Veterinary Officer CVO
 Director Bureau of Animal Welfare DBAW
 Manager Fisheries MF
 Director Quality Assurance DQA

PERFORMANCE EVALUATION

Chief Economist CE
 Manager Internal Audit & Risk Mgt Policy MIARMP

CATCHMENT MGT & SUSTAINABLE AGRICULTURE

Manager Weeds & Pest Management MWPM
 Manager State/Commonwealth Programs MSCP
 Manager Catchment Planning & Water Resources Mgt MCPWRM
 Manager Sustainable Development MSD
 Manager AgriBusiness MA
 Manager Office of Rural Affairs MORA

FORESTS SERVICE

Manager Commercial Forestry MCF
 Chief Fire Officer CFO
 Manager Forest Management MFM
 Manager Regional Forests Agreements MRFA

PARKS, FLORA & FAUNA

Manager National Parks & Reserves MNPR
 Manager Business Management Flora & Fauna MBMFF
 Manager Flora & Fauna MFF

LAND MANAGEMENT & RESOURCES INFORMATION

Director Office of Geographic Data Coordination DGDC
 Surveyor General SG
 Valuer General VG
 Director Land Titles Office DLTO
 Manager Business Management Land Mgt MBMLM
 Manager Coastal & Ports Policy MCPP
 Manager Public Land Management MPLM
 Manager Natural Resources Systems MNRS
 Chief Executive Officer Natural Resource Systems CEONRS
 Director Valuer Project DVP

PORTFOLIO MANAGEMENT

Director Water Bureau DWB
 Manager Portfolio Coordination MPC
 Manager Environmental Policy MEP
 Manager Policy Support MPOS

FILE No. _____

EAST NOWA-1 (W471)

Well Summary Report

Table of Contents

Well Summary and Lithology

Lithology and Stratigraphy (B.Hocking)

Enclosures

Final Well Report

Mud Log

WELL SUMMARY
& LITHOLOGY

NOT SUBSIDIZED.

W471

10644

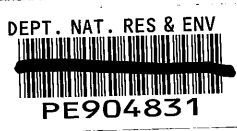
WELL EAST NOWA No1 TYPE STRAT BASIN GIPPSLAND
 TEN. HOLDER Arco Ltd & Woodside (L.E.) Oil Co. N.L.Hat. 37° 47' 47" S
 OPERATOR Arco Ltd. LOCATION. Long. 148° 09' 42" E
 TENEMENT PEP #3 Military Map. Well Completion Report
 ELEVATION At 200 G.L. 205. K.B (Datum). D. 1196 EL. 1193' STATUS. D. & A.
 SPUD. 21 October 1962. COMPL. 27 October 1962 ABD. 27 October 1962
 CASING 7" @ 300' CLOS. (525x). Cont. W.L. Side + Sm PL

STRATIGRAPHY.

AGE	FORMATION	DEPTH	B. HOEKING PICKS.	THICKNESS
	Haunted Hill Gravels.		0 (+205)	130
	Jemmy's Pt. Fm.		130 (+75)	90
	Tambo Rv. Fm.		220 (-15)	10
	Gippsland Ls. Fm.		230 (-25)	490
	Lakes Entrance * and Colquhoun Gravels		720 (-513)	400
	Ord. basement.		1120 (-915)	76+
			FEET.	

* DIFFERENTIATION IMPOSSIBLE DUE TO CONTAMINATION - B.H.

FORMATION TESTS



LOG SUMMARY and INTERPRETATION

Type	Run	Interval	Date	Type	Run	Interval	Date	Interval	φ	S _w
E-log.	1	300-1192 (Mines Dept. widco.)	26 Oct '62							

EAST NOWA No1
Arco Ltd.

37° 47' 47" S - 3MK.
148° 09' 42" E

W471 El. 205 K.B. T.D. 1196
200 G.H.

MINES DEPARTMENT

VICTORIA

Spudded. 21 Oct. 1962

Abandoned 26 Oct. 1962

PETROLEUM ACT 1958 (SECTION 45).

RECORD OF WORK AT ..EAST.NOWA.NO..1:..... bore on
*Petroleum Exploration Permit)
*~~Petroleum Exploration License~~) Number ..43.....during week
*~~Petroleum Mineral Lease~~)
ending ...October.28.... 19..62....

* Strike out words not applicable.

DEPTH	DESCRIPTION OF STRATA
0' - 175'	Clay, sand and calcareous sandstone
175' - 750'	Marl, coquina and limestone.
750' - 1100'	Silt and clay, glauconitic, fossiliferous
1100' - 1120'	Conglomerate, unconsolidated.
1120' - 1196'	Ord. phyllite and shale, highly weathered, highly contorted, soft and crumbly.
1196'	Total Depth.

NOTES BY DRILLER IN CHARGE: (State in notes whether water, gas or petroleum has been met with, and, if so, give depth and nature of occurrence, also depth to which casing has been inserted and cemented.)

7" casing set at 300 ft. Cemented to surface. Electric log
by Victorian Dept. of Mines using Widco logging unit, 300 ft.
to 1192 ft. Cement plug set at 1030' to 1080' and 285' to 310'.
Metal cap screwed on with chain tongs. Casing 2½ ft. above
ground level.

Signed W.H. Butt.

Legal Manager, ARCO LIMITED. Co.

Date28../.10../.1962....

N.B. The Act also requires the Minister to be notified immediately water, gas or petroleum is encountered.

Analyses of water, gas and oil should be submitted if available.

J.R. Thomas
2.11.62

ARCO LIMITED

792 ELIZABETH STREET
MELBOURNE, C.1, VICTORIA
AUSTRALIA

CABLE ADDRESS:
VANATRECO

TELEPHONES: 34 4339
34 4389

6th July, 1964.

Mr. E. Condon,
Secretary for Mines,
Treasury Place
MELBOURNE.



Dear Sir,

Re : WELL COMPLETION REPORTS

We enclose one copy of each of the final well completion reports prepared by Mr. Ingram.

- (a) East Lake Tyers No. 1
- (b) East Nowa No. 1

Please acknowledge receipt of these two reports.

Yours faithfully,

ARCO LIMITED

Victor Bychok
Victor Bychok
MANAGER

*Receipt
Acknowledged
7.7.64
MM.*

VB:mb.

Encl.

*Mr Knight
Mr Kenley
7.7.64 MM.
8/7/64*

EAST NOWA NOWA No. 1

W 471

Location: $37^{\circ}47'47''S$, $148^{\circ}09'42''E$

El. : approx. 200ft.

T.D. : 1196ft.

B. Hocking Picks. (Nov '63)

Haunted Hill Grp.	0-130
Jemmy's Pt.	130-220
Tambo River	220-230
Gippsland Lst.	230-720
* Lakes Entrance & Colquhoun Gravels	720-1120
Ord. basement	1120-1196.

* Differentiation impossible due to contamination. - B.H.

LITHOLOGY & STRATIGRAPHY

-B. HOCKWA

Year: Oct., 1962.

Location: Parish of Colquhoun East, lat. 37° 47' 47" S, long, 148° 09' 42" E.

Elevation: approx. 200 ft.

Total Depth: 1196 ft.

Samples: 10 ft. cuttings; one core sample at 1188-1196 (rec. 3 ft.).

Contamination is rather pronounced with depth.

LITHOLOGIC LOG:

- 20-30: gravel with a red-brown clay cement
- 30-50: mottled light brown clay, containing some gravel
- 50-80: as above, dark grey to brown
- 80-110: gritty sand, weak cement of brown clay
- 110-130: brown clayey sand and grit
- 130-170: brown calcareous sand to sandy limestone with occasional carbonaceous fragments; foraminifera.
- 170-220: greenish grey to greenish brown shelly sandy marl, glauconitic
- 220-230: greenish grey marl/marly limestone
- 230-280: yellowish grey polyzoal marly limestone
- 280-300: friable white polyzoal limestone
- 300-580: grey marly limestone with abundant polyzoa
- 580-660: mottled grey marl, polyzoa not common; faint greenish tinge below 630 ft.
- 660-720: greenish and brown grey mottled marls, faintly micaceous, less calcareous and ^{more} sandy with depth.
- 720-740: green glauconitic sandy marl, fine and coarse shell fragments
- 740-890: greenish brown and brown grey sandy marls, often with a glauconitic cement
- approx. 890: band of hard sandy limestone, glauconitic
- 890-970: greenish sandy marl, glauconitic
- approx. 970: band of hard sandy limestone, glauconitic
- 970-1030: green glauconitic calcareous sandstone
- 1030-1080: sands, partially calcareous, pyrite occurs towards the base.
- 1080-1120: sand and gravel, consisting of fragments of phyllite, quartz, and other indeterminate materials
- 1120-1196: predominantly a pale green phyllite.

It must be realised that depths and/or lithological determinations may sometimes be inaccurate due to contamination of cuttings samples.

Core Description (by Arco Ltd.):

Core No. 1, 1188-1196'. Rec. 3'. :-

Chloritic phyllite, grn., highly contorted, fractured and crumbly. Shale, dark grn., hard, highly contorted and crumbly, Sandstone, grn., chloritic, f. gd., friable. Entire core is highly weathered and crumbly, dip appears to be vy. steep, prob. Ord.

STRATIGRAPHIC DETERMINATION:

0-130 feet:

Sands, gravels, etc. Presumably post-Kalimnan.

130-220 feet (Jemmy's Pt. Formation):

Brown calcareous sand and/or sandy limestone overlying a greenish

glaucopitic sandy marl, both shelly.

The upper sand contains abundant Elphidium imperatrix, Nonion victoriense, and 'Rotalia' beccarri: it has been noted that these species dominate the lower part of the section at Jemmy's Pt. itself (Carter (1959), Thesis).

Species from the marls include Nonion victoriense, Cancris auriculus, C. phillipinensis and Uvigerina sp. cf. pygmaea. Lagenids are also common.

220-230 feet (Tambo River Formation).

Greenish grey marl/marly limestone containing common Notorotalia clathrata, also Cibicides cygnorum and Uvigerina sp. cf. pygmaea. Rare Orbulina universa and the occurrence of Elphidium spp. serve to distinguish this fauna from those above.

230-720 feet (Gippsland Limestone):

230-420 ft. (Bairnsdalian):-

Polyzoal limestones and marly limestones. Orbulina universa has its lowermost occurrence between 410 and 420 ft. Operculina victoriensis has its uppermost occurrence at this same depth.

420-580 ft. (Balcombian & Batesfordian):-

Polyzoal limestones and marly limestones. Amphistegina lessonii occurs - together with O. victoriensis - below 450 ft.

Lepidocyclina howchini - a typical Batesfordian species - occurs between 560 and 580 ft.

580-720 ft. (Longfordian):-

Mottled grey marls, greenish in parts, polyzoa uncommon. Upper Longfordian species (Carter's F.U.7 and/or 8) occur above 660 ft., pelagics being quite common - Globigerina apertura, Globigerinoides bispherica, G. triloba. Astrononion centroplax, Cibicides perforatus, Elphidium crespinae, Amphistegina lessonii and Operculina victoriensis occur also.

Below 660 ft. the greenish and brown marls, faintly micaceous, contain Astrononion centroplax, Cibicides perforatus, Globigerina apertura, and Quinqueloculina sp. - indicating Carter's F.U.6.

720-1030 feet (Lakes Entrance Formation equivalent):

Predominantly greenish sandy marls and glaucopitic calcareous sandstone.

At 720 ft. the highest occurrence of Globigerina ampliapertura (rather close to G. apertura) is recorded. Other species are typical of F.U.5 (Janjukian). Fish teeth are also found; ^{foram.} species referable to F.U.5 occur at least down to 920 ft. and are suspected down to 970 ft. - the approximate top of the glaucopitic calcareous sandstone.

Samples below 1,000 ft. contain very poor faunas which include Cassidulina subglobosa, Ceratobulimina sp., etc: these seem to be comparable with the "Glaucopitic Sandstone" faunas of the Lakes Entrance area.

1030-1120 feet:

The sands down to 1080 ft. contain a poor fauna similar to those in the glauconitic calcareous sandstone above. It cannot be definitely stated, however, whether or not this is contamination,

The gravels containing fragments of basement rock do not appear to be fossiliferous.

These sediments have not yet been stratigraphically determined.

Below 1120 feet:

Phyllite, etc., presumably an Ordovician basement rock.

REFERENCE:

Ingram, Frank : Arco-Woodside's East Nowa Nowa No. 1 Bore : Lithologic Log.

BH.

B. HOCKING

Geologist

13.9.63.

- 610-20: Fine sand, abundant pyrite.
640-50: Fine micaceous sand.
690-700: Micaceous sand, pyrite, (mica not common)
710-20: Sand, mica uncommon.
720-30: Fine mic. sand, some pyrite.
790-800: Fine mic. sand.
820-30: Fine sand some mica.
830-40: Micaceous sand, stems of pyrite. |||
840-50: Fine sand some mica
880-90: Micaceous sand, pyritic aggregates.
890: Fine sand some (rather rare) glauc. pellets,
mica, Pyr. aggregates.
910: As above.
930: Fine sand, glauc. more abundant, often oxidised.
Micaceous.
940-50: Fine sand, glauc., pyrite, + mica.
960-70: Glauc. common as pellets, much of it oxidised,
pyrite + mica.
950-60: Sand, glauc. pellets (not abundant), + mica.
980-80: Glauc. pellets more common, often quite large;
high ~~sand~~ pyrite also.
1020-30: Fine ~~sand~~, numerous grit-sized grains.
Rare glauc. + pyrite.
1050-60: Glauc. rare. Occ. larger sub-r to sub-ang.
grains.
-

Residues : East Newa Newa #1

PART II : FORAM, RESIDUES

- 650-60: Pale gr. clayey matrix.
Polyzoa, molluscan frags.
- 690-700: Shelly material v. common, particularly molluscs,
also polyzoa.
Some fragments are greenish, others a straight grey
marl (or nearly limestone).
- 720-30: appearances of a glauc. set. & green cement, glauc.
pellets often oxidised to limonite. Fine & coarse
shell fragments.
- 830-40: Shell frags, occasional fish teeth
Chips of hard grey limestone. Other chips of
diff. types, ~~is~~ many with a pale green cement.
- 890-900: Many ~~is~~ chips of hard grey glauconitic
(as pellets) sandy limestone. (also some in 880-90.)
- 910-20: sandy red, green glauc. cement. Some chips of
hard limestone. Shell frags but not abundant
(~~sed.~~ sed. not exactly a true glauc. set. type)
- 1000-10: sandy limest., ~~weak~~ weak glauc. cement. A lot of
sand. Chips of grey limestone (glauc. & sandy).
A lot of sand.
- 1010-20: Shell material v. very abundant.
Sed. has green glauconitic matrix. ~~Sand~~ Sand not
seemingly abundant.
- 1070-80: ~~Fine sub-rounded~~
Sand, ~~is~~ (yellow ~~spines~~ due to some iron staining)
occasional larger, rounded grains of quartz etc.
- 1090-1100: Fragments of just about everything: granite, chert,
limestone, quartz, polyzoa, ~~is~~ jasper, etc. ??

Limestone at 890-900:

Clau. common, often oxidised to limestone
Also mica.

East Nowa Nowa

	<u>Carb</u>	<u>Sand</u>	<u>Clay-silt</u>
610-20		4	
640-50		4	
660-70	71		
690-700	50	9	41
710-20	45	15	40
720-30	39	18	43
790-800	38	15	47
820-30	27	18	55
830-40	19	7	74
840-50	10	13	77
850-60	12		
880-90	18	8	74
890-900		14	
910-20	27	21	52
930-40		26	
940-50		18	
950-60	28	32	35
960-70	29	36	
970-80	24	48	28
990-1000		43	
1020-30		44	
1050-60	23	40	37

Transitional
- no true
break.

take ?830

890-900 } "hard limestone"

Carb	Sand	Clay-silt
54	31	15

Check:

670-90 } carb.
830-40 }

960-70 Sand

860-910

Note

690: finer grained less mottled
690-730: a little apparent change.

Check residues!!

820-30: greenish
830-50: brown gy, pres a drop in carb (maybe due to contain lumps of carb.)

880-90 brown gy
890-900 greenish tinge
910-20: greenish

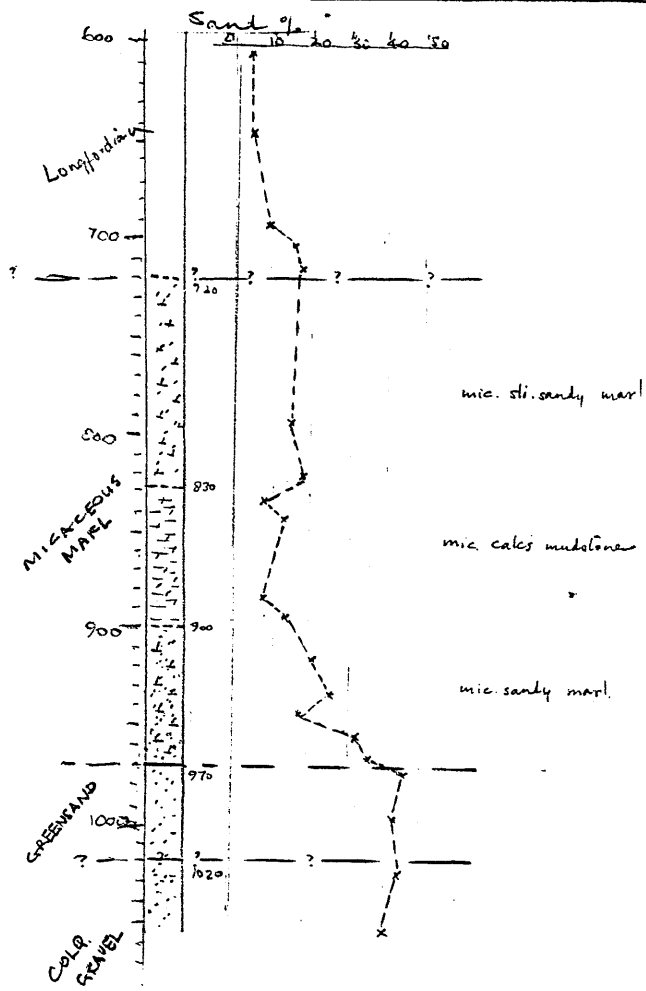
around 970: no observable change.

Check seeds - about 10:30.



E. NOWA NOWA No 1

Sand trend in lower Tertiary *



ARCW - WOODSIDE

EAST NOWA NOWA NO. 1

See East Lake Tyers No 1
for Taylors Journal comments.

PE904010

This is an enclosure indicator page.
The enclosure PE904010 is enclosed within the
container PE904833 at this location in this
document.

The enclosure PE904010 has the following characteristics:

ITEM_BARCODE = PE904010
CONTAINER_BARCODE = PE904833
NAME = Final Well Report
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = FWR_RPT
DESCRIPTION = Final Well Report East Nowa 1
REMARKS =
DATE_CREATED =
DATE_RECEIVED =
W_NO = W471
WELL_NAME = East Nowa-1
CONTRACTOR = Arco Ltd/Woodside Oil Co
CLIENT_OP_CO = Arco Ltd/Woodside Oil Co

(Inserted by DNRE - Vic Govt Mines Dept)

PE603476

This is an enclosure indicator page.
The enclosure PE603476 is enclosed within the
container PE904833 at this location in this
document.

The enclosure PE603476 has the following characteristics:

ITEM_BARCODE = PE603476
CONTAINER_BARCODE = PE904833
NAME = Mud Log
BASIN = GIPPSLAND
PERMIT = PEP43
TYPE = WELL
SUBTYPE = MUD_LOG
DESCRIPTION = Mud Log (containing lithologies) for
East Nowa-1.
REMARKS =
DATE_CREATED = 27/10/1962
DATE_RECEIVED =
W_NO = W471
WELL_NAME = EAST NOWA-1
CONTRACTOR =
CLIENT_OP_CO = ARCO LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)